APPENDIX 4.8.3.1-1 Wisconsin SCORP

WISCONSIN STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN (SCORP) 2019-2023

Did You Know?

Wisconsin has received

$81 million

from the federal
Land & Water
Conservation Fund

95% of Wisconsin residents **participate** in some form of **outdoor recreation**

County Forests

are the largest public land holding in Wisconsin

2.4 million acres

Consumer spending on outdoor recreation in Wisconsin totals

$17.9 billion

60% of Wisconsin residents rely on **public lands and waters** mostly or entirely when participating in their **favorite** outdoor activity

Wisconsin's
urban population
has more than tripled in the last 100 years

1910 = 1 million
2010 = 3.5 million

Participation in most nature-based activities declines as people reach middle age

The exception?

Bird and wildlife watching

which peaks around age 65

Wisconsin's **goals** for outdoor recreation:

Boost participation
Grow partnerships
Provide high-quality experiences
Improve data
Enhance funding and financial stability

Wisconsin residents' TOP 5

nature-based outdoor activities

Favorite

Walking, hiking
Fishing
Hunting
Bicycling
Camping

Most frequent participation

Bird/wildlife watching at home
Hiking/walking/running on trails
Picnicking/tailgating/cookout
Visit a beach/beach walking
Swimming in lakes/ponds/rivers

Most needed in their home county

Hiking, walking, or running trails
Bicycling trails
Public shore access to lakes, rivers and streams
Public campsites
Public shooting ranges

2019-2023
Wisconsin
Statewide Comprehensive Outdoor Recreation Plan

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ACRONYMS

4WD	Four wheel drive
ATV	All terrain vehicle
BCPL	Board of Commissioners of Public Land
DNR	Department of Natural Resources
DOT	Department of Transportation
FWS	U.S. Fish & Wildlife Service
GOMESA	Gulf of Mexico Energy Security Act
LWCF	Land and Water Conservation Fund
NPS	National Park Service
OPSP	Open Project Selection Process
ROA	Recreation Opportunities Analysis
SCORP	Statewide Comprehensive Outdoor Recreation Plan
UTV	Utility task/terrain vehicle (aka, side-by-side)

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FOREWORD

Dear Fellow Wisconsinites:

I am pleased to present Wisconsin's 2019-2023 Statewide Comprehensive Outdoor Recreation Plan. This document will provide you with updated information on the status of Wisconsin's outdoor recreation. This plan also provides guidance for distributing money through the Land and Water Conservation Fund and other grant programs administered by the Department of Natural Resources that support outdoor recreation projects on state properties and in local communities throughout the state.

High-quality outdoor recreation experiences available in Wisconsin contribute to our exceptional quality of life, reflected in sustained economic growth and in outdoor recreation traditions passed down through generations. From city riverwalks to expansive public forests, public recreation lands and facilities enhance our lives, draw millions of visitors, and support businesses large and small. The economic, social, and health benefits of outdoor recreation in Wisconsin far exceed our investment.

Thanks to the vision, economic investments and dedication of earlier generations, the portfolio of outdoor recreation opportunities in our state is unrivaled. From the Brule River to Chiwaukee Prairie, we are blessed with beautiful places to enjoy the outdoors in a plethora of ways. Yet, there are many ways and many opportunities to continue enhancing the recreation offerings throughout Wisconsin and to grow our recreation-based economy.

I'd like to thank all those who answered a survey, attended a public meeting or sent in comments during the development of the plan. The information, ideas and suggestions you provided are integral to the success of this SCORP. I also want to extend my appreciation and recognition for the work, wisdom and counsel of the SCORP Advisory Team. Their collective passion for the outdoors and desire to enhance the recreation opportunities in Wisconsin weaves through these pages.

Many agencies and organizations are involved in shaping outdoor recreation in the state. City, village and county park programs, federal agencies, conservation groups and recreation clubs, chambers of commerce, foresters and biologists, health care providers and countless others all play a role. The Department of Natural Resources is committed to working with agencies, local governments, businesses, organizations, and private citizens to expand and modernize outdoor recreation programs and facilities to serve changing public outdoor recreation preferences.

My hope is that the information presented in this report encourages people and groups to continue cooperatively growing our recreation infrastructure and enhancing opportunities for all our residents – and generations to come – to enjoy Wisconsin's great outdoors.

Preston D. Cole
Secretary, Department of Natural Resources

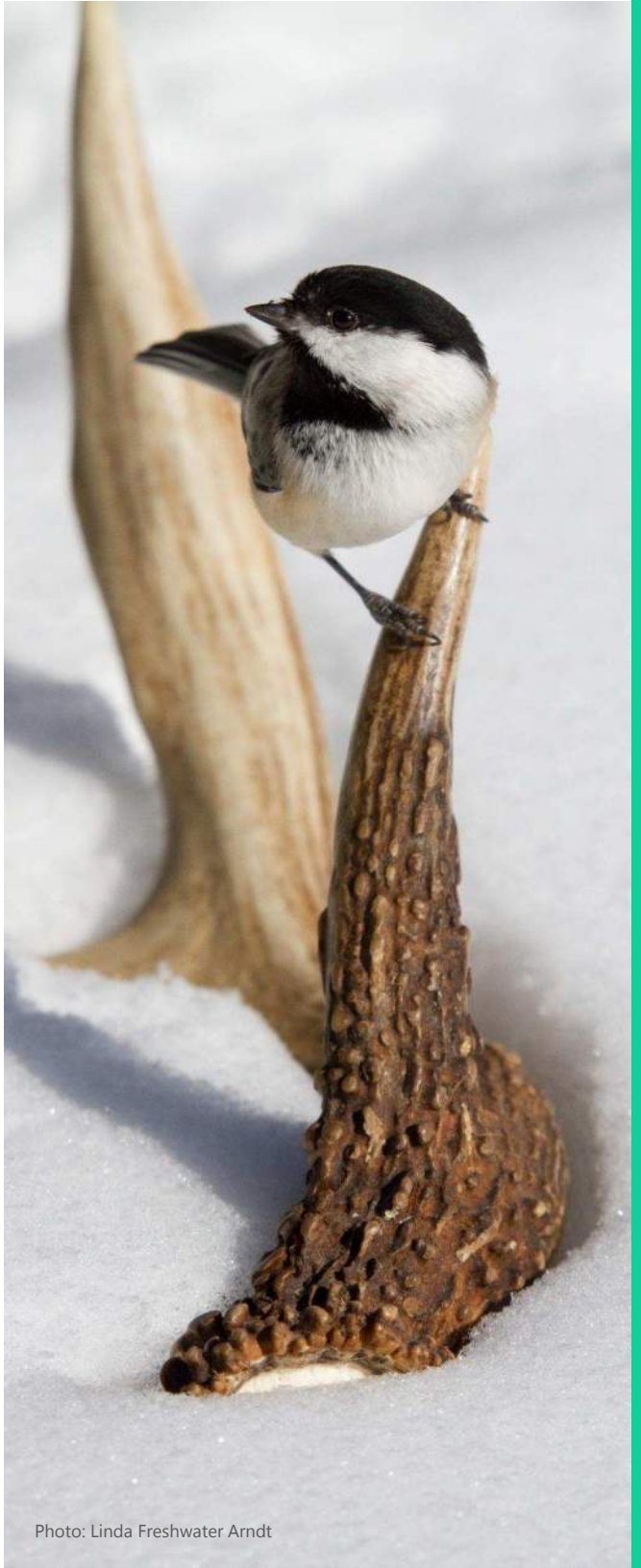


Photo: Linda Freshwater Arndt

Priorities for **LWCF grants** in Wisconsin include projects that:

- Meet the needs of urban areas.
- Provide recreation opportunities that serve diverse populations.
- Develop facilities in areas with limited outdoor recreation opportunities.
- Provide multi-use facilities.
- Meet outdoor recreation needs identified by local communities.

5

This plan lays out **five** overarching goals for outdoor recreation.

1. Boost participation in outdoor recreation

2. Grow partnerships

3. Provide high-quality experiences

4. Improve data to enhance visitor experiences and benefits

5. Enhance funding and financial stability

EXECUTIVE SUMMARY

This document comprises the 2019-2023 iteration of the Wisconsin Statewide Comprehensive Outdoor Recreation Plan (SCORP). The plan provides recommendations to guide public outdoor recreation policy and planning decisions, the use of Land and Water Conservation Fund money that comes to Wisconsin, and other Department of Natural Resources (DNR) administered grant programs.

To support the development of SCORP, a statewide survey of Wisconsin residents was conducted regarding their outdoor recreation participation and frequency, as well as their opinions about future needs. In addition, the DNR undertook an assessment of recreation opportunities and needs in each region of the state. Together, these supporting documents (Appendix 6 and Appendix 8) provide the foundation of the SCORP.

Remarkably, although maybe unsurprisingly, an estimated 95% of Wisconsin adults participated in some type of outdoor recreation in the past year. Activities in which residents most frequently engaged tend to be those that require little preparation or travel time and can provide a high-quality experience in a limited amount of time. Examples include hiking and walking on trails, fishing, bicycling, dog walking, and bird/wildlife watching.

Although this SCORP provides some basic information on a wide variety of outdoor activities, the focus is on those activities that are related to natural resources and where experiences are enhanced with higher quality natural habitats. In this document, these are referred to as nature-based recreation activities.

Top priority needs include providing more places near urban centers to support a variety of nature-based recreation. Of particular note is the demand for more trails (both non-motorized and motorized) and water and shore access for fishing, boating and swimming.

Our effectiveness in meeting future recreation needs will be shaped by many factors including the shifting demographics of our population, the quality of habitats and the impacts from invasive species and changing climate conditions, our ability to improve the compatibility between and among recreation participants, and sustainable financial resources.

Parks and nature preserves, wildlife areas and refuges, and forests and trails connect people to the natural environment. These places, from small neighborhood parks to the large national, state and county forests, are the stages on which we enjoy the outdoors, improve our health, protect our air and water, and provide a large economic boost, particularly to our rural areas.

This document presents the "who, what, where, when, why, and how" of outdoor recreation in Wisconsin.

This SCORP is designed to both provide a broad overview of issues affecting nature-based recreation as well as include information, much of which is in the appendices, that the public and decision-makers can use in evaluating local and regional needs and opportunities.

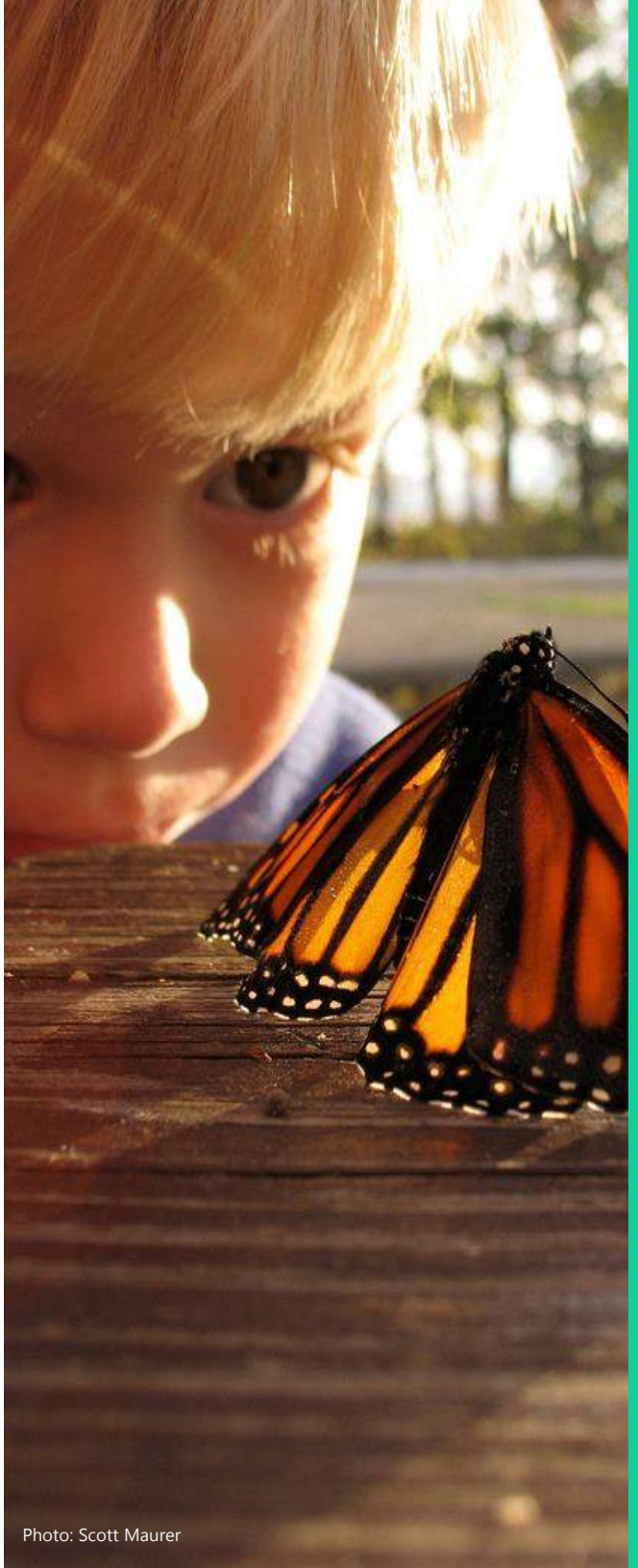
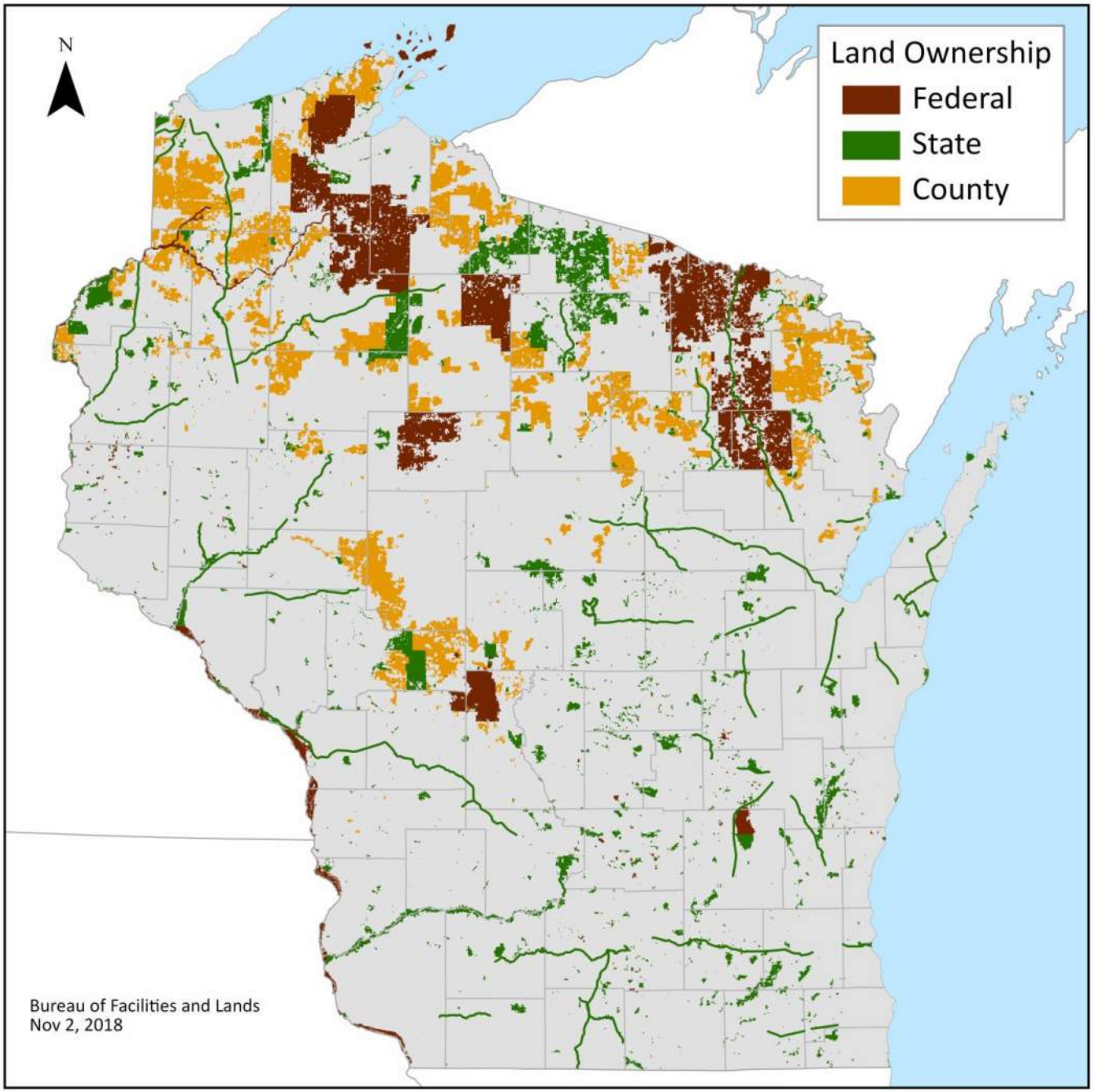
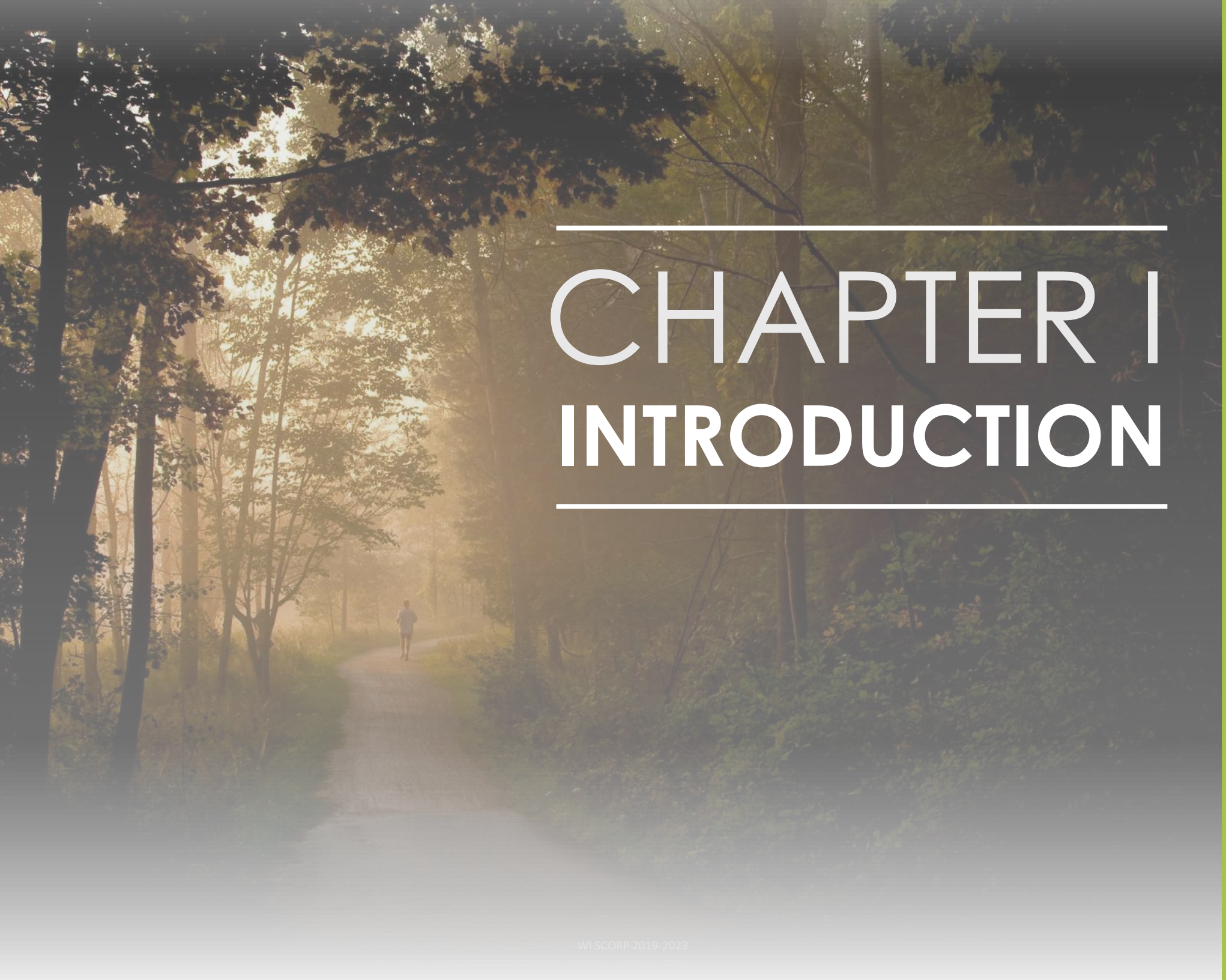


Photo: Scott Maurer

Figure 1: Public lands in Wisconsin



*See **Appendix 3** for maps of public lands by region*



CHAPTER 1
INTRODUCTION


Photo: Tom Davenport


Photo: Liz Herzmann


Photo: Dixie Brumm


Photo: Greg Sanderson


Photo: Greg Sanderson

"Outdoor Recreation Activities"
include all 58 activities that were included in the survey of Wisconsin residents' recreation participation. See Appendix 6.

"Nature-Based Activities"
include a subset of 40 of these "outdoor recreation activities" that require or occur in natural habitats or settings. See Table 1.

BACKGROUND

Wisconsin's economy and the exceptional quality of life our residents enjoy are intertwined with our abundant and rich natural resource base. From deep forests to Great Lake shorelines, from urban trails to secluded campsites, Wisconsinites have unparalleled opportunities to enjoy the outdoors. Whether motivated by the desire to relax, exercise, or be with friends and families, Wisconsinites participate in outdoor recreation with an uncommon passion.

For many citizens, what makes our state special is directly tied to the good times we have at our favorite places to camp, hunt, walk, ride snowmobiles or ATVs, bike, fish, or simply enjoy the peace and quiet of a natural setting.

Public conservation lands in Wisconsin protect some of the state's most notable, scenic and cherished places. Although these places collectively meet many recreation demands, numerous other places – from school forests to land trust preserves to local parks – also play critical roles in providing high quality recreation opportunities to residents and out-of-state visitors.

On behalf of the State of Wisconsin, the Department of Natural Resources has developed this SCORP with the help of many partners and the public. This document brings together a variety of information on the outdoor recreation opportunities in Wisconsin and lays out goals and priorities for the future. What that future ultimately becomes will depend on the collective effort of elected officials, public agencies, private organizations and, most importantly, residents.

Some types of outdoor recreation, notably ball sports, occur on athletic fields and sport courts provided by local units of government. LWCF grants in Wisconsin fund a wide variety of outdoor facilities important to local communities, including athletic fields. Participation in many of these activities varies considerably across the state making their inclusion in a statewide plan difficult.

Other types of recreation take place outdoors but aren't related to natural resources (e.g., walking on sidewalks or roads, driving for pleasure, attending an outdoor music festival). Consistent with past SCORP efforts, many of these activities were included in the survey of state residents' participation in outdoor recreation.

Although this SCORP addresses all types of recreation that occur outdoors (as required by federal legislation), its focus is on "nature-based recreation" activities that are typically provided at larger public lands and require or occur in natural habitats or settings (see Table 1).

***NOTE:** the term "nature-based" is used in other policies, codes and laws. Its use here in SCORP **only applies to this document** and does not influence or affect use of the term in other contexts.*

Table 1: Nature-based activities for this SCORP

- Bicycling – rail-trails, mt. biking, fat-tire/snow biking
- Bird/wildlife watching - at home & away from home
- Camping – tent, RV/pop-up
- Canoeing/kayaking
- Cross-country skiing
- Downhill skiing/snowboarding
- Driving 4-WD vehicles on trails/routes
- Fishing – lake, stream, river
- Gathering berries, mushrooms, etc.
- Geocaching
- Hiking/walking/running on trails
- Horseback riding on trails
- Hunting – big & small game, turkey, migratory bird
- Ice skating
- Motor boating
- Nature photography
- Personal water craft riding
- Picnicking/tailgating/cookout
- Riding ATVs/UTVs on trails/routes
- Riding motorcycles on trails/routes
- Sailing
- Snowmobiling
- Snowshoeing
- Stand-up paddle boarding
- Swimming – lakes/rivers/ponds
- Target shooting – firearms, archery
- Trapping
- Visiting a nature center
- Visiting a beach/beach walking
- Visiting a dog park
- Walking/running dogs on trails
- Waterskiing/tubing/wakeboarding

PURPOSE OF SCORP

The SCORP provides data related to the supply and demand for outdoor recreation in Wisconsin that can help inform local and state-level recreation decision making.

The objectives of this SCORP are to:

- Provide an analysis of outdoor recreation supply and demand.
- Provide information and context that is useful to counties, local units of government, organizations, Native American Nations, and others as they develop plans and policies for recreation opportunities in their communities.
- Ensure Wisconsin's continued eligibility for National Park Service LWCF state-side grants.
- Establish priorities for LWCF grants and guidance for other applicable state and federal funds.

States are required to complete SCORPs every five years to be eligible to participate in the Land and Water Conservation Fund (LWCF) State Assistance Program. SCORPs are intended to evaluate outdoor recreation trends and issues of statewide importance and set forth ideas about recreation's future role in the state. There are several required elements for SCORPs, including identifying priorities for use of LWCF grants. Of the many important issues related to outdoor recreation in Wisconsin, the SCORP highlights the areas of greatest need, thus providing a framework for evaluating LWCF grants.

Towns, villages, cities, counties, tribal governments, school districts and other state political subdivisions are eligible to apply for LWCF grants for acquisition or development of public outdoor recreation areas and facilities. Of course, these government entities best understand their citizens' needs, as well as the opportunities to leverage their local resources and assets. As such, the focus of this SCORP is on providing a range of information, at the county level where possible, to help the public and their elected officials place local conditions, needs, and opportunities into a broader framework.

While this SCORP brings together a range of information on outdoor recreation in Wisconsin, it is not intended to provide guidance at a site or project level, nor does it attempt to address all outdoor recreation issues. Rather, the SCORP identifies general outdoor recreation participation patterns, trends, issues and opportunities, and provides recommendations for future steps.

Collaborative planning at local and regional scales along with cooperative implementation of policies and programs by governments, businesses, health care providers, community organizations, and others will continue to be essential in achieving the priorities described in the SCORP.

The DNR will use the SCORP to help guide decisions related to recreation, including land acquisition, property management and development of facilities.

SCORP REQUIREMENTS

The National Park Service identifies five components required in all Statewide Comprehensive Outdoor Recreation Plans. Table 2 lists where the required elements can be found in this SCORP.

Table 2: Required SCORP components and their location in the SCORP

Component	Requirement Description	Location
Process & Methodology	The plan must describe the process and methodology(s) used by the State to develop the SCORP and meet LWCF program guidelines.	Page 13
Public Participation	The planning process must include ample opportunity for public participation involving all segments of the state's population.	Page 13 Appendix 6 Appendix 8
Comprehensive Information	The plan must: 1) Identify outdoor recreation issues of statewide importance; 2) Evaluate public outdoor recreation demands; and 3) Evaluate available outdoor recreation resources.	Chapter 2 Appendix 6 Appendix 4 Appendix 8
Implementation Program	The plan must have an implementation program of sufficient detail for use in developing project selection criteria for the State's Open Project Selection Process (OPSP).	Page 56 Appendix 9 Appendix 10
Section 303 Compliance	The plan must contain a wetlands priority component consistent with Section 303 of the Emergency Wetlands Resources Act of 1986, including the following: 1) Be consistent with the National Wetlands Priority Conservation Plan, prepared by the U.S. Fish and Wildlife Service; 2) Provide evidence of consultation with the state agency responsible for fish and wildlife resources; 3) Contain a listing of those wetland types which should receive priority for acquisition; and 4) Consider outdoor recreation opportunities associated with its wetlands resources for meeting the State's public outdoor recreation needs.	Appendix 1

Photo: Judy Klippel

LAND AND WATER CONSERVATION FUND

Did You Know?

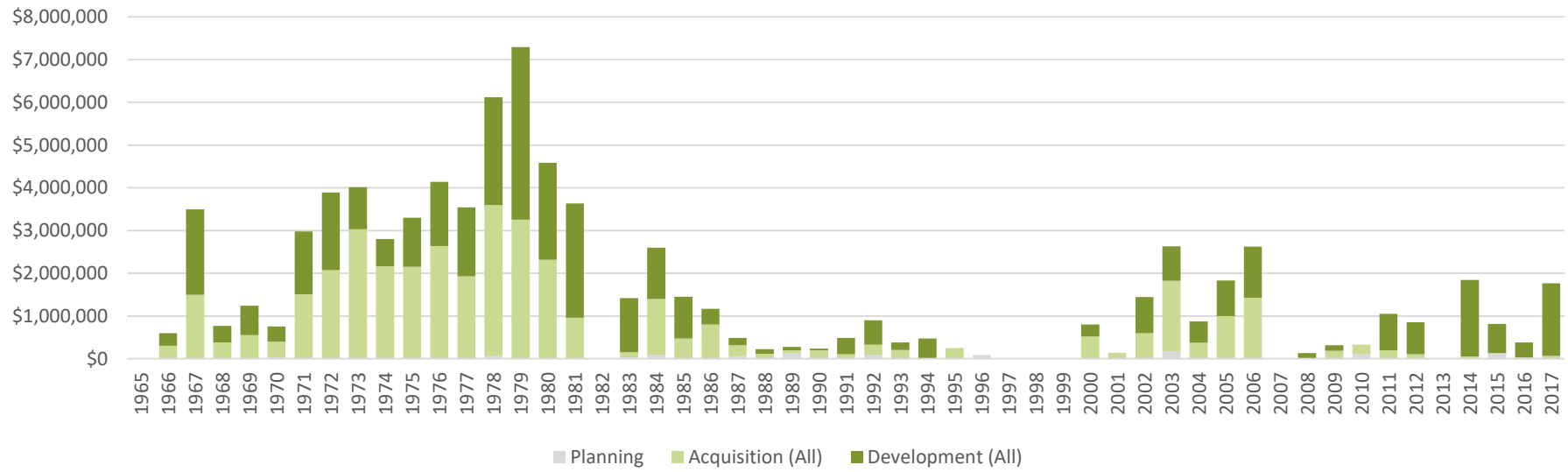
Since 1965, Wisconsin has received **$81 million** from the Land & Water Conservation Fund to support recreation projects throughout the state.

Background

The Land and Water Conservation Fund Act (LWCF) was enacted by Congress in 1965 "to strengthen the health and vitality of the citizens of the United States" through outdoor recreation. A portion of the LWCF supports development of outdoor recreation opportunities in national parks and other federal lands and a portion is passed to states for projects on state, tribal, and local properties. A related federal program is the Gulf of Mexico Energy Security Act (GOMESA), which was passed in 2006. States have flexibility to determine how to use these funds, either on state properties or as pass-through to eligible grant recipients (local governments, school districts, and Native American Nations).

The National Park Service (NPS) administers the program at the federal level. Each state designates an agency responsible for administering the program in partnership with NPS. In Wisconsin, the LWCF program is administered by DNR. In the associated figures presented here, the LWCF and GOMESA funds are combined.

Figure 2: LWCF grants to Wisconsin



Funding

The LWCF is funded through lease and production fees paid to the federal government by energy companies operating in federal waters. The total LWCF appropriation is set annually by Congress. Funds are allocated to all U.S. states and territories via a formula that incorporates population and proximity to leased lands in the Gulf of Mexico. Annual LWCF and GOMESA appropriations have varied dramatically over the years, largely due to fluctuations in oil and gas activity and competing Congressional priorities. Wisconsin's allocations from these funds have varied considerably over the years (Figure 2). In FY2019, Wisconsin received $2.9 million, a significant increase in funding that was due to a change in the GOMESA formula.

LWCF and GOMESA support a wide variety of public outdoor recreation projects. Grant recipients are required to provide a minimum of 50% non-federal matching funds. Projects proposed for LWCF grants must be selected through an open project selection process, which is designed to ensure that available funds are used to address priority outdoor recreation needs at the state and local level. Unique to Wisconsin, the LWCF also supports acquisition and development projects that expand the Ice Age National Scenic Trail and North Country National Scenic Trail.

LWCF Impact in Wisconsin

LWCF grants have touched communities in every one of Wisconsin's 72 counties (see Table 3 – pg. 12). Over 1,800 state and local projects have received LWCF support, leveraging more than $81 million in federal funds. Since the program began, 72% of LWCF projects in Wisconsin have been implemented by local communities, 27% by DNR, and the remaining 1% by the Wisconsin Department of Transportation and Tribal governments. In early years of the program (1960s and 1970s), LWCF grants were used about evenly between land acquisition and development projects (Figure 3). This balance has shifted over time in favor of development projects. In the past 10 years, nearly 90% of LWCF dollars spent in Wisconsin supported a development project in a state or local park.

LWCF grants have supported a wide diversity of recreation facilities including trails, picnic shelters, and athletic fields as well as facilities such as splash pads, dog parks and skateparks. LWCF is a key funding resource for local governments, as it is the only grant program administered by the DNR that funds development of active recreation facilities.

Figure 3: LWCF grant use in Wisconsin

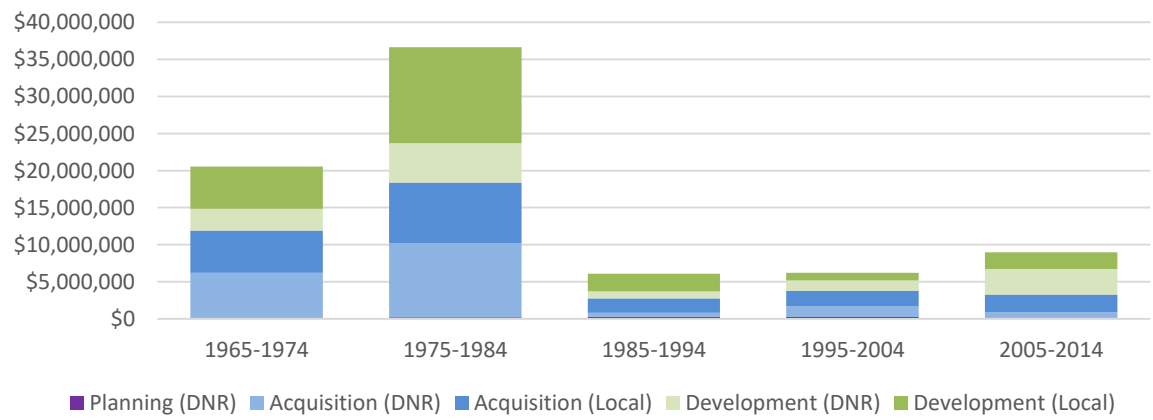


Table 3: LWCF grants by county, 1965 to 2017

County	Total Grant Awards	# Projects	County	Total Grant Awards	# Projects	County	Total Grant Awards	# Projects	County	Total Grant Awards	# Projects
ADAMS	$116,777	5	FLORENCE	$136,911	5	MARATHON	$515,672	27	RUSK	$133,956	8
ASHLAND	$271,775	11	FOND DU LAC	$584,970	29	MARINETTE	$1,269,858	23	SAUK	$4,066,862	72
BARRON	$404,834	14	FOREST	$148,643	7	MARQUETTE	$283,834	9	SAWYER	$471,893	17
BAYFIELD	$378,527	21	GRANT	$1,251,766	34	MENOMINEE	$6,893	1	SHAWANO	$766,796	31
BROWN	$2,473,758	59	GREEN	$252,496	12	MILWAUKEE	$3,476,761	44	SHEBOYGAN	$1,053,706	31
BUFFALO	$142,871	20	GREEN LAKE	$130,912	12	MONROE	$295,229	20	ST. CROIX	$1,993,784	38
BURNETT	$403,144	21	IOWA	$937,708	19	OCONTO	$158,013	9	TAYLOR	$184,632	7
CALUMET	$617,628	25	IRON	$354,284	9	ONEIDA	$921,486	26	TREMPEALEAU	$395,494	22
CHIPPEWA	$2,648,342	42	JACKSON	$419,232	14	OUTAGAMIE	$954,018	39	VERNON	$454,910	12
CLARK	$285,242	12	JEFFERSON	$230,296	18	OZAUKEE	$395,554	15	VILAS	$462,214	28
COLUMBIA	$412,507	19	JUNEAU	$953,072	22	PEPIN	$72,150	8	WALWORTH	$1,185,262	23
CRAWFORD	$1,261,435	10	KENOSHA	$3,289,116	23	PIERCE	$1,034,941	21	WASHBURN	$513,144	6
DANE	$7,991,977	121	KEWAUNEE	$282,454	11	POLK	$2,068,979	29	WASHINGTON	$1,443,211	37
DODGE	$821,513	31	LA CROSSE	$636,281	30	PORTAGE	$1,734,602	31	WAUKESHA	$3,674,591	56
DOOR	$3,907,803	43	LAFAYETTE	$429,494	15	PRICE	$25,053	3	WAUPACA	$677,432	28
DOUGLAS	$691,357	24	LANGLADE	$2,472,965	15	RACINE	$1,420,556	24	WAUSHARA	$147,150	15
DUNN	$429,381	20	LINCOLN	$126,406	6	RICHLAND	$118,157	9	WINNEBAGO	$1,824,796	43
EAU CLAIRE	$1,254,062	37	MANITOWOC	$1,199,544	47	ROCK	$763,578	24	WOOD	$537,189	24

PUBLIC PARTICIPATION AND SCORP DEVELOPMENT

Developing a plan for outdoor recreation requires understanding residents' participation patterns and their perspectives on the future. The DNR gathered public input several ways in developing this document. A 17-member SCORP Advisory Team – consisting of representatives from public agencies, conservation organizations, recreation groups, the University of Wisconsin, and the health care industry – provided invaluable assistance and guidance on a wide range of issues affecting outdoor recreation in the state.

As part of the Recreation Opportunities Analysis, which was undertaken to support the development of this SCORP, the DNR hosted meetings in each region of the state to gather public input on existing recreation opportunities and future needs. Hundreds of people attended these meetings and thousands of people submitted comments. In addition, county park directors and staff were asked to provide input on recreation opportunities, needs and trends at their properties.

Finally, the DNR surveyed a random sample of 6,400 residents to gather statistically-significant data on recreation participation, issues of concern, and future needs. A portion of the survey is shown in Figure 4. Following this data collection effort, the DNR provided the opportunity for the public to complete the same survey online; over 16,500 people did, which presented an additional set of perspectives.

This SCORP builds on the work of earlier iterations and uses the eight regions first delineated in the 2005-2010 SCORP to describe recreation uses, patterns and needs. In drafting this SCORP, the DNR combined the extensive public and Advisory Team input with staff expertise. Staff began their work in 2015 gathering background information and assembling the Advisory Team. Over the ensuing three years the Team provided advice, input and direction on plan's content and the goals, objectives, and desired action items.

In 2017 the DNR received an extension in the timeline from the National Park Service in order to devote considerable effort in developing the Recreation Opportunities Analysis to help inform the SCORP. This effort generated extensive information on existing opportunities and high priority needs for the future, including an assessment of DNR properties that may be well-suited to help meet these needs.

Figure 4: Portion of the SCORP recreation participation survey (Appendix 6)

3. Trail-related activities in Wisconsin

Activity	How many days did you participate in this activity in the last 12 months? 0	1-2	3-9	10-29	30+
Hiking/walking/running on trails	○	○	○	○	○
Walking/running dog on trails	○	○	○	○	○
Horseback riding on trails	○	○	○	○	○
Bicycling on rail trails/developed trails	○	○	○	○	○
Mountain biking on single-track trails	○	○	○	○	○
Riding ATVs/UTVs on trails/routes	○	○	○	○	○
Driving 4-WD vehicles on trails/routes	○	○	○	○	○
Riding motorcycles on trails/routes	○	○	○	○	○

4. Winter activities in Wisconsin

Activity	How many days did you participate in this activity in the last 12 months? 0	1-2	3-9	10-29	30+
Snowmobiling	○	○	○	○	○
Cross-country skiing	○	○	○	○	○
Downhill skiing/snowboarding	○	○	○	○	○
Snowshoeing	○	○	○	○	○
Ice fishing	○	○	○	○	○
Ice skating outdoors	○	○	○	○	○
Hockey outdoors	○	○	○	○	○
Fat tire biking/snow biking	○	○	○	○	○


Photo: Joseph Warren


Photo: Linda Freshwater Arndt

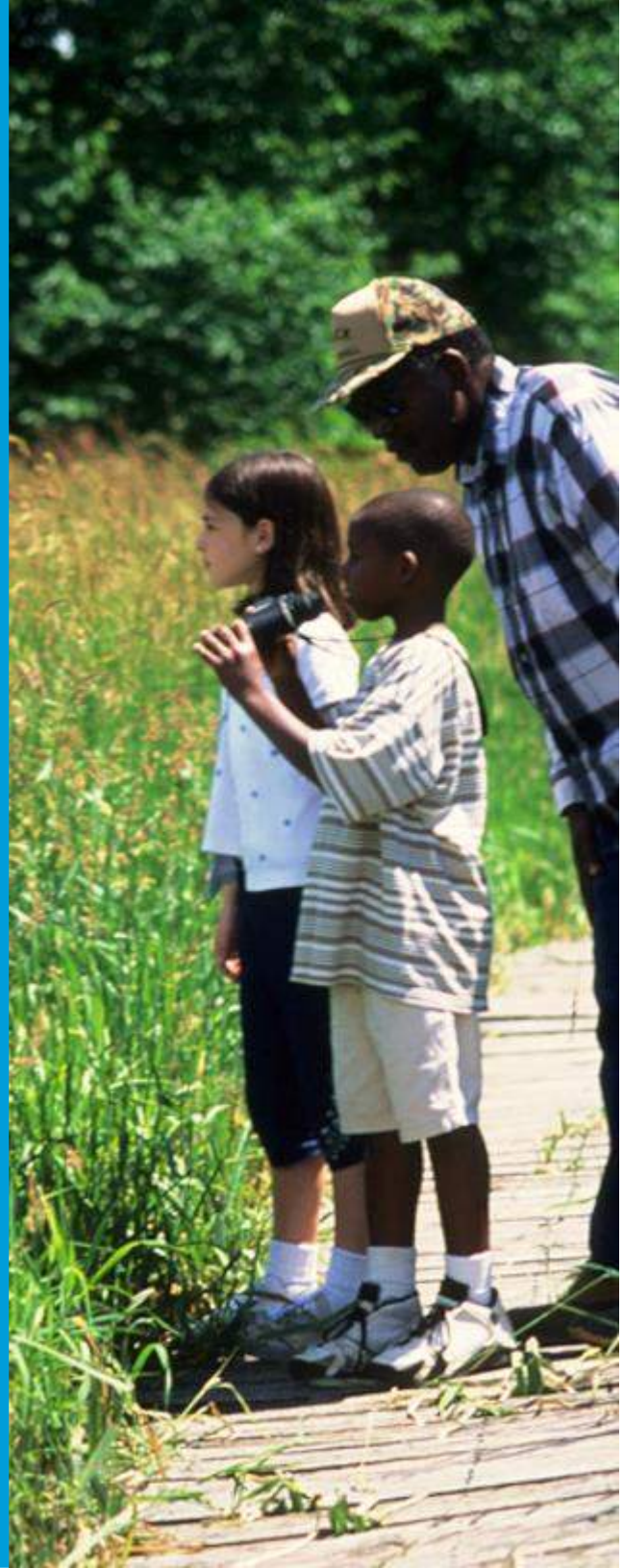

Photo: Wisconsin Bike Fed


Photo: Angie Tornes


Photo: Savannah Ernzen


Photo: Gretchen Marshall

CHAPTER II
RECREATION IN WISCONSIN



OUTDOOR RECREATION: AT THE CROSSROADS OF OUR QUALITY OF LIFE

Outdoor recreation influences many aspects of our lives and the larger communities in which we live. For example, people that participate in outdoor recreation, especially from an early age, tend to have stronger connections to nature and conservation ethics.[1, 2] In turn, these connections often lead to stronger support for the protection of natural resources. Thus, **participation in nature-based activities is likely to be increasingly important in the public's level of support for protecting air and water quality, open spaces, and wildlife.**

As has been described in previous SCORPs and in many other studies, participation in outdoor recreation also plays a critical role in promoting health.[3, 4, 5] Whether walking their dog, canoeing, mountain biking, hunting, camping or engaging in countless other activities, the fresh air, exercise, natural settings and companionship with others helps people feel physically and mentally refreshed. Engaging in outdoor recreation activities is an effective way to aid in preventing and treating many chronic illnesses including obesity, diabetes and cardiovascular disease. In addition, participating in outdoor recreational activities is increasingly recognized for its benefits to people's mental health. A further description on the health benefits of outdoor recreation can be found on page 36.

People often participate in outdoor recreation as a group activity. The shared experiences among family and friends help create social bonds among participants. Participation in outdoor activities also creates social connections among people pursuing the same activities, even if they don't participate together. Interactions between people participating in different recreation activities can provide opportunities to learn about respective needs and desired experiences. A further description on the social benefits of outdoor recreation can be found on page 38.

Generating almost $18 billion in consumer spending, 168,000 jobs, $5.1 billion in wages and salaries, and $1.1 billion in state and local tax revenue, outdoor recreation is a financial engine in Wisconsin.[6] A further description on the economic benefits of outdoor recreation can be found on page 40.

Finally, lands and waters that provide the spaces for outdoor recreation often also have important environmental benefits, including habitats for rare and game species, flood control, carbon sequestration and groundwater replenishment. A further description on the environmental benefits that places for outdoor recreation provide can be found on page 41.

FACTORS AFFECTING RECREATION PARTICIPATION

Many factors influence participation in outdoor recreation. Some, such as the weather, vary daily and seasonally resulting in spur of the moment trips or skipped outings that had been planned well in advance. Other factors – including demographic characteristics, population distribution, and technological advances – evolve over extended periods. A summary of major issues affecting participation in outdoor recreation in Wisconsin follows.

Demographics

Population characteristics such as age and gender play important roles in determining participation levels in many types of recreation.

From childhood to early adulthood, participation in many outdoor activities generally increases.

Younger age groups tend to participate in activities that are more physically demanding, rugged, faster-paced or motorized. Examples include team sports, running, tent camping, hunting, whitewater canoeing, snowmobiling, all terrain vehicle (ATV) riding, downhill skiing, and riding personal watercraft.

People's participation in outdoor activities changes over time. Older age groups tend towards less strenuous and slower-paced forms of recreation such as wildlife watching (in particular bird watching), golf, nature photography, walking, utility task vehicle (UTV) riding and camping with recreational vehicles.

Gender also plays a big role in participation. In general, males participate in more outdoor activities and more frequently than females. Hunting is one of the outdoor activities most skewed towards men; in Wisconsin, almost 75% of hunters are male. Women tend to participate in nature photography and dog-related activities more than men.

Access to Opportunities

Although many people travel to seek out unique recreation experiences, most people have limited time for leisure activities and tend to participate most frequently in activities for which opportunities are located nearby. As a result, urban residents participate in ball sports, bicycling, running, visiting dog parks and other similar activities at higher rates than rural residents. Conversely, rural residents participate in hunting, fishing, trapping, ATV/UTV and snowmobile riding at higher rates than urban residents.

Since many opportunities for nature-based recreation activities are in rural areas, as more and more of our residents move to cities their ease of access to places to pursue activities such as hunting, snowmobiling, ATV and UTV riding and horseback riding will decline. Places near the state's major urban areas that provide opportunities for these activities are often heavily used.

Another obstacle for some people is the cost of travelling to places for recreation or feasible transportation options. Residents with limited incomes can find it difficult to access opportunities to participate in outdoor activities, let alone afford necessary equipment. Although many underserved communities are located in urban settings, access to affordable opportunities also affects lower-income rural residents.

Another factor that influences access is knowledge about how to engage in activities successfully and exposure over time. Family experiences, traditions, and the transfer of know-how can play substantial roles in participation rates. [7, 8, 9, 10]

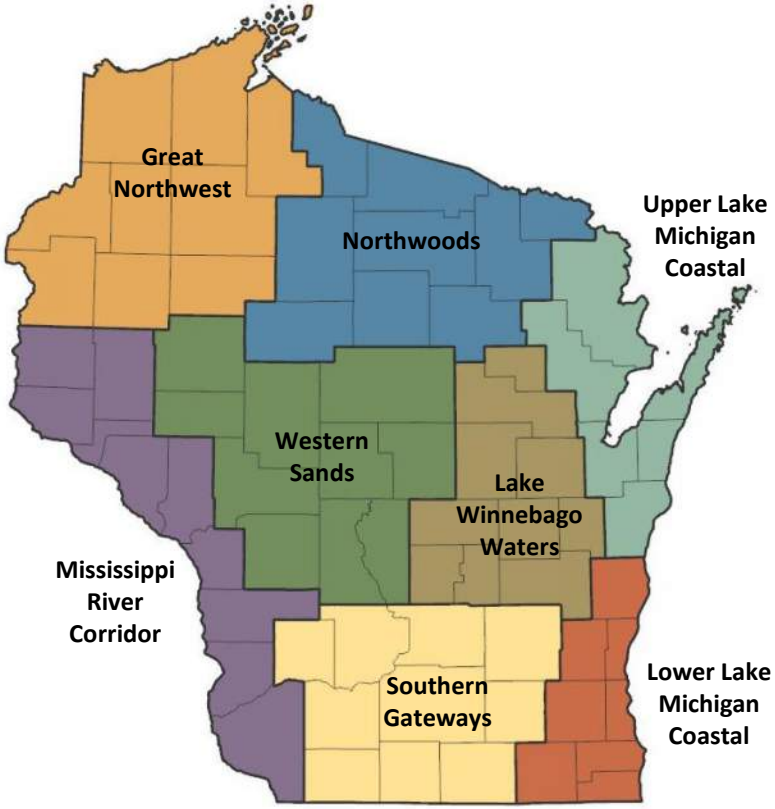
People are more likely to participate in activities in which their parents, other close family members or friends engage. This is most noticeable in activities, like hunting and trapping, that take considerable skill and experience to succeed.

Health

People's health is often related to and influenced by their participation in outdoor recreation. The benefits of outdoor recreation on one's physical and mental health has been well documented recently.

REGIONS OF THE STATE AND THEIR RECREATIONAL OPPORTUNITIES

Figure 5: Recreation regions of Wisconsin



Previous SCORPs divided the state into eight regions based on similarities in their recreation attributes, visitation patterns, natural resources, and general features. This SCORP uses the same eight regions in describing recreational supply and demand.

Great Northwest

The Great Northwest Region has an abundance of natural resources such as Lake Superior, the Namekagon and St. Croix rivers, numerous inland lakes, and large forest blocks. Not surprisingly, tourism is a large and growing industry within the region. In addition to Wisconsin residents, visitors from the Twin Cities and surrounding suburban areas, utilize the region's recreational resources. Seasonal home development, particularly along rivers and lakes, has increased dramatically within the region.

Mississippi River Corridor

The Mississippi River Corridor Region includes the state's western border counties running along the "Mighty Mississippi." The river and its backwater sloughs and wetlands are used for a variety of water-based recreational activities. In addition to the Upper Mississippi River Wildlife and Fish Refuge, a number of popular state parks and natural areas occur along the corridor. A number of clear, cold trout waters are found in the region that draw anglers from throughout the Midwest.

Northwoods

The Northwoods Region has one of the largest concentrations of lakes in the country and has been a tourist and seasonal home destination for over a century. Increasingly, retirees are moving to the region and converting their vacation houses to permanent residences. With a number of popular public lands including the Northern Highland American Legion State Forest and the Chequamegon-Nicolet National Forest, tourism is an important business here. The construction of an extensive bicycle trail network along with a growing number of ATV/UTV routes and trails, has increased visitation.

Western Sands

The Western Sands Region has an abundance of public lands that draw visitors from Milwaukee, Chicago and the Twin Cities. From camping to ATV riding and hunting to bird watching, the county and state forests and the expansive wildlife areas here support a wide diversity of recreation. Although largely rural, easy highway access and relatively inexpensive land prices within the region have increasingly made it a popular location for seasonal home development.

Lake Winnebago Waters

The Lake Winnebago Waters Region is centered on the Lake Winnebago watershed which includes the lakes of Butte des Morts, Winneconne, and Poygan as well as the Fox and Wolf rivers. Together, these waters are the major recreational resource within the region and draw visitors from throughout the state and beyond for boating, fishing, hunting, bird watching and more. The region is home to the popular sturgeon fishing season. Urban and suburban development within the region continue to grow in the Fox River Valley.

Southern Gateways

The Southern Gateways Region contains a variety of environments - rolling hills in the south, the centrally-located Wisconsin River, and large marshes in the east - the combination of which provides a wide array of recreational opportunities. The region also has a number of important geologic features, including Devil's Lake, a craggy glacial lake surrounded by high cliffs and scenic overlooks that is one of Wisconsin's most popular recreation destinations. The rapid development around Madison has also increased demand for urban-based recreation opportunities such as dog parks, bicycle trails and developed sports facilities.

Upper Lake Michigan Coastal

The Upper Lake Michigan Coastal Region is heavily influenced by Lake Michigan. Although many residents and visitors to the region use Lake Michigan for their recreational needs, other water resources such as the Peshtigo, Menominee, and Manitowoc rivers also attract visitors with their abundant fishing and paddling opportunities. Door County contains over 250 miles of picturesque shoreline (more than any other county in the United States) and 10 historic lighthouses, features that attract many tourists and seasonal residents. Peninsula State Park, located along the shores of Green Bay, is one of the most popular state parks in Wisconsin.

Lower Lake Michigan Coastal

The Lower Lake Michigan Coastal Region is the most urban and populous of the eight regions. The urban influence of Milwaukee and its surrounding suburbs has led to an extensive network of trails and associated recreation facilities such as dog parks, athletic fields and sport courts. Despite this urban influence, some areas of the region offer opportunities for undeveloped outdoor recreation. The five units of the Kettle Moraine State Forest are easily accessible not only to the region's residents but also the greater Chicago metropolitan area and are some of the most heavily used public lands in the state.

Betty LaBarbera

My Story: Traditions
Betty LaBarbera

Betty LaBarbera, 91, has been buying a fishing license for as long as she can remember. Residents around Long Lake talk about the old plywood boat that she and her late husband, Joe, frequently rowed around the lake. Other boaters with modern, high-tech rigs slowed to no wake and gave a wide, respectful berth to the couple as they fished and enjoyed the scenery.

Nowadays, Betty's children and grandchildren pick her up for family fishing trips to the same Long Lake cabin that has been in the family since the turn of the last century. They still have the plywood rowboat that grandpa made, but they prefer to fish and swim from the multi-colored pontoon boat, "Grandma Betty's Barge."

The family fishing trips continue to follow a familiar pattern.

> *"First, we buy our license at Din's Market in Dundee," explains Betty, "and a dozen nightcrawlers. Joe is probably looking down from heaven and shaking his head; he'd always dig worms in the garden."*

After filling up on groceries and gas at Din's, Grandma Betty sometimes treats everyone to burgers and ice cream cones at the Hamburger Haus drive-in or a meal at Benson's on the north end. When she's done helping the local economy and reminiscing with old-timers from the Long Lake Fishing Club, it's time to go fishing.

Betty gives her annual lesson in how to put just the right size piece of nightcrawler on the bare hook. When the sun finally sets on another day on the lake, she says, "Whose gonna cook grandma's fish? Remember, we only keep 'em if we're gonna eat 'em."

After a fresh panfish supper, the LaBarbera tradition dictates that everyone in the family pitch in for the evening ritual. While some do the dishes, others start the campfire or prepare the s'mores. When the fire is lit, everyone gathers, and stories are told of memorable days gone by, fishing with friends and family.

The warmth lingers long after the last ember fades.

Mark LaBarbera
Outdoor Heritage Education Center

THE CURRENT STATE OF OUTDOOR RECREATION

WISCONSINITES

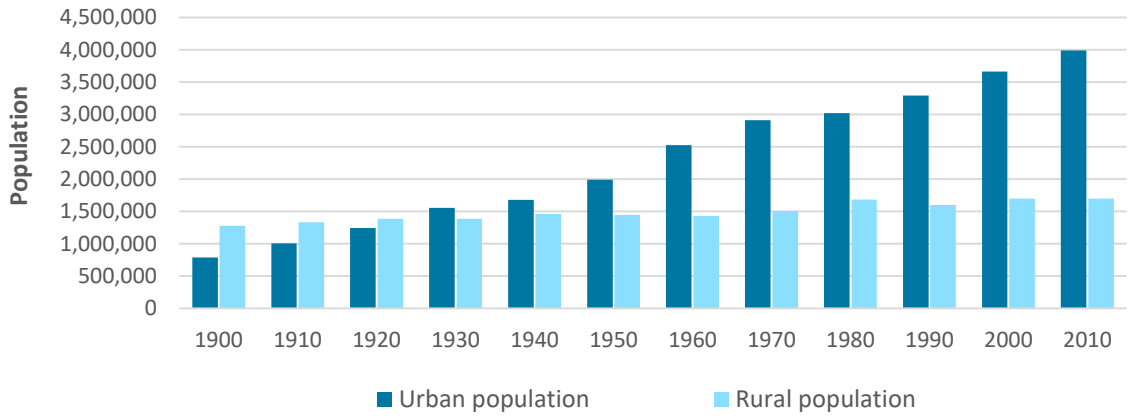
WHO WE ARE

Over the last 50 years, Wisconsin's population has increased at a rate of about 0.6%/year. The state's population is projected to grow from 5.8 million today to 6.5 million in 2040, an increase of about 0.5%/year (Table 4, Figure 7 – pg. 21).

The state's rural population has remained relatively stable over the last century (at about 1.5 million) while the urban population has more than tripled to over 3.5 million (Figure 6). While Wisconsin's urban population is growing considerably faster than the rural population, the state's rural population is relatively strong compared to nearby states that are dominated by very large urban centers.

Following national trends, our population is increasingly urban, more ethnically and culturally diverse, and older (Figure 8 – pg. 22).[11, 12] Although Wisconsin's population is less diverse than other states, populations of people of color continue to grow. The Hispanic population nearly doubled from 2000 to 2015 and now comprises 6.9% of the state's residents. Wisconsin's Black/African American population increased nearly 10% since 2000 and is now 6.7% of Wisconsin's population.[14] Wisconsin's Asian population has grown to be 2.9% of the population while people identifying as two or more races have increased to 1.9% of the state's population. The Native American population now numbers more than 60,000 in Wisconsin.

Figure 6: Wisconsin urban and rural population, 1900 Census - 2010 Census[13]



The increasing diversity of our population will continue. With over 44% identifying as people of color, the Millennial generation is more diverse than any preceding generation.[15] And the next younger age cohort, is even more diverse.

The distribution of Wisconsin's population is concentrated in several areas: the southeast metropolitan area centered on Milwaukee (Milwaukee, Racine, Kenosha, Waukesha, Washington, and Ozaukee counties), Madison and surrounding communities (Dane County), the Fox Valley (Brown, Outagamie, and Winnebago counties), La Crosse (La Crosse County) and the region near the Twin Cities (St. Croix County). Together, although these 12 counties comprise just 11% of the state's land area, they harbor 56% of the state's population (Figure 9 – pg. 22). Current and projected population numbers by county are shown in Appendix 2.

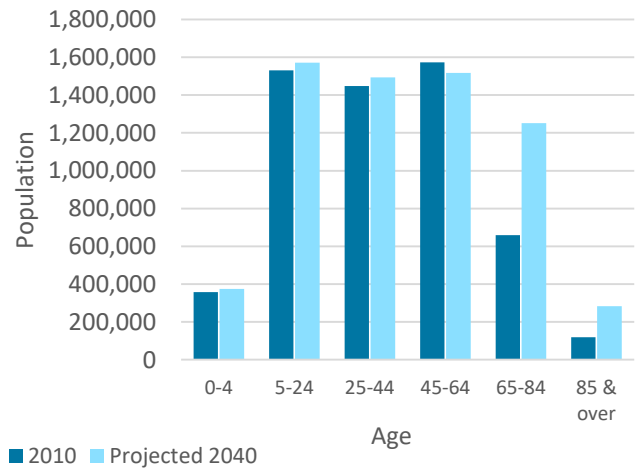
The number of Wisconsin residents living with disabilities continues to climb (Figures 10 and 11 – pg. 23). In part, this is due to the rise in our aging population and the increase in chronic diseases. Over 32% of Wisconsin residents over age 65 report living with one or more disabilities.[16] Many communities are building and upgrading facilities to meet the needs of people with different types of disabilities.

Participation in most outdoor activities declines after age 50; after 70, participation drops considerably (Figure 13 – pg. 25). Much of this decline in participation is likely due to health-related issues.

Table 4: Wisconsin population projected change, 2010 Census - 2040 projection, by age group[11]

Age Group	Numerical Change	Percent Change
0-4	15,497	**4.3%**
5-24	41,060	**2.7%**
25-44	46,235	**3.2%**
45-64	-56,194	**-3.6%**
65-84	592,956	**90.0%**
85 & over	165,095	**139.3%**
TOTAL	**804,649**	**14.1%**

Figure 7: Wisconsin population projected change by age group, 2010 Census – 2040 projection[11]



The Millennial Generation: the country's largest age group

Understanding the lifestyles and interests of younger generations can be helpful in anticipating the activities and experiences that may be popular in the future as these groups age. The Millennial generation (typically defined as those born from 1982 to 2000 and 18 to 36 years old today) is having a large impact on outdoor recreation. Not only are they the largest age group in the country (they surpassed the Baby Boomers in 2015) but they also spend more time and money on outdoor recreation than the average outdoor consumer.[17] This cohort, more than other age groups, generally has the following attributes related to outdoor pursuits:

Committed to health and wellness

More than previous generations, Millennials spend considerable time exercising and are the least obese age group.[18]

Seek experiences over material goods

More than three-quarters of Millennials would choose to spend money on a desirable experience or event over buying something desirable.[19] This may be linked to the sharing of experiences on social media, which may entice others to try similar or other experiences.

Participate in active outdoor pursuits

Younger people typically engage in more active forms of recreation (e.g., hiking, kayaking, and stand-up paddling) than their elders, a pattern that continues with Millennials. However, Millennial participation in newer, more strenuous activities (endurance races, trail running and mountain biking) is particularly notable. This is also linked to their desire to live healthy lives.

Are more likely to rent than own

This approach includes a range of items (e.g., cars, music and bicycles) and provides a greater degree of flexibility and mobility than traditional ownership.[20] Millennials tend to move more frequently than older generations did in when they were young adults and they continue the long-standing pattern of young adults moving from rural areas and small cities to large metropolitan areas (both in-state and out-of-state).

Use social media to share their experiences

Posting pictures, stories, reviews and endorsements on various internet-based platforms is likely to become an even more dominant way that participants communicate about their outings and influence others' participation.

Have pets

Nearly three-quarters of 30 to 39 year old's (the older Millennials) own dogs.[21]

Figure 8: Percent of Wisconsin population age 65 or older by county, 2015 estimate – 2040 projection[22]

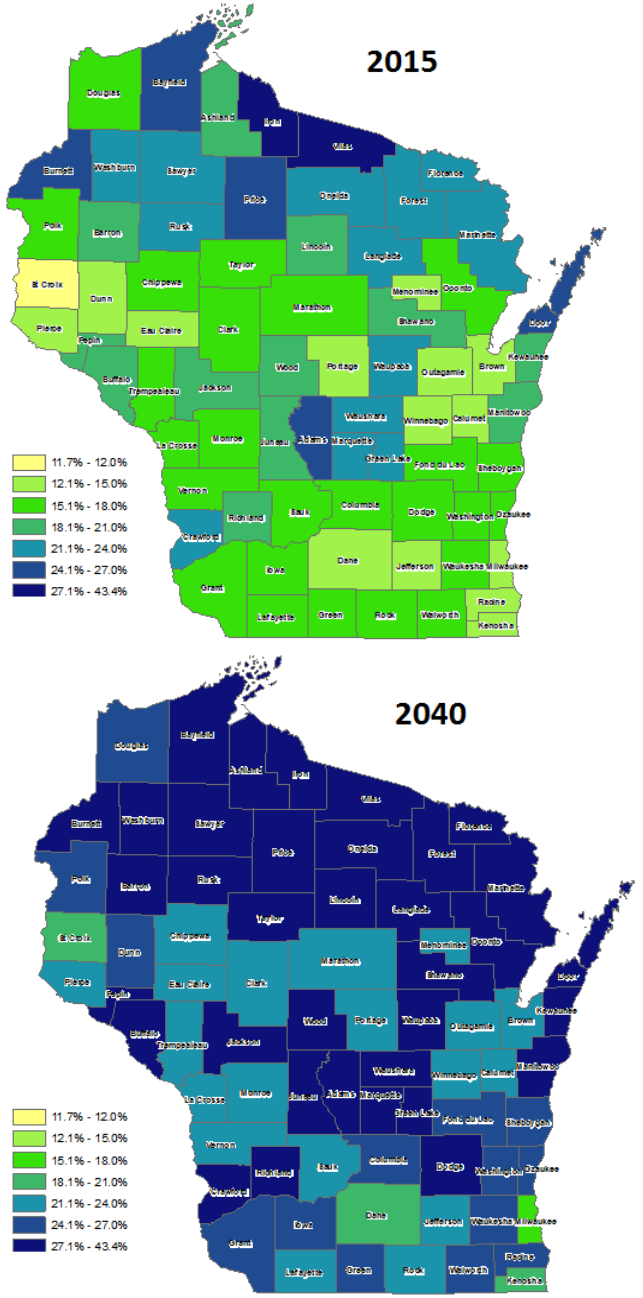


Figure 9: Population density by Census tract, 2010 Census[23]

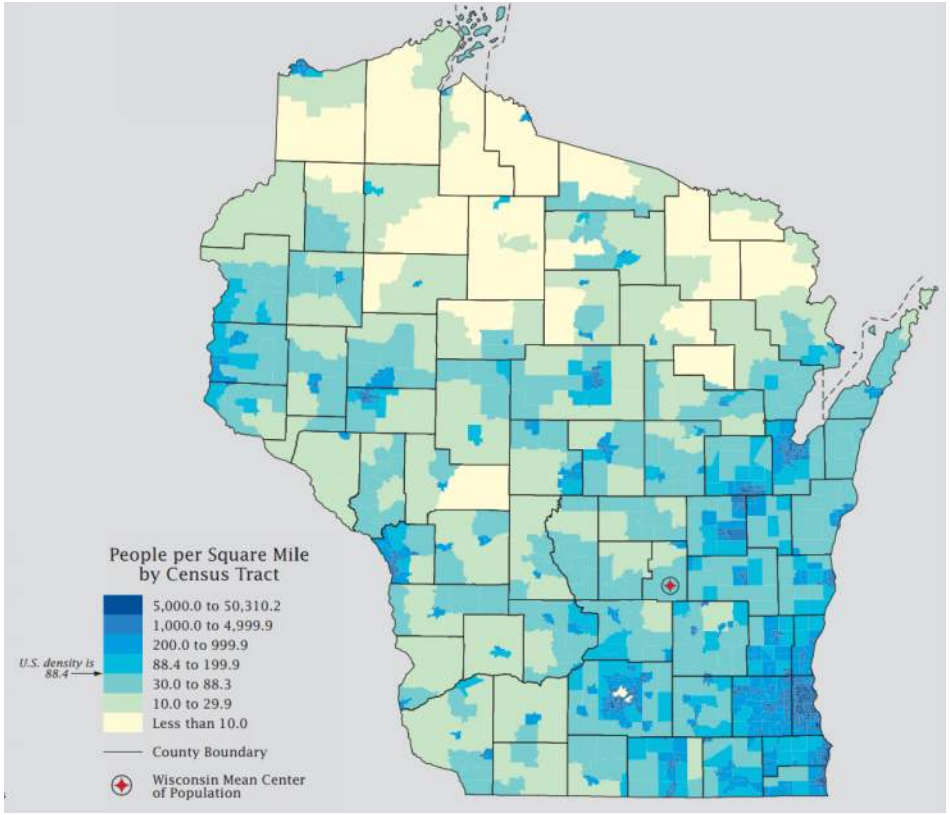


Figure 10: Number of Wisconsinites with a disability[24]

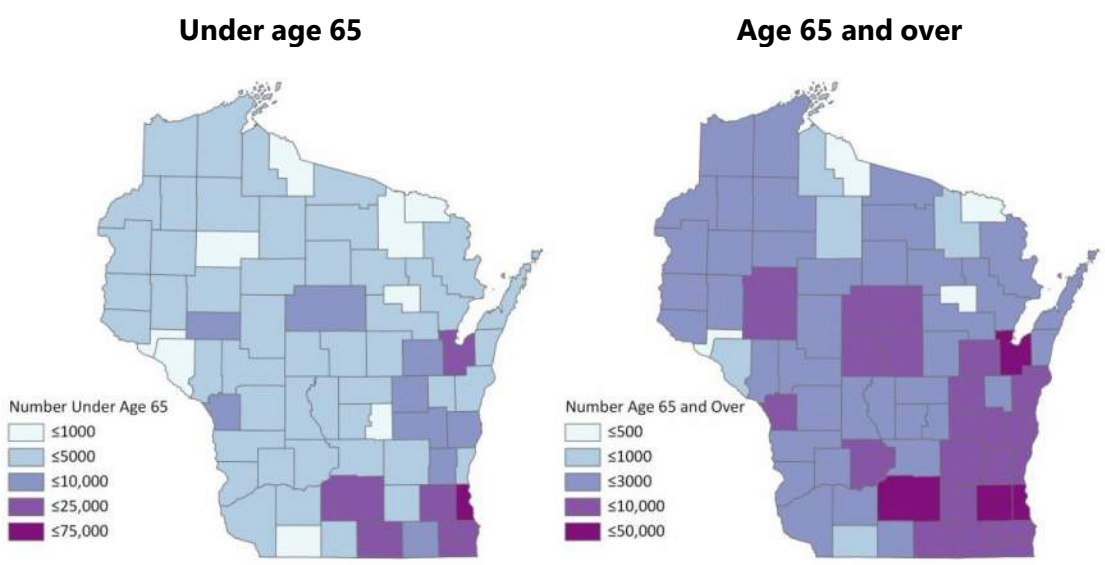
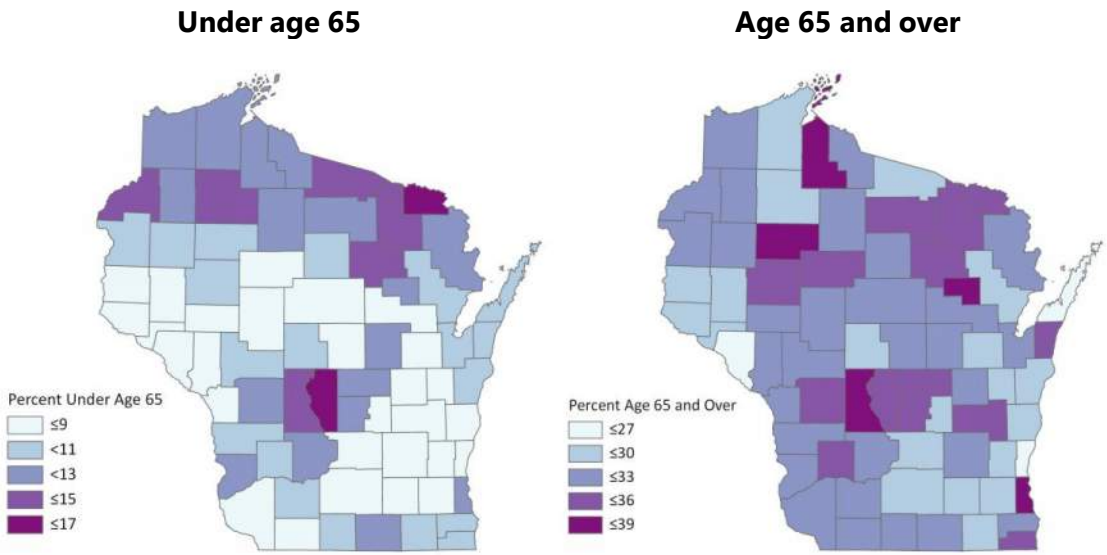


Figure 11: Percent of Wisconsin population with a disability[24]



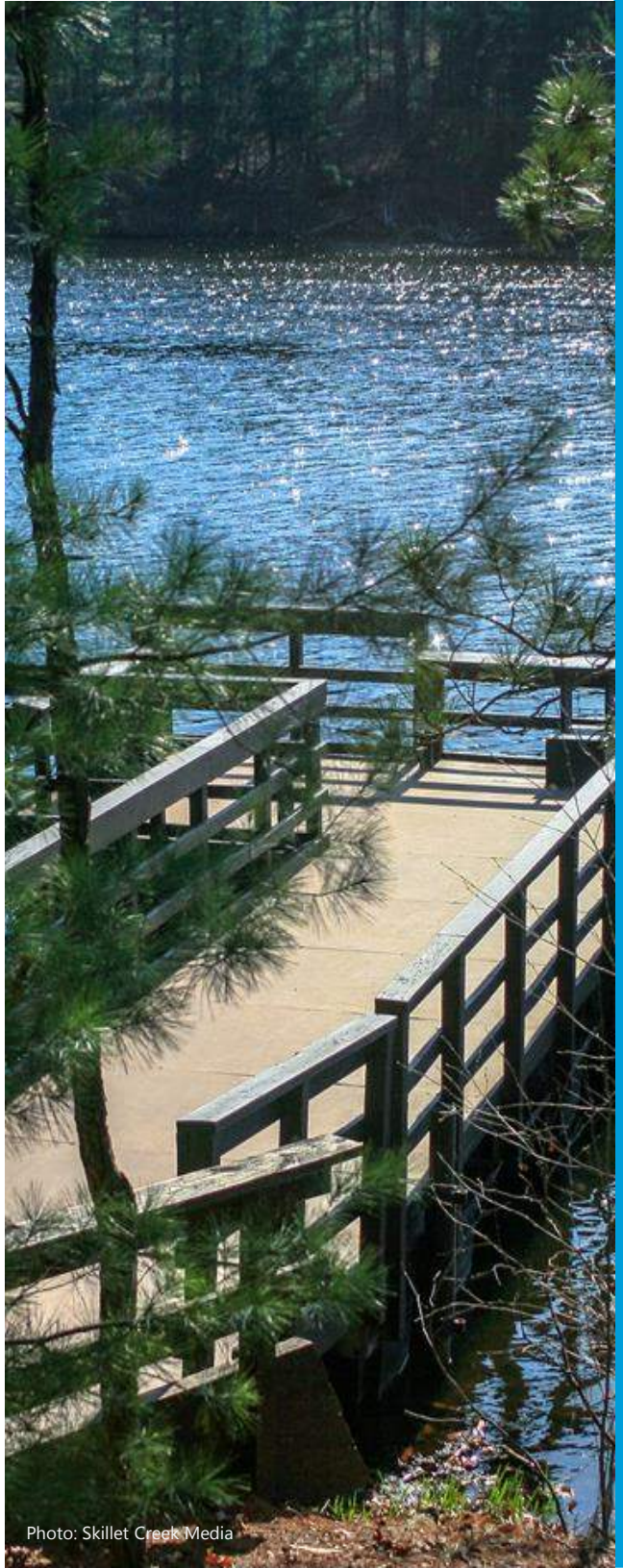


Photo: Skillet Creek Media

Table 5: Wisconsin resident participation rates of *grouped* nature-based recreation activities[25]

Activity group	% of WI residents that participated at least once in last 12 months
Hiking Hiking/walking/running on trails	**68%**
Nature observation Bird/wildlife watching Nature photography Gathering berries, mushrooms, etc.	**66%**
Boating-related Motor boating Canoeing/kayaking Personal water craft (jet-ski) Sailing Stand-up paddle boarding Waterskiing	**61%**
Fishing Lake fishing Stream/river fishing Ice fishing	**49%**
Camping Tent camping RV/pop-up camping	**41%**
Dog-related activities Walking/running dog on trails Visiting a dog park	**38%**
Bicycling Bicycling on rail-trails or other developed trails Mountain biking Fat-tire biking/snow biking	**35%**
Hunting Big game hunting Turkey hunting Small game hunting Migratory bird hunting	**27%**
Motorized trail-based activities ATVs/UTVs on trails-routes Snowmobiling 4-WD vehicles on trails-routes Motorcycles on trails-routes	**25%**

WISCONSINITES WHAT WE DO

Participation Rates

Wisconsinites have historically participated in outdoor recreation at higher rates than the national average. This is likely largely attributable to our abundant natural resource base, the quantity and quality of public lands and waters, and cultural traditions that value the outdoors. It is estimated that more than 95% of state residents participated in some form of outdoor recreation in the past year.

Table 5 shows participation rates of Wisconsin residents for general groupings of nature-based recreation activities. For comparison, 46% of Wisconsin residents participated in ball sports (golf, tennis, basketball, softball, baseball, soccer, and handball).

A list of the 20 most popular specific nature-based activities is presented in Table 6. A full listing of participation rates for recreation activities is found in Appendix 6.

Most residents participate in many outdoor recreational activities. Of the activities that were included in the participation survey, over half of residents noted that they participated in at least 16 different activities in the last year (Figure 12).

Outdoor enthusiasts recreate in many different ways. One common thread is that people often participate in multiple activities on the same trip or outing. Canoeists watch wildlife while paddling down a river. Horseback riders take nature photographs. Motor boaters swim and fish; hunters ride ATVs and camp.

What differs, often dramatically, is the overall type of outdoor experience that people favor. Some prefer quiet, secluded settings where they can experience the sights, sounds, and smells of the natural world with few (if any) other nearby groups or distractions. Popular activities for these people include wildlife watching, fishing, canoeing, tent camping, hiking, hunting and horseback riding.

Others prefer more active, strenuous experiences such as cross-country skiing, trail running, mountain biking and geocaching. Still others prefer the thrill of faster, often motorized activities such as ATV riding, motor boating, personal watercraft riding and snowmobiling (see Appendix 6 for activity clusters).

Figure 12: Number of outdoor recreation activities in which Wisconsin residents participate[25]

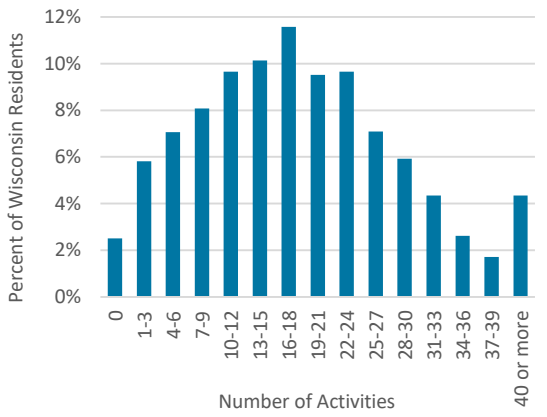
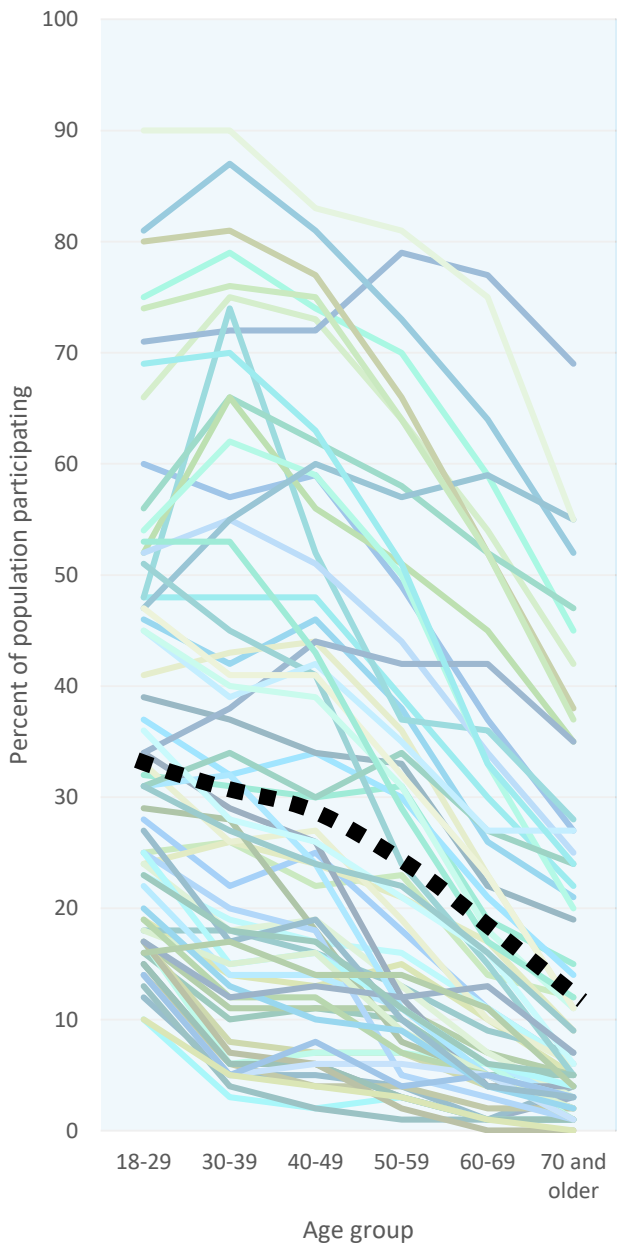


Figure 13: Wisconsin resident participation in outdoor recreation activities, by age group[25]



Age

As mentioned earlier, age plays an important role in participation rates**.** Although participation in most activities decreases with age, there is variation in the degree to which participation drops.

Figure 13 shows **participation rates by age group** (that is, the percentage of the state's population within each age group that participates). Each line depicts a different recreation activity and the average of all the activities is shown as a **dashed black line**.

It is likely that activities with relatively stable participation rates across age groups "pick up" participants in other activities as people age.

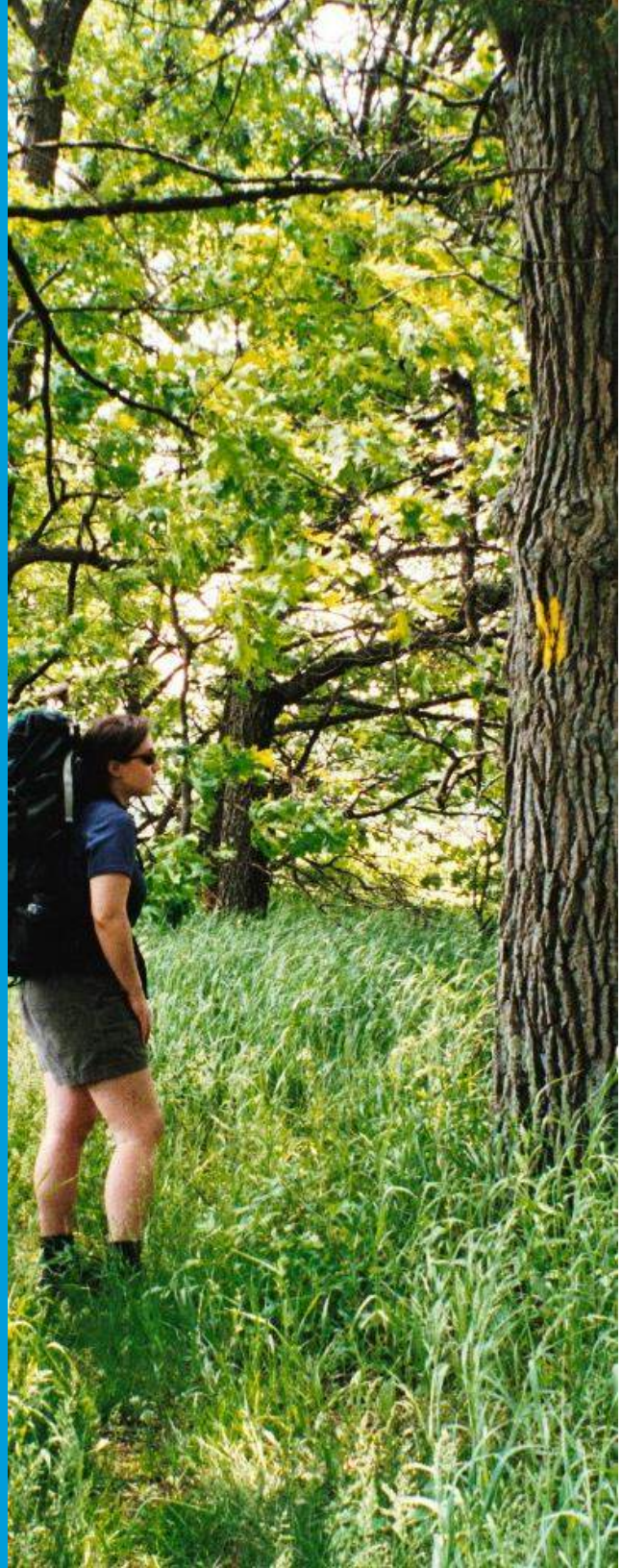
For example, it is likely that some people that downhill ski as young adults shift to cross-country skiing in later years (participation in downhill skiing drops from 27% of the population in the 18 to 29 age group to 4% for the 60 to 69 age group while cross-county skiing only declines from 17% to 13% for the same age groups).

Did You Know?

With over 200,000 registered snowmobiles and over 25,000 miles of trails, Wisconsin is the nation's snowmobiling champion.

Table 6: Wisconsin resident participation rates of the 25 most popular nature-based recreation activities.[25]

Participation Rate	Activity
74%	Picnicking/tailgating/cookout
68%	Hiking/walking/running on trails
65%	Visiting a beach/beach walking
55%	Bird/wildlife watching at home
54%	Swimming in lakes/ponds/rivers
52%	Visiting a nature center
45%	Motor boating
40%	Lake fishing from shore or a pier
39%	Bird/wildlife watching away from home
37%	Lake fishing from a boat/canoe/kayak
37%	Nature photography
34%	Bicycling on rail-trails/developed trails
34%	Canoeing/kayaking
32%	Tent camping
32%	Dog walking on trails
31%	Gathering berries, mushrooms, etc.
29%	Target firearm shooting
23%	Ice fishing
23%	Visiting a dog park
21%	Hunting big game on private land
21%	RV/pop-up camping
21%	Stream/river fishing from shore/wading
21%	Water skiing/tubing/wakeboarding
20%	River fishing from a boat/canoe/kayak
19%	Target archery outdoors



Participation Frequency

Understanding overall demand for recreation requires knowing both the number of people participating and how often they participate. Together, these provide a picture of the total "recreation days" in which residents engage.

As part of the survey on recreation participation, the department collected data on frequency of participation using the following categories: 0 days/year, 1-2 days/year, 3-9 days/year, 10-29 days/year, and 30+ days/year. Results are listed in Appendix 6.

As can be seen in Figure 14 (pg. 27), for some activities (e.g., canoeing/kayaking and tent camping) participants typically engaged in the activity less than 10 days in the last year. For other activities, most notably bird/wildlife watching at home, people that participate tend to participate often. Unsurprisingly, people tend to engage most frequently in activities that can occur near their homes, require little preparation or can provide a high-quality experience in a limited amount of time.

Although the frequency of participation is comparable across many activities, there are several factors to bear in mind. For example:

Hunting, fishing and trapping regulations

The harvest seasons for different game animals can limit participation. For example, most residents can only legally hunt turkeys in the spring during one of the six, one-week periods. Thus, someone who participated in turkey hunting 3-9 days in the last 12 months could have participated during the majority or entirety of their legally allowed days.

Seasonality

Some activities are dependent on conditions associated with seasons. For example, there may be a limited number of opportunities for people to participate in snow or ice-based activities, particularly in the southern part of the state, simply due to a lack of adequate conditions. Thus, although ice fishing, snowmobiling, cross-country skiing, and snowshoeing registered fewer days of average participation than activities such as nature photography or bird/wildlife watching, the people participating in winter activities may be participating in a higher percentage of the available days.

Value vs. Frequency

Activities in which people participate infrequently can still be very important to them. For example, someone may only go camping once per year, but it may be an annual family reunion that is their favorite outdoor activity of the year.

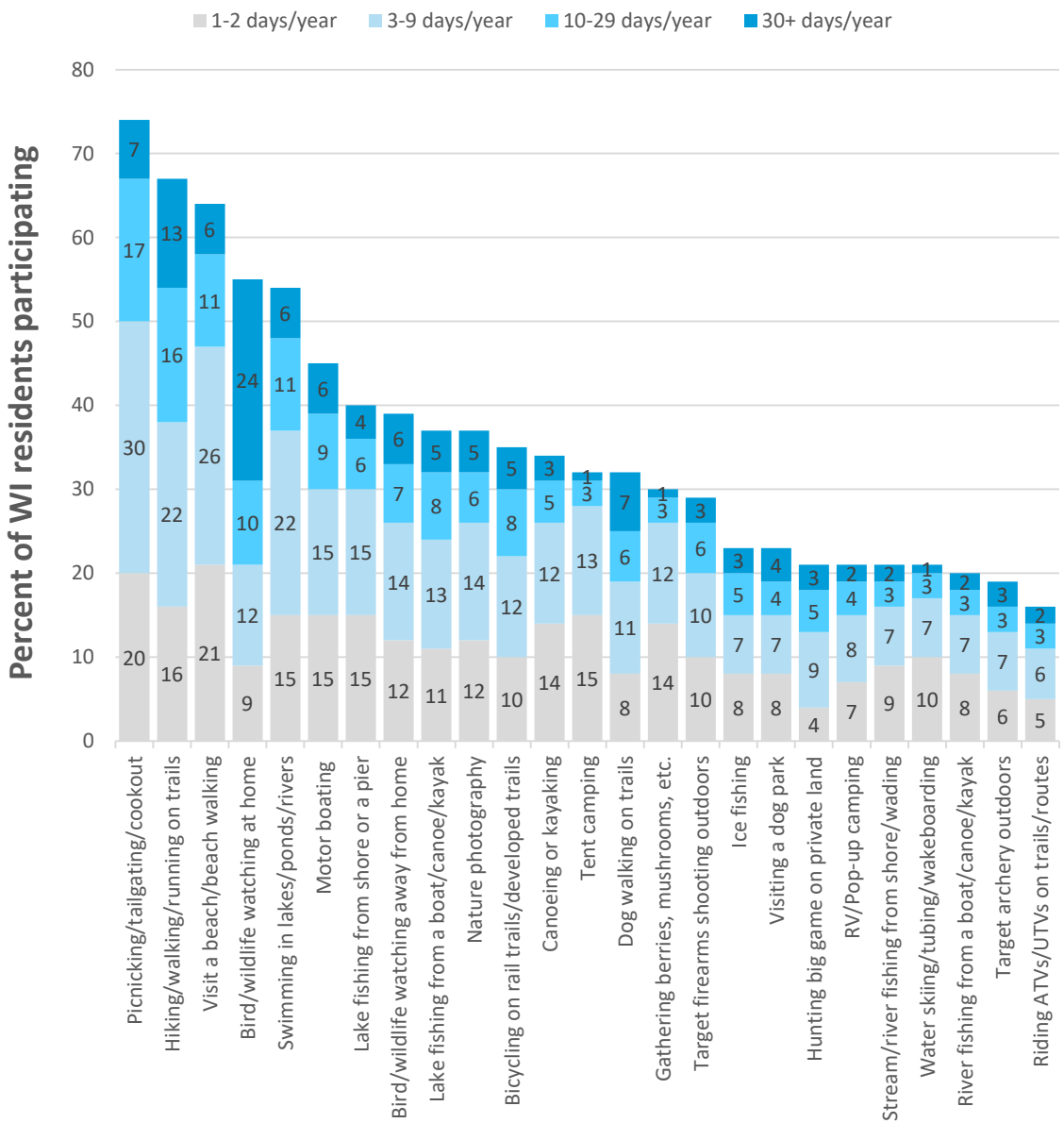
Favorite Outdoor Activities

Of course, frequency of participation can be independent of passion for an activity. That is, people's favorite outdoor activities are not necessarily those in which they participate most frequently.

When asked to name their favorite outdoor activity, the top five responses were:

1. **Walking, hiking**
2. **Fishing**
3. **Hunting**
4. **Bicycling**
5. **Camping**

Figure 14: Frequency of participation in the 25 most popular nature-based recreation activities[25]



My Story: Childhood Explorer
The Spaul Family

Hannah and her husband Mike love spending time outdoors and have taken their son, Oscar, along pretty much everywhere since he was born. Oscar was 3 months old on his first camping trip and was canoeing before he could walk; his mom would hold him while he paddled.

Unsurprisingly, Oscar wants to do everything his parents do so they make sure he has equipment, but in his size. His paddle, fishing pole and net, headlamp and walking stick fit him well. His parents also change things up to keep him interested.

"We might start a scavenger hunt while on a hike or stop for snacks by the lake. And we give him as much control over what he wants to do as we can. Instead of moving at our desired pace, we slow things down and let him appreciate that cool rock or shell he just found," says Hannah.

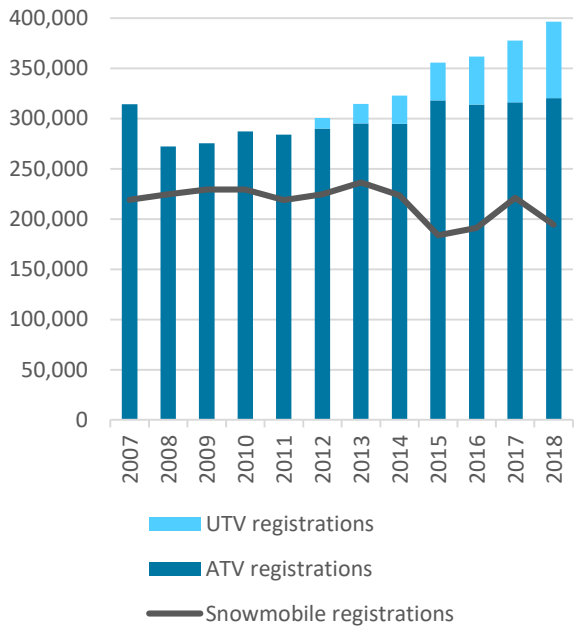
Most kids, unfortunately, don't get this type of exposure to the outdoors or the benefits. Surveys reveal children are not spending enough time outdoors. "I don't think it's just an issue for children. People are not spending much time outdoors, which means they're not taking their children outside either. Some children I know are afraid to go out in nature because they have no experience with it. But most children enjoy spending time outdoors when it's well-facilitated and they have the companions and the supplies they need to be comfortable," says Hannah.

Oscar's favorite place to visit is The Nature Conservancy's Lulu Lake Preserve in southeast Wisconsin. "When we take him canoeing there, he hops off the side of the canoe with his life jacket and his snorkel set. He'll swim around looking at fish until he's blue," reports Hannah.

Oscar is now ten and in fourth grade. He loves swimming, snorkeling, canoeing, fishing and taking short hikes. He digs in the dirt, collects rocks and loves bugs. When asked why she thinks it's important for Oscar to spend time in the outdoors, Hannah responds, "It's healthy, and it encourages independent learning and problem-solving. It's also a great way to unplug and spend time with other people - from family and friends to park rangers and naturalists. Nature adventures and discovery are a big part of our lives, and it's a gift we want to give to Oscar."

Paul Heinen
The Nature Conservancy

Figure 15: ATV, UTV, and snowmobile registrations in Wisconsin, 2007 - 2018[26]



Recreation Trend Example

Motorized recreation

While ATV use has been generally constant in Wisconsin over the last decade, UTV use has increased considerably. This growth is likely due both to the substantial number of Baby Boomers (older riders tend to prefer UTVs more than ATVs) and also because on-going upgrades in UTV features have expanded their appeal and utility.

Given the projected growth in older age groups, there is likely to be an increase in the number of people that will participate in UTV riding.

Participation Trends

Future participation levels will be affected by the size of our population and the rates at which residents engage in different activities. The state's population is projected to grow by about 700,000 additional residents by 2040 and as a result most activities will see increases in the number of participants, even if participation rates for many activities decline as our population ages.

Of course, participation rates in activities rise and fall as trends come and go.[27, 28] Newer forms of recreation provide users with more options for enjoying the outdoors, and in some cases supplement users' recreational experiences. For example, fat-tire bikes can extend biking opportunities into the winter months, kayaking can be another way to fish small streams, UTVs can be a way for groups to get to a favorite hunting spot, and drones can be a new way to photograph nature. As battery technology continues to improve, it is possible that many applications will affect outdoor recreation in the future.

Based on the number of residents that are projected to be in different age groups in 2040, if future participation rates for each age group are the same as today's rates, the largest increases in the number of participants in nature-based recreation are expected for bird watching, picnicking/tailgating/cookout, visiting a nature center, and hiking/walking/running on trails (Appendix 4, Table 17).

Because the methods to survey recreation participation in Wisconsin have changed over time, it is not possible to analyze current and past data to quantitatively identify trends in statewide participation rates or frequencies. To address this, qualitative input was gathered from county recreation providers on their perspectives of how recreation participation has changed over the past five years at their properties. The recreation opportunities in highest demand on county-managed properties are campsites, hiking/walking/ running on trails, mountain biking and recreational biking trails, motorized trails, and shore access to lakes, rivers and streams (Appendix 4, Table 16).

ATV and UTV - What's the difference?

ATV (all terrain vehicle): usually meant for a single rider that straddles a saddle and steers using a handlebar system.

UTV (utility task or terrain vehicle, sometimes referred to as side-by-side): can seat multiple people and riders sit in bench or bucket seats. Driver uses a steering wheel.

See State Statutes 340.01 and 23.33(1)(ng) for legal definitions.

Trends in participation at county parks, forests and trails

Activities with largest increases in participation over the last five years at county properties:

- Bicycling – winter/fat-tire biking
- Camping – RV/pop-up
- Bicycling – mountain biking
- Riding ATV/UTVs
- Canoeing/kayaking
- Bicycling – recreational/rail-trail biking
- Picnic areas/day use/beaches
- Paddle boarding
- Dog walking on trails
- Hiking/walking/running on trails
- Fishing

WISCONSINITES
WHERE WE PARTICIPATE

With 7.5 million acres of land open to the public, there are abundant opportunities for residents and visitors to enjoy outdoor recreation experiences in Wisconsin. Approximately half of this acreage is managed by state and federal agencies, including the Wisconsin Department of Natural Resources, U.S. Forest Service, U.S. Fish and Wildlife Service, and National Park Service. Local and tribal governments also manage a broad portfolio of places available to the public for outdoor recreation, including local parks, school forests and nearly 2.4 million acres of county forest land.

In addition, the public has access to private lands enrolled in some conservation programs and lands where agencies have acquired public access easements. Descriptions of the types of lands open to the public for nature-based recreation and acreages for each county are listed in Appendix 3. In addition, Table 14 in Appendix 4 provides an overview of the recreation opportunities at county-managed properties.

Although public conservation and recreation lands comprise only about 17% of the state (Table 7 – pg. 30), a sizable percentage of residents use public lands for outdoor recreation. When asked about their top two favorite outdoor activities, nearly two-thirds of residents said their participation was "entirely" or "mostly" on public lands or waters. However, 65% of respondents that listed hunting as their favorite outdoor activity used private lands "entirely" or "mostly." This is not surprising since public lands – especially in the southern part of the state – are typically crowded during hunting seasons.

Given the distribution of our population as well as our public lands, it is logical that for some activities there are geographic patterns of visitation. The large public land holdings in central and northern Wisconsin draw visitors for multi-day outings, including camping, ATV/UTV and snowmobile riding, hunting and fishing. Public lands in the southern and eastern parts of the state, which tend to be smaller, are heavily used by people pursuing shorter outings (half-day or less) to hike, walk a dog, watch birds, ride a bike, picnic, fish, hunt, gather edibles and other similar activities.

Frog Bay Tribal National Park
Red Cliff Band of Lake Superior Chippewa


Photo: Michael Defoe

Frog Bay Tribal National Park is the **first tribal national park in the United States.** Established in 2012, the 300-acre conservation area includes a 170-acre park that is open to the public for hiking on several trails that lead to 4,000 feet of Lake Superior shoreline.

The property includes pristine sandy beaches, old-growth boreal forest, and a high-quality coastal estuary that provides critical habitat for many native species. The park provides views of the Apostle Islands including Oak, Basswood, Hermit, Raspberry and Stockton islands.

The Red Cliff Band of Lake Superior Chippewa also provides public camping and hiking opportunities at other properties it manages in Bayfield County.

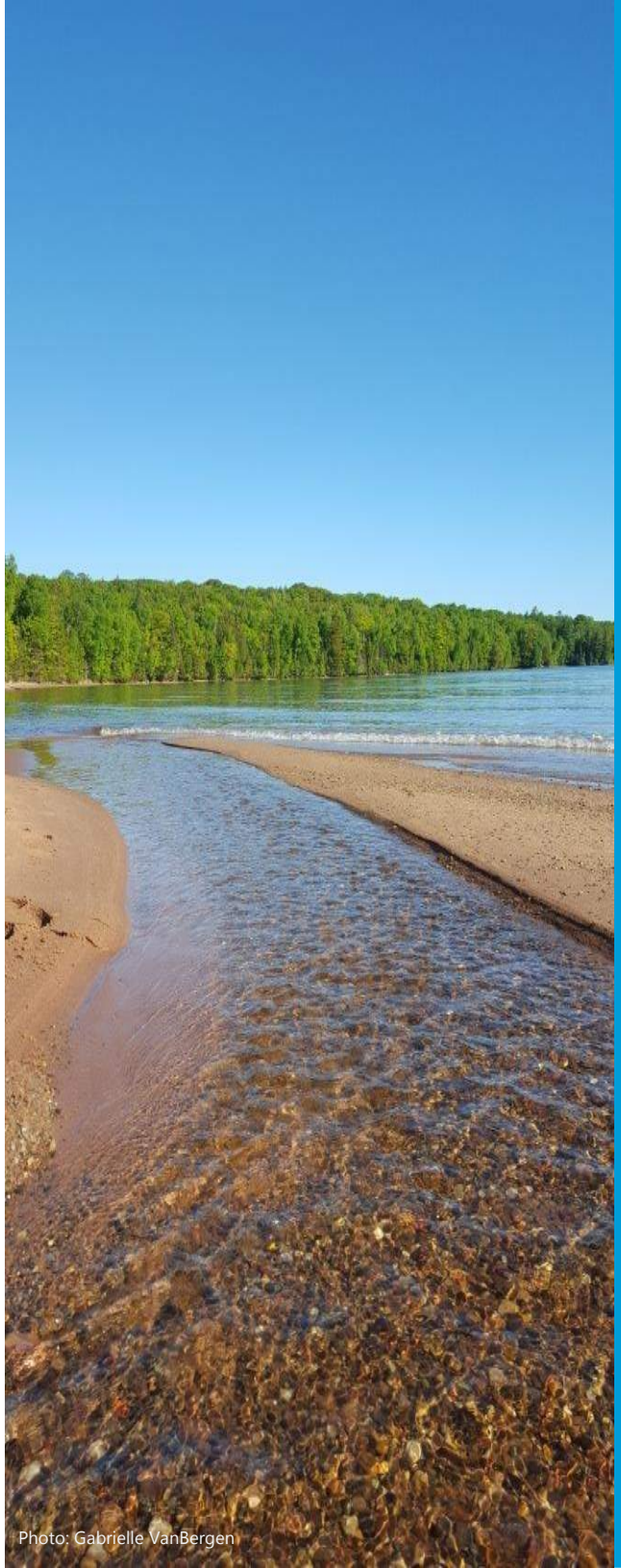
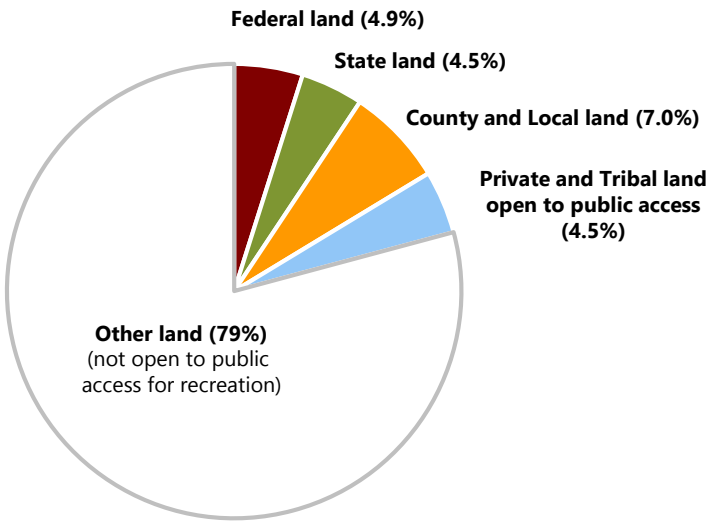


Photo: Gabrielle VanBergen

Figure 16: Lands in Wisconsin open to the public for recreation[29]



Ways to value land purchases for recreation

Governments acquire land for a variety of purposes. In determining where to purchase property for outdoor recreation, agencies must evaluate costs and benefits to determine the most effective and efficient use of public funds.

Lands that are least expensive to purchase often provide limited recreation opportunities, given their location and the type and quality of experiences the land can provide.

When viewed using metrics other than dollars/acre, higher-priced places near population centers may be a more effective use of public funds than less-expensive lands distant from cities. For example, applying metrics such as visitor-days or the economic returns accruing to nearby communities from these visitors' spending may show that recreation lands near urban areas provide a better return on investment than lower-priced lands in remote areas that are less frequently used.

Similarly, the benefits of improved health and quality-of-life will affect substantially more people when places are available near urban areas for outdoor recreation.

Table 7: Lands in Wisconsin open to the public for recreation[29]

Public Ownership		Acres Owned	Percent of the State
Federal	U.S. Forest Service	1,524,500	4.2%
	National Park Service	67,500	0.2%
	U.S. Fish & Wildlife Service	149,500	0.4%
	U.S. Army Corps of Engineers	14,300	0.0%
	Total Federal	**1,755,800**	**4.9%**
State	Department of Natural Resources - Fee title	1,507,000	4.2%
	Board of Commissioners of Public Land	75,900	0.2%
	Total State	**1,582,900**	**4.5%**
County and Local	County Forests	2,395,400	6.7%
	County Parks (estimate)	70,000	0.2%
	City, Village, and Town recreation properties funded by Stewardship matching grants	15,000	0.0%
	City, Village, and Town recreation properties not funded by Stewardship matching grants (estimate)	50,000	0.1%
	School Forests	27,900	0.1%
	Total County and Local	**2,558,300**	**7.2%**
Total *public* lands open to public recreational access		**5,897,000**	**16.5%**

Table 7: Lands in Wisconsin open to the public for recreation (continued)

Private and Tribal Ownership	Acres Open to the Public	Percent of the State
Non-government organization lands funded by Stewardship matching grants	70,000	0.2%
Managed Forest Law land open to the public*	1,081,600	3.0%
Forest Crop Law land**	125,800	0.4%
Forest Legacy program easements	248,200	0.7%
Department of Natural Resources – easements on private lands	55,100	0.2%
Voluntary Public Access (VPA) lands	32,000	0.1%
Red Cliff Band of Lake Superior Chippewa	200	0.0%
Total *private and tribal* lands open to public recreational access	**1,612,900**	**4.5%**

* By statute, open for hunting, fishing, hiking, sight-seeing, and cross-country skiing.
** By statute, open for hunting and fishing.

Total: Land Open for Public Recreation	
State of Wisconsin (acres)	**35,640,000**
Land in the state open for public recreation (acres)	**7,509,900**
Percent of the State of Wisconsin open for public recreation	**21%**

See Appendix 3 for maps and a listing of public lands by county.

Photo: Gretchen Marshall

WISCONSINITES WHEN WE PARTICIPATE

Wisconsin's four-season climate supports a wealth of opportunities for outdoor recreation throughout the year. The seasonal patterns of participation vary across activities; some are popular year-round while others are limited by conditions – like adequate snow or migration events – or by specific dates (for example hunting, fishing and trapping seasons). In addition to participation patterns related to the seasons, there are also ebbs and flows of participation across the days of the week and the times of the day.

Participation in outdoor activities varies from outings of an hour or two (often after work) to half-day or day-long trips (often on weekends) to multi-day vacations. Although people pursue the full gamut of activities in each of these types of getaways, activities differ in the length of time needed to provide a high-quality experience.

For example, participants in activities such as dog walking, trail running, or nature photography can have an excellent experience in as little as a half-hour. Other activities, such as horseback riding, hunting, fishing, canoeing and bicycling are often pursued for two to three hours or longer. Table 8 shows estimates of the frequency of the duration of people's participation in different recreation activities.

Where people go to participate in outdoor activities is, of course, a function of available time and locations of opportunities. One's willingness to travel different distances is often directly related to the time available to participate in an activity. Typically, people are willing to invest a total travel time (getting to and from the destination) no more than the same amount of time they will recreate. If the travel time is much beyond the recreation time, then most people conclude the enjoyment of participating in the outing isn't worth the cost or effort.

Combining travel time and the participation time needed for a high-quality experience provides an indication of what types of activities people typically engage at different distances from home. As an example, since most people walk their dog for 30 minutes to an hour at a time, they typically travel no more than 15 to 30 minutes to a place that would provide a high-quality experience. Thus, most dog walking happens close to home and a map showing where participation takes place would mimic our state's population map.

For other activities, a map of participation would be quite different. Participants in hunting and many motorized activities often spend four to six hours or more a day engaged in these activities; occasionally, participants spend several days in a row on trips. Participants are typically willing to spend four or more hours travelling to locations that provide first-rate experiences. And, of course, camping involves multi-day trips. For these types of activities, a map showing where participation occurs would be more influenced by the locations and characteristics of existing opportunities rather than where people live.

Table 8: Frequency of estimated hours per day participants typically engage in selected nature-based recreation activities*

Recreation Activity	Hours of participation within a day											Multi-day
	0.5	1	1.5	2	2.5	3	4	5	6	7	8+	
Water skiing/tubing/wakeboarding												
Swimming in lakes/ponds/rivers												
Dog walking on trails												
Target firearm shooting												
Target archery												
Trapping												
Hiking/walking/running on trails												
Nature photography												
Mountain biking												
Gathering berries, mushrooms and other wild edibles												
Visiting a beach/beach walking												
Cross-country skiing												
Lake/river fishing from a boat/canoe/kayak												
Lake/river/stream fishing from shore/wading/pier												
Motor boating												
Horseback riding												
Canoeing or kayaking												
Bicycling on rail-trails or other developed trails												
Bird/wildlife watching away from home												
Hunting small game												
Ice fishing												
Riding motorcycles on trails/routes												
Riding ATVs/UTVs on trails/routes												
Snowmobiling												
Driving 4-WD vehicles on trails/routes												
Hunting big game												
RV/pop-up camping												
Tent camping												

Estimated Frequency	
Rarely (less than 2% of trips) or not applicable	
Infrequent (3% to 9% of trips)	
Occasional (10% to 19% of trips)	
Common (20% to 39% of trips)	
Most common (40% or more of trips)	

**These estimates are based on department staff consultations with outdoor organizations and their professional judgement.*

My Story: Empowered
Sarah Lisiecki

The outdoors is a space for me. A space where there aren't expectations or "shoulds" and a space where I can go to be a happier, healthier, more creative version of the person I was when I went in. As a woman, I spend a lot of time being told how to behave, feel, act and believe.

The outdoors offers me a place to transcend those "shoulds" and focus on who I am at the core and who I want to be as my future self.

Being outdoors – hiking, biking, climbing, kayaking, trail running, camping – allows me to be physically challenged and to confront fear and be brave. Here I feel empowered yet find a peacefulness that is unique to time spent without walls. It allows me to see my body for all it can accomplish and not what it can't. It allows my mind to be relaxed, yet focused.

In the outdoors I build my thoughts, find my peace, overcome and gain confidence. People in the outdoors foster a community; there is something special about these places that brings people together.

Being outdoors and void of distractions help me deepen friendships, family relationships and my relationship with myself.

Maybe it's the struggle followed by the reward or maybe it's being reminded of what's essential and having the opportunity to relish beauty uninterrupted.

Sarah Lisiecki

WISCONSINITES
WHY WE PARTICIPATE

Table 9: Top ten reasons to get outside, US residents, Age 6+[33]

Reasons to get outside	% of respondents
Get exercise	64%
Be with family and friends	55%
Keep physically fit	50%
Observe scenic beauty	49%
Be close to nature	47%
Enjoy the sounds and smells of nature	47%
Get away from the usual demands	40%
Be with people who enjoy the same things I do	31%
Experience excitement and adventure	32%
Experience solitude	20%

Table 10: Top ten reasons to not get outside, US residents, Age 6+[33]

Reasons to *not* get outside	% of respondents
Too busy with family responsibilities	21%
Outdoor recreation equipment is too expensive	18%
Do not have anyone to participate with	17%
Do not have the skills or abilities	16%
Have a physical disability	14%
My health is poor	11%
Places for outdoor recreation cost too much	10%
Too busy with other recreation activities	10%
Places for outdoor recreation are too far away	10%
Do not have enough information	7%

Considerable research has been conducted by various organizations to understand what motivates people to participate in outdoor recreation and what obstacles exist. The results of these research efforts consistently identify social and health benefits as primary drivers of participation. At heart, many people spend time outdoors simply to have fun and get away from daily stresses.

In addition to the reasons that draw people to outdoor activities listed in Table 9, another motivation is the desire to eat locally-grown, sustainable, organic food. This has led some people to take up or increase their participation in hunting, fishing and gathering wild edibles – cultural traditions that have been practiced and maintained by Native Americans and settlers of the region since before Wisconsin achieved statehood.

Although many people understand the health and social benefits of ongoing experiences in nature and are interested in pursuing outdoor activities, there can be a substantial gap between "concept and reality."[30] Competing priorities for time, lack of easy access to places or people to go with, and cost of equipment are often cited as obstacles to participation. Although some types of equipment can be expensive, it should also be noted that the price of computers, phones, Internet and phone service, cable television and other technology can also be costly. For example, Americans spent $36 billion on video games in 2017.[31] This is more than the combined spending on all fishing and hunting equipment ($34 billion).[32]

Table 10 lists top reasons people identify for not getting outside.


Photo: TJ Brusoe


Photo: TravelWisconsin


Photo: Mark LaBarbera

Photo: Mark LaBarbera

My Story: AccessAbility
Monica Spaeni

As daylight faded and the northern Wisconsin forest darkened in the early evening, Monica saw 300 pounds of shadow move closer to her wheelchair. The hungry bruin moved through the trees slowly, pausing often.

Unlike most other hunters, she wasn't in the relative safety of an elevated tree stand. Seconds seemed like minutes and minutes seemed like hours as Monica sat still, her senses tingling with excitement. Monica was focused solely on the bear moving among the shadows. It stepped into an opening nearby. Monica's heart raced. She raised her .308 and shot, killing the bear and filling her freezer.

Her guide, Wayne, and friend, Steve, made it possible for her to hunt bear despite her spinal cord injury.

Monica was in a wheelchair because of a skiing accident when she was chaperoning her child's field trip. She resisted feelings of self-pity and did not settle for a sedentary life.

After the diagnosis that she would not walk again, Monica focused on how she and others could enjoy a life filled with accessible outdoor recreation activities.

It didn't take long for Monica to discover the Action TrackChair, a motorized all-terrain wheelchair that allows anyone to go afield where normal wheelchairs cannot. Soon, Monica was tracking through corn stubble on pheasant hunts, navigating rough trails to fish streams, and traversing wooded terrain in pursuit of whitetails. Dog park trails near home were easy for her motorized wheelchair as she exercised her dog.

She did not stop there. She wanted others to have access to the all-terrain chairs. With help from the local chapter of Pheasants Forever, AccessAbility was born and has grown into an independent, non-profit organization that is building a fleet of chairs throughout the state that can be used by anyone at no cost.

What started as a ski accident that threatened to limit her mobility and future recreation opportunities, has turned into a series of accomplishments that has improved opportunities and access for not just Monica, but so many others.

Mark LaBarbera
Outdoor Heritage Education Center

WISCONSINITES HOW WE BENEFIT

Chronic Diseases and Their Costs

Wisconsinites currently face chronic health issues related to society's increasingly sedate lifestyle.

Despite the growing awareness of the problem, the obesity rate for adults in our state has doubled since 1990.[34]

Maybe more troubling, 25% of adolescents are overweight or obese.

In addition, more than 350,000 Wisconsinites have been diagnosed with diabetes.[35] And in both Wisconsin and the United States, heart disease is a leading cause of death; one-third of all deaths in the state were due to cardiovascular disease.[36] A table of some health care indicators, by county, is presented in Appendix 2.

Chronic diseases exact a substantial cost on the state's economy. The direct costs of these diseases to just the Medicaid system are estimated to total $1.15 billion annually in Wisconsin; if costs to the private sector were included, the amount would be significantly higher.[37]

Health benefits

Most people participate in outdoor activities for enjoyment and because it helps them feel energized and revitalized. The fresh air, exercise, natural settings and companionship with others helps people feel physically and mentally refreshed. Participating in outdoor recreational activities, or simply being in peaceful natural settings, can have substantial benefits to one's mental health. Outdoor exercise has been shown to reduce stress, boost the immune system, diminish the risk of disease and increase life expectancy.

And from walleyes to ducks to mushrooms, "consumptive activities" can be a nutritious source of lean, organic, sustainable food. For many years the DNR has hosted a Learn to Hunt program that links novice hunters with experienced ones. The program is increasingly popular with young urban residents interested in connecting with the state's hunting heritage and harvesting locally-grown, healthy food.

As the physical and mental health benefits of spending time outdoors are better understood, the health care community is developing creative ways to encourage patients to get outside. In one of the better-known examples, some physicians are recommending "park prescriptions" to patients with various chronic diseases.[52]

The health care cost savings generated by participating in outdoor recreation, particularly more strenuous activities, is just beginning to be explored. Given the physical and mental health benefits of outdoor recreation, several programs in Wisconsin (along with many other states) have embarked on campaigns to draw people outside and become more active. Three of these efforts are highlighted on the adjacent page.

Did You Know?

OutWiGo is a statewide initiative encouraging people to improve their overall health and wellness by being active in the outdoors.

Since launching in May 2018, over 2,000 residents have pledged to be active in Wisconsin's Parks, Forests and Trails. OutWiGo aims to reach additional users through outreach, partnership events and social media marketing.

Learn more at:
https://dnr.wi.gov/topic/parks/outwigo.html

OutWiGo

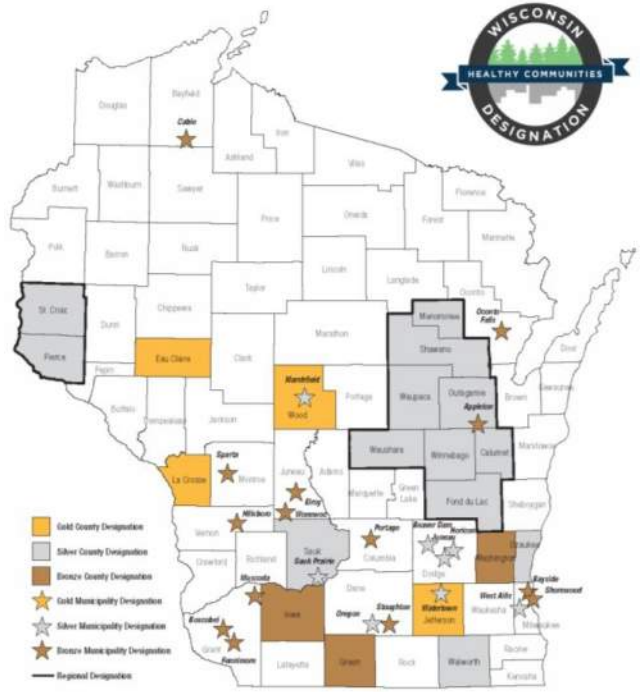
Wisconsin Healthy Communities Designation[38]

This new program encourages achievements in health improvement in Wisconsin by recognizing communities that focus multiple, connected efforts – including health behaviors, clinical care, social and economic factors, and the physical environment – to improve the health of their residents. The program's inaugural round of gold, silver or bronze designations was announced in September 2018 and included 31 communities (Figure 17).

One of only four gold designations went to Jefferson County, which was recognized for its efforts to reduce obesity rates through outdoor exercise strategies (among other programs geared to improving resident's health). The county's Parks Department has been a leader in providing natural-resource-oriented parks and trails that make it easy for residents to get outside, exercise, and enjoy the woods, prairies, and rural landscape. Examples include expanding the popular Glacial River Trail, constructing a new bicycle trail from Watertown to Oconomowoc, increasing recreational offerings in parks, and developing a series of water trails for paddlers.

These and other efforts appear to be paying off; the county's health ranking jumped from 33rd in the state in 2012 to 12th in 2018.

Figure 17: Healthy Communities Designations, 2018



Wisconsin Active Together[39]

Wisconsin Active Together is an initiative that provides recognition awards to community groups or coalitions that are making it easier for people to walk, bike and be active and meet basic criteria to demonstrate that commitment. The initiative was developed in 2017 by a diverse group of state-level and community-based partners that identified the need to support more local-level action on strategies that make physical activity easy, safe and fun in community settings.

Wisconsin Active Together focuses on coalitions and processes working on policies, systems and environments that build physical activity into routine daily life.

The first set of communities recognized were:

Appleton
Fond du Lac
Fox Valley
La Crosse Region
New Holstein
Watertown
Wausau

Marathon County Strategic Plan

Marathon County recently adopted their 2018-2022 Strategic Plan with an overarching goal to be the healthiest, safest, and most prosperous county in Wisconsin. Their plan recognizes that:

> "Health is not merely restored at the doctor's office, but instead starts in our families, in our schools and workplaces, in our playgrounds and parks, and in the air we breathe and the water we drink. We recognize that health and well-being are lifelong pursuits and that our communities can support positive, healthy lifestyles."

Marathon County Parks, Recreation, and Forestry Department plays a key role in helping meet this goal. With 13 parks and over 30,000 acres of county forest, residents have abundant opportunities to enjoy outdoor recreation and stay active as part of efforts to improve their health. In addition, the lands managed by the Parks, Recreation, and Forestry Department improve air and water quality in the county.

Social benefits

Participation in many nature-based outdoor activities is often a group activity. Families and friends tend to camp, bicycle, ride snowmobiles, ATVs and UTVs, horseback ride, bird watch and hike in groups (see Table 9 - pg. 34: 55% of people stated that they participated in outdoor recreation to "be with family and friends").

The bonds that form through the collective outdoor experiences shared by groups are part of the "social glue" that brings people together. And the stories that accompany particularly memorable outings – whether because of a rare bird sighting, attempting an activity for the first time, reeling in a trophy fish, getting lost in the woods, or the inevitable mishaps that leave people laughing – often become family legends that are retold over and over.

Group activity: Rock climbing

Not only does rock climbing provide participants with sizeable physical and mental benefits, but by its very nature it is a communal and cooperative activity. Participants depend on each other for their personal safety and enjoyment of the experience. Climbers often form tight social bonds that span differences in age, gender, education, ethnicity and cultural backgrounds.

Wisconsin is home to some of the best outdoor climbing and bouldering opportunities in the Midwest. Devil's Lake, Governor Dodge, Interstate, and Willow River state parks draw thousands of participants annually.

Participation in climbing and bouldering has steadily increased both nationally and in Wisconsin. Climbing at Devil's Lake, by far the most popular location in the state, is estimated to have quadrupled over the last several decades. New opportunities are in demand throughout the state.

Outdoor recreation can also be an opportunity for people to meet and better understand each other's perspectives, needs, and motivations. Like sports, the arts, religion, social clubs and school, outdoor recreation can bring together diverse groups of people interested in a common pursuit and provide a forum to interact, learn new customs, and better understand each other. This in turn can strengthen community cohesion and connections to natural resources.

Recent research has indicated a connection between greenspace and the amount of time spent in nature with reduced crime and how people view their surroundings.[40] In Wisconsin, local park programs are increasingly customizing new outdoor recreation facilities to reflect the heritage and current ethnic diversity of the surrounding community. These city parks can serve two purposes – one as an outdoor recreation facility and also as a source of cultural education.

The link between physical activity and academic achievement in a range of school-age children has been the topic of ongoing research. Several studies have shown a positive connection between children's participation in physical pursuits, including nature-based outdoor activities, and improved educational outcomes.[41]

Outdoor recreation groups

Wisconsin has numerous clubs representing hunters, bicyclists, birders, horseback riders, and many other participants. These groups have been exceptionally key players in organizing events, volunteer work days, educational and outreach programs, and in advocating for policies and funding to support outdoor recreation. Participation in these groups is on the rise. For example, the number of snowmobile clubs has grown from 575 to 615 over the last ten years.


Photo: Gretchen Marshall


Photo: Gretchen Marshall


Photo: Gretchen Marshall


Photo: Jennifer Girling

My Story: The Outdoors – from Passion to Occupation

Chase Cummings, Pepin County Land Conservation & Planning Director

The Tri-County School Forest is a 280-acre parcel in rural Waushara County that provides an excellent educational setting for students as well as recreational opportunities for the community. Area students from kindergarten through high school visit the property multiple times each year. The school forest is also open to the public to hunt, snowshoe, bicycle, cross-country ski, and picnic.

Rain or shine, Chase Cummings has always enjoyed being outside and connected with natural resources. For Chase, learning was easier in the woods or fields where he could see, hear, and feel his surroundings. It would be an understatement to say that he was very excited to visit the school forest each year.

When he reached high school, Chase became an Environmental Education (EE) Counselor at the forest. In his role, he coordinated field trips for the district's teachers and led a variety of lessons for other kids. Chase had to learn to identify different plants and animals, display leadership ability, and be a good communicator – skills that have benefited him in his career. The EE Counselor program helped give him the boost of confidence needed in more challenging experiences, such as public speaking, that are common elements of his career.

After high school, Chase pursued a degree in Soil and Waste Resources and now works as the Pepin County Land Conservation & Planning Director. Building on his experience at the school forest, in 2011 Chase started Conservation Field Days for 5th and 6th grades in Pepin County.

> *Students and teachers look forward to their twice-yearly trips out in the field learning about natural resources and their management; it has grown into a very successful program.*

As a kid growing up, Chase was fortunate to have opportunities to connect with the outdoors. With the Field Days program he created, he's passing that good fortune on to the next generation and planting the seeds for future conservationists.

Gretchen Marshall
Wisconsin School Forest Program

My Story: Small business success
Suzann and Montgomery "Mo" Mouw

How does outdoor recreation drive the tourism economy in Wisconsin? The story of ROAM Adventure Basecamp, located in Seely and offering a modern twist to trailside camping, shows how a couple's passion and love for outdoor recreation and the Northwoods led to a successful new business.

The Chequamegon Area Mountain Bike Association (CAMBA) develops, maintains and promotes over 300 miles of user-friendly biking, skiing and hiking trails in northwest Wisconsin. The extensive trail network was the primary reason Suzann and Mo Mouw have owned a trailside second home in the Hayward area since 2004.

After they acquired 96 acres of land on the American Birkebeiner ski trail in the heart of the CAMBA trail system, Suzann and Mo thought it would be nice to share their love of trailside living with others. Mo states, "though there are a number of campgrounds in the area, none catered specifically to bikers and skiers - thus, the idea of ROAM was hatched."

Started in 2017, the business provides both traditional tent camping sites and trendy, comfortable "tiny house" cabins with easy access to the trails. At the end of the day, guests can unwind in the campsites, eco-friendly cabins, or around a campfire with friends in a secluded natural setting.

The overwhelming feedback they receive from guests is their appreciation of being trailside with direct access to Wisconsin's premier Northwoods trail system. "No more loading gear every time they start an adventure."

The backbone of Wisconsin's tourism industry is small business owners and small family-run operations.

"On any given weekend we bring over a hundred plus people to the area that likely would have gone somewhere else if we did not offer our services," states Mo. Suzann and Mo's ROAM Adventure Basecamp is just one of many examples of how individuals turn their passion for the outdoors into a thriving business that generates travel, creates jobs, and drives economic impact in Wisconsin.

by David Spiegelberg
Wisconsin Department of Tourism

Economic benefits

From manufacturers of outdoor gear to resorts and restaurants, outdoor recreation is a financial powerhouse throughout Wisconsin. People's participation in outdoor recreation results in several types of economic activity. The most obvious is the travel-related spending that occurs on trips. These costs can include gas, meals, supplies (e.g., fuel for motors, bait, and shotgun shells), equipment rentals, overnight accommodations, entry fees, guide services, and various souvenirs. Of course, the amount of spending associated with travel varies considerably. Spending varies due to the distance participants travel, type of activity, personal preferences and other factors.

Typically, people engaged in many nature-based outdoor activities (e.g., bird watching, fishing, hunting, hiking, bicycling, horseback riding or cross-country skiing) spend about $20 to $50/party on day trips (see the sidebar on page 41 for citations).

People participating in motorized activities (snowmobiling and ATV/UTV riding in particular), and overnight trips tend to spend considerably more on a daily basis. It is not uncommon for these participants to spend more the $100/person each day on travel-related expenses.[56]

Another major form of economic activity associated with participation is the purchase and upkeep of outdoor gear. Although most of the supplies and equipment that residents purchase, including from local stores, are made in other states or countries, Wisconsin is home to many manufacturers of equipment used in nature-based recreation. Examples include fishing rods and lures, bicycles, motorboats and boat engines, canoes and kayaks, firearms and bows, and saddles.

In looking at the financial benefits that accrue to an area due to people's participation in outdoor recreation, it is important to highlight money that "moves into" an area from visitors.

In Wisconsin, estimates of overall economic activity related to outdoor recreation range considerably due to differences in the accuracy of data collected, recreation activities and expenditures included, how indirect and induced regional impacts are calculated, the geographic scale of analysis and other factors.

Importantly, outdoor recreation has long been one of the key mechanisms by which economic activity and wealth is transferred from urban areas (and out-of-state visitors) to the state's rural communities.

A tabulation, by county, of the broader tourism industry's economic impact in Wisconsin is provided in Appendix 5.

Did You Know?

Wisconsin hosts dozens of **manufacturers** of outdoor recreation equipment – from fishing rods to sailboats and canoes to bicycles.


Photo: Maggie Kailhofer

Not only does the state's economy benefit from the spending generated by people participating in outdoor recreation, but additional financial benefits are generated by the places that are protected to provide high-quality experiences for residents and visitors.

The property values of privately-owned lands near federal, state, county and local parks, trails, fish and wildlife areas, forests, natural areas and other protected places are typically higher and more stable than other private properties. A recent study for the U.S. Fish & Wildlife Service found that, all else being equal, homes within a half-mile of wildlife refuges are valued on average 3% to 9% higher than houses further away.[53] In Wisconsin, a study found that lots adjacent to the Mountain-Bay State Trail in Brown County sold for an average of 9% more than similar property not located next to the trail.[54.]

The places that provide outdoor recreation opportunities also contribute to nearby communities' quality-of-life, which in turn has a direct impact on their ability to attract businesses. The experiences available at parks, trails and other recreation lands and waters are key selling points that communities use to entice companies to locate and expand their operations.

In today's economy, high technology and service-sector industries are prime sources of wealth creation and growth; their workers are typically interested in a diverse range of outdoor activities. Communities that can tap into their natural resource base to provide opportunities for active experiences – from biking to rock climbing to kayaking – stand to benefit economically.[55]

Finally, providing opportunities for outdoor recreation complements other natural resource-based industries in the state, most notably the forest industry in the north. Similarly, several utility companies manage flowages throughout the state for power generation and flood control. They also provide the public with boat access sites and associated facilities on some of Wisconsin's most popular waterbodies.

Did you know?

Places open for public recreation also provide a wide range of high-quality habitats that support a diversity of native plants and animals. Indeed, some of the most ecologically important places in the state – Devil's Lake and Peninsula state parks, Kettle Moraine State Forest, the Apostle Islands and Horicon Marsh – are also among our most popular recreation destinations. It is estimated that over 75% of the Species of Greatest Conservation Need in Wisconsin are found on public lands in the state.[59]

In addition to their habitat values, places open for public recreation also provide a range of ecological services including: flood control, groundwater replenishment, water and air filtration, nutrient capture, refuges for insects that pollinate agricultural crops, carbon sequestration, and temperature moderation.[57]

A recent study found that the benefits generated from ecosystem services on lands acquired by the Minnesota DNR ranged from $19 to $154 per acre, annually.[58] It is likely that public lands in Wisconsin provide similar values.

Outdoor recreation: big business in Wisconsin!

Some examples of the economic impact of outdoor recreation in Wisconsin:

- Consumer spending on outdoor recreation in Wisconsin totaled **$17.9 billion** which resulted in 168,000 directly-related jobs, $5.1 billion in wages and salaries, and $1.1 billion in state and local tax revenue.[42]
- Properties in the Wisconsin State Park system draw an estimated 14 million visitor-days that generate more than **$1.0 billion in annual expenditures** in local communities.[43]
- **$19 million** in trip and equipment expenditures associated with waterfowl hunting in Wisconsin.[44]
- **$1.5 billion** in retail sales, 36,000 jobs and $235 million in state and local tax revenue generated by wildlife watchers in Wisconsin.[45]
- **$425 million** in output and personal incomes related to bicycle manufacturing in Wisconsin.[46]
- **$1.6 billion** annual total spending and economic impact generated by trout fishing in the Driftless Area (much of which is in Wisconsin).[47]
- **$1.4 billion** in sales generated by Wisconsin's horse industry.[48]
- Research conducted for the Wisconsin Department of Tourism indicates that day visitors to tourism events (which includes outdoor recreation trips) spend an average of **$64 per visitor** and overnight visitors spend **$144 per visitor**.[49]
- Wisconsin ATV riders spend on average **$164 per day** while out-of-state riders spend an average of **$573 per trip** to Wisconsin.[50] A more recent study found that ATV riders spent between $355 and $427 per trip while visiting the network of trails in Jackson County.[51]

Photo: Greg Sanderson

ISSUES, CONCERNS, AND FACTORS INFLUENCING THE FUTURE OF OUTDOOR RECREATION

This section summarizes key topics that are expected to affect the future demand for outdoor recreation opportunities, as well as the nature of experiences, in Wisconsin.

Demographic Changes

The continued evolution of our population's demographic characteristics will drive changes in recreation participation. As our population continues to age, urbanize and diversify, participation rates and frequencies in outdoor recreation will change. Existing data suggest that the increase in older residents will drive an increase in the popularity of activities such as hiking, dog walking, bicycling, UTV riding, nature photography and bird watching.

Condition of Recreation Facilities

Ongoing maintenance is key to protecting public investments in outdoor recreation and ensuring that existing facilities continue to provide satisfying experiences for the public. Although many recreation facilities are modest in design and scale, they require ongoing maintenance to remain safe, useable and enjoyable. The flip-side of a long history of outdoor recreation infrastructure in Wisconsin is a large portfolio of older infrastructure in need of upgrades to meet user expectations and heavier use (e.g., conversion of pit toilets to plumbed toilet/shower buildings). Adequate funding is key to adequate maintenance. For example, in 2017, all projects supported with LWCF grants on state properties involved repair or renovation of existing facilities.

Technology Advances

Technological advances affect all aspects of our lives, including outdoor recreation. From electric bikes to WiFi in campgrounds, technology is changing recreational experiences and providing new ways for people to engage in the outdoors. These changes require recreation providers to develop and implement new policies, manage an increasing number of uses (many of which can conflict with more traditional ones) and adapt to shifting conditions and demands. Adequate funding is also key to support modernization of outdoor recreation infrastructure to meet public expectations.

Social media provides a means to share experiences quickly and widely, which can help recreation providers attract a broader audience and better understand the features and attributes that drive demand. Attention and interest on social media can also result in visitation spikes.

Access to Public Lands

A longstanding issue complicating efforts to provide opportunities for several types of outdoor recreation in Wisconsin is the distribution of where many of the state's residents live and the locations of most public conservation and recreation lands. In large part driven by historical land use patterns and the economic fallout of the Great Depression in the 1920s and 1930s, over half of the lands open to the public (over 3.1 million acres) are located in just ten northern counties. Over half of the state's population resides in just nine counties, all in the southern or eastern part of Wisconsin.

This inverse distribution of public land and people means that for many residents wanting to participate in activities that require larger expanses of land they often must travel multiple hours. And as peoples' lives become busier and they have less time to devote to outdoor recreation (and the travel time required), the use of many public lands near urban centers – for example, Kettle Moraine State Forest, Devil's Lake, High Cliff and Kohler-Andrae state parks, and Richard Bong State Recreation Area – has grown significantly.

Photo: Susan Braun

Access to Private Lands

A generation or two ago, a higher percentage of our population lived in rural settings (see Figure 6 on page 20) and people who lived in cities were likely to have a relative or close friend that lived in the country. Consequently, many residents could get permission to hunt, fish, hike, pick berries or other activities on land owned by someone they knew. More and more residents now live in urban or suburban settings and no longer have direct contact with rural landowners.

In addition, there has been a loss of public access to industrial forest land in recent decades as paper companies, which historically owned over a million acres in the state and allowed public access, have sold most of their land holdings to timber investment management organizations or real estate investment trusts. These new owners typically have not re-enrolled their lands into programs that allow public access (Managed Forest Law).

Two programs administered by the DNR facilitate public access to private land for recreation purposes:

Managed Forest Law (MFL) Program

The program reduces property taxes for eligible landowners in return for implementing a certified forest management plan for their property. Landowners can choose to allow public access for hunting, fishing, hiking, sight-seeing, and cross-country skiing (for which they receive a greater financial benefit).

Voluntary Public Access (VPA) Program

Landowners who are willing to allow the public to hunt, fish, trap and watch wildlife on their property can enroll in this program and receive a modest payment. Recently, 32,000 acres had been enrolled.

Compatibility

The overwhelming majority of outdoor recreation occurs without significant conflicts between participants in the same or different activities. However, on occasion, conflicts emerge that can impact participant's satisfaction. Often, an underlying cause of recreation conflict is simply the density of use in an area. Even activities that are prone to conflict with one another (e.g., water skiing and fishing on the same lake) can co-exist if the number of interactions is minimal. Yet, as the number of participants in an area increases, overcrowding can easily emerge and result in conflicts and displacement of visitors. Many outdoor recreation providers increasingly must devote resources to address conflicts.

Aspects that can influence compatibility include:

- Expectations of participants about interactions with others.
- Skill and experience level of participants.
- Duration and intensity of interactions.
- Tolerance levels of participants, including social values and beliefs.

Techniques that can increase compatibility and decrease conflicts include:

- Education, outreach, and signage.
- Community engagement and self-policing by groups and clubs.
- Regulations and enforcement.
- Separation of participants in time and/or space.

Invasive Species and Habitat Quality

People have moved living things - sometimes purposefully, sometimes inadvertently - for millennia. Occasionally when non-native species are brought into a new area, they will spread rapidly and widely. When this happens, major impacts can occur to native wetland and upland ecosystems, farm and ranch lands, lakes and streams, and other settings. Invasive plants, animals, and pathogens can alter ecological relationships among native species and can affect ecosystem function, economic value of ecosystems, and human health.

Invasive plants and animals can significantly affect recreational experiences. Hunters, hikers and birdwatchers can find they are no longer able to walk in their favorite areas. Thorny multiflora rose, dense stands of buckthorn and other invaders can fill in the understory of once open native forests and grasslands. As habitats are modified by invasive plant species, wildlife that depend on native vegetation are affected. Invasive animals such as the mute swan can also change wildlife opportunities by chasing away waterfowl from the waterbodies they occupy.

Fishing outings can result in disappointment when aquatic invasive species modify lake and stream habitat. Eurasian water-milfoil clogs boat motors and invasive animals, such as the rusty crayfish, devour aquatic plants, reducing habitat for native fish at every stage of their life cycle.

Weather Patterns and Changing Climate

Weather patterns directly affect participation in outdoor recreation – a rainy weekend can result in cancelled camping or bicycling plans, while a very snowy winter in the north can attract lots of snowmobilers and skiers from Madison, Milwaukee and Chicago.

The changing patterns of our climate over extended periods of time may also affect the type and timing of participation. If, as predicted, spring arrives earlier and autumn later, opportunities for many types of outdoor recreation activities will be extended while others may be reduced. For example, reduced snow cover may lead some cross country skiers to shift to fat-tire biking, which doesn't require as much snow pack for an enjoyable experience.

Species' ranges and migration periods are projected to continue shifting as well.[60] This is likely to affect activities such as bird watching, hunting, and fishing over time.

Funding for Providing and Operating Places

Purchasing lands, developing and maintaining recreation facilities, managing habitats, enforcing regulations, and the other tasks associated with operating Wisconsin's recreation infrastructure is costly. Federal, state, and local agencies spend millions of dollars managing public lands each year.

Funds to maintain and operate conservation lands and recreation facilities come from a variety of sources, including hunting, fishing and trapping licenses and stamps, park entrance fees, trail passes, excise taxes on hunting and fishing equipment, grants and donations.

In addition to LWCF funds, over the last 25 years the DNR, local units of government, and non-profit conservation organizations have used funds from the Wisconsin Knowles-Nelson Stewardship program to help pay for many of the lands and facilities that provide recreation opportunities around the state.

The Stewardship funding is currently $33.25 million per year, allocated as follows:

- DNR land acquisition: $9.0 million (1/3rd for purchasing land, 2/3rd for purchasing easements)
- DNR property development: $3.75 million
- Grants to counties to acquire lands for county forests: $5.0 million
- Matching grants to local units of government (LUGs) for property development and land acquisition: $6.0 million
- Matching grants to non-profit conservation organizations for land acquisition: $7.0 million
- Recreational boating aids: $2.5 million


Photo: Savannah Ernzen


Photo: Dan Thoftne

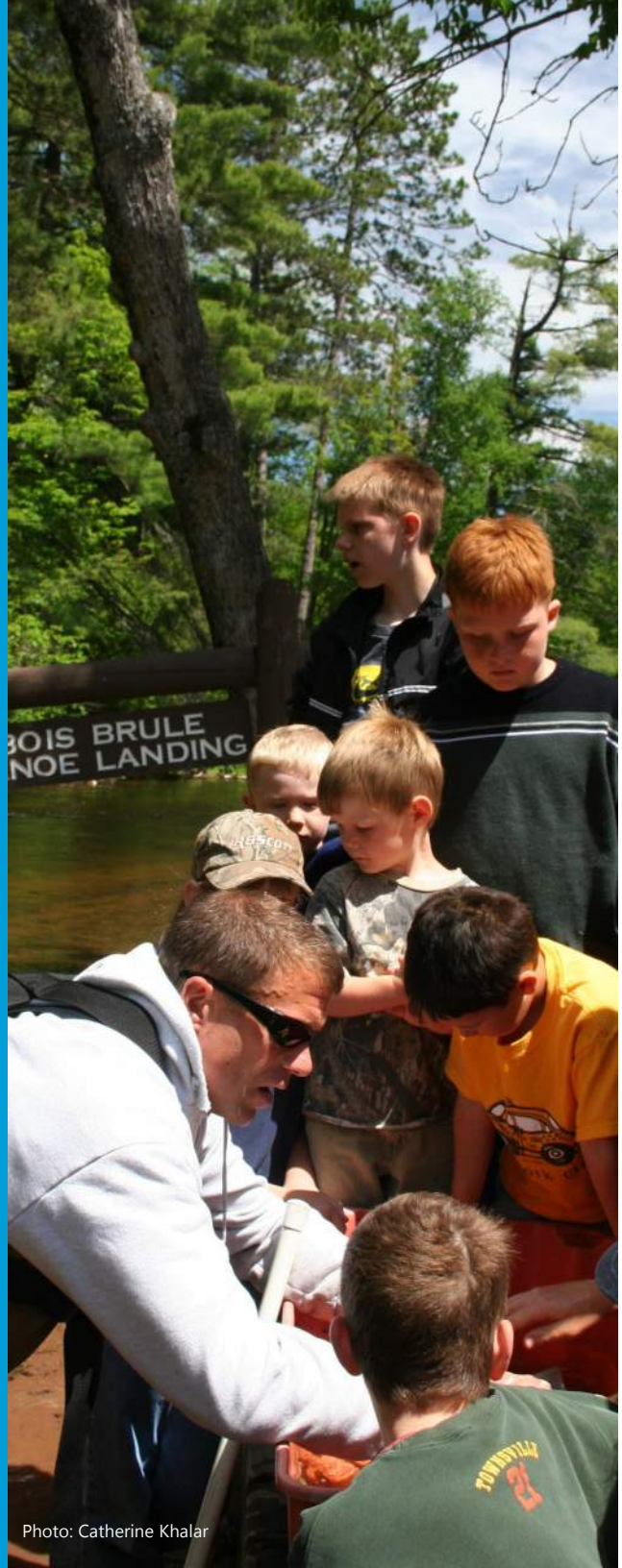


Photo: Catherine Khalar

GAPS AND NEEDS IN OUR EXISTING RECREATION OPPORTUNITIES

In developing the following statewide needs and gaps in our recreation opportunities, the department incorporated information from:

- The SCORP recreation participation survey question regarding needed recreation opportunities in residents' home county (Appendix 6).
- Recreation Opportunities Analysis, which identified recreation needs for each of the eight regions of the state (Appendix 8).
- The SCORP survey of county park directors, which asked about needs at the county level (Appendix 4).
- The SCORP Advisory Team and department staff.

Statewide Recreation Needs:

Places near population centers

Because of the inverse distribution of our population and public lands as well as the limited amount of time people have to participate, there is a very large need to provide more places for people to participate in outdoor recreation near where they live. In particular is the need to provide opportunities for residents to visit places after work or for a couple of hours on a weekend. Places that provide opportunities for hiking, all types of bicycle riding, dog walking, picnicking, and different water-related activities such as fishing, canoeing and kayaking are likely to be heavily used.

Trails

By nearly every measure, the largest need throughout the state is for more trails that enable people to experience natural settings, visit the vibrant downtowns of our cities and villages, commute to work, and access favorite sites. All types of trails are in demand – hiking, bicycling, horseback riding, snowmobiling, ATV/UTV and motorcycle riding, and 4WD vehicle trails.

Water access – shoreline and boat launches

Lakes, streams and rivers are a defining feature of Wisconsin. From the Great Lakes to the Mississippi River, from the thousands of inland lakes and the tens of thousands of miles of flowing water, residents and visitors have been drawn to the water's edge to fish, hunt, launch any manner of watercraft, bird watch and beach walk. Access to water remains a universal need throughout the state.

Camping opportunities

With a large cohort of retirees travelling in RVs combined with an adventurous younger generation, demand for camping has grown in recent years and is likely to remain popular for years to come. Given the divergence in desired experiences – some campers wanting access to hot showers and WiFi while others wanting neither – recreation providers will need to collaborate and coordinate on providing the camping experiences best suited to different public lands.

Statewide Recreation Needs: (cont.)

Dog parks and exercise areas

Taking care of a dog has many benefits, not the least of which is the exercise people get in walking their pets. With the steady rise in dog ownership (75% of people in their thirties own a dog) and an urbanizing population has come an increasing demand for places to walk, play with, socialize and train our canine friends. Many municipal and county dog parks are among their most visited properties.

Target shooting ranges

Many hunters and shooting sports participants live in rural areas or belong to gun clubs and practice their craft on their or the club's property. However, as our population continues to urbanize there is a growing need for places where people can practice gun and archery marksmanship and safety. By their nature, firearm ranges generate considerable sounds and siting new ranges has been a challenge in more populated areas of the state.

Statewide Policy Needs:

Better understand place-based recreation and associated outcomes

The survey conducted for this SCORP on recreation participation generated considerable data on which outdoor activities residents pursue and how often (see Appendix 6). What is not well known is where these "participation days" actually take place – that is, where, when, and why they occur at different places. Questions for which more detailed, property-specific, place-based data are needed include:

- How many people visit the place or property?
- When and what are the patterns of visitation?
- What recreation activities do they pursue?
- How far do visitors travel to reach the property and why did they visit the particular property (as opposed to other options)?
- What would improve their satisfaction?
- What are the economic, health, and social benefits associated with their visit?

With a more complete understanding of property use and the features and attributes that draw people, agencies can make more informed decisions about what types of recreation facilities to build and maintain at different places. And the public can better understand their "return on investment."

Better understand the nature-based recreation preferences of our diversifying population

Data are needed on the recreation preferences of our changing population. For a range of reasons, people of varying ages, residential settings, incomes, and social, racial, ethnic and cultural identities participate in different types of outdoor activities in different places. More information is needed on the types of activities and settings sought by the diversity of Wisconsin residents. In addition, data on how and where to most effectively provide quality experiences for people with varying backgrounds and cultures are needed.

Enhance and stabilize funding for outdoor recreation

Funding for conservation and recreation is derived from many sources and the overall total has fluctuated considerably from year to year. This has complicated efforts to plan, develop, and maintain recreation facilities. Some states have implemented funding sources that provide a more stable source of money for conservation and recreation projects. In addition to more consistent funding, there is a need to broaden the network of people and sources that help pay for the management of public lands in the state.

Expand collaborations among recreation providers

Each recreation provider has unique capabilities and their lands offer different types of experiences, features, facilities, and opportunities. There would be substantial benefit in continuing and expanding collaborations among federal, county and local governments. Focus should be placed on identifying ways to coordinate recreation experiences in each region of the state, minimizing duplicative efforts, and maximizing the benefits of recreation investments.

Together, providing well-planned, safe and enjoyable recreation opportunities that visitor's value will increase support for local communities and businesses, strengthen tourism, respond to evolving demographic and visitor needs, reduce user conflicts and improve natural settings.

Regional Recreation Needs (high needs identified in the **Recreation Opportunities Analysis** – see Appendix 8)

Great Northwest Region

ATV/UTV riding
Bicycling - bicycle touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping - developed and primitive
Canoeing or kayaking
Fishing
Four-wheel vehicle driving
Hiking, walking, trail running, backpacking
Hunting - big game
Motor boating (inc. waterski/tubing, personal watercraft)
Off-highway motorcycle riding
Swimming in lakes and rivers

Western Sands Region

Bicycling - bicycle touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping - developed and primitive
Canoeing or kayaking
Cross country skiing
Dog walking
Fishing
Hiking, walking, trail running, backpacking
Horseback riding
Hunting - big game
Picnicking
Snowshoeing
Swimming in lakes and rivers

Mississippi River Corridor Region

Bicycling - bicycle touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping - developed and primitive
Canoeing or kayaking
Cross country skiing
Dog walking
Fishing
Gather mushrooms, berries, etc.
Hiking, walking, trail running, backpacking
Hunting - big game
Nature photography
Participating in nature-based education programs
Picnicking
Snowshoeing
Visiting a beach, beach walking

Northwoods Region

ATV/UTV riding
Bicycling – bicycle touring/road riding and mountain biking/off-road biking
Camping – developed and primitive
Canoeing or kayaking
Fishing
Four-wheel vehicle driving
Hiking, walking, trail running, backpacking
Hunting – big game
Off-highway motorcycle riding
Participating in nature-based education programs
Snowmobiling

Southern Gateways Region

ATV/UTV riding
Bicycling – bicycle touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping – developed and primitive
Canoeing or kayaking
Fishing
Gather mushrooms, berries, etc.
Hiking, walking, trail running, backpacking
Motor boating (inc. waterski/tubing, personal watercraft)
Picnicking
Snowshoeing
Swimming in lakes and rivers

Upper Lake Michigan Coastal Region

Bicycling – bicycle touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping – developed and primitive
Canoeing or kayaking
Fishing – all types
Hiking, walking, trail running or backpacking
Horseback riding
Motor boating (inc. waterski/tubing, personal watercraft)
Visiting a beach, beach walking

Lake Winnebago Waters Region

Bicycling – bicycling touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping – developed and primitive
Canoeing or kayaking
Cross country skiing
Dog walking
Fishing
Hiking, walking, trail running, backpacking
Hunting – big game
Motor boating (inc. waterski/tubing, personal watercraft)
Nature photography
Participating in nature-based education programs
Picnicking
Swimming in lakes and rivers
Visiting a beach, beach walking

Lower Lake Michigan Coastal Region

Bicycling - bicycle touring/road riding and mountain biking/off-road biking
Bird or wildlife watching
Camping - primitive
Canoeing or kayaking
Cross country skiing
Fishing
Gather mushrooms, berries, etc.
Hiking, walking, trail running, backpacking
Motor boating (inc. waterski/tubing, personal watercraft)
Nature photography
Picnicking
Snowshoeing
Swimming in lakes and rivers

CHAPTER III
LOOKING AHEAD

Wisconsin has beautiful places, a four-season climate, healthy and diverse habitats, and citizens that care deeply about the environment and enthusiastically participate in a wide range of outdoor recreation activities.

Together, these provide the framework for identifying goals for the future.

Photo: Mike Grota

STATE OF WISCONSIN'S GOALS FOR OUTDOOR RECREATION

1. Boost participation in outdoor recreation
2. Grow partnerships
3. Provide high-quality experiences
4. Improve data to enhance visitor experiences and benefits
5. Enhance funding and financial stability

BOOST PARTICIPATION

Increase Wisconsin residents' participation and frequency of participation in outdoor recreation.

Objectives

- Increase the economic, social, and public health benefits resulting from residents' and out-of-state visitors' participation in outdoor recreation in Wisconsin.
- Enhance residents' overall quality of life.

Desired Actions

- Increase promotion and marketing of places that provide high-quality outdoor experiences.
- Continue improving the Public Access Lands maps and online mapping application.
- Continue upgrading and developing recreation facilities to meet demand.
- Evaluate visitor use at different types of public lands and waters.
- Identify and implement strategies to improve access, reduce barriers, and provide desired experiences, particularly for groups that have traditionally had lower participation rates or limited access.
- Expand efforts among federal, state, county, and local governments to coordinate and collaborate on providing recreation opportunities that leverage the unique features and facilities available at their lands and waters.
- Identify and implement programs to encourage more residents to participate in outdoor recreation, particularly as they age.

Photo: Joseph Warren

GOAL 2

GROW PARTNERSHIPS

Continue to strengthen connections and partnerships across the spectrum of agencies, organizations, and businesses with a vested interest in outdoor recreation.

Objectives

- Improve the effectiveness of public and private recreation providers in delivering high-quality experiences for residents and out-of-state visitors.
- Enhance the success of industries that manufacture outdoor recreation equipment and businesses that provide a range of facilities, retail opportunities and travel-related services associated with outdoor recreation.
- Facilitate support and advocacy for policies, programs and funding to enhance outdoor recreation opportunities.
- Integrate and coordinate SCORP, local outdoor recreation plans, and other agencies' and organizations' recreation plans.

Desired Actions

- Strengthen collaborations across public and private owners of land that provide recreation opportunities. Identify ways to provide more and enhanced participation opportunities across the collective portfolio of public and private lands.
- Continue building partnerships between outdoor recreation providers and the health care industry to improve residents' physical and mental health.
- Bring together manufacturers of outdoor gear & equipment with recreation providers to identify ways to market Wisconsin-made products and increase participation.
- Cultivate collaboration between outdoor recreation groups and non-traditional partners.
- Increase outdoor recreation opportunities by coordinating recreation interest groups, health care providers, recreation providers, elected officials and others to collaboratively develop outdoor recreation projects.

PROVIDE HIGH-QUALITY EXPERIENCES

Provide opportunities and settings – across the full range of public and private recreation lands – that, collectively, meet the state's recreational needs.

Objectives

- Encourage participation across all types of recreation.
- Provide recreation opportunities that properties are well-suited to provide.
- Seek to improve compatibility and lessen conflict among and between recreational uses.
- Maintain and enhance the ecological health of recreation properties and enrich people's connection with nature.
- Tailor recreation opportunities provided at places to match local conditions, needs, and requests.

Desired Actions

- Provide collections of recreation experiences that are matched to property conditions, needs and opportunities and that maximize compatibility.
- Identify and proactively address potential obstacles, conflicts and issues related to providing high-quality outdoor recreation experiences.
- Assess satisfaction of participants in a range of outdoor activities.

GOAL 4

IMPROVE DATA TO ENHANCE VISITOR EXPERIENCES AND BENEFITS

On an ongoing basis, gather, analyze and distribute data on recreation participation in Wisconsin and associated economic, health and social benefits.

Objectives

- Improve the public's and elected officials' understanding of the economic, health and social benefits from public and private investments in outdoor recreation.
- Improve property managers' and administrators' understanding of both property-specific patterns of use and potential ways to improve visitor experiences.
- Improve public and private providers' understanding of regional recreational demands.
- Inform the next iteration of the Wisconsin SCORP.
- Better understand the recreation facilities and amenities that draw visitors to different types of properties.

Desired Actions

- Develop a standard protocol to assess visitation and satisfaction that can be applied to a wide variety of outdoor recreation properties.
- Gather data at an initial set of places on numbers of visitors, activities pursued, patterns of visitation, levels of satisfaction, travel-related spending and, as feasible, other information related to property use and management.
- Apply information related to property visitation to the DNR's property planning process for decisions related to individual properties and broader regional needs.
- In support of the development of the next iteration of the Wisconsin SCORP, assess overall outdoor recreation participation in Wisconsin and associated issues through a statewide survey.

ENHANCE FUNDING AND FINANCIAL STABILITY

Broaden and strengthen the funding sources for developing and managing outdoor recreation facilities and lands.

Objectives

- Provide a robust, long-term, and stable funding framework for outdoor recreation facilities and lands in Wisconsin.
- Identify ways for all participants in outdoor recreation to contribute equitably to the development and management of recreation opportunities.

Desired Actions

- Facilitate collaboration among federal, state, tribal, and local governments and other partners to fully utilize available LWCF and state funding to maintain, develop, and enhance outdoor recreation facilities.
- Develop and distribute materials that describe the economic, health and social values of outdoor recreation.
- Continue building and encouraging public property friends groups.
- Survey outdoor recreation participants to identify their support for different options to fund the development and operation of recreation facilities.
- Explore opportunities for public land management agencies to cooperatively develop creative funding solutions and efficiencies to meet recreation needs.

GOAL 5

Photo: City of Madison

LAND & WATER CONSERVATION FUND PRIORITIES IN WISCONSIN OVER THE NEXT FIVE YEARS

As required by federal guidelines, Wisconsin has developed an Open Project Selection Process (OPSP) that provides criteria and standards for grant selection to distribute LWCF funds. The OPSP assures equal opportunity for eligible project applicants to participate in the benefits of the LWCF State Assistance Program.

Wisconsin has developed a project selection process that evaluates and selects projects based on quality and conformance with its priority rating system. Grants cover 50% of eligible project costs. The adjacent information provides guidance for how the State of Wisconsin will utilize LWCF monies to help achieve its recreation goals and objectives.

Wisconsin Open Project Selection Process (OPSP)

As described in Wisconsin Administrative Code (ch. NR 50.06), Wisconsin divides its LWCF allocation between state projects and pass-through grants to local governments, school districts, and Native American tribes. For state projects, LWCF project selection occurs via the DNR capital budget development and property planning process.

Proposed projects are evaluated and prioritized on three criteria: compatibility with the property master plan, compatibility with the six-year facility plan, and available matching funds.

Local projects are selected through a competitive grant process. Applications are accepted once per year. DNR grant staff score applications on a series of criteria that reflect statutory requirements, administrative code, and program policies. Projects are awarded funds in rank order until funds are fully utilized. Program application materials are reviewed and revised annually (Appendix 9). The DNR works closely with selected project sponsors to conduct final reviews and submit proposed grants to NPS for review. Each grant must be approved by the NPS.

LWCF Grants:

Eligible Applicants

- Towns, villages, cities, counties, tribal governments, and school districts are eligible.

Eligible Projects

- Land acquisition or development projects that will provide opportunities for public outdoor recreation.
- Property with frontage on rivers, streams, lakes, estuaries and reservoirs that will provide water-based outdoor recreation.
- Property that provides special recreation opportunities, such as floodplains, wetlands and areas adjacent to scenic highways.
- Natural areas and outstanding scenic areas, where the objective is to preserve the scenic or natural values, including wildlife areas and areas of physical or biological importance. These areas shall be open to the general public for outdoor recreation use to the extent that the natural attributes of the areas will not be seriously impaired or lost.
- Land or development within urban areas for day use picnic areas.
- Land or development of nature-based recreation trails.
- Development of basic outdoor recreation facilities.
- Renovation of existing outdoor recreation facilities which are in danger of being lost for public use.

Funding Priorities

- Meet the needs of urban areas.
- Provide recreation opportunities that serve diverse populations.
- Develop facilities in areas with limited outdoor recreation opportunities.
- Provide multi-use facilities.
- Meet outdoor recreation needs identified by local communities.

See **Appendix 9** for more information on grant guidance

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Since 1965, the following 532 entities have received grants from the
Land and Water Conservation Fund
to help fund recreation projects throughout Wisconsin.

Native American Nations

Menominee Indian Tribe
Oneida Indian Tribe

State agencies

Department of Natural Resources
Department of Transportation
University of Wisconsin

Counties

Adams
Barron
Bayfield
Brown
Burnett
Calumet
Chippewa
Clark
Columbia
Dane
Dodge
Door
Douglas
Dunn
Eau Claire
Florence
Fond du Lac
Forest
Green Lake
Iron
Jackson
Jefferson
Juneau
Kenosha
Kewaunee
La Crosse
Lafayette
Langlade
Lincoln
Manitowoc
Marathon
Marinette
Marquette
Milwaukee
Oconto
Oneida
Outagamie
Ozaukee
Pepin
Pierce
Polk
Portage
Price
Racine
Richland
Rock
Sauk
Sawyer
Shawano
Sheboygan
St. Croix
Taylor
Trempealeau
Vernon
Vilas
Washburn
Washington
Waukesha
Waupaca
Waushara
Winnebago
Wood

Cities

Abbotsford
Adams
Algoma
Alma
Altoona
Antigo
Appleton
Arcadia
Ashland
Baraboo
Barron
Bayfield
Beaver Dam
Beloit
Berlin
Black River Falls
Blair
Bloomer
Boscobel
Brillion
Brodhead
Brookfield
Buffalo
Cashton
Cedarburg
Chilton
Chippewa Falls
Clintonville
Cuba City
Darlington
De Pere
Delafield
Dodgeville
Durand
Eagle River
Eau Claire
Edgerton
Fennimore
Fond du Lac
Fort Atkinson
Galesville
Glenwood City
Grand Chute
Green Bay
Green Lake
Hartford
Hillsboro
Hudson
Hurley
Independence
Janesville
Jefferson
Juneau
Kaukauna
Kenosha
Kewaunee
Kiel
La Crosse
Ladysmith
Lake Geneva
Lake Mills
Lancaster
Lodi
Madison
Manawa
Manitowoc
Marinette
Marion
Marshfield
Mauston
Mayville
Medford
Menasha
Menomonie
Merrill
Middleton
Milwaukee
Mineral Point
Mondovi
Monona
Monroe
Montello
Mosinee
Muskego
Neenah
New Berlin
New Holstein
New London
New Richmond
Oak Creek
Oconomowoc
Oconto
Oconto Falls
Omro
Onalaska
Oshkosh
Osseo
Park Falls
Peshtigo
Pewaukee
Platteville
Plymouth
Port Washington
Portage
Princeton
Racine
Reedsburg
Rhinelander
Rice Lake
Richland Center
River Falls
Seymour
Shawano
Sheboygan
Sheboygan Falls
Shell Lake
Shullsburg
Sparta
Spooner
Stanley
Star Prairie
Stevens Point
Stoughton
Sturgeon Bay
Sun Prairie
Superior
Tomah
Tomahawk
Two Rivers
Verona
Viroqua
Washburn
Watertown
Waukesha
Waupaca
Waupun
Wausau
Wautoma
Wauwatosa
West Bend
Westby
Weyauwega
Whitehall
Whitewater
Wisconsin Dells
Wisconsin Rapids

Villages

Allouez
Alma Center
Aniwa
Arena
Argyle
Arpin
Ashwaubenon
Athens
Auburndale
Baldwin
Balsam Lake
Bangor
Barneveld
Bay City
Bear Creek
Belmont
Big Bend
Birnamwood
Black Creek
Black Earth
Bloomington
Blue Mounds
Bonduel
Bowler
Boyceville
Brandon
Brownsville
Butler
Cambria
Camp Douglas
Campbellsport
Casco
Cassville
Cazenovia
Cecil
Cedar Grove
Clayton
Clear Lake
Cleveland
Cobb-Highland
Cochrane
Coleman
Colfax
Coloma
Combined Locks
Coon Valley
Cross Plains
Dane
Darien
De Soto
Deerfield
Deforest
Dickeyville
Dorchester
Dresser
East Troy
Edgar
Eleva
Elk Mound
Ellsworth
Elmwood
Endeavor
Ephraim
Ettrick
Fall Creek
Fall River
Forestville
Fox Lake
Francis Creek
Fredonia
Friendship
Friesland
Gays Mills
Germantown
Gilman
Glenbeulah
Grafton
Grantsburg
Greendale
Gresham
Hammond
Hancock
Hatley
Highland
Hollandale
Hortonville
Howard
Howards Grove
Hustler
Iola
Iron Ridge
Junction City
Kellnersville
Kendall
Kewaskum
Kimberly
La Farge
Lake Delton
Little Chute
Lomira
Lone Rock
Luxemburg
Lyndon Station
Maribel
Mcfarland
Melrose
Mishicot
Montfort
Monticello
Mount Horeb
Mukwonago
Muscoda
Nashotah
Nelsonville
New Glarus
Niagara
North Hudson
Norwalk
Oakfield
Oregon
Orfordville
Pardeeville
Pepin
Plainfield
Plover
Poplar
Port Edwards
Prentice
Randolph
Redgranite
Rib Lake
Roberts
Rosendale
Rothschild
Rudolph
Sauk City
Saukville
Scandinavia
Sharon
Sherwood
Shorewood
Sister Bay
Slinger
Soldiers Grove
Somerset
Spring Green
Spring Valley
St. Cloud
St. Nazianz
Stockbridge
Stockholm
Stoddard
Strum
Suring
Taylor
Theresa
Tigerton
Trempealeau
Turtle Lake
Twin Lakes
Viola
Warrens
Waunakee
West Salem
Weston
Westport
Weyerhauser
White Lake
Whitelaw
Whiting
Wilton
Winneconne
Wittenberg
Woodville

Towns

Allouez
Angelica
Armstrong Creek
Bass Lake
Belle Plaine
Bellevue
Bellevue
Bone Lake
Brussels
Caledonia
Caledonia
Clay Banks
Clayton
Clinton
Cottage Grove
Dunn
Eagle Point
Eau Pleine
Fitchburg
Florence
Genesee
Gilmanton
Gordon
Grant
Green Lake
Greenfield
Greenville
Harrison
Holland
Iron River
Ixonia
Jacobs
Knight
Kronenwetter
Lafayette
Lebanon
Liberty Grove
Liberty Grove
Lima
Menasha
Merton
Middleton
Minocqua
Mt. Pleasant
Norway
Oakdale
Onalaska
Oregon
Oulu
Pewaukee
Pleasant Spring
Richmond
Shelby
Sheldon
St. Lawrence
Suamico
Sullivan
Troy
Wabeno
Washington Island
Waumandee
Wescott
Weston

Schools and park commissions

Algoma School Dist.
Arbor Vitae Woodruff Park Comm.
Arkansaw Joint School Dist. No 1
Bayfield School Dist.
Beaver Dam Unified School Dist.
Black River Falls School Dist.
Bloomer School Dist.
Bowler School Dist.
Butternut School Dist.
Cassville School Dist.
Chilton School Dist.
Chippewa Falls School Dist.
Cornell School Dist.
Cuba City School Dist.
D.C. Everest School Dist.
DeForest Area Schools
Dodgeville School Dist.
Durand School Dist.
East Troy School Dist.
Elk Mound Area School Dist.
Elkhart Lake School Dist.
Flambeau School Dist.
Florence School Dist.
Germantown Junction School Dist.
Glidden School Dist.
Greendale School Dist.
Hazel Green School Dist.
Holmen Public Schools
Hudson School Dist.
La Crosse School Dist.
Ladysmith-Hawkins School Dist.
Lake Holcombe School Dist.
Lake Tomahawk Parks Committee
Lodi School Dist.
Luck School Dist.
Markesan Joint School Dist.
Marshall School Dist.
McFarland School Dist.
Menomonie School Dist.
Monona Grove School Dist.
Monroe School Dist.
Montello School Dist.
Mt. Horeb Joint School Dist. No 6
Muskego-Norway School Dist.
N. Fond Du Lac School Dist.
Nekoosa School Dist.
New Auburn School Dist.
New Richmond School Dist.
Northwood School Dist.
Onalaska School Dist.
Ondossagon School Dist.
Oregon School Dist.
Pepin School Dist.
Phillips School Dist.
Plum City School Dist.
Portage School Dist.
Potosi-Tennyson Park Commission
Prentice School Dist.
Princeton School Dist.
Pulaski School Dist.
Rib Lake School Dist.
Ripon Public School District
Seneca School Dist.
Seymour School Dist.
Shiocton School Dist.
South Milwaukee School Dist.
Southwestern WI Community Sch Dist.
Sparta School Dist.
St. Croix Falls School Dist.
Stanley-Boyd Area Schools
Sun Prairie School Dist.
Thorp School Dist.
Turtle Lake School Dist.
Unity School Dist.
Verona Area School Dist.
Wabeno Joint School Dist. No 1
Washburn School District
Whitnall School Dist.
Wild Rose School Dist.
Wilmot Union High School Dist.
Wisconsin Dells School Dist.
Wrightstown Comm. School Dist.

2019-2023

Wisconsin

Statewide Comprehensive Outdoor Recreation Plan

DNR publication number: LF 114.2 (2019)

Photo: Ben Pierson

APPENDIX 4.8.3.2-1 Sawyer County Plan for Outdoor Recreation

A PLAN FOR OUTDOOR RECREATION

SAWYER COUNTY, WISCONSIN

2014 - 2020

Zoning & Conservation Committee

- James Bassett
- Charles Gundersen
- Bruce Paulsen
- Dale Thompson
- Frederic Zietlow
- Bernard Kadlec, FSA rep

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INTRODUCTION

On a nationwide scale, recreational activity is expected to triple over the next 50 years, growing more than twice as fast as our nation's population. With this increase, there will be a significant demand on our natural resources. Since tourism and recreation constitute the state's fastest growing industry bringing in millions of dollars annually, we must carefully plan for future growth and development. The purpose of this plan is to investigate Sawyer County's existing outdoor recreational resources, study population trends, anticipate future demands, and develop guidelines and recommendations for public outdoor recreation facilities. These comments and suggestions are intended as guides for the County and its municipalities.

OBJECTIVES

- Meet existing as well as the foreseeable future recreational needs of Sawyer County residents and visitors.

- Maintain quality recreation areas while protecting Sawyer County's natural and scenic resources, and reducing user conflicts.

- Provide and improve the aesthetic and environmental values of the county's resources through acquisition, easements, zoning and other legislation, and to provide educational programs.

- Identify and preserve sites having scientific, historic, architectural or archeological significance.

- Consider this plan a program for development of year-round recreational facilities which will provide opportunities for all citizens and visitors.

- Encourage the efforts of municipalities to provide "community" recreation facilities such as ball fields, playgrounds, tennis courts, etc.

- Encourage private development of quality recreational areas.

- Provide recreational opportunities for people with disabilities whenever feasible and environmentally possible.

- Develop coordinated countywide recreational trail systems.

- Consider acquisition of railroad corridor land for the development of a multi-use trail system.

BACKGROUND

Sawyer County represents the heart of northwest Wisconsin's "northwoods." The county is located in the lake and forest region of the state, approximately 70 miles from Superior/Duluth and 100 miles from Eau Claire. Major industries are tourism and forestry with wood related manufacturing providing significant economic impacts.

REGIONAL RECREATIONAL AREAS

There are no major population centers within 50 miles, or an hour drive, of the county. Sawyer County attracts vacationers from all over the Midwest, receiving a large percentage of visitors from Minneapolis, St. Paul, and Chicago urban centers, and Minnesota, Illinois, Iowa, and Wisconsin.

The proximity of the St. Croix-Namekagon National Scenic Riverway, Chequamegon National Forest, Chippewa Flowage, American Birkebeiner ski trail, and Apostle Islands National Lakeshore all contribute to the vacation destination nature of Sawyer County.

The Namekagon River portion of St. Croix National Scenic Riverway, which includes the river from the Bayfield County line south of Cable to just west of Hayward, also has significant regional impact. The purpose behind the National Scenic Riverway designation is to preserve the river and its immediate watersheds in a near primitive condition, and to protect and make it accessible for public outdoor recreation use, with trails and recreation facilities.

The Chequamegon National Forest which includes portions of Sawyer County and much of Northern Wisconsin is a significant regional resource. Activities include: hunting, fishing, camping, hiking, snowmobiling, cross-country skiing, biking, picnicking, and other nature-based activities.

The Chippewa Flowage, located in the center of the county, is 17,000 acres in size. One of the vast wilderness water resources in the Midwest, the “Big Chip” is Sawyer County's most famous. The “Flowage”, known for its world record musky fishing, is also one of the greatest fishery resources in the state.

The American Birkebeiner Trail, located between Hayward and Cable, is a regional cross-country skiing recreation area. The annual Birkebeiner ski race in February attracts some 15,000 skiers and spectators to the Hayward area.

The Apostle Islands National Lakeshore has a great impact on people in the region. Since it was set aside for preservation and public recreation in 1970, it has been a popular place for regional people and people from throughout the United States to visit. Camping, fishing, picnicking, boat docking facilities, trail systems, scuba diving, sailing, and ocean kayaking and interpretive areas are all a part of the Islands.

POPULATION

Sawyer County, the 5th largest county in land area in the state, had a 2012 population of 16,581 which is approximately .3 percent of the total state population.

Overall, Sawyer County population trends do not reflect recreational activity in the county, as substantial recreation use comes from second-home owners. Based on 2010 census data, 50.6% of homes within the county are designated as seasonal or for recreational use.

POPULATION TRENDS IN SAWYER COUNTY (1980-2010)

MUNICIPALITY	1980 CENSUS	1990 CENSUS	2000 CENSUS	2010 CENSUS	CHANGE 1980-2010	PERCENT CHANGE
Town of Bass Lake	1,288	1,717	2,244	2483	1,195	48
Town of Couderay	394	386	469	479	85	18
Town of Draper	242	208	171	208	-34	-16
Town of Edgewater	441	509	586	640	199	31
Town of Hayward	2,331	3,017	3,279	3,601	1,270	35
Town of Hunter	594	557	765	841	247	29
Town of Lenroot	926	966	1,165	1,349	423	31
Town of Meadowbrook	202	192	146	155	-47	-30
Town of Meteor	105	111	170	183	78	43
Town of Ojibwa	264	250	267	327	63	19
Town of Radisson	394	412	465	480	86	18
Town of Round Lake	786	727	962	1,115	329	30
Town of Sand Lake	768	821	774	885	117	13
Town of Spider Lake	331	362	391	419	88	21
Town of Weirgor	386	356	370	424	38	9
Town of Winter	704	801	969	1,135	431	38
Village of Couderay	114	92	96	94	-20	-21
Village of Exeland	219	180	212	206	-13	-6
Village of Radisson	280	237	222	218	-62	-28
Village of Winter	376	383	344	353	-32	-9
City of Hayward	1,698	1,897	2,129	2,340	642	27

HISTORY

Sawyer County lies on several of the major water highways used by the travelers of early inland America. The first known white visitors to the county were French fur-traders who wintered near Lac Courte Oreilles in 1659. The Ottawa Indians, close relatives of the Ojibwas, were native to Sawyer County at that time. The chief water trails used by them were the Chippewa and Namekagon Rivers. These two river systems were connected by a two and one-half mile portage near Lac Courte Oreilles.

The upper Namekagon River led to the Lake Superior region to the north. The downstream traveler on the Namekagon could go west and southwest unhindered by portages by using the St. Croix and Mississippi Rivers. Travelers going south, east and northeast used the Chippewa River and its tributary, the Flambeau River. Missionaries followed the fur-traders in exploring the area. In 1745, the Ojibwa Indians moved south from Lake Superior to join and, ultimately occupy, the region that would come to be Sawyer County. In 1784 a fur trading post was established at the Namekagon River at the portage to Lac Courte Oreilles and the Chippewa River.

Fur trading predominated in the Chippewa Valley until 1839 when a sawmill was constructed down river at what is now Chippewa Falls. From then until its peak, or the period from 1880 to 1890, the white pine and hemlock logging industry supported the economy of the Chippewa Valley in Sawyer County. In the winter of 1889-1890 there were 50 logging camps. Lumbermen estimated that about one-sixth of all the pine timber in the United States west of the Appalachian mountains was growing in the Chippewa River Valley. The western half of what is now Sawyer County was predominately pine. The eastern half was basically a mature hemlock and yellow birch forest.

On March 9, 1883, Sawyer County was created by the state legislature by the separation of Township 41 and 42 from Ashland County and Townships 37 through 40 from Chippewa County.

The first fishing resort in Sawyer County was a stopping place on the way to a logging camp, and it catered only to the lumbermen. About 1892 W. E. Cormick constructed the first actual resort at the same place. A second resort was built by Jake Christy on Lost Land Lake in 1896. Other stopping places for the angler were established at Sand, Round, and Teal Lakes around the same time. As rail transportation lines became established and better roads came into existence, the tourist became common. The Indians and early settlers depended upon fish, wild rice, and maple sugar for survival. The fish and game resource became an economic factor by supporting a growing tourist industry. This has evolved, with more emphasis on natural scenery and more diverse nature-based land activities. In addition, the abundant clean waters in the area continue to attract visitors interested in water-based activities. Our winter-based sports continue to provide year-round opportunities for individuals to enjoy the “northwoods”.

LANDSCAPE CHARACTERISTICS

Sawyer County is geographically located in the northern highland province of Wisconsin. It lies a short distance south of the continental divide that separates the St. Lawrence and Mississippi River drainage systems.

The most distinguishing landscape features of Sawyer County are the glacial lakes and man-made impoundments set in hilly conifer and hardwood forests. The landscape personality of Sawyer County could be best summed up as a lake and forest region of northwoods tradition.

SOILS

The soils of Sawyer County are upland and outwash types from glacial drift and are acidic in nature. The sandy soil occurs along the Namekagon River and Lac Courte Oreilles, Round and the Grindstone Lakes regions. Silty and sandy loams are found in the remainder of the county.

CLIMATE

The climate in Sawyer County is classified as continental, a climate type characterized by large seasonal and daily ranges in temperatures caused by alternate high and low pressure systems which move across the continent from west to east. The winters are lengthy with abundant snow and cold temperatures. Summers are relatively short and warm with brief periods of hot, humid weather. Spring and fall are often short with sharp day-to-day temperature changes.

Sawyer County's climate is favorable for a wide variety of recreation throughout the year. Summer days are usually warm and sunny, while nights are cool, a welcome relief for those seeking escape from the heat and humidity of large cities. Days are long in summer with twilight lingering on after sunset. The weather in autumn is often dry, cool, and sunny with several periods of Indian Summer and an extraordinary display of seasonal colors. Winters are early with a good chance of enough snow on the ground for the winter sports enthusiast from early or mid-December into late March. Streams and lakes are often ice covered from late November into April.

LAND USE

Sawyer County encompasses 863,859 acres with the greatest percentage of the county being rural and semi-wilderness in nature. Of the total gross land acres, approximately 37% or about 317,500 acres are in public ownership. In addition, agriculture accounts for 12%, residential land approximately 10.5%, 39% in private forestry/wetlands and commercial/industrial is 1.5% of the total county acreage. Sawyer County has approximately 113,300 acres in county forest lands, 124,600 acres in National Forest and over 70,000 acres in State Forest and State Wildlife acres which all contribute to a significant amount of public lands for numerous recreational pursuits.

EXISTING RECREATION RESOURCES

- ***BOATING***

There are 15 natural lakes and impoundments over 500 acres in size in Sawyer County with a combined total of 40,095 surface acres of water. There is an additional 6,936 acres of surface water in the 25 other lakes between 200 and 500 acres in size. Altogether these 40 bodies of water amount to 85 percent of the lake areas of the county. To the boater and water skier, this is a substantial amount of space although some lakes have local restrictions on speed boating and water skiing. Sail boating on the lakes over 500 acres in size is excellent. Public access is available to most of these waters.

- ***CROSS-COUNTRY SKIING***

There are extensive cross country skiing trails and facilities throughout Sawyer County. The American Birkebeiner Trail includes trails from the north border of Sawyer County to Highway 77, a parallel classic trail to County OO, and loops at the County OO Trail Center. HASTA Trails include the Hospital Trails located to the north and east of the Hayward Hospital and several loops located at Hatchery Creek County Park, and the Hayward Town Park located on county hill road west of Hayward. Other ski trails include the Mukwonago Trail located 18.5 miles east of Hayward on Hwy. 77, the Lost Land Lake Trail located on Upper A, Flambeau Hills located on STH 70 & Hwy W at the east edge of the county, and the 2 mile Turkey Feather Trail in Ojibwa Park. Lighted ski trails are located at the "00" Trail Center and Hatchery Creek County Park. Warming cabins are located at the "00" Trail Center, Hatchery Creek County Park, Mosquito Brook Road and Boedecker Road (Birkie road crossings).

Sawyer County is nationally known for its heritage with the American Birkebeiner world class ski race held every February. Over 12,500 skiers participate in this annual event. The origin of the American Birkebeiner dates back to 1973 when 53 hearty skiers traveled 55 kilometers from Hayward, Wisconsin to Telemark Resort in neighboring Cable. The Birkie exemplifies the true spirit of cross-country skiing and has been instrumental in advancing the popularity and success of the sport as we know it today. (See UNIQUE RESOURCES: AMERICAN BIRKIE TRAIL, CLASSIC TRAIL, AND TRAIL HEADS)

- ***SNOWSHOEING***

Anywhere hiking is permitted in the county snowshoeing is also possible. The CAMBA single track trails at Hatchery Creek Park are a designated snowshoe trail. Mosquito Brook Road and OO trail heads have also been designated and marked as Snowshoe Trails.

➢ *FISHERY RESOURCES*

Most of the surface waters in Sawyer County provide excellent fishing opportunities. There

are 294 lakes with a total surface of 53,693 acres that have game and panfish populations. The remaining 204 lakes, with an area of 1,558 acres, have usually only minnow populations. There are also excellent stream trout fishing opportunities available. The Namekagon River offers trophy Brown Trout fishing mainly between Hayward and the Bayfield County line. Most common fish include:

Muskellunge--73 lakes with a total area of 42,393 acres
Walleye--80 lakes with a total area of 45,808 acres
Northern Pike--40 lakes with a total area of 21,043 acres
Largemouth Bass--214 lakes with a total area of 51,981 acres
Smallmouth Bass--46 lakes with a total area of 40,548 acres
Panfish--253 lakes
Trout Streams--56 measuring 180.8 miles

➢ *CANOEING/KAYAKING/PADDLE SPORTS*

Sawyer County contains some of the finest paddling rivers in the Midwest. The Flambeau,

Namekagon, Couderay, and Chippewa Rivers all lend themselves to wilderness trips. Access is good and a variety of water can be experienced on all of these rivers. Campsites are available in designated areas. The total combined mileage in the county is 123 miles. The numerous area lakes offer excellent paddling opportunities as well.

➢ *BICYCLING-MOUNTAIN BIKING*

There are excellent trail/off-road biking opportunities in Sawyer County on public lands. The Sawyer County Forest and Chequamegon National Forest Lands provide miles of trails along with the Birkebeiner Trail.

The annual Chequamegon-Nicollet Fat Tire Festival is held the second weekend of September, and draws 2,900 mountain bike enthusiasts for the Hayward to Cable race. The race uses a portion of the Birkie trail, fire roads, forest roads and trails for a challenging 40 mile course.

The Trail System developed, built, marked and mapped by The Chequamegon Area Mountain Bike Association (CAMBA), provides a diverse, beginner to expert variety of Mountain/Off Road biking trails. CAMBA has been designated as the best in the Midwest (by IMBA, International Mountain Bike Association). The CAMBA system includes: the longest single-track in the Midwest, from Hayward to Cable and an "EPIC" trail designated by IMBA. (See UNIQUE RESOURCES: CAMBA Chequamegon Area Mountain Bike Association).

➢ ***CAMPING***

There are public camping facilities are located at two Chequamegon National Forest campgrounds (Moose Lake and Black Lake) and the Flambeau River State Forest campground on Connors Lake. Camping is allowed throughout the Sawyer County Forest with a permit. The Chippewa Flowage has eleven public sites maintained by the Department of Natural Resources and one National Forest Service site. The Saint Croix National Scenic Riverway maintains sites on the Namekagon River. Ojibwa Park on Highway 70 has 19 campsites. In addition, Sawyer County is fortunate to have many excellent private campgrounds throughout the county, many of which are located on lakes.

➢ ***SWIMMING & PICNIC AREAS***

Sawyer County has many lakes which provide excellent sand beaches for swimming. Both developed and undeveloped sites are located in the county.

Developed Public Swimming Areas:
Round Lake Peninsula Beach, Town of Hayward
Smith Lake, Town of Lenroot
Silverthorn Lake, Seeley in the Town of Lenroot
Hayward Beach, City of Hayward
Connors Lake, Flambeau State Forest
Black Lake, Chequamegon National Forest
Moose Lake, Chequamegon National Forest

➢ ***GOLF COURSES***

In 1997, the Hayward/Cable area was labeled the "Golf Capitol of Wisconsin". There are five 18-hole golf courses (Hayward National Golf Club, Hayward Golf & Tennis Club, Big Fish Golf Club, Wildwood Marshes and Teal Wing Golf Club) and five 9-hole courses (Spider Lake Golf Resort, Roynona Creek, Lakeview, Barker Lake, and Aken's) in Sawyer County open to the public. Course designs provide enjoyment and challenge for avid and amateur golfers alike.

➢ ***HUNTING***

Sawyer County has large areas open to public hunting. The areas which are available for hunting are County Forest Lands, lands entered under the Forest Crop Law, lands owned by the Wisconsin Department of Natural Resources, and land within the Chequamegon National Forest. Other lands are available for hunting on permission basis from the owner. There are also miles of hunter/walking trails closed to vehicular traffic located on county and national forest lands.

- ***SNOWMOBILING***

Sawyer County has one of the finest snowmobile trail networks in the Midwest. The trail system with over 600 miles of groomed trails, including 335 miles within the County Forest, criss-crosses the county connecting hospitality facilities and trail corridors in adjoining counties.

- ***ATV TRAILS***

Sawyer County allows riding on existing county forest logging roads. There are 95.7 miles of state funded ATV trails for winter use and 80.8 miles designated for summer use. State owned trails include the Tuscobia Trail (51 miles) which runs from the Flambeau River to the western county line and the Dead Horse Connector (38 miles) in the eastern Flambeau Forest. The trail system also connects to 140 miles of trail within the Chequamegon National Forest. Some of the towns and villages also allow ATV's on specific roads.

- ***BICYCLING-TOURING***

There are no marked or signed bike routes for road touring within Sawyer County. There are, however, many paved county and town roads that offer excellent low traffic routes. A map for Sawyer County and adjoining counties is available. The Map includes the routes of various distances, short cuts, connectors, written descriptions and ride highlights. The City of Hayward has completed two designated and separated bike/ped trails around and through the city; a third phase will be completed in 2014. The County has a planned trail and route connecting to the City trail, proceeding along County Hwy B to the junction of County Hwy B and K and connecting to the LCO County B – Round Lake School House Road Trail. Expected completion is 2014-2015. LCO has a planned trail connecting the County trail along County B and Round Lake School House Road to the School at Treplaneir Road. Expected completion 2014-2015. Also the State of Wisconsin has published a state-wide map (separated into regions) designating road and highways as routes for bicycle travel.

- ***NATURE STUDY AND INTERPRETIVE TRAILS***

Marked nature trails are located in the Uhrenholdt Memorial Forest near Seeley, Hatchery Creek Nature Trail, Turkey Feather Trail in Ojibwa Park, Town of Hayward County Hill Recreational Forest, Green Lake/Little Siss non-motorized trail, and the Lynch Creek Waterfowl Area with an overlook platform and interpretive signs. There are also miles of hunter/walking trails and old logging roads which make excellent hiking trails.

➢ *HISTORICAL SITES*

1. First Congregational Church--Hayward--dedicated in 1889 after a fire had destroyed the original church on February 24, 1889.

*2. North Wisconsin Lumber Company Office--Hayward--corporate headquarters of the North Wisconsin Lumber Company in 1888. Restored and converted into a brewery and restaurant. *Placed on the National Register of Historic Places

*3. The Raynor Place--Ojibwa--build around 1875, a stopping place for loggers making river drives on the Chippewa River. *Placed on the National Register of Historic Places

4. Log Cabin--Exeland--ranks as one of the oldest buildings in Sawyer County.

5. Rock Castle Tavern--Weirgor--excellent example of unique stone architecture built around 1930.

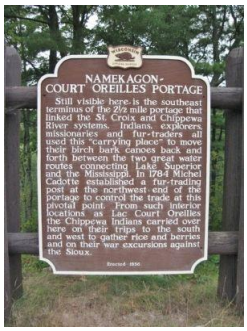
6. Namekagon River--Courte Oreilles Portage--portage between Grindstone Lake and Namekagon River used as early as 1766 by Captain Johnathon Carrier and in 1784 by Michel Cadotte.

7. Sawyer County Historical Museum-Highway B in the City of Hayward.

8. Cameron Dam –Site of John Deitz standoff with Sate and local law enforcement.

9. Battle of Horsefly – historical marker at the Moose Lake Bridge over the West Fork of the Chippewa River (County Road S & Moose Lake Road).

10. McCormick House –Hayward-- built in 1887 for Robert Laird McCormick and his family. McCormick, and his partners, A.J. Hayward and Frederic Weyerheueser, established the North Wisconsin Lumber Company in Sawyer County.



UNIQUE RESOURCES

- ***AMERICAN BIRKEBEINER TRAIL, CLASSIC TRAIL, AND TRAIL HEADS***

The 50K Birkie Trail and 54K Birkie Classic Trail are groomed and maintained year round by the American Birkebeiner Ski Foundation.

Trailheads are located at:

"00" in Seeley*
Mosquito Brook Road
Hatchery Park in Hayward*
Gravel Pit **
Birkie Ridge**

*Lighted sections for night-time skiing are located at "00" and Hatchery Park.
** Planned for construction in 2015

The Birkie and Birkie Classic Trails are maintained by the ABSF year around. The trails are groomed for both skating and classic skiing throughout the winter. The Birkie Trail spans 2 counties (Sawyer and Bayfield) and plays host to over a dozen events including north America's largest ski race the American Birkebeiner and the 23K Kortelopet.

In 2013 the American Birkebeiner now includes a week long variety of events including:

1) American Birkebeiner Freestyle(50Km)

2) American Birkebeiner Classic (54Km)

Additionally, the Birkie Trial now hosts a variety of non-Birkie week events including

1) Chequamegon Fat Tire 40

2) Birkie Ski Open Track Tour

3) Birkie Trail Marathon and Trek

4) Hayward Lion's Pre-Birkie

5) Seeley Hills Classic

- ***MOTORIZED TRAILS*** 

Sawyer County is a destination known for exemplary ATV and snowmobile trails. The Sawyer County Snowmobile & ATV Alliance (SCSAA) is the world's largest single owner of trail grooming equipment, maintaining over 600 miles of groomed trails. The SCSAA is a non-profit corporation made up of eleven individual snowmobile and ATV clubs located throughout the County.

- ***CAMBA TRAILS AND TRAILHEADS***

The Chequamegon Area Mountain Bike Association (CAMBA) is a 501(c)3 non-profit organization created in 1993 to develop and maintain an area-wide network of off-road bike trails. Since that time the CAMBA trails have earned a national reputation as a destination mountain bike trail system. CAMBA continues to add and make improvements to the system.

Trails include over 80 miles of purpose-built single track and upwards of 300 miles of other mapped and marked trail routes. The CAMBA trails in Sawyer County also include the longest continuous single track in the Midwest that runs over 30 miles from Hayward to Cable.

CAMBA trails are of varied distances and designed to accommodate riders of all ability levels. Trails are organized into clusters located in six small towns around the region, each with 20 to 40 miles of trail. CAMBA publishes an area-wide overview map covering an area of 1,600 square miles. Specific cluster maps are published for the purpose of navigating the trails. Each cluster has one or more designated trailhead, a parking area, and a kiosk with an overview map, information, and map dispenser. Several trailheads provide access to shelter, restrooms, and water. Trail markings includes frequent reassurance markers, "you are here" markers, GPS coordinates, and letter/number landmark references to aid in route finding.

Trail clusters in Sawyer County include: Hayward Cluster - with trailheads at Hatchery Creek Park, Mosquito Brook Road, and Gravel Pit Road. Seeley Cluster – with trailheads at County Highway OO and Camp 38 Road.

Events:
The Chequamegon Fat Tire Festival is one of the largest events of its kind in the country. With over 3,000 racers, the 40 mile off-road race starts in downtown Hayward and runs over the American Birkebeiner Trail, woods roads and snowmobile trails as it winds its way to Cable.

CAMBA sponsors the Fat Tire Tour on the Friday afternoon of the Chequamegon Fat Tire Festival. This casual tour explores various trails around the CAMBA system. Other CAMBA events occur periodically and are posted on the CAMBA website, www.cambatrails.org.

In addition to the Chequamegon Fat Tire Festival, mountain bike events sponsored by other area organizations include: Cable Area Off-Road Classic, Mt. Borah Epic, Chequamegon 100, and Seeley Lions Pre-Fat, with other new events being created on a regular basis.

- ***CHIPPEWA FLOWAGE***

Located in the center of the county, the "Flowage," 17,000 acres in size, is one of the vast wilderness water resources in the Midwest and is Sawyer County's most famous. The Chippewa Flowage, known for its world record musky fishing, is also one of the greatest fishery resources in the state.

The relatively undeveloped shoreline and northwoods wilderness environment of the flowage dictate a continued preservation and protection policy for this unique area. The Wisconsin Department of Natural Resources, National Forest Service and Lac Courte Oreilles Tribe own lands around the flowage and have an agreement to manage this unique resource.

- ***CHEQUAMEGON NATIONAL FOREST***

Sawyer County contains over 120,000 acres of land within the boundaries of the Chequamegon National Forest. This vast area of public land is located in the northeast portion of the county and is almost free of development except for some resorts and summer homes on Teal, Ghost, Lost Land, Moose, and Clam Lake. Two National Forest campgrounds are located in Sawyer County: Moose Lake and Black Lake units.

- ***FLAMBEAU RIVER STATE FOREST***

The State of Wisconsin owns and administers the Flambeau River State Forest located in the southeastern portion of the county. The north and south forks of the Flambeau River flow through the State Forest. This section of the Flambeau is one of the most wild and scenic canoeing streams in the Midwest. The 30 unit campground operated by the Wisconsin Department of Natural Resources in the Flambeau River State Forest is located on Connors Lake. There is also a boat ramp, picnic area and swimming beach at Connors Lake. The Flambeau River State Forest, containing some 87,774 acres of land in portions of Sawyer, Price, and Rusk counties, is the second largest state forest in Wisconsin. Approximately 80 percent of the Flambeau River State Forest is in Sawyer County.

- ***NAMEKAGON RIVER-ST. CROIX NATIONAL SCENIC RIVERWAY***

The Namekagon River was designated by the Wild and Scenic Rivers Act of 1968 to preserve in a natural condition the free-flowing rivers of high scenic and recreational value. The entire length of the Namekagon, from its source in Lake Namekagon in Bayfield County including its 19.4 miles in Sawyer County to its confluence with the St. Croix River, is included in the Act. The Riverway is administered by the National Park Service and includes numerous developed access points and canoe camping sites.

- ***STATE NATURAL AREAS WITHIN SAWYER COUNTY***

State natural areas (SNAs) protect outstanding examples of Wisconsin's native landscape of natural communities, significant geological formations and archeological sites. Sawyer County's 16 state natural areas are valuable for research and educational use, the preservation of genetic and biological diversity and for providing benchmarks for determining the impact of use on managed lands. They also provide some of the last refuges for rare plants and animals.

1) Flambeau River Hardwood Forest
2) Lake of the Pines Conifer-Hardwoods
3) Kissick Alkaline Bog Lake
4) Upper Brunet River
5) Snoose Creek
6) No-name Lake
7) Ghost Lake
8) Wilson Lake
9) Moose River Cedar Hills
10) Spring Brook Drumlins
11) Thornapple Hemlocks
12) Lake Helane
13) Oxbo Pines
14) Hanson Lake Wetlands
15) Swamp Lake
16) Bass Lake Peatlands

(more information can be found at http://dnr.wi.gov/topic/lands/naturalareas/)

RECOMMENDATIONS

COUNTY FACILITIES

- ***AMERICAN BIRKEBEINER TRAIL***

The primary focus of development and improvements will be for year-round recreational use as well as providing support for annual events.

Hatchery Creek Park

A former DNR fish hatchery, Hatchery Creek Park was established as the first county park in 1984. Hatchery Creek Park has become a focal point for many events including the Chequamegon Fat Tire mountain bike race and associated half marathon, American Birkebeiner cross-country ski race, and regional high school cross-country track meets. These events bring thousands of participants and spectators from around the world to the area each year.

In addition to large, competitive events the park hosts many smaller, private functions and provides opportunities for outdoor education and recreation. Recreation opportunities include cross-country ski trails with lights for night skiing, trout fishing, picnicking and a nature trail for hiking. Mountain bikers access the Birkebeiner trail from the Hatchery Park trailhead. Located at Hatchery Creek Park, the Hatchery Creek Trail Head provides convenient access to the southern portion of the Birkie trail within a short distance of Hayward.

Existing Facilities:

- Paved parking area and trailhead on the southern portion of Sawyer County forest lands
- Restrooms
- Heated log pavilion/shelter with picnic tables
- Trash receptacles
- Fire ring and benches
- Picnic tables and grills
- Trail Information sign/map
- Lighted ski loops
- Nature/educational hiking trail

Recommendations:

- Increase opportunities for multi-season use
- Improve nature/educational hiking trail signs
- Native Plant display garden near shelter building
- Pump Track
- Recycling receptacle

Mosquito Brook Trailhead

Existing facilities:

- Ample parking area
- Restrooms

Recommendations:

- Upgrade and improve restroom facilities

Boedecker Road Trailhead

Existing facilities:

- Parking area
- Warming hut

Recommendations:

- Restroom facilities
- Trailhead
- Informational kiosk
- Shelter Building
- Water and Electricity

Birkie Ridge Trailhead

Existing facilities:

- Parking area

Recommendations:

- Trailhead
- Shelter building
- Restroom facilities
- Picnic area
- Information kiosk & signs
- Water and Electricity

CTH OO Trail Center

CTH OO Trail Center provides facilities near the mid-point of the trail. This access is used by mountain bikes, recreational skiers and hikers/walkers.

Existing facilities:

- Lighted ski loop
- Parking area
- Shelter
- Restrooms
- Groomer maintenance storage building

Recommendations:
- Upgrade groomer maintenance building
- Upgrade restrooms

Seeley Fire Tower

The location of the now removed Seeley Fire Tower provides a unique vista south across miles of the Sawyer County forest lands. This site is within a few hundred yards of the trail and is used as a stopping point by hikers, mountain bikers and snowmobilers.

Recommendations:
- Develop an elevated overlook limited to non-motorized summer access and winter snowmobile access.
- Maintain overlook viewing access
- Information kiosk/sign

➢ ***NELSON LAKE WAYSIDE***

Former Department of Transportation wayside located on State Highway 27 North, adjacent to the County-owned Totogatic Dam that forms Nelson Lake and immediately upstream from the State of Wisconsin, Department of Natural Resources, Totagatic Wildlife Area.

Existing Facilities:
- Paved parking area
- Native Plant Display Area
- Picnic tables and grills
- Restrooms (pit toilets)
- Boat Landing
- Nature trail
- Historical marker

Recommendations:
- Handicap fishing pier
- Electricity
- Picnic Pavillion
- Upgrade restrooms
- Replace hand pump
- Expand native plant display area
- Upgrade information kiosk
- Upgrade existing stairway.
- Replace deteriorating fencing/railing
- Picnic table pads (concrete or pea gravel)

- ***EAGLE'S LANDING PARK***

A 1.42 acre park and landing on the Namekagon River, which is accessible from Airport Road. Improvements will emphasize the natural setting and aesthetics of the Namekagon River and improve wildlife and shoreline habitat.

Existing Facilities:

- Gravel parking area
- Artesian well
- Handicap accessible restroom
- Wildlife viewing benches
- Picnic Area
- Path/walkway to river access
- Pier used for river access

Recommendations:

- Shelter/Pavilion

- ***SAWYER COUNTY FAIRGROUNDS***

A 10.65 acre site adjacent to the County Highway Shop on CTH B. The fairgrounds are available to organizations for events and storage of County equipment.

Existing Facilities:

- Pavilion
- Exhibit Hall
- Large Animal Barn

- Hog/Sheep Barn
- Poultry Barn
- Milking Parlour
- Motocross Track
- Grandstand
- 4-H Building/Ice Cream Booth
- Large parking area

Recommendations:

-Upper parking lot safety/security fencing
- Surface improvement for walkways and road
- Insulate & install HVAC system in Exhibit Hall
- Bleachers (Portable for 4-H Auction & Events)
- Bleachers on hillside for grandstand events
- Outdoor public bathrooms
- Storage building for fair equipment

- ***BOAT LANDINGS***

- Nelson Lake Dam Boat Landing, developed
- Nelson Lake Tag Alder Landing, developed
- Weirgor Lake, 100 foot walk-in landing
- Price Dam Landing, Lake Winter, developed
- Windfall Lake, adjacent to County highway, developed
- Spring Lake, adjacent to County highway, developed
- Tiger Cat Flowage, adjacent to Town road near County-owned dam, developed
- Deer Lake, adjacent to Town road near County-owned dam, developed
- Winter Dam, Chippewa Flowage, developed

TOWNSHIP RECREATIONAL FACILITIES

- ***TOWN OF BASS LAKE***

Existing Facilities:

- Town Hall Park located on County Road K in Northwoods Beach.
  - Open pavilion, picnic area, grills, restroom and playground equipment

- Spring Lake Boat Ramp – Cement ramp and dock with limited parking located at the junction of Williams Road and County Road E.

- Grindstone Shallows Park – Boat landing, pavilion, picnic area, grills, restrooms and rustic natural trail located in Northwoods Beach on Poplar Avenue.

- LCO Drive Boat Ramp – Cement ramp with dock and limited parking located on LCO Drive in Northwoods Beach.

- Windigo Boat Landing – Cement boat ramp with dock, gazebo, view shed, large paved parking area, picnic area, grills and restroom located on Highline Road.

- Durphee Boat Landing – Cement ramp with limited parking located on County Road KK.

- Harvey Park – Rustic walkway with benches at LCO shoreline with limited parking located on Circle Drive at the end of County Road KK.

- Grindstone View Shed – Benches located a junction of Post Avenue and Poplar Avenue in Northwoods Beach.

Recommendations:

- Designated Trails
- Town Acreage for Field Sports

- ***TOWN OF DRAPER***

Loretta/Draper Municipal Park

Existing Facilities:
- Pavilion
- Picnic area
- Restrooms
- Ball field

Recommendations:
- Bleachers should be repaired or replaced
- Add new backstop, line fence and outfield fencing to the ball field
- Repair or remove the dugouts

- ***TOWN OF HAYWARD***

The Town of Hayward maintains a lake access and swimming area on Peninsula Road and boat landing with parking on Linden Road. Both sites are on the west side of Round Lake.

County Hill Recreational Forest

A year-round park for non-motorized recreation located on County Hill Road adjacent to the State of Wisconsin, Department of Natural Resources Kissick Swamp Wildlife Area.

Existing Facilities:

- Picnic/Warming Shelter
- Handicap Accessible Restroom
- Gravel parking area
- Sliding Hill
- Natural lake
- Trail system for hiking, hunter walking trail, snowshoeing, cross-country skiing

Recommendations:
- Signage
- Develop interpretive trail for forest management practices and native trees and vegetation
- Benches
- Power to Shelter building
- Trail Lighting
- Develop Koznieski Pond area
- Gravel Pit reclamation for skating rink

Other Recommendations:
- Bike trails to tie into County and City of Hayward trail systems
- Continuation of Town bike trail to Town Forest
- Solar power for Town transfer station

- ***TOWN OF LENROOT***

The Town of Lenroot owns and maintains two recreation facilities and a boat landing. The recreation facilities are located at Seeley on Silverthorn Lake and on Smith Lake with the boat landing on Nelson Lake.

Eytcheson Park

This park is located on the east end of Smith Lake.

Existing Facilities:
- Boat landing and parking
- Undeveloped swimming beach
- Restrooms
- Small picnic area
- Pavilion

Silverthorn Lake Park

This is an excellent community facility and receives substantial use from both residents and visitors.

Existing Facilities:
- Swimming beach
- Shelter
- Restrooms
- Tennis court
- Playground equipment
- Baseball field

Recommendations:
- Recondition tennis court
- Upgrade playground equipment
- Paint dugouts
- Barrier free restrooms should be added to the park

Lenroot Wilderness Area

Located north off of Seeley Fire Lane – a Hemlock & Cedar forest preserve part of the Sawyer County Forest.

Recommendations:
- Sign or marker

- ***TOWN OF METEOR***

Existing Facilities:
- Softball field
- Sand volleyball court
- Paved court area
- Picnic pavilion with grill and tables

Recommendations:
- Continue development of recreation center at Town Hall.

- ***TOWN OF OJIBWA***

Ojibwa Park

The Town of Ojibwa owns and maintains the former Ojibwa State Park. The Town has a 4 member park committee who oversees maintenance/ management of the Ojibwa Park. The Park provides access for snowmobilers and ATVs to the Tuscobia State Trail, as well as a campground. The Turkey Feather Trail is a one mile marked hiking trail on the north side of Highway 70 in Ojibwa Park. A two mile ski loop starts at the Turkey Feather Trailhead.

Existing Facilities:
- Restrooms
- Picnic areas & large grill
- Sixteen camper sites and three tent sites
- Drinking water
- RV waste station
- Shelter building
- Playground equipment for pre-school to age 10
- Turkey Feather Trail – hiking & skiing

Recommendations:
-Develop/install shower unit in campground

Baird Community Park

Located on the north side of the Chippewa River in the Village.

Existing Facilities:
- Picnic tables
- Grills
- Restrooms
- Ball Field with dugouts
- Concession stand
- Canoe access to the river

Recommendations:
- Replace concrete floor in shelter
- Roll grounds in ball park outfield

Ojibwa Park-Canoe Access

A small parking area adjacent to the Ojibwa Park that provides scenic access and a canoe take-out point on the north side of the Chippewa River.

Existing Facilities:
- Picnic area
- Improved canoe access point
- Gravel parking area

- ***TOWN OF ROUND LAKE***

The Town of Round Lake utilizes the Town Hall located on CTH A for Town meetings and annual functions. Hall/Community Building is also used by multiple lake and property associations for meetings and informational forums.

Existing Facilities:
- Parking area
- Non-motorized boat launch
- Scenic area with fishing access (West Fork Chippewa River)
- Battle of the Horsefly historical site/marker

Recommendations:
- Develop picnic facilities including grills and tables, pavilion, and landscaping.
- Restrooms
- Drinking water
- Hiking/Snowshoe trail development on 40 acres of town property adjacent to Town Hall.
- Develop water access/swim/picnic area, possibly in conjunction with adjacent Towns.

- ***TOWN OF SAND LAKE***

Recreation facilities in the Town of Sand Lake are provided primarily for Stone Lake area residents, visitors and tourists.

Stone Lake Lions Park

The park is located on STH 70

Existing Facilities:
- Softball field with improved fencing and players benches
- Pavilion. With adjoining serving area (roll serving doors and picnic tables
- Picnic areas with tables and grilles
- Fire Pit

- Playground Equipment
- Equipment Storage Building and Garage
- Restrooms (Pit Toilets)
- Basketball court
- Pickle Ball court
- Volley Ball court

Recommendations:
- Add Horseshoe courts
- Provide a water source to the park
- Paint the existing Pit toilets
- Build Restrooms with running water and sewer.

Stone Lake Elementary School

Previously the Stone Lake Elementary school building, the building and lot is now owned by the Stone Lake Cranberry Fest, Inc. and used as a community park.

Existing Facilities:
- Playground Equipment , 2 groupings

Recommendations:
- Move one grouping of Playground equipment to Lions Park (Replacement) or Lions Hall (New Play Area)

- ***TOWN OF WINTER***

Archery Range – Lagoon Road

Existing Facilities:
- Pavilion
- Small storage shed
- Parking
- Porta-potty (owned by archery club)

Recommendations:
- Expand facility to include rifle and pistol range
- Expand parking area to accommodate approximately 20 vehicles and/or trailers
- Develop recreational vehicle operation training area for youth lessons/certifications
- Plant a buffer of trees
- Provide a water source to the area
- Provide restroom facilities
- Provide playground equipment
- Develop a picnic area with shelter, tables and grills
- Provide electricity to site

Lake Winter Boat Landing – Tower Road (NE side of lake)

Existing Facilities:
- Seasonal boat dock
- Handicap accessible fishing dock
- Parking area

Recommendations:
- Develop playground area with shelter and equipment
- Provide electricity to picnic area
- Provide picnic tables
- Provide water source
- Provide restroom facilities

VILLAGE RECREATIONAL FACILITIES

- ***VILLAGE OF COUDERAY***

The recreation facilities are provided within the village located on the Couderay River.

Ed Anderson Recreation Area

Existing Facilities:
- Two ball fields
- Playground equipment
- New pavilion
- Picnic area
- Restrooms

Recommendations:
- New barrier free restrooms should be added
- New chain-link backstops on both fields
- New line fencing on both fields
- Picnic area with tables and grills could be developed along the river within the park
- Acquire Eddy Creek Park from the County and improve

- ***VILLAGE OF RADISSON***

Four outdoor recreation areas are located in the village. All town roads are open to ATV and Snowmobiles.

New Project Recommendations:
- Create path and rehabilitation of boat landing/public rest area on Couderay River. Property lies within Town of Radisson and owned by North Central Power.
- Develop biking/walking/rollerblade path to Tuscobia Trail to create a circular recreational path.

Radisson Recreational Park

Existing Facilities:
- Eight campsites with electric & water hookup
- 5 tent sites
- Picnic tables
- Pavilion with electricity & water
- Restrooms
- Playground equipment for preschool
- Volleyball net
- Basketball hoop
- RV waste station
- ATV wash station
- ATV unloading ramp

Recommendations:
- Shower building
- Blacktop parking area

Radisson Ball Park

Existing Facilities:
- Restrooms
- Concession stand
- Ball field

Recommendations:
- Add a chain-link backstop and outfield fence

Village Firehall Park
Located adjacent to the Firehall on the Tuscobia State Trail.

Existing Facilities:
- Pavilion
- Restrooms inside the pavilion
- Basketball court

Recommendations:
-Remodel Village Hall restrooms

Former Radisson Elementary School

Existing Facilities:
- Ball field

- New playground equipment

Recommendations:
- Upgrade existing ball fields for youth leagues

- ***VILLAGE OF WINTER***

Excellent outdoor recreation facilities are provided in the village.

Dr. H.A. Smith Park and V.F.W.

Existing Facilities:
- Picnic area
- Ball field
- Pavilion
- Restrooms – barrier free 2006

Recommendations:
- Park signage
- Recondition softball diamond
- Repaving
- Event shelters with electricity
- Construct two ballpark dugouts
- Construct ballpark concession stand

CM Olson Athletic Field

The Winter School District also provides excellent facilities at the school.

Existing Facilities:
- Baseball diamond
- Asphalt track
- Playground equipment

Friends of Tuscobia – Winter Depot Trailhead

Existing Facilities:
- Historic Village of Winter railroad depot near the Tuscobia Trail for use as a multi-use trailhead including ATV, snowmobiles, hiking, and biking.

Recommendations:

- Provide entrance and parking areas to accommodate vehicles and trailers
- Establish picnic area with shelter, tables and grills
- Establish a water source
- Restrooms

- Lighting
- Landscaping
- Fencing
- Signage

- ***VILLAGE OF EXELAND***

The Village of Exeland has excellent and well used recreation facilities.

Swan Creek Park

Existing Facilities:
- Shelter.
- Camping.
- Water pump.
- Restrooms.
- Horseshoe pits.
- Little League field.
- Grass open play area with playground equipment.

Recommendations:
- Create a multi-use community recreation facility. A fishing area for children could be developed at the park where the Swan and Weirgor Creeks come together. A small shelter and a stream-side handicap accessible fishing dock could be included.
- Ice skating rink
- Tennis courts
-Bathroom/shower facility for camp area

Exeland Sports Center

Excellent recreation opportunities are available at this facility.

Existing Facilities:
- Rod & Gun Club with a trap and rifle range
- Softball field
- The major facility of the Exeland baseball field
- New restrooms
- Concession stand
- New batting cages & dugouts
- Pavilion
- New sand volleyball court
- Playground equipment
- Open and covered bleachers

CITY RECREATIONAL FACILITIES

- ***CITY OF HAYWARD –***

Hayward, the county seat of Sawyer County, has shown substantial growth in the past thirty years--from a 1980 population of 1,698 to a 2010 census population of 2,340, an increase of 27 percent.

The Town of Hayward, which surrounds the city, increased from 2,331 in 1980 to 3,601 people in the 2010 census. This is an increase of 35 percent. The City and Town of Hayward now have a combined population total just under 6,000.

This dramatic increase has placed increased pressure on existing recreation facilities and created demand for new recreational opportunities. The City of Hayward's existing recreation facilities receive extremely heavy use during high tourist periods. The lack of major picnic open-space play area is evident. The city swimming beach, which is the only public swimming area in Hayward, is now accessible via the biking/walking trail that circumnavigates the city limits.

Hayward functions as a popular service center for area second home residents, and resorts and receives extremely sharp population increases in the summer months. Special events as the Musky Festival, Lumberjack World Championships, Winterfest, Fat Tire Festival and the American Birkebeiner cross-country ski race bring additional thousands of visitors into the area. Hayward is also fortunate to be the home of the National Fresh Water Fishing Hall of Fame. This facility is located adjacent to the city beach.

The Hayward area presently supports men's and women's summer softball leagues, Little League baseball, a men's city baseball team, youth soccer, logrolling and amateur ice hockey programs. The majority of organized team recreation activities take place at the Hayward Sports Center located adjacent to the Middle School.

Hayward Community School District

Hayward Primary School

Existing Facilities:
- Ball fields
- New playground equipment
- Gymnasium
- Soccer field
- Paved parking.

Recommendations:
- Upgrade ball fields (new backstops)

Hayward Intermediate School

Existing Facilities:
- Access to paved fitness trail
- New playground equipment
- Gymnasium
- Paved parking

Hayward Middle School

Existing Facilities:
- Shares outdoor fields with Sports Center and High School
- Large gymnasium
- Paved parking
- Football field
- Sand volleyball court

Hayward Senior High School

Existing Facilities:
- Baseball fields
- Softball fields
- Track facility
- Football field
- Soccer fields
- 4 tennis courts
- Auditorium
- Access to paved fitness trail

Recommendations:
- Upgrade tennis courts

Erik and Randy Lawry Skate Park
Excellent skateboard and rollerblade park (44,167 sq ft.). Located adjacent to the High School and Middle School. Open to the public.

Hayward Sports Center
This 28 acre sports complex is on land owned by the City of Hayward but is administered by the Hayward Sports Center Board of Directors and provides recreation opportunities for Sawyer County and area residents, and visitors.

Existing Facilities:
- 28,000 sq. ft. indoor arena providing ice hockey, meetings, concession, restrooms, and year round activities
- Softball field with restrooms
- 3 Little League fields with concession and storage
- Playground equipment

Recommendations:
- Bury overhead electric lines
- Develop swim park

Dog Park (formerly Nyman Park)
A 9.2-acre parcel located along Smith Lake Creek on the north side of the city with 77,700 sq. ft. of mowed area.

Existing Facilities:
- Vehicle parking area
- Designated area for unleashed dogs
- Walking trail for leashed dogs

Smith Creek

Recommendations:
- Develop a plan to address problems and utilize the potential of the creek.

Upper Shues Pond
This area is adjacent to the Senior Citizens Center.

Existing Facilities:
- Benches
- Trails (.3 miles)

Recommendations:
- Develop a picnic area with a small pavilion

Pedestrian/Bike Trail
Year-round, paved fitness trail originates near the City Beach, continues through the business park, past the school campuses and down Nyman Ave, continuing past the Sherman & Ruth Weiss public library, and ends at the city limits on Highway 77 near Walmart/Slumberland. The trail provides access to the Middle School, Sports Center, Intermediate School, and Primary School locations, as well as the public library.

Recommendations:
- Complete bike/walking trail and work with adjacent townships to make a regional trail.
- Utilize the trail corridor for the Tree City/Bird City initiative

Jaycees Tot Lot

This small playground and ice skating rink is located at the corner of Wisconsin and Fourth Street in the City of Hayward (34,956 sq. ft.).

Existing Facilities:
- Playground equipment
- Outdoor skating rink

Recommendation:
- Additional lighting

City Beach

Existing Facilities (121,000 sq. ft.):
- Swimming beach
- Restrooms
- Open shelter
- Basketball court
- Boat ramp
- Accessible Pier
- Picnic area with tables and grills
- Playground with a variety of equipment

Recommendations:
- Define parking for boat access

Shues Pond

This attractive area provides beautiful inter-city open space (90,000 sq. ft.). The annual "Lure of the Lights" display is held here. The pond is used by a variety of wildlife, and many residents enjoy viewing the wildlife while having lunch.

Existing Facilities:
- Gazebo
- Picnic tables
- Flag pole
- Playground equipment

Recommendations:
- Plant a pollinator garden to attract birds and butterflies.
- Utilize the area for the Tree City/Bird City initiative

Library Nature Park

Existing Facilities:

- Nature park
- Walking trails
- Viewing pier
- Bridge
- Informational kiosks
- Plant identification signs
- Outdoor amphitheater/classroom

Recommendations:

- Upgrade/improve/maintain outdoor amphitheater
- Conserve and restore the wetland and upland areas
- Invasive species control
- Reforestation/habitat management

SUMMARY

Sawyer County has a diverse natural resource base providing a variety of recreational opportunities. Many of the opportunities take place on public lands such as Sawyer County Forest, Chequamegon National Forest, State of Wisconsin lands managed by the DNR, and the Namekagon River National Scenic Riverway. The area offers many nationally recognized recreational events.

Sawyer County has a unique group of citizens who, through volunteer efforts, are able to make things happen, and provide unique recreational opportunities and world class recreation events. The county's role is that of managing and maintaining its vast county forest system as a viable multi-use recreation base as well as providing quality forest products. The municipalities in the county must continue to provide and maintain community based recreation facilities that have made Sawyer County one of the most livable areas in the Midwest.

APPENDIX A - FINANCIAL AIDS

PROGRAM DESCRIPTION

Land and Water Conservation Fund (LWCF) Program

This is a federal program administered in all states that encourages creation and interpretation of high-quality outdoor recreational opportunities. Funds received by the DNR for this program are split between DNR projects and grants to local governments for outdoor recreation activities. Grants cover 50 percent of eligible project costs.

Eligible applicants

Towns, villages, cities, counties, tribal governments, school districts or other state political subdivisions are eligible to apply for grants for acquisition and/or development of public outdoor recreation areas and facilities.

Eligible projects

- Land acquisition or development projects that will provide opportunities for public outdoor recreation.
- Property with frontage on rivers, streams, lakes, estuaries and reservoirs that will provide water based outdoor recreation.
- Property that provides special recreation opportunities, such as floodplains, wetlands and areas adjacent to scenic highways.
- Natural areas and outstanding scenic areas, where the objective is to preserve the scenic or natural values, including wildlife areas and areas of physical or biological importance. These areas shall be open to the general public for outdoor recreation use to the extent that the natural attributes of the areas will not be seriously impaired or lost.
- Land or development within urban areas for day use picnic areas.
- Land or development of nature-based outdoor recreation trails.
- Development of basic outdoor recreation facilities.
- Renovation of existing outdoor recreation facilities which are in danger of being lost for public use.

Ineligible project examples

- A project that is not supported by a local comprehensive outdoor recreational plan.
- Acquisition and development of golf courses.
- A project where storm water management is the primary purpose.
- Motorized recreation trails.
- Lands that include cell towers.
- Land that will be used for non-outdoor public recreation purposes.

Deadlines and funding cycles

- Submit completed applications by **May 1** of each year to:

  Lavane Hessler
  Local government grant manager
  Department of Natural Resources
  P.O. Box 7921
  Madison WI 53707-7921
  608-267-0497

- Department of Natural Resources regional staff review and rate eligible projects in **early June**.
- Final project listing is compiled in **July** with projects ranking the highest selected for grants to the extent funds are available.
- Final selected projects will be reviewed and approved by the National Park Service prior to the sponsor receiving an agreement with the DNR.

Application materials

Because these grants are often coupled with grants from the Knowles-Nelson Stewardship Program, LWCF grant application materials appear in the same booklet as Stewardship Local Assistance grant application materials.

APPENDIX 4.8.3.3-1 **Chapter 900 Washburn County Forest Land Use Plan**

WASHBURN COUNTY FOREST COMPREHENSIVE LAND USE PLAN

CHAPTER 900 – RECREATION

WASHBURN COUNTY FOREST COMPREHENSIVE LAND USE PLAN

CHAPTER 900

RECREATION

900 RECREATION

Recreation is an integral part of the management of the County Forest and recreational uses are a part of most of the previous chapters. Due to the tremendous growth in recreational demands over the last ten years, this Plan recognizes the importance of more intensive recreational planning and emphasizes its importance with a separate chapter.

905 PLANNING

The Washburn County Forest Outdoor Recreation Plan also guides the Washburn County Forest recreation program. This plan is revised every five years and is made part of this Plan. The Washburn County Outdoor Recreation Plan includes, but is not limited to, activities on the County Forest. It includes snowmobile and ATV plans, campgrounds, parks and boat landings, recreational maintenance and development plans and other recreation surveys and reports.

The Outdoor Recreation Plan, ATV Master Plan, and other recreation surveys, plans and reports will be used as available in planning efforts. Additional assistance will be sought from the DNR park planners. The responsibility for all recreation planning on the County Forest will rest with the Committee.

910 AUTHORITY

The Washburn County Code of Ordinances and s.28.11 Wis. Stats. authorize the Washburn County Forestry Parks and Recreation Committee to provide recreational opportunities for the public. This authority is further recognized in the mission statement for the Washburn County Forest (Chapter 100), which specifically identifies outdoor recreational opportunities. The mission statement also charges the Committee to conduct activities in a manner that prevents or minimizes the degradation of natural resources.

1. The Committee may establish and maintain recreation areas and facilities within, or outside the County Forest. The Committee has been empowered to establish and enforce rules and regulations for the use of such developments and to establish fees for their use.

2. The Washburn County Outdoor Recreation Plan, updated every 5 years, will reflect the public use and interest in the County's recreational facilities and how the County plans to accommodate those uses and interests.
3. The Washburn County Code of Ordinances shall govern the lands and facilities designated by the County for park or recreational purposes

Maps of the County's recreation facilities and the Code of Ordinances are appended in Chapter 1000.

915 RECREATIONAL SERVICE AGREEMENTS

It is permissible for the Committee to contract with clubs or individuals to provide recreational services for the public. Under this Plan, Washburn County contracts the following services:

1. Snowmobile trail maintenance on County Forest, private lands, and the Wild River Trail
2. ATV trail maintenance on County Forest, private lands, and the Wild River Trail.
3. Informal agreements with local clubs and private individuals to maintain ski trails and the Minong Rifle Range.

920 RECREATIONAL USE PERMITS

The Committee may issue permits or use agreements for use of the County Forest for recreational purposes.

1. No permits for sale of malt or intoxicating beverages will be issued on the County Forest
2. Other types of special use permits are found in Section 515.

Organized events or special uses, other than informal recreation (See Sec. 510.4) require specific permission from the Committee.

925 ENTRANCE AND USER FEES

The Committee is empowered and shall have responsibility for the establishment of entrance, camping, and other user fees on recreational facilities maintained by the County Forest.

1. Fees for camping shall be comparable with fees charged by similar private facilities so as not to provide undue competition. Fees shall be subject to change periodically at the discretion of the Committee.

2. Other user generated fees shall be utilized, where appropriate, to assist in the maintenance of the facility where it was collected.

930 EXTENSIVE (UNDESIGNATED) RECREATIONAL USE OF THE FOREST

Extensive recreation includes those informal activities for which the County generally does not provide a facility or service. These uses include activities such as hunting, fishing, biking, hiking, and others. Such uses do not normally require a permit but must be conducted in compliance with the Washburn County Code of Ordinances. The Forest Administrator and the Committee shall periodically review such uses and enact ordinances if necessary to protect the County Forest from damage.

930.1 HUNTING

The entire County Forest is open for regulated hunting, with the exception of designated areas that are developed for high public use, such as Leisure Lake Youth Camp, Totogatic Park, and Sawmill Campground. These boundaries of these areas are signed indicating closure. Hunting is also prohibited within 1700 feet of the Northwood School grounds located in NW1/4 Section 1, T41N-R12W (s.29.22 Wis. Stats).

The Washburn County Code of Ordinances regulates activities relating to hunting. Refer to Chapter 1000 for a full text of the Ordinance. In general, the following activities are regulated:

1. Tree stands are permitted providing they do not damage the tree and are removed at the end of hunting hours each day. The use of nails, lag screws, screw steps, or other damaging devices is not permitted
2. Commercially made, or hand made blinds must be removed at the end of hunting hours each day. Blinds made of natural; on site vegetation may be left.
3. ATV use is regulated. Please refer to Chapter 700 for undesignated use and Section 940.3 for ATV trails.
4. Cutting or harvesting of vegetation is prohibited.

This plan recommends developing an ordinance change to allow portable tree stands to be left overnight on the forest within the following criteria:

- *Stand may not damage the tree in any manner (screws, nails, etc.)*
- *Stand must be labeled with owners name and address*

- *Only 1 stand per individual allowed to be left*
- *A time limit to be developed*
- *Any stands left after season or after allot time frame are to be seized and/or citations issued.*
- *Other limitations or restrictions determined appropriate by Committee*

930.2 FISHING

All lakes and streams within the forest are available for regulated fishing, unless otherwise listed in State regulations.

930.3 PICNICKING / DAY USE

Picnicking and other day uses, outside of established facilities, is allowed. The Washburn County Code of Ordinances also regulates day use. Refer to Chapter 1000 for a full text of the Ordinance. In general, the following activities are regulated:

1. All litter, trash, or rubbish must be removed.
2. Cutting or harvesting vegetation is not permitted.
3. Fires may not be left unattended unless the ground is 100% snow covered.
4. Fires may not be ignited unless the ground is 100% snow covered in Casey, Chicog, Minong, or Springbrook Townships; or within the Namekagon Wild Riverway Zone.

930.4 CAMPING

A permit is required to camp outside of developed campgrounds on the County Forest. Permits are available from the Washburn County Forestry Office. Permits may be denied for specific areas at the discretion of the Forest Administrator. The Washburn County Code of Ordinances regulates camping. In general the following activities are regulated:

1. Camping is permitted with a tent or lesser facility.
2. Camping use may not exceed 9 consecutive days on the forest.
3. A permit must be acquired from the Forestry Office and the Forest Administrator may limit or restrict certain areas from camping use.
4. Camping in Casey, Chicog, Springbrook, or Minong political townships is not permitted during the months of April or May. Camping within the Wild Riverway zone is not permitted unless it is within a designated campsite.
5. Campers may not leave an open fire, unless it has no smoke and the entire coal or

ash bed is cool enough to touch with a hand.

6. Campers may not ignite a fire, unless the ground is 100 percent snow covered, in Casey, Chicog, Minong, or Springbrook political townships, except for gas-fueled stoves.
7. Camping during the first nine days of the state's firearm deer season, in mobile camping units attached to or part of a motor vehicle, and only while off the road and its right-of-way and still within 200 feet of a town road or county forest road with a minimum 16-foot road bed is allowed with a permit.
8. Littering or site damage will not be tolerated
9. Natural vegetation may not be damaged or altered in any way, except for the construction of an adequate fire ring. Fasteners such as nails, screws, or bolts may not be attached to trees. Rope may not be left tied to trees on the site.
10. Manufactured materials (lumber, concrete, plastics, etc.) may not be left on the site when it is vacated.

930.5 MOTORIZED TRAVEL

The Washburn County Code of Ordinances and the Washburn County Road and Access Plan regulate motorized uses on the County Forest. The full text of these regulations is included in Chapter 700 (Roads, Trails, and Access). In general, the following regulations apply to motorized travel (cars, trucks, snowmobiles, ATV's, etc.) outside of a developed recreational trail system.

1. It is illegal to operate a motor vehicle on a trail designated closed with a gate, earthen berms, sign, or other closure.
2. It is illegal to operate a motor vehicle off of a trail that is designated open to motor vehicles by the Committee (off trail or cross country travel is prohibited).
3. Two-wheeled motorized travel (motorcycles, mini bikes, dirt bikes) is not permitted unless the machine is a street legal machine operating on a County Forest Road (gas tax).
4. ATV's are not allowed anywhere on the County Forest from April 1 through the first Friday before Memorial Weekend.

930.6 OTHER USES

Other uses of the County Forest are permitted provided they are not specifically addressed within the County Code of Ordinances. Mountain Biking, Horseback riding,

and other non-motorized uses are not currently regulated. The Committee may, at any time, enact ordinances to protect the County Forest should damage begin to occur. A description of extensive uses relating to forest trails is included in Chapter 700.

935 INTENSIVE RECREATION AREAS

Intensive recreation areas are those for which the County provides a facility. The Washburn County Forest has developed sites and areas to accommodate a fairly high degree of public use. The Forestry Parks and Recreation Committee may prohibit other recreation activities that are not compatible with the intent of the developed facilities.

The Committee and the Forestry Department has noted a marked increase in demand for an increase in developed recreation facilities and the public input sessions reflected this demand. Washburn County may attempt to develop additional facilities and will maintain its currently developed facilities (maps of these facilities are appended in Chapter 1000):

935.1 CAMPGROUNDS

935.1.1 Ordinances

The Washburn County Code of Ordinances regulates use of designated campgrounds on the County Forest. In accordance with this ordinance, no person within a campground area shall:

1. Camp at anywhere other than an established campsite.
2. Dispose of trash other than in provided containers.
3. Discharge or possess an uncased firearm or weapon.
4. Ignite a fire unless in a designated fire ring.
5. Keep a pet unleashed
6. Use the area between the hours of 11:00 p.m. and 6:00 a.m. unless a registered camper.
7. Keep horses, livestock, or other domesticated animals not considered a household pet.
8. Leave any animal excrement within a developed area.

935.1.2 Totogatic Park

Totogatic Park is located on the Minong Flowage, northwest of Minong. The park

facilities include 75 campsites, electricity, electric water sources, shower house, 3 pit toilets, beach, fishing pier, boat landing, dump station, fish cleaning station, firewood, pavilion, nature trail, and caretaker's residence.

935.1.3 Sawmill Campground

Sawmill Campground is located on Sawmill Lake, northwest of Birchwood. The park facilities include 25 campsites, hand pumps, 2 pit toilets, fishing pier, nature trail, and pavilion.

935.1.4 Davis Flowage

Davis Flowage has two developed campsites on the western shore. These are boat in sites with fire rings and picnic tables. A County Forest Camping Permit is required.

935.2 LEISURE LAKE YOUTH CAMP

Washburn County operates and maintains a Youth Camp at Leisure Lake in Casey Township. This facility includes a main lodge, craft building, six cabins, bathroom, beach, ball field, picnic area, and nature trail. The facility rented on a donation basis with first reservation opportunities given to local youth groups.

935.3 HALLSTROM WOODS

The Hallstrom Woods property was purchased, utilizing State and Federal grant funds, from the Izaak Walton League in 1999. This 600-acre parcel is managed as a non-motorized recreation unit. Facilities included 4-mile non-motorized trail (skiing, mountain biking, etc), parking, bathrooms, pavilion, boat launch, and aerator. The trailhead is built adjacent to the Chicog Township Hall on Highway 77, which offers a shared picnic area facility.

935.4 PICNIC / DAY USE AREAS

Picnic and day use areas maintained by the County and open to the public include (these may be part of other park facilities previously listed):

a. Slim Creek Flowage Picnic Area
b. Leisure Lake Picnic Area
c. Hallstrom Woods Picnic Area
d. Harmon Lake Picnic Area

e. Totogatic Park Picnic Area

f. Sawmill Park Picnic Area

935.5 SWIMMING AREAS / BEACHES

Washburn County maintains swimming areas and beaches at the following facilities. Official swimming areas are marked with swim ropes and buoys. Lifeguards are not provided.

a. Totogatic Park Beach

b. Leisure Lake Beach

935.6 BOAT LANDINGS

At several locations, both on and off the County Forest, areas have been developed for water access. These generally include a parking lot and an approach to the water. These are provided for public access to waters for recreational purposes and are shown on the recreation maps in Chapter 1000. Water access is also discussed in Chapter 700. These landings are not to be considered boat-mooring sites and camping is not permitted

a. Leisure Lake

b. Harmon Lake

c. Loyhead Lake

d. Wolf Lake

e. Sawmill Lake

f. Spider Lake

g. Elbow Lake

h. Slim Creek Flowage

i. Big McKenzie Lake

935.7 MINONG RIFLE RANGE

Ranges allowing for public use of rifle, bow, pistol, etc. are permitted on County Forest lands. The Minong Rifle range is maintained by a sportsmen's club and is open to the public. The range includes shooting benches, shelter, and backstops. In general, the range is open for target shooting of typical sporting firearms and weapons. Bombs, large caliber military type weapons, or other assault weapons are not permitted.

A "certificate of insurance" for any events held by organizations will be required along

with a permit by the committee before the event. The committee with consultation of corporate counsel will set insurance minimums.

935.8 CABIN PERMITS

Washburn County still retains a cabin permit system on the Forest. At the time of the drafting of this plan, there are 36 remaining permits. The cabin permit system has a sunset clause of December 31, 2010. Detailed information is contained within Chapter 500, section 510.

935.8.1 Cabin Permit Sites After December 31, 2010

The Committee may consider, as a part of this plan, the option of establishing the reclaimed cabin permit sites as camping areas under the following considerations:

1. Designate those sites with easy access from public roads
2. Consider a reservation or drawing for popular sites, especially for the gun deer season
3. Proposal should include provisions for satisfying conditions for a sanitary permit and other zoning requirements
4. A fee structure should be implemented commensurate with the workload of administration, site inspections and other duties resulting from the operation of the program.

940 INTENSIVE RECREATION TRAILS

Intensive recreation trails are those for which the County provides a designated trail and/or facility. The County currently provides trails systems that accommodate a fairly high degree of public use. The Committee may prohibit other activities on these trails that are not compatible with the intent of the development.

Whenever possible, multiple uses of the various trail systems are encouraged and are subject to policy review of the Committee. Wherever possible, attempts should be made to avoid user conflicts. However, recreational users will frequently encounter forest management activities instrumental to the existence and future of the Washburn County Forest. Trail systems are identified on maps in Chapter 1000. Extensive recreational use of trails is discussed in Chapter 700

The Committee and the Forestry Department has noted a marked increase in demand for an increase in developed recreation facilities and the public input sessions reflected this demand. Washburn County may attempt to develop additional facilities and will maintain its currently developed facilities:

940.1 TRAIL CONSTRUCTION AND MAINTENANCE

The Committee will review requests for recreational trails. Groups requesting specific trail development or use must present a plan for the long term funding and maintenance of proposed trails. Organized trail uses and group-sponsored activities must protect Washburn County with $1,000,000.00 liability insurance coverage and provide a certificate of insurance as proof of coverage.

Any new trail proposal must comply with County policy, plans and standards. Refer to Section 940.2.6 for non-motorized and Section 940.4 for motorized.

Construction or maintenance of any recreational trail in which the activity would increase the erosion potential of one acre or more of land is subject to state and federal stormwater runoff requirements (NR216, Wis. Adm. Code and s. 283.33, Wis. Stats.). Construction or development for silvicultural purposes is presently exempt from these requirements. Recreational trail development in Washburn County that meets these parameters will employ best management practices for water quality (PUB-FR-093-95) to mitigate any adverse impacts. In addition, an erosion plan will be prepared for each project depicting the location of the project, surrounding wetlands and what erosion control measures will be employed.

940.2 NON-MOTORIZED RECREATION TRAILS

The Washburn County Forest is a multiple use forest. Non-motorized recreation trails are a legitimate use of the forest. Design and maintenance of these trails may highlight natural features present on the Forest, should minimize damage to the environment, and reduce user conflict. Trail use and development must be compatible and sustainable with the characteristics of the landscape.

It shall be the policy of the Committee to manage non-motorized recreation trails on the County Forest.

940.2.1 Designated Hiking Trails

Any designated recreation trail maintained by the County is open to use by hikers. The County Forest does, however, maintains the following official hiking/nature trails

a. Sawmill Campground Nature Trail
b. Totogatic Park Nature Trail
c. Leisure Lake Nature Trail
d. Hallstrom Woods Non-Motorized Trail

940.2.1(a) Ice Age National Scenic Trail

On October 13, 1964, Congress passed legislation which authorized the establishment of the "Ice Age National Scientific Reserve in Wisconsin" to assure protection, preservation, and interpretation of nationally significant values of Wisconsin's continental glaciation.

Approximately seven miles of existing roads in the Welsh Lake Unit of the County Forest is authorized by this 10-Year Plan to be included as a route in part of the Ice Age Trail system. A map of this trail is appended in chapter 1000.

The present route will be authorized by Committee authorization and adoption of this Plan. Conditions will include the following:

1. The Ice Age Trail will not conflict with any legal hunting activity, authorized snowmobile trails, or other objectives identified in Section 850.5.28 (Welsh Lake Integrated Resource Management Unit) of this plan.
2. The Ice Age Trail Foundation will provide volunteers to develop and maintain the trail. The County is an unlikely sponsor to construct or maintain the trail, although additional support may be given should outside funding sources become available.
3. Liability for volunteers and hikers is to be covered by the National Park Service. The Forestry Committee upon proof of insurance may authorize other labor sources.
4. No additional aesthetic management category is anticipated, although foresters will be sensitive to trail needs. As of the adoption of this Plan, the Forestry Department has not noted a tremendous amount of use of this section of trail,

although usage should be expected to increase. Management activities such as timber harvest should be considered educational to trail users, and should complement the multiple use objectives of the Welsh Lake Unit.

5. Signs for the trail will be placed on treated wooden, steel, or Carsonite posts (not trees) and will be approved by Forestry staff prior to installation. Yellow painted trees are authorized for use as trail markers.
6. Any trail reroute proposals must be submitted to the Forest Administrator. The Committee will consider these proposals. It is understood that the trail route will occasionally be used for logging (multiple use). The existing route is not anticipated to change within this planning period.
7. The authorized trail itself is considered a route only for observation and interpretation and not part of a reserve or right-of-way area for the purpose of preserving or protecting glacial features.
8. Private land easements are the responsibility of the Ice Age Trail Foundation.

The Ice Age Trail is a welcomed asset on the Forest and the Committee shall make reasonable efforts to accommodate the trail and trail users. This plan does not recognize the need for, nor recommend any additional protection measures that are in the form of easement or other designation of property rights to other groups or agencies.

Recommendations:

- *It may be advisable to form a working group between County Forest staff and Ice Age Trail officials that would give an opportunity for notification and input into timber sale activities adjacent to the trail.*
- *Consider forestry activities adjacent to the trail as an educational opportunity for trail users and possibly develop interpretive signs explaining forestry practices that are utilized.*
- *Consider developing alternative routes through the Welsh Lake unit should forest management cause significant negative aesthetic impacts. Trail could be relocated back to the original location once they have regenerated.*
- *The Ice Age Park and Trail Foundation has requested restrictions on motorized uses and on non-motorized uses other than hiking. At present, little motorized or other non-motorized uses are noted on the trail. Motorized use, with the*

exception of winter use on the State funded snowmobile trail, is currently prohibited. Consider amending the Washburn County Code to restrict other non-motorized uses should damage or conflict begin to occur.

- *The current trail is primarily on logging roads. Work cooperatively with the IAPTF to relocate the current trail off of existing roads and skid trails. Relocation efforts shall be conducted by the IAPTF with guidance and cooperation from the Forestry Department. This recommendation is provided in response to the IAPTF statement that:*

  "It is recognized that presently the trail is primarily on logging roads that for the most part make it impractical to create a "premier" hiking trail. During the life of this 10-Year Plan the IAPTF hopes to reroute portions of the trail off logging roads and skid ways."

- *Any proposed reroutes should target areas of northern hardwood, red oak, or other forest types that are managed under a thinning process rather than stands prescribed for clear-cut. This will minimize aesthetic impacts. Also consider Aesthetic Zone classification for those sections of trail that is permanently rerouted off of existing logging trails.*
- *Carefully review requests for restrictions on use along the trail for consistency with State Statutes and with other recreational trail guidelines. Requests to restrict any legal hunting activity may conflict with s.28.11 Wis. Stats.*

940.2.2 Designated Bicycle Trails

Any designated recreation trail maintained by the County is open to bicycle use. At the time of the drafting of this plan, there are no trails designated solely for bicycle use. There are numerous trails that offer shared use. A plan proposal is in place to construct a mountain bike trail in Birchwood Township. The trail route would run from the north parking lot of the Nordic Ski Trail to Sawmill Campground. This trail is an approved project within the Washburn County Forest Outdoor Recreation Plan. The construction of this trail is considered approved as part of this Plan. The project is contingent on maintenance and construction support of a local mountain bike or other club and securing funding.

940.2.3 Designated Horseback Riding Trails

Washburn County began construction on the Dugan Run Horse Trail in 2002. The trail

system proposal includes 30 miles of trails in the townships of Stone Lake, Crystal, Birchwood, and Madge. Trailheads were proposed for Dugan Fire Lane, south of Mackey Creek, and at the Harmon Lake Boat Landing Area. At the time of the drafting of this plan, the north segments of this trail are complete. South segments are scheduled for construction during 2005.

Facilities include campsites, toilet, hand pump, pavilion, and horse tethers. Additional facilities may be developed as use warrants.

940.2.4 Designated Ski Trails

Three regularly groomed ski trails are available for public use. User groups or other agencies maintain all ski trails.

a. Nordic Ski Trail is an 8.1-mile trail located in Birchwood Township. A north parking lot lies on highway 70, 4 miles west of Stone Lake. Most of the loops are maintained for classical skiing and a southern loop is maintained for both classical and freestyle skiing. The Glide and Stride Ski Club maintain the trail.
b. Totogatic Ski Trail is a 7.8-mile trail located in Minong Township. Parking is located on the west side of 53, 2 miles north of Minong. The trail is maintained for classical skiing. Private individuals maintain this trail
c. Leisure Lake Ski Trail is a 2.7-mile trail located in Casey Township. Parking is located at the Leisure Lake Youth Camp. The trail is maintained for classical skiing. The National Park Service maintains this trail.
d. Hallstrom Woods Non-Motorized Trail is a trail proposal on the 600-acre parcel acquired from the Izaak Walton League. The trail system is proposed for construction in late 2004 and early 2005. This trail system will link to and be maintained by the Schwan Center. Maintenance of the trail will likely be a cooperative effort that also includes the County and local ski clubs

940.2.5 Canoe Portage Trails

The County Forest currently maintains two canoe portage routes in the Birchwood area. Both of these routes are located in high-density lake areas and include short portage trails that connect lakes.

Sawmill Lake Canoe Portage

This canoe trail starts on Sawmill Lake, either at the Campground or the boat landing. The route includes nine short portage trails that connect Sawmill, Fawn, Beartrap, Tadpole, Telstar, Mallard, Otter, and Deep Lakes. The longest portage is 1000 feet while most are 300 feet or less. Portage trails are marked and periodically cleared.

Loyhead Lake Canoe Portage

This canoe trail starts at the boat landing off of the Birchwood Firelane at Loyhead Lake. The route includes seven short portage trails that connect Loyhead, Bear, Lost, Bluebill, Pine Point, and Deep Lakes. The longest portage is 500 feet, while most are 300 feet or less. Portage trails are marked and periodically cleared.

940.2.6 Future Non-Motorized Trails

940.2.6(a) Criteria

Proposals to construct new trail facilities will only be considered under the following criteria:

1. Trail must be identified within this Plan or within the Washburn County Forest Outdoor Recreation Plan and must be presented to the Committee for approval.
2. A need must be demonstrated that a demand for the trail system exists and that sufficient use will occur to justify construction.
3. A club or other user group must make a commitment to maintain or assist with maintenance of the trail. This criteria can also be met, upon approval of the Committee, by showing that a club or group will form as a result of trail construction.
4. Trails must be designed to show that undue environmental damage will not occur.
5. All trails should consider trail fees, user fees, or other funding sources would cover the costs of trail maintenance, unless the maintenance fees are part of an approved County budget.
6. Justification should be shown that the trail proposal would create an economic benefit to the County either directly through revenues or through benefit to local businesses due to tourism.
7. Trail design is subject to approval of the Forest Administrator prior to submission to the Committee for approval.
8. Trail proposal must include language indicating any potential user conflicts

and strategies for alleviating conflicts.

9. Trail proposal, construction and design must comply with any and all town, county, state or federal rules, regulations, laws, or ordinances. All necessary permits will be applied for either by the County or the user group.

940.2.6(b) Committee Approved Future Non-Motorized Trail Projects

The following is a list of projects currently approved for construction by the Committee and recognized by the Outdoor Recreation Plan:

1. Dugan Run Horse Trail – South loops
2. Hallstrom Woods Non-Motorized Trail
3. Birchwood Mountain Bike Trail

940.3 MOTORIZED RECREATION TRAILS

940.3.1 Designated Snowmobile Trails

Two types of groomed snowmobile trails are authorized on the Forest. They are either state funded trails or local, unfunded club trails. Annual agreements outline the operation, maintenance, and insurance obligations between Washburn County and local snowmobile clubs. At the time of the drafting of this plan, Washburn County contracts with the Rolling Hills Snowmobile Club, Minong Wascott ATV and Snowmobile Club, and the Birchwood Bobcats Snowmobile Club for maintenance of snowmobile trails.

a. State funded trails – A system of state approved and funded snowmobile trails is authorized on designated trails, logging roads, and fire lanes. This system is part of the statewide network of snowmobile trails that links Washburn County with adjoining counties as well as the rest of the state. Snowmobile registration and out of state user fees are used to support trail development, signing, maintenance, grooming and bridge construction. There are 240 miles of funded trails within Washburn County with approximately 120 of those miles on County Forest lands.

b. Local trails – A smaller network of club sponsored snowmobile trails is also permitted on designated trails, logging roads and fire lanes. Club membership fees and fund raising activities support maintenance of these trails. There are approximately 50 miles of club trails and they are primarily on private lands. Most of these club trails connect to local business, cross lakes, and connect road

routes.

The Washburn County Code of Ordinances and the Washburn County Road and Access Plan regulate county snowmobile trails. A summary of ordinance sections, road and access plan sections and county polices that relate to designated Snowmobiles is as follows:

a. All snowmobile trails are closed to cars and trucks December 1 through April 1, including County Forest Roads designated as snowmobile trails.

b. The Forest Administrator will make the determinations to officially open and close snowmobile trails based on snow and maintenance conditions.

c. The official closure of the snowmobile trail system does not prohibit the use of motor vehicles, under 900 pounds, on those segments of designated snowmobile trails on County Forest Lands. By ordinance, snowmobile trails on County Forest are open to vehicles under 900 pounds from December 1 to April 1. Users will travel at their own risk during those periods that the system is closed. Designated snowmobile trails on private lands are closed to public use unless the Forest Administrator officially opens the trail system.

d. Snowmobile trails are not to be used for timber sale access unless permitted in the prospectus or timber sale contract. Where permitted, the trails must be maintained with snow cover and be kept free of all logging debris.

e. Snowmobile trails used for access during snow season will be posted with signs warning of "logging ahead".

940.3.2 Designated ATV Trails

Designated ATV trails are those recognized by the Committee as official trails within the County. These may lie on County, private, and other agency lands. At the time of the drafting of this plan, Washburn County contracts with the Minong Wascott ATV & Snowmobile Club and the Birchwood Bobcats ATV club for maintenance of ATV trails and expects to contract with the newly organized Yellow River ATV Club. There are four types of designated ATV trail.

a. Funded Winter ATV Trails – A majority of the state funded snowmobile trails on the County Forest are also designated and funded as winter use ATV trails. Not all of the trails are funded, however all snowmobile trails on County Forest lands allow ATV travel from December 1 to April 1.

b. Funded Year Round ATV Trails – Year round ATV trails lie on both County and private lands. These trails are open to ATV travel except April 1 through the first Friday before Memorial Weekend. Currently, only the Spider Lake Trail is designated as a year round funded trail on County Forest Lands.

c. Wild Rivers Trail – The Wild Rivers Trail is a state owned rail corridor running from Rice Lake to Superior. Washburn County operates and maintains this trail under a Memorandum of Understanding (MOU) with DNR. Washburn County manages 40 miles of this corridor for multiple uses. The primary use of the trail is ATV as development funding originated from the ATV program. Washburn County provides heavy equipment maintenance on this trail and contracts lighter work with the local ATV clubs.

d. Club Trails – Club trails are those that are not funded under the state ATV program. Club trails are not permitted on County Forest lands unless they are part of the ATV Master Plan and are authorized by the Committee. In most cases these are trails maintained or developed and may be added as a funded trail at a later date.

940.3.3 Other Designated Motor Vehicle Trails

No trails for other types of motor vehicles have been developed. This Plan does not recognize a need for designated motorcycle, off road truck, or other motorized trails. It is also recognized that the development of other motorized trails may cause environmental damage, user conflict, and maintenance issues. These types of trails may pose too much of a risk to justify any potential tourism benefit to the County. Consistent with the policy to minimize damage to the environment, the following are to be considered uses are considered to incompatible with multiple use and sound management:

a. Motorcycles, dirt bike, mini bike trails
b. Intensive ATV parks (play areas)
c. Off road vehicle courses or trails (4 x 4)

940.4 FUTURE MOTORIZED TRAIL PROJECTS

The Washburn County Forest is a multiple use forest. Motorized travel on trails can be a legitimate use of the forest provided that these trails are designed and maintained in a manner that minimizes damage to the environment and reduces user conflict. Trail use and development must be compatible and sustainable with the characteristics of the

landscape. It shall be the policy of the Committee to consider opportunities for motorized recreation trails.

940.4.1 Future Snowmobile Trails

This Plan considers the existing miles of designated snowmobile trails to be sufficient. Proposals for additional trail segments will generally be discouraged. Proposals to relocate trails or to make minor adjustments to the existing trail system will be encouraged in those cases where issues of public safety or environmental damage occur. Recognized club trails that are a part of the overall trail system may be considered for funding and designation as official trails.

940.4.2 Future ATV Trails

The use and popularity of ATV's has increased dramatically over the period of the 1996-2005 Plan. The lack of a more extensive ATV trail system in the County has lead to extensive, unorganized, and often illegal use of ATV's on the County Forest. County Forestry staff has noted extensive damage in some areas of the forest that are open to ATV travel, as well as problem areas resulting from illegal travel.

The Forestry Office has received numerous requests for a trail system and the public input meetings for this Plan echoed this sentiment. Requests for an ATV trail system were one of the most common issues presented at our initial public input meetings. ATV related comments were fairly consistent in asking for environmentally sound, sustainable, ATV trail networks that connect communities.

It has become the policy of the Committee to design, and construct ATV trails in order to provide opportunities for ATV users. It is hoped that a comprehensive, viable trail system will alleviate the pressures and impacts of unorganized ATV use as well as minimize ATV travel in closed areas and on closed trails.

This Plan also authorizes the Committee to implement harsher penalties for illegal ATV use once a viable trail system is in place. It is also recommended to consider additional closure of trails in those units currently open to ATV travel, especially in areas where damage is occurring. This recommendation is a result of public input asking for less motorized travel on the forest. (See Road and Access Plan Section 760.5)

940.4.2(a) Washburn County ATV Master Plan

In response to the tremendous demand for ATV trails and in preparation for the adoption of this Plan, Washburn County formed an ATV advisory group with the goal of creating a direction and plan for developing ATV trails within Washburn County. This advisory group had the following representation:

Mike Peterson – County Forest Administrator
Bob Busch – Recreation Coordinator / Park Ranger
Robert Lester – Forestry Committee & Stone Lake Township Chair
Lee Minnick – Birchwood Bobcats ATV Club
Tony Baier – Forestry Committee & Yellow River ATV Club
Dan Carlson – Minong Wascott ATV Club
Diane Conklin – WDNR Community Service Specialist
Dave Zebro – WDNR Conservation Warden
Ed Slaminski – WDNR Water Regulations
Ken Jonas – WDNR Wildlife Biologist

This group provided input into generating a map of a future desired ATV trail system that implements County Forest lands, private lands, and road routes. This map included existing ATV trails, existing forest trails that could be developed into ATV trails, and a designation for general corridors needing access across private lands to connect trails. These corridors provide a focus area for ATV clubs to attempt to secure easements. This plan focuses efforts in the County for trail development rather than creating an unorganized scattering of trail segments. This map is appended in Chapter 1000.

940.4.2(b) ATV Master Plan Requirements

Trail development must comply with the following requirements:

1. Loop trails will be discouraged unless part of a larger system connecting communities.
2. Dead end trails will not be sanctioned as part of a County ATV trail system and will not be permitted on or leading from County Forest Lands (e.g. trails that spur from a main trail to dead end at a residence or business)

3. Intensive use, or play areas, will not be permitted on County Forest lands.
4. ATV clubs will be responsible for securing easements across private lands. Washburn County will assist when dealing with industrial forestlands or other large landowners.
5. Private easement acquisition, by the clubs, will connect to trail systems proposed on County lands and will focus on the corridors identified.
6. All trails will be on suitable soils in appropriate locations for the volume of users.
7. Not all trail proposals presented to the County will be approved. The Forestry Department and the Committee will review each proposal. Final decisions will be based on this review.
8. Trail proposals lying outside of the areas identified on the ATV Master Plan Map will not be considered. Local clubs may develop club trails on other lands that do not comply with the plan, but they will not be sanctioned by the County nor funded.
9. DNR representatives, as well as other pertinent officials (town boards, other agencies, etc.) will review all trail funding proposals prior to submission to the Committee.

Also recognized as part of the development of the ATV Master Plan, is the potential need to further restrict motor vehicle travel on the County Forest, more specifically those units open to motor vehicles on all established roads and trails. It is recommended to evaluate these units for a reduction in the density of roads open to motor vehicles. Trails should be evaluated based on existing and potential future damage. A basic, core road system on stable soils should remain open.

945 PLAN RECOMMENDATIONS FOR THE RECREATION PROGRAM

The following are recommended changes that this Plan recognizes that would improve or enhance the recreation program on the Washburn County Forest:

945.1 RECREATION OFFICER

The enforcement of ordinances relative to recreation is recognized as lacking in Washburn County. Conservation Wardens, in general, cannot enforce regulations included within the County Code of Ordinances. The Washburn County Sheriff's

Department is authorized to enforce these ordinances but general does not due to time constraints.

This Plan recommends continuing to pursue the creation of a Recreation Officer position within the Sheriff's Department. There are law enforcement grant programs available through the Department of Natural Resources that could help defray the costs of such a position. Snowmobile, ATV, and Boat Patrol Enforcement Aids are all valid programs that could be utilized by the County. It is recommended that a position requiring 33% of time on County Forest issues would greatly reduce enforcement problems.

945.2 ADDITIONAL RECREATION STAFF

With the growing recreation program on the Forest, insufficient manpower is available to manage all recreation resources adequately. This plan recognizes the immediate need for an additional full time recreation position. The long-term goal should be to develop a recreation staff within the Forestry Department.

The recommended organizational structure for such a staff would be to create the position of Assistant Parks and Recreation Administrator to oversee recreational operations. This position would report to the County Forest Administrator.

945.3 OTHER PROJECT PROPOSALS

The following have been identified as potential projects that could be approved and developed on the County Forest. Most have been recognized in the Washburn County Forest Outdoor Recreation Plan. Approval of the Outdoor Plan allows the Forestry Department and Committee to apply for outdoor recreation aids. Projects will require Committee and possibly Board approval and amendment to this Plan prior to development. See the Washburn County Forest Outdoor Recreation Plan for additional information.

Totogatic Park

Expand Totogatic Park to the west and/or south of the lagoon.
Construct a second shower house facility
Add new playground equipment
Consider a park annex on the northeast side of the flowage
Consider summer seasonal sites

Consider a limited reservation system

Expand nature trail

Sawmill Park

Improved directional signage

Widen campground access roads

Expand nature trail

Improve swimming beach

Fish cleaning station

Develop a host program

Dugan Run Horse Trail

Develop addition loops and points of interest as use warrants

Consider camping facilities at Harmon Lake

Leisure Lake Youth Camp

Construct shower facilities

Expand nature trail

Playground equipment

Insulation/heat for year round usage

Youth education programs

Ernie Swift Nature Camp

Explore exercising reversionary clause on original deed from Washburn County

Nordic and Totogatic Ski Trails

Redesign to accommodate “freestyle” skiing

Reconstruct trail surface and seed to native grasses

Construct facilities (bathroom, etc)

Wild River Trail

Develop camping facilities at Trego

Connect Wild River Trail to Tuscobia Trail

Hay Lake

Consider access from east side and develop a primitive boat landing

Red, Loon, Bass Lakes

Continue efforts to develop a campground with, or without involvement of DNR as a State Park.

Canoe Portage Trails

Improve landings and trails

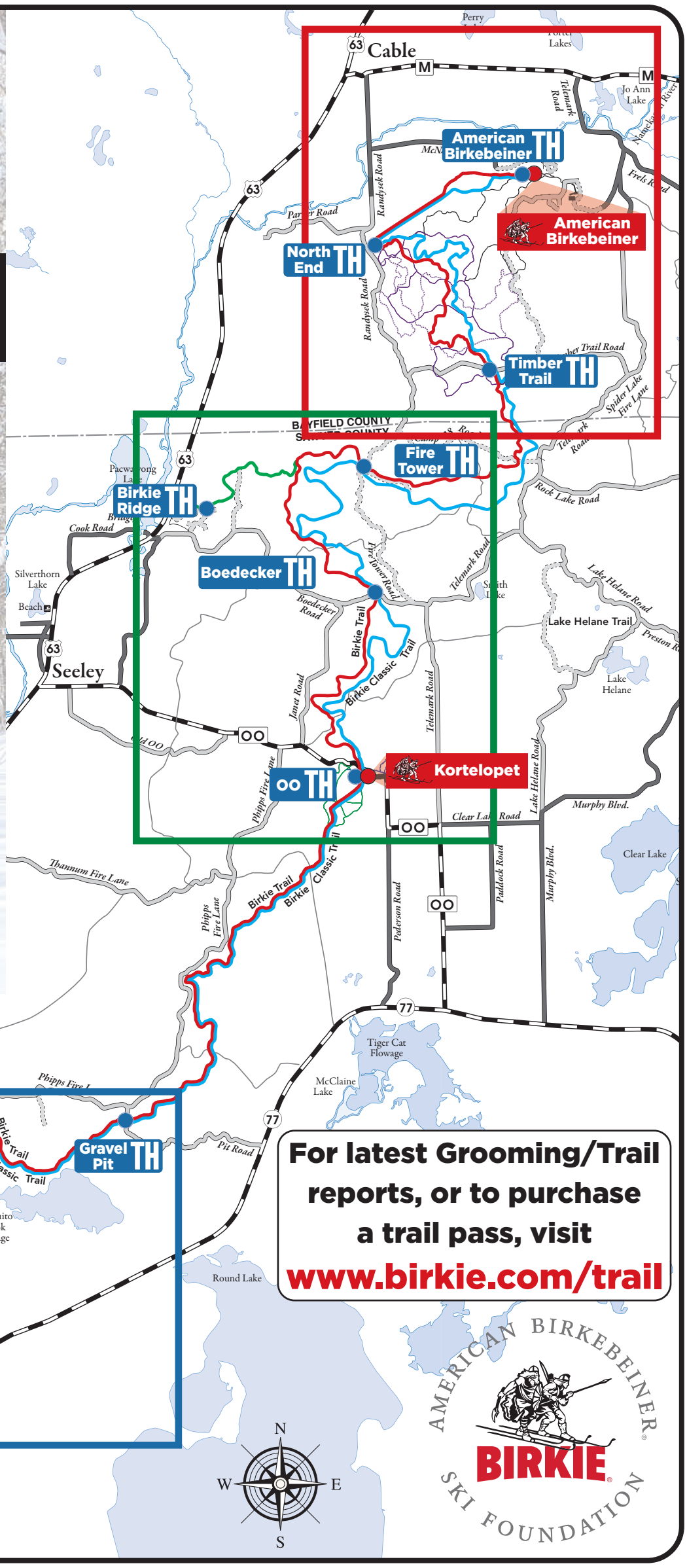
Consider primitive camping areas

APPENDIX 4.9.2.3-1 American Berkibeiner Trail Map

AMERICAN BIRKEBEINER TRAIL SYSTEM

The American Birkebeiner Trail system meanders its way through Bayfield and Sawyer Counties in northwestern Wisconsin inviting silent sports enthusiasts to explore its beautiful forests, rolling hills, bridges, and winding trails. Voted the number one cross-country skiing destination in the nation, the "Birkie Trail" is home to the American Birkebeiner, North America's largest cross-country ski race. Over 60-miles long (that's over 100 kilometers), the Birkie Trail system is a year-round mecca for running, hiking, biking, biking, and cross-country skiing.

During the ski season, the Birkie Trail is groomed exclusively for cross-country skiers, both skate and classic techniques. Biking and hiking are not allowed on the Birkie Trail once ski grooming begins. Birkie Trail passes are required for use of the trails from December 1 through March 31 and may be purchased at trailhead locations. Details about purchase and the Trail pass program are available at www.Birkie.com/trail. The American Birkebeiner Ski Foundation, a 501c3 non-profit, is solely responsible for year-round maintenance of the entire Birkie Trail system.



Getting There Trailheads (TH), as identified on this map, provide easy access to various points along the American Birkebeiner Trail. Color-coded detailed insets of key sections of the trail are located on the back of this map.

Fish Hatchery Park From Hwy 63 in Hayward, go east on Hwy 77 for 2.1 miles to Hatchery Road. Turn left (north) onto Fish Hatchery Road and go 0.7 mile to the TH.

Mosquito Brook TH From the intersection of Hwys 63 and 77 in Hayward, take Hwy 63 north 3.0 miles and turn right (east) onto W Phipps Road, go 1.7 miles and turn right (east) onto Phipps Fire Lane. Go 0.4 miles and turn right (south) onto Mosquito Brook Road. Go 0.9 miles to the TH.

Hwy OO TH From the intersection of Hwys 63 and 77 in Hayward, go 9.4 miles north on 63 to Co. OO, turn right (east) onto Co. OO and drive 3.4 miles to the TH.

Boedecker TH From Hayward, travel north 10 miles to Seeley, WI. From Seeley, travel 2.3 miles to Janet Road, turn left and travel 1.6 miles to Boedecker Road, turn right and drive .4 miles to the TH. Parking is available on both sides of the road. The Boedecker Cabin is on the north side of the road approximately 50 feet from the parking area.

Birkie Ridge TH From the intersection of Hwys 63 and 77 in Hayward, drive 12.5 miles north (through Seeley, WI) to Birkie Ridge, located on the east side of Hwy 63.

North End TH From the intersection of Hwys 63 and 77 in Hayward, head north on Hwy 63 for 17.2 miles, turn right onto Co. M for .2 miles, turn right onto Randysek Road and head south 2.0 miles to the TH.

American Birkebeiner TH From the intersection of Hwys 63 and 77 in Hayward, head north on Hwy 63 for 17.2 miles, turn right onto Co. M for .2 miles, turn right onto Randysek Road for .8 miles, turn left onto McNaught for 1.5 miles to the TH.

Gravel Pit TH From Hwy 63 in Hayward, go east on Hwy 77 for 8 miles to Pit Road. Turn left (north) onto Pit Road and go 2 miles to the TH parking lot on your right. The cabin will be up the trail 100 meters.

Firetower Trail TH From the intersection of Hwys 63 and 77 in Hayward, head north on Hwy 63 for 17.2 miles, turn right onto Co. M for .2 miles, turn right onto Randysek Road for 5 miles. No winter access by car.

Timber Trail TH From Hayward, head north on Hwy 63 for 17.2 miles, turn right onto Co. M for .2 miles, turn right onto Randysek Road for 3 miles, turn left onto Timber Trail Road for 1 mile to the TH. Parking and the cabin are on your right side.

DETAILED MAP LEGEND

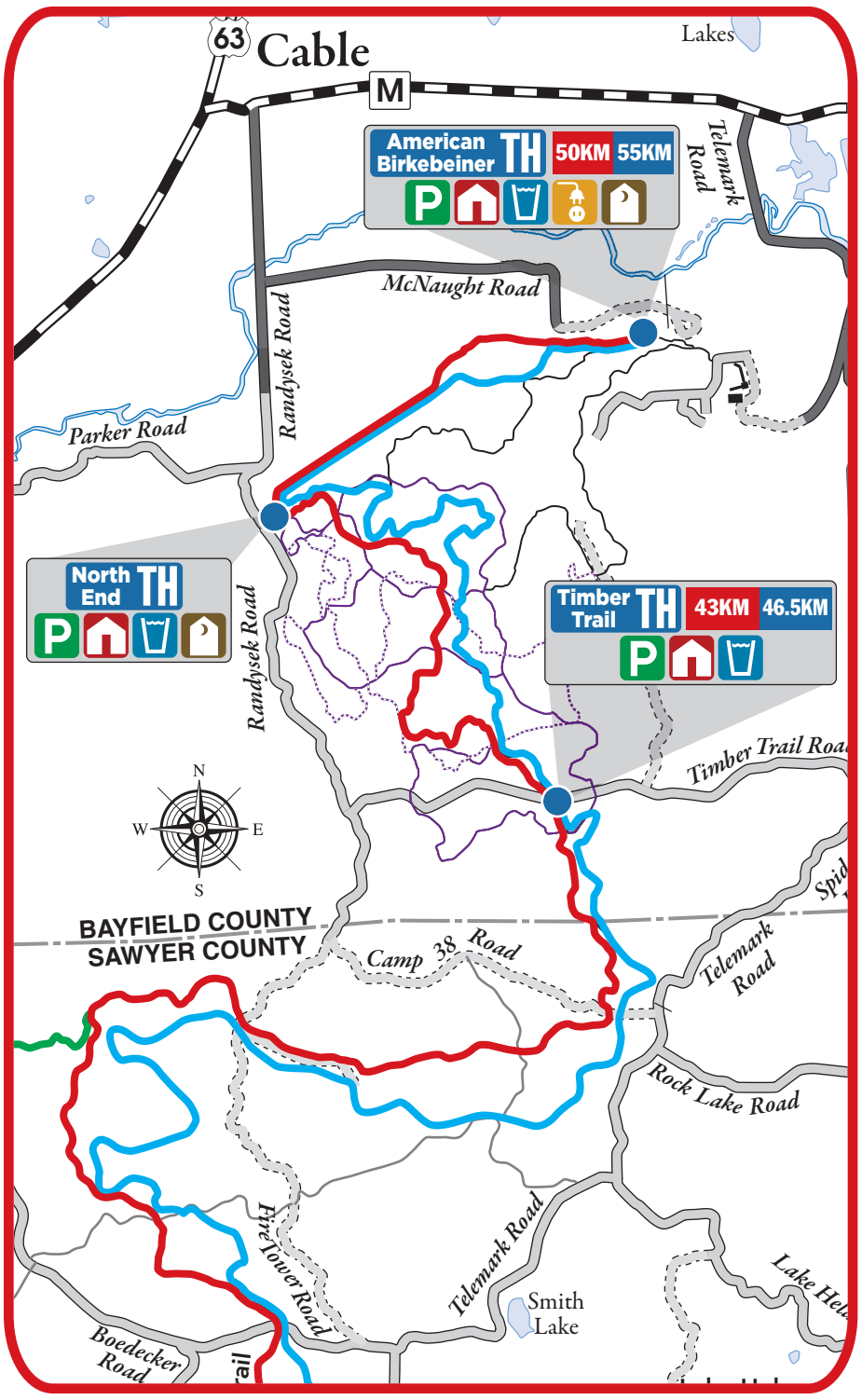
- Birkie Skate Trail
- Birkie Classic Trail
- Adjoining Trail
- Parking
- Warming Cabin
- Drinking Water
- Electricity
- Bathroom

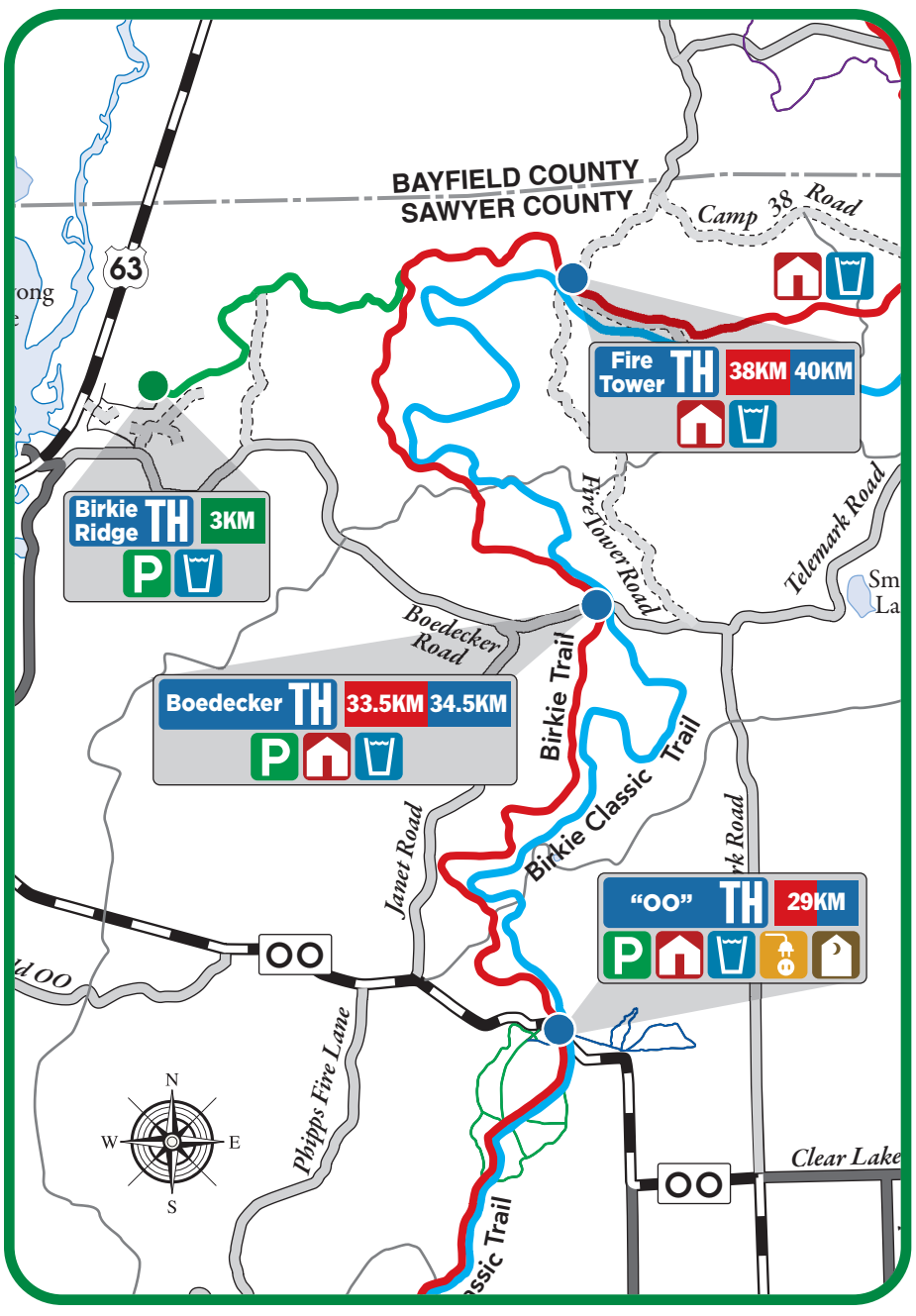
- 8KM — Distance to Birkie Finish Line in Hayward, WI on Skate Trail
- 8KM — Distance to Birkie Finish Line in Hayward, WI on Classic Trail
- 8KM — Distance to Birkie Finish Line in Hayward, WI on Skate and Classic Trail

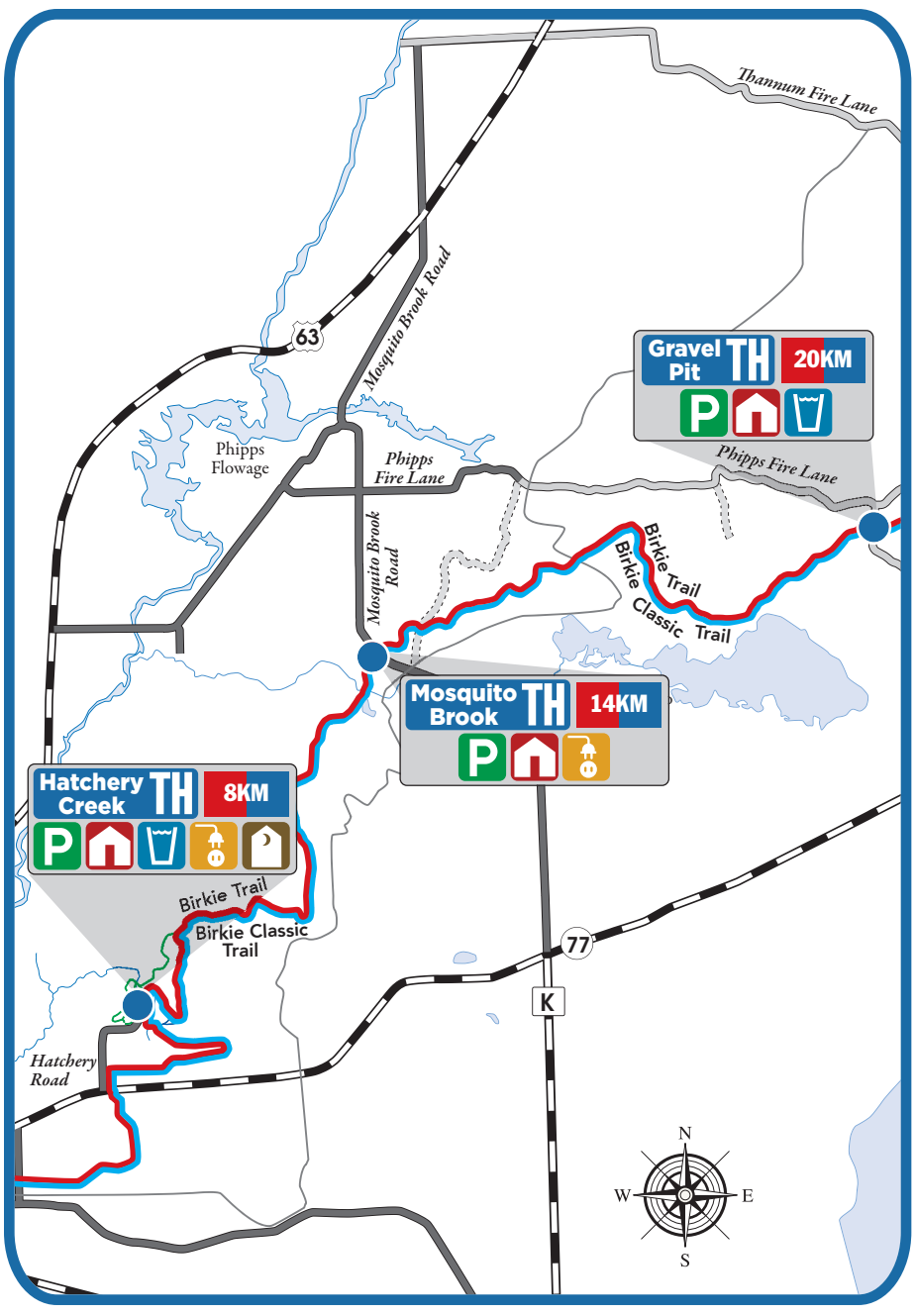
DISTANCE MARKERS ON THE TRAIL

As you travel on the trail, you will see distance marker signs every 1 KM. As you look at each sign, you will see 4 pieces of information:

1. Which trail you are on (Skate or Classic)
2. The distance from your location to the Birkie Finish Line in Hayward, WI. (this is the large number on the sign)
3. The distance from your location to the American Birkebeiner TH (the sign will say “to Cable”) if you are heading north, OR the distance from your location to the Birkie Finish Line in Hayward if you are heading south
4. The distance to the nearest TH in the direction you are heading. (Head to the nearest warming cabin during inclement weather)







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APPENDIX 5.2.7.1-1 June 15, 2015 Hayward Recreation Report

Recreation Report

for the

Hayward Hydroelectric Project

(FERC Project No. 2417)

Prepared for:

Xcel Energy
Dba: Northern States Power - WI
P.O. Box 8
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Prepared by:

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Traverse City, MI 49686

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Submitted: June 15, 2015

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1.0 INTRODUCTION

Lake Hayward is a 247 acre impoundment of the Namekagon River located in Sawyer County, WI. The lake contains 8.64 miles of shoreline, approximately 11 percent of which is accessible to the public. Lake Hayward is located adjacent to the City of Hayward, WI. The Hayward area, in general, is very popular with summer tourists from around the country. There are many area lakes with popular resorts that see a great deal of use in the summer. Lake Hayward itself sees only a fraction of the overall summer recreation taking place in the area. There are a number of homes along the shores of Lake Hayward, the owners of which take advantage of the recreational opportunities on the lake regularly. The area is also popular for winter recreation which includes snowmobiling and cross-country skiing. Again, only a small portion of the people participating in these winter activities do so on Lake Hayward itself during the bulk of the winter; however, a large internationally known cross-country ski race (The American Birkebeiner) crosses Lake Hayward, bringing thousands of skiers across the lake on one weekend each winter.

The Hayward Hydroelectric Project (FERC Project No. 2417) operates under a 30-year license issued by the Federal Energy Regulatory Commission (FERC). License Article 414 requires that the Licensee (Xcel Energy) monitor recreation use of the Hayward Hydroelectric Project area to determine whether existing recreation facilities are meeting recreation needs. Concurrent with filing FERC Form-80, required by section 8 of the Commission's Regulations (18 CFR 8.11), the Licensee shall file a report with the Commission on the monitoring results. This report shall include:

1. annual recreation use figures;
2. a discussion of the adequacy of the Licensee's recreation facilities at the project site to meet recreation demand;
3. a description of the methodology used to collect all study data; and
4. if there is a need for additional facilities, a recreation plan proposed by the Licensee to accommodate recreation needs in the project area.

In order to meet the FERC requirements, Great Lakes Environmental Center, Inc. (GLEC) consulted with Xcel Energy to devise and implement a plan of study aimed specifically at meeting all the FERC requirements. The goals of the Hayward Recreation Study were to:

- inventory the recreational facilities on Lake Hayward to determine their amenities and capacities;
- estimate the recreational usage on Lake Hayward both as a whole and at specific recreational facilities;
- determine the adequacy of each of the recreational facilities and their ability to meet the current recreational demand; and
- obtain feedback from users of the recreational facilities to help gauge facility adequacy and receive input from the public on recommended improvements to facilities.

June 15, 2015

The Hayward Recreation Study was conducted from May 2014 through March 2015. This report was prepared by Great Lakes Environmental Center, Inc., 739 Hastings Street, Traverse City, MI. The report's principal author and Lead investigator was Chris Turner.

2.0 METHODS

This section describes the methods used to collect, summarize and extrapolate the raw data acquired during the study. Each subsection focuses on the different types of data/information collected.

2.1 Inventory of Facilities

In order to list and inventory each of the facilities on Lake Hayward, GLEC used previous recreation studies, maps/aerial images of the area, internet resources and field visits to identify both public and private recreational facilities within the Project. Each public facility was visited to determine the amenities available and their capacity (e.g. number of parking spots, docks, boat ramps, etc.), and an initial overview of the apparent adequacy of the facility was noted. Section 3.0 describes each of the following public recreational facilities in detail:

- City of Hayward Boat Landing
- City of Hayward Beach and Park
- Tailwater Access and Canoe Portage
- Other Access Points

2.2 Interviews with Owners and Operators of Facilities and other Key Personnel

GLEC staff arranged phone interviews with key personnel associated with recreational facilities on Lake Hayward. These included owners and/or operators of facilities, Wisconsin Department of Natural Resources (WDNR) staff, public works staff, etc. Where possible, interviews were conducted with the same people that were interviewed for the 2009 recreation report. The goals of these interviews were to characterize current recreation, assess the adequacy of the facilities, identify any changes that have occurred since the last recreation report, and discuss improvements that are planned to take place over the next several years. Details of each interview are contained in Section 4.0.

2.3 Counts of Recreational Users

Daily recreational use estimates were made using data from a combination of sources including data collected from trail counters, counts/estimates of day-time recreational users from local sources, and other estimates of usage. The following subsections details each of the data collection efforts.

2.3.1 Trail Counter Data

During the study period, trail counters were installed at both the Hayward Boat Landing and the road into the Hayward Beach/Park (Figure 1). The trail counters that were installed use active infrared technology to obtain vehicle or pedestrian count statistics that include the date and time of the count as well as the total number of “events” (defined as a break in the infrared beam). The all-weather, portable, battery powered counting devices utilize active infrared

technology to count vehicular or foot traffic in one-hour intervals continuously. In the case of the counter placed directly across the road which accesses the Hayward Beach/Park, an event was expected to be produced for every vehicle or pedestrian that passed on the road. The assumption was made that the same number of people that entered via the road also left via the road. A second counter was placed at the Hayward Boat Landing, directly across the landing area, but this counter received frequent vandalism and essentially no reliable data was obtained from it.

2.3.2 WDNR Creel Survey

During the same time period as this recreation study (May 2014 through March 2015), the WDNR conducted a creel survey on Lake Hayward which included direct counts of anglers on all portions of the lake. During these instantaneous counts, individual anglers were counted, and the type of angling activity (i.e., boat, shore, ice fishing) was noted for each person counted. Also included in the creel survey data was information regarding whether the party was a resident on the lake, or if they traveled from elsewhere to use the lake. For the purposes of this report, only counts of anglers who travelled to the lake (and thereby were assumed to have used one of the specific facilities) were used. Total recreation days were extrapolated from the creel survey instantaneous counts using the following equation (Morris (2007), as originally described by Schreuder et al. (1975)):

$$Recreation\ Days = \left(\frac{L}{n}\right) \times \sum_{j=1}^{n} \sum_{i=1}^{c_j} \frac{1}{u_{ij}}$$

Where:

L = the length of the season in hours,

n = the number of observations,

c_j = the number of people counted in the j^{th} observation, and

u_{ij} = the length of stay (in hours) reported by the i^{th} person in the j^{th} observation.

A stratified design was used, whereby the number of recreational visits (in recreation days) for the project was calculated separately for three day type categories: weekdays, weekend days, and peak weekend days. Extrapolations were made for each angling type and then these totals were summed to calculate an estimated number of angling visits for each month. Monthly estimates were then summed to calculate total estimated recreational use by anglers for the survey year.

Model Parameters

For all extrapolations, the following assumptions were made regarding model parameters. The length of the season in hours (L) was calculated as the recreation day length (in hours) multiplied by the number of days per month within each of the three day type categories (weekdays, weekend days, peak weekend days). The recreation day length was estimated as 16

hours for May-August, 14 hours for September and April, 10 hours for October and March, and 8 hours for November-January. The monthly hourly totals were then summed separately for the three day type categories to calculate the final length of the season (L) for each day type.

The number of observations (n) was the number of instantaneous counts conducted by the creel clerk during the study period. Two separate instantaneous counts were made for each sampling date. The total number of observations equaled 192 during weekdays, 144 during weekends, and 18 during peak weekends.

The numbers of people counted (c_j) were based on direct angler counts recorded during each observation period.

Average length of stay (u_{ij}) was calculated using the results of party level creel interviews conducted during the same time period as the instantaneous counts. Average length of stay was estimated separately for the three types of anglers (boat, shore, ice).

The proportion of anglers that traveled to use the facility was calculated separately for each of the three types of anglers, and the final extrapolated user counts were adjusted to reflect the proportion of anglers who were visiting the site.

Lastly, in an effort to reduce double counting the shore anglers who used the beach/park area (including the ADA fishing pier), the estimated number of people using this area for shore fishing was subtracted from the data retrieved from the counter placed on the access road into his area. This allowed the data to be separated into people who accessed the beach/park area for the purpose of fishing and those recreating in other ways.

2.3.3 Counts/Estimates of Recreational Users from Local Sources

During the Hayward recreation study, we identified the following four sources of day-use recreation in addition to the Hayward Beach and Hayward Boat Landing:

- Tailwater fishing area and canoe portage;
- Ice fishing activities on Bartz's Bay;
- American Birkebeiner; and
- Pre-Birkie.

Tailwater fishing areas are available on both the north and south sides of the Hayward dam and a canoe portage route is available for canoeists wishing to safely bypass the dam. While no direct counts of users were performed in these locations, the operator of the Hayward Hydro (who also operates the Trego Hydro) was asked to estimate the usage at the tailwater areas. In addition, he was asked to compare the amount of use at the Hayward dam versus that at the Trego dam. A concurrent recreation study at Trego used a trail counter to monitor the usage at that dam's tailwater fishing areas and canoe portage, and the input from the hydro operator was used to extrapolate the use at Hayward from the data collected at Trego.

Ice fishing on Lake Hayward is largely concentrated to an area referred to as Bartz's Bay. Users park along Chippewa Trail and walk on to the lake through an area of private land. Estimates of these users were made by the WDNR as part of the creel survey which included data collection during the winter of 2014-2015.

There are two organized cross-country ski race events that occur each year on Lake Hayward. These are the American Birkebeiner and the "Pre-Birkie" which is sponsored by the Hayward Lions Club. Both races require registration and coordinators for each race provided the number of registered racers for inclusion in this report.

Other recreational activities occur in the vicinity of Lake Hayward, but do not occur at a designated facility and are therefore not included in the scope of this report. For example, a popular lumberjack show occurs throughout the summer and the Lumberjack World Championships are held in a bay of Lake Hayward each year. These events are well attended, but spectators do not have access to the lake nor do they recreate on the lake during the events. The previous Lake Hayward Recreation Report (2009) appears to have included the 12,000 to 15,000 spectators of these events and is one reason the recreational use numbers differ from this report.

2.3.4 Usage Numbers from Private Facilities

Lake Hayward contains two private lodging facilities (Comfort Suites of Hayward and Riverside Motel / Mallard's Landing) however neither of these facilities cater to Lake Hayward recreationists and therefore overnight recreational use was considered to be negligible.

2.4 Self-Reporting Surveys

GLEC developed a self-reporting survey form (Figure 2) that invited users of recreational facilities to provide information about themselves and their opinion of the recreational opportunities on Lake Hayward. GLEC designed, fabricated and installed weatherproof survey boxes (Figure 3) that housed both blank and completed surveys. These boxes were placed at the Hayward Beach and Hayward Boat Landing and were checked and the completed forms retrieved on a regular basis.

The self-reporting surveys were aimed at collecting two primary types of information:

1. Characterization information about the users of the facility (i.e. party size, length of stay, types of recreation activities, mode of travel, etc.); and
2. Opinions of the adequacy of facilities on Lake Hayward and suggestions for improvements to any of the facilities or recreational opportunities in general.

The characterization information was used to help make accurate assumptions during the extrapolation of counter and creel data and the information on adequacy helped to understand the public's viewpoint of any improvements that might be needed. Summaries of the self-reporting surveys can be found in Section 6.0.

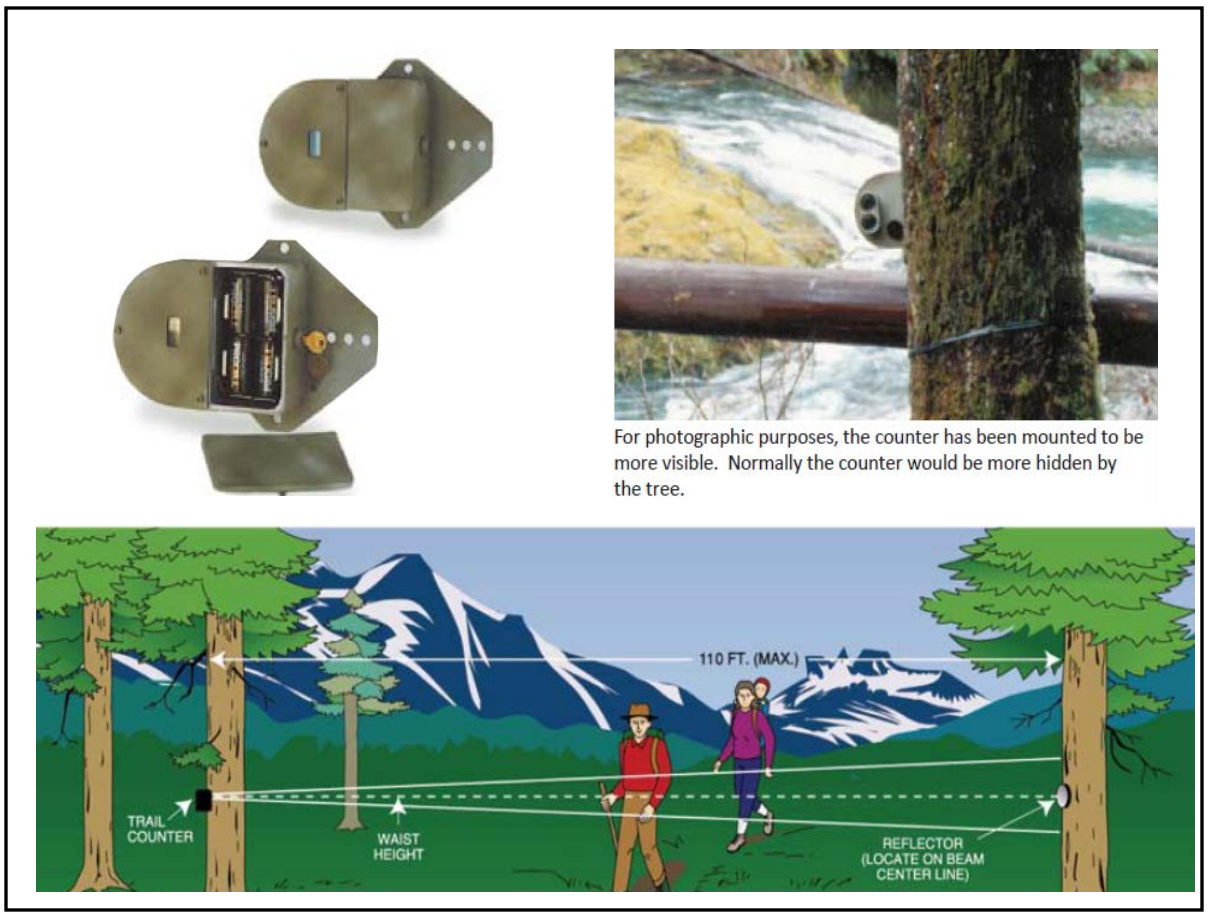


Figure 1. Infrared Pedestrian/Vehicle Counters used at Lake Hayward Recreational Facilities

Figure 2. Lake Hayward self-reporting recreational use form

XCEL ENERGY LAKE HAYWARD RECREATIONAL USE SURVEY

1. How many people (on average) are in your party when you recreate in the Lake Hayward area? _____
2. What percentage of the time do you travel to the recreation areas on Lake Hayward by:
   Car/Truck:_____% Motorcycle:_____% Bicycle:_____% Foot:_____%
3. How many **DAYS** have you spent or do you plan to spend recreating in the Lake Hayward area in the following months?
   ___March 2014 ___April 2014 ___May 2014 ___June 2014 ___ July 2014 ___August 2014
   ___Sept 2014 ___Oct 2014 ___Nov 2014 ___Dec 2014 ___January 2015 ___February 2015
4. How many **NIGHTS** have you spent or do you plan to spend recreating in the Lake Hayward area in the following months?
   ___March 2014 ___April 2014 ___May 2014 ___June 2014 ___ July 2014 ___August 2014
   ___Sept 2014 ___Oct 2014 ___Nov 2014 ___Dec 2014 ___January 2015 ___February 2015
5. For the period from March 2014 through February 2015, what percentage of your time spent recreating in the Lake Hayward area is during:
   weekdays?_____ weekends/holidays?_____ (Total should equal 100%)
6. On average for the period from March 2014 through February 2015, how many hours do you spend each day that you recreate in the Lake Hayward area during each of the following times?
   6 am to 10 am:_____ 10 am to 2 pm:_____ 2 pm to 6 pm:_____ 6 pm to 10 pm:_____ 10 pm to 6 am:_____
7. What is the average length of your visit to Lake Hayward? _____hours
8. For the period from March 2014 through February 2015, what percentage of your time recreating in the Lake Hayward area is spent accessed from each of the following recreational access areas? (Total should equal 100%)
   _____Hayward boat landing _____Hayward Beach/Park
   _____Tailrace area _____Other (specify)_____
   _____Canoe Portage _____Other (specify)_____

8. Which of the following activities in the Lake Hayward area do you usually participate in? (Check up to five)
   ___Boat Fishing ___Shore Fishing ___Boating (canoe, sail, etc). ___Walking/Jogging/Hiking
   ___Swimming ___Picnicking ___Playing Sports ___Biking
   ___Hunting ___Enjoying nature ___Camping ___Parking (sitting in car eating, viewing)
   ___Jet skiing ___Photography ___Water skiing/tubing ___Relaxing/Visiting
   ___General Playing (playgrounds, etc) ___Other (specify)_____

1. Please rate the status of the following facilities in the Lake Hayward area on a scale of 1 to 5 where:
1 = Facility is not at all adequate **5 = Present facility is totally adequate**
If you have no knowledge of the specific facility, leave blank. Please provide comment where applicable to the specific facility.

Recreation Facilities
   A. Hayward boat landing area Rating (1-5):_____ Comment:_____
   B. Hayward Beach/Park area Rating (1-5):_____ Comment:_____
   C. Tailrace area Rating (1-5):_____ Comment:_____
   D. Canoe Portage area Rating (1-5):_____ Comment:_____

10. On a scale from 1 to 10, how would you rate your overall recreational experiences at Lake Hayward?
    Very Poor **1 2 3 4 5 6 7 8 9 10** *Very Good*
11. Please make any comment you feel would be helpful about recreation at Lake Hayward.

_____

_____

Figure 3. Examples of survey boxes installed at select recreational facilities.

3.0 DESCRIPTIONS OF RECREATIONAL FACILITIES ON LAKE HAYWARD

Each of the public recreational facilities on Lake Hayward is described below, and discussions of the use and adequacy of each facility are discussed in subsequent sections of this report. Figure 4 displays a map of the area showing the location of each of the recreational facilities present on Lake Hayward during the study period.

Other facilities such as parks, trails and other recreation areas are present in the general area of Lake Hayward. These facilities, however, are not within the development/project boundary and are not included in this recreational report.

3.1 City of Hayward Boat Landing

The City of Hayward owns and maintains this single launch boat landing on the west end of the lake. It is the only public landing on the lake and consists of a cement launch with paved approach and no dock. The adjacent gravel parking lot is large enough to accommodate approximately 15 vehicles with trailers. The City does not charge a fee for the use of this launch and no other amenities are present. The landing is in good condition and is adequate for the light to moderate use it receives. A light pole situated in the parking area provides lighting during the evening hours. The parking lot also serves as overflow parking for users of the beach and park area.

3.2 City of Hayward Beach and Park

The City of Hayward owns this park on the west end of the lake. It consists of a 100 foot sand beach with designated swimming area, changing rooms, restroom facilities, playground, picnic areas and shore fishing opportunities. A paved parking lot is provided that can accommodate 24 vehicles (two parking spots are designated handicap spots). The area also features an Americans with Disabilities Act (ADA) compliant fishing pier that was constructed in the fall of 2013 which has been very popular with anglers. The area receives moderate to heavy use in the summer, especially on warm sunny days. Overall, the facility is in good condition and is adequate for the current usage. There is no fee associated with the use of the park or beach.

3.3 Tailwater Access and Canoe Portage

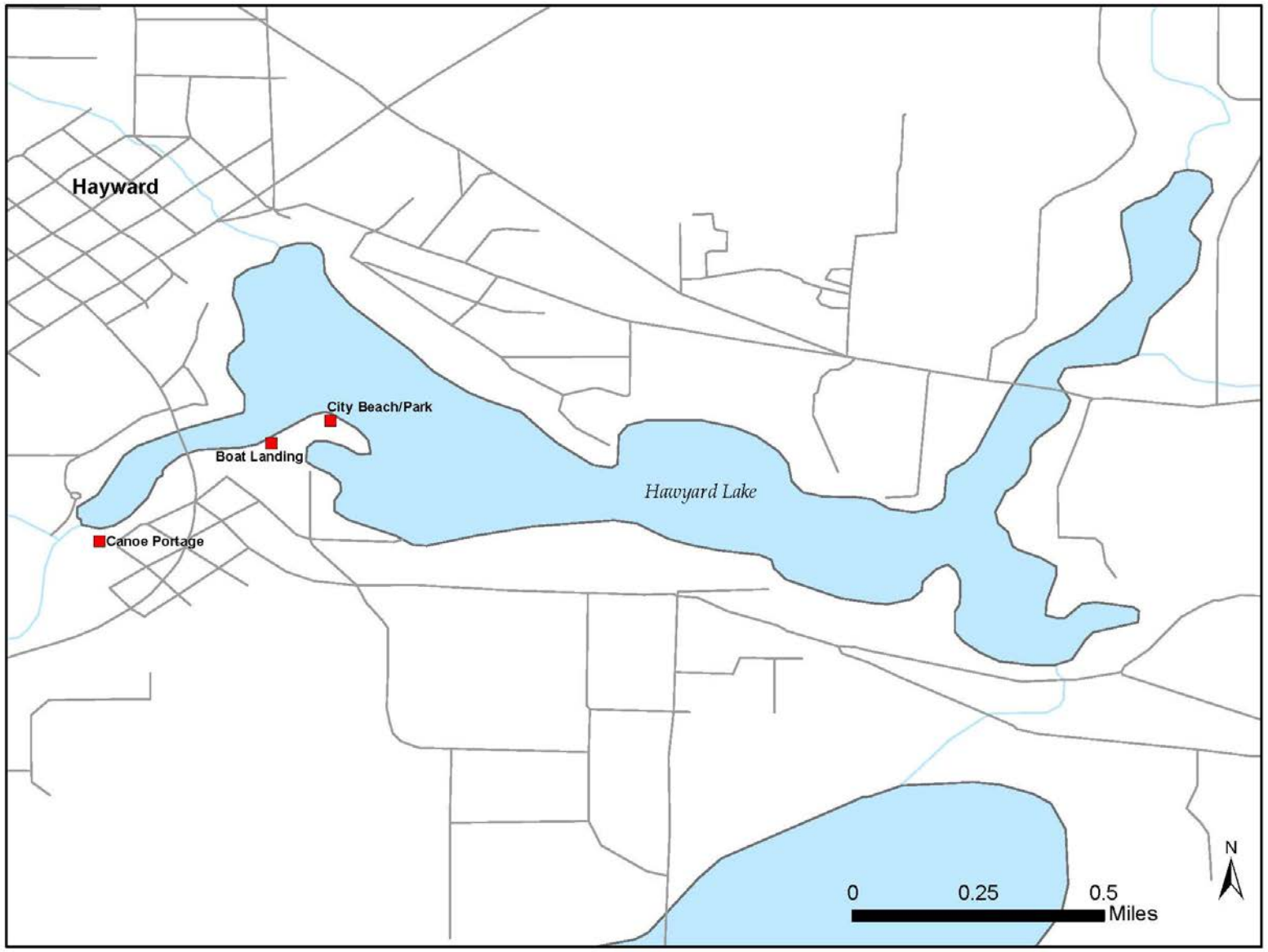
Xcel Energy owns, maintains, and provides public use of this area which includes tailwater fishing access on both sides of the river and canoe portage which consists of a take-out, signed trail, and put-in area. This enables canoeists who are navigating from an upstream location to a downstream location to safely bypass the dam. There are no fees associated with the use of this area. No additional amenities are provided and overall the area is adequate for the light but consistent use it receives.

3.4 Other Access Points

The City of Hayward owns one unimproved access on the north-central portion of Lake Hayward. There are no signs that indicate the location of this access, but it is open to the public. Since the access is not marked, it is currently not being utilized as a lake access.

There is one additional access point off a local road, Chippewa Trail; that is popular with anglers in the winter who wish to walk out on to Bartz's Bay to ice fish. This consists of an unimproved trail on private land (essentially between two residential lots). Users park along Chippewa Trail which causes occasional traffic congestion.

Figure 4. Map of Lake Hayward showing location of recreational facilities, 2014-2015.



4.0 SUMMARIES OF INTERVIEWS WITH KEY PERSONNEL

This section provides a brief summary of the interviews with owners/operators of facilities and other key personnel that have detailed knowledge of the recreational facilities and opportunities on Lake Hayward.

4.1 Rick Peters, Conservation Warden - WDNR

Mr. Peters has been a warden in the Hayward area for the last two years, but grew up in the area and is therefore quite familiar with Lake Hayward and its recreational opportunities. He felt that the amount of recreation on Lake Hayward has increased only slightly over the last few years, though he has seen an increase in the "quiet water" sports of canoeing and kayaking. He sees anglers on a regular basis during the summer. According to Mr. Peters, the single boat landing on Lake Hayward is in good condition and meets the need for the light use it receives. He stated that the parking lot can be full at times, but this is due to being used as an overflow lot from the beach/park or Fishing Hall of Fame, not from users of the landing itself. Mr. Peters also noted that the beach area is very popular and the ADA fishing pier receives regular use. He has received no complaints about the landing of other facilities on Lake Hayward.

Mr. Peters also observes ice fishing activity throughout the winter that is largely confined to the Bartz's Bay area. He recognizes that the land on which anglers walk to access the ice is private land, but to this point, he has not received any complaints from the landowners. During times of heavy ice fishing pressure, Chippewa Trail can be quite congested due to the vehicles that are parked along the road.

4.2 John McCue, Director – City of Hayward Public Works

Mr. McCue has been an employee of the City of Hayward since 2001 and the Director of Public Works since 2004. He oversees maintenance and improvements of the boat landing, beach and park. He stated that the boat landing receives moderate but consistent pressure and is in good condition. Mr. McCue noted that power loading of boats has caused some washout of the end of the landing's concrete slab and has required additional rock to be added to the landing. According to Mr. McCue, there are no planned improvements to the boat landing at this time.

Mr. McCue discussed the beach and park which are owned and maintained by the City. He stated that all the areas are in good condition after a number of upgrades in recent years. The ADA fishing pier that was installed has been very popular with anglers and has received a lot of use. Mr. McCue noted that he has received positive feedback about the pier and has seen usage of the pier nearly every time he visits the area. The beach and park areas are also very popular and Mr. McCue stated that the area is very busy on warm summer days. The parking area at the beach itself can become full on many days, but the overflow parking near the boat landing is normally sufficient to handle the additional vehicles. Mr. McCue felt that, while overall recreational use of Lake Hayward has been fairly consistent over the last six years, use of the beach has definitely increased over the last few years. The City has recently completed an upgrade to the walking bridge that connects the boat landing parking area to the park and

there is hope to bury an overhead power line near that bridge that often causes problems for anglers trying to cast from the walking bridge.

Mr. McCue was asked about the access to Bartz's Bay that is used by anglers during the ice fishing season. While this area is just outside of the Hayward City limits, Mr. McCue is very familiar with it. He stated that the parking along the road does cause some congestion and problems with snow-plowing.

Lastly, Mr. McCue mentioned a 50 foot strip of land that is owned by the City and is available as an undeveloped lake access for the public. The area contains no signage and currently the grass is mowed by adjacent neighbors, making it look like private land. Mr. McCue stated that there is currently no plan to modify this access area, but it may be considered in the future.

4.3 Ricky Reichert, Operator – Hayward Hydroelectric Project

Mr. Reichert has been operating both the Hayward and Trego Hydroelectric Facilities for the past five years. His duties typically have him on site at the Hayward Facility during weekdays, but he does observe the area during certain weekend times as well. Mr. Reichert described the public access areas which include tailwater fishing areas on both the north and south side of the river as well as a canoe portage. He noted that the use of each these areas is quite light and the current facilities are adequate for the amount of use. The only issue with any of the access points near the dam that Mr. Reichert mentioned was an area where rain runoff can tend to cause some washout, but there have been discussions of adding a drain to minimize or eliminate this issue. Overall, Mr. Reichert felt that recreation has remained fairly consistent over his five year tenure on both Lake Hayward itself and in the tailwater areas.

4.4 Jeff Homuth, Chair – Town of Hayward

Mr. Homuth has served as Chairperson for the Town of Hayward since 2001 and has worked for the Town for over 30 years. He stated that none of the established Lake Hayward facilities are within the Town of Hayward, although a small portion of the shoreline, including the private land used to access Bartz's Bay is in the Town. Mr. Homuth mentioned that the Town had looked at purchasing a peninsula of land in the Bartz's Bay area in hope of creating a new public access area that would include a fishing pier, campsites accessible by boat, picnic shelter, boardwalk and parking area. This plan was not accepted by the Town Board due to the costs associated with it.

Mr. Homuth felt that the overall recreation on Lake Hayward has increased somewhat over the last several years, but, in his opinion, the lake is still very underutilized. He stated that he does not know of any issues with the existing facilities, other than the congestion associated with the wintertime parking along Chippewa Trail, and added that additional access points would be a welcome addition to the lake.

4.5 Donna Sorenson, Creel Clerk – WDNR

Ms. Sorenson worked on Lake Hayward as a creel clerk for the creel survey that was performed during 2014-2015. She visited the area regularly and performed instantaneous counts of anglers as well as regular interviews with anglers. She described the amount of use on the lake

as light to moderate at times, but the lake never seems to be crowded enough to cause user conflicts. Ms. Sorenson estimated that roughly half of the boat anglers use the boat landing and the remainder are residents that live on the lake. She stated that the boat ramp is in good condition and meets the current needs, although some additional lighting in the parking lot would be helpful to users.

Ms. Sorenson noted that the ADA fishing pier is very popular and she often saw it filled with anglers. She has heard from anglers that it would be preferable to have the fishing pier located in deeper water. She explained that a previous fishing pier was located in an area where the fishing was better and anglers had better success in that area. She stated that a second pier would be a welcome addition to the lake. Ms. Sorenson stated that she did see some anglers using the areas near the dam and the occasional use of the canoe portage. She also noted that shore anglers were commonly seen using an unimproved right-of-way access at the Highway 77 bridge, especially during the spring.

Ms. Sorenson's duties did not include counts or interviews of beach users, but she did state that the beach was often heavily used and many non-anglers were often seen using the beach and park. She stated that the beach/park area and parking lot can reach capacity on warm summer days. Overall, she felt that additional access points to the lake would be the biggest improvement that could be made to the Lake Hayward area.

5.0 RECREATIONAL USE ESTIMATES

5.1 Daytime Recreational Use

As described in Section 2.0, daytime recreational use estimates were extrapolated from multiple sources including a WDNR creel survey, trail counter, and event registration. Clearly these methods do not account for recreational use on the flowage that is not associated with a monitored facility or controlled site (i.e. residents or users of other unmonitored areas); therefore recreational use extrapolations do not refer to the total use occurring on the lake itself, just at the monitored facilities. Use estimates are provided as "daytime" estimates. Nighttime usage (e.g. overnight stays by the user) are considered to be negligible given the fact that no campgrounds, resorts or other recreational overnight facilities exist on Lake Hayward.

Total annual daytime use for the study period was estimated at 20,356 recreation days (Table 1). Of the recreational daytime use, 42 percent occurred at the Hayward Beach and Park, 38 percent occurred in relationship to cross country ski races and thirteen percent was attributed to fishing activity on the lake. Activity associated with the tailwater fishing areas and canoe portage is estimated to have comprised six percent of the overall use.

Summertime use (May through September) of Lake Hayward exceeded wintertime use (11,933 recreation days versus 8,423 recreation days, respectively). If the Birkebeiner ski race did not cross the lake, the wintertime recreation is estimated to have been just 606 recreation days. Due the Birkebeiner events, February was the largest month for recreation throughout the year followed by June and July (39, 23, and 15 percent of the annual recreation, respectively).

During the summer months, total recreational use during weekdays exceeded use during weekends and peak weekend days (summer recreational holidays and their adjacent weekend days) (Table 2). Average use during any day of a peak weekend (134 visits) was higher than average use of either summer month non-peak weekend or weekday use (94 visits and 68 visits per day, respectively).

During the winter months, average daily use was heavier on weekends than on weekdays (135 versus 2 visits per day, respectively) again due largely to the ski races which were both held on weekends. Without the ski races, average weekend use would have been estimated at 5 visits per day throughout the winter. No peak weekends occurred during the winter months (Figure 5).

When calculated over the entire year, weekday use comprised 37 percent of all recreational visits, weekends comprised 57 percent and peak weekends comprised six percent. Average daily use across the entire year of study for peak weekends, non-peak weekends and weekdays was 134; 119; and 29 visits per day, respectively.

As one would expect, a fairly strong correlation between weather and recreational use has been documented in other recreational studies which included instantaneous counts of users and notations of current weather conditions. Temperature and weather conditions (i.e. sunny, cloudy, rain, snow, etc.) have a large effect on the number of recreational users on any given

day. This leads to a potentially large variation in the amount of recreational use during any given year. Summers characterized by rainy or cool weather can be expected to yield lower recreational numbers than summers which include more fair weather days. The recreational estimates contained in this report are for the specific period of study and may not reflect recreational use during any other timeframe.

Month	Hayward Boat Landing	Hayward Beach/Park	ADA fisihng pier and adjacent shore	Bartz's Bay Ice Access	Tailwater Fishing Areas	Canoe Portage	Cross Country Ski Races	Totals by Month
May	181	506	307	-	188	70	-	**1,252**
June	174	3,867	384	-	252	59	-	**4,736**
July	294	2,193	340	-	220	24	-	**3,071**
August	174	1,570	284	-	155	108	-	**2,291**
September	113	262	86	-	92	30	-	**583**
October	42	120	27	-	58	20	-	**267**
November	-	13	-	-	-	-	-	**13**
December	-	22	-	102	-	-	-	**124**
January	-	7	-	74	-	-	-	**81**
February	-	12	-	30	-	-	7,817	**7,859**
March	-	7	-	72	-	-	-	**79**
April	-	-	-	-	-	-	-	**-**
Total by Facility	**978**	**8,579**	**1,428**	**278**	**965**	**311**	**7,817**	**20,356**

Table 1. Extrapolated daytime recreational use (in recreation days) at Lake Hayward – May 2014 to April 2015

		Weekday	Weekend	Peak Weekend
Summertime	May	703	219	330
	June	2,845	1,891	0
	July	1,717	707	648
	August	1,574	551	165
	September	328	189	66
	TOTAL	**7,167**	**3,557**	**1,209**
	# days	106	38	9
	Ave Per Day	68	94	134

		Weekday	Weekend	Peak Weekend
Wintertime	October	194	73	0
	November	12	1	0
	December	45	79	0
	January	33	48	0
	February	18	7,841	0
	March	6	73	0
	April	0	0	0
	TOTAL	**308**	**8,115**	**0**
	# days	152	60	0
	Ave Per Day	2	135	N/A

		Weekday	Weekend	Peak Weekend
Year	***TOTAL***	**7,475**	**11,672**	**1,209**
	# days	258	98	9
	Ave Per Day	29	119	134

Table 2. Comparison of extrapolated recreational use at Lake Hayward by type of day – May 2014 to April 2015

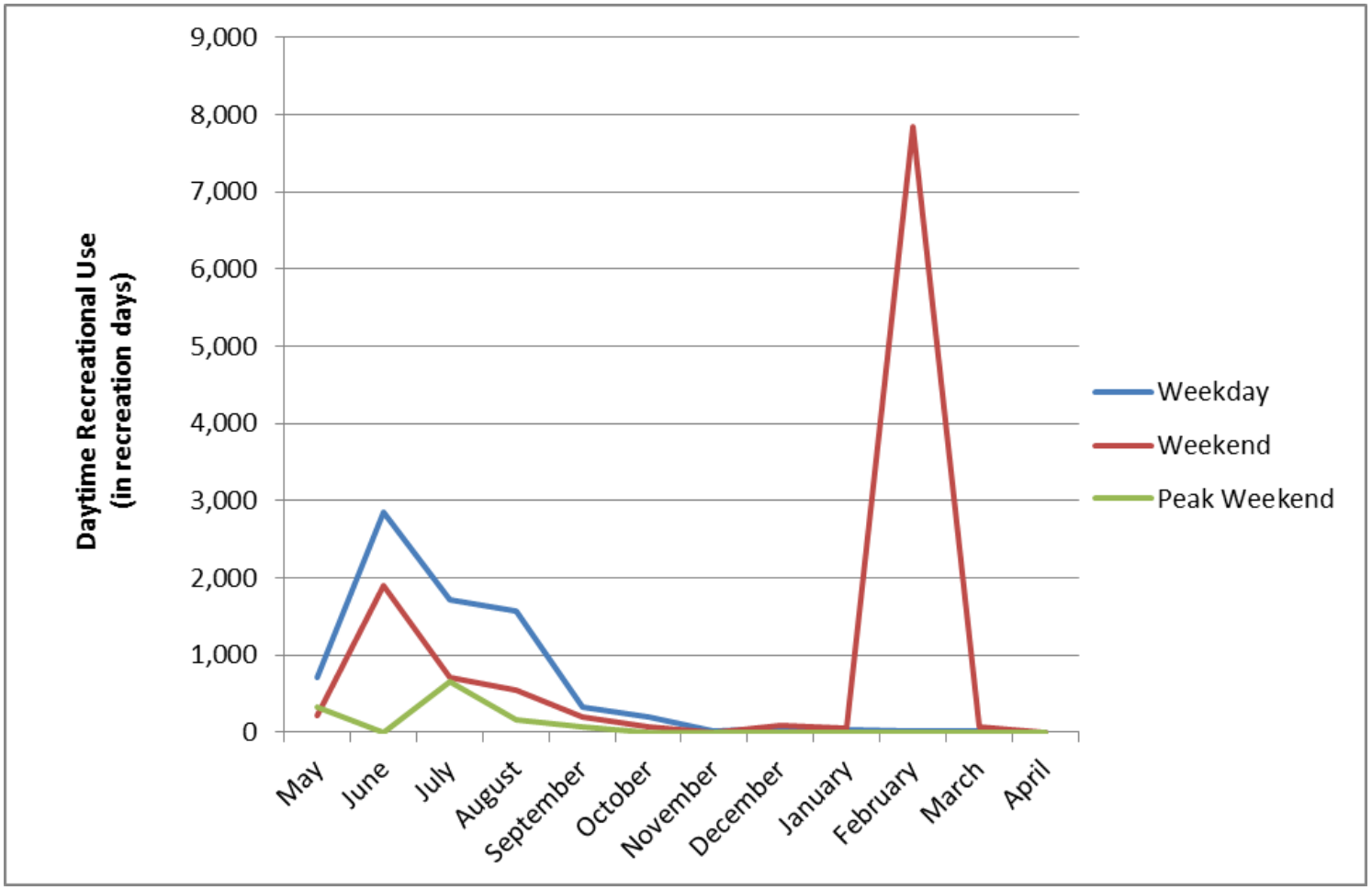


Figure 5. Extrapolated recreational use by month at Lake Hayward – May 2014 to April 2015.

6.0 RESULTS OF SELF-REPORTING SURVEYS

A total of 18 surveys were submitted and collected from the two survey box locations during the course of the study (Table 3). The majority of the surveys were collected during the month of July (12 of the 18 surveys), while no surveys were collected in May, June or at any time during the winter months. For many of the submitted surveys, not all sections were completed. Almost all respondents listed activities that were important and rated at least one individual facility.

Survey Collection Location	**July**	**August**	**September**	**October**	**Total**	**Percentage**
Hayward Boat Landing	3	0	0	1	10	55%
Hayward Beach	9	3	2	0	8	45%
Total (%)	**12 (67%)**	**3 (17%)**	**2 (11%)**	**1 (6%)**	**18**	**100%**

Table 3. Numbers and percentages of submitted surveys, by collection location, Hayward Recreation Report.

Respondents were asked to list up to five activities they considered to be important to them for the Lake Hayward area. Boat fishing was the most popular activity, followed by swimming and shore fishing (Table 4).

Activity	**Respondents Reported**
Boat Fishing	73%
Swimming	60%
Shore Fishing	60%
Enjoying Nature	53%
Boating	33%
General Play	27%
Walking/Jogging/Hiking	27%
Relaxing/Visiting	27%
Hunting	20%
Water Skiing/Tubing	20%
Snowmobiling/ATV	20%
Picnicking	13%
Photography	7%
Playing Sports	7%
Camping	7%
Biking	7%
Cross-county skiing	7%

Table 4. Percentage of respondents who reported listed activities as most important for the Hayward Hydro Project.

Overall, visitors were satisfied with the facilities on Lake Hayward. The average ratings (on a scale of 1 to 5) ranged from 2.8 for the tailwater fishing areas to 4.4 for both the Hayward boat landing and beach/park (Table 5). Each facility received at least one "5" (the maximum rating possible); the minimum rating for the boat landing and beach/park was a "3" and the minimum rating for the canoe portage was a "2".

	Hayward Boat Landing	Hayward Beach/Park	Tailwater Fishing Areas	Canoe Portage
Minimum Rating	3	3	1	2
Median Rating	5	5	2.5	3.5
Maximum Rating	5	5	5	5
Average Rating	4.4	4.4	2.8	3.5
Standard Deviation	0.9	0.8	1.7	1.4
Number of responses	12	13	4	6

Table 5. Summary statistics for ratings (on a scale of 1 to 5) of recreation facilities on Lake Hayward.

Survey respondents were also asked to rate their overall recreational experiences on Lake Hayward on a scale of 1 to 10. A total of 15 surveys included this rating, resulting in an average rating of 8.4. The lowest rating received was a "4" and the highest rating was a "9".

Comments provided by survey respondents (both facility-specific and general) provide valuable information about the public's view of the adequacy of the recreational facilities and opportunities on Lake Hayward. Comments ranged from simple compliments, to suggestions of additions or improvements to specific facilities, to notes about cleanliness or other concerns. None of the comments made any mention of the facilities or Lake Hayward in general being busy or crowded. Comments from the collected surveys are summarized in Table 6. All four of the comments provided about the boat landing expressed a need for a dock to help loading and unloading boats. Several respondents suggested additions to the beach/park which could help improve cleanliness or usability of the area.

Facility	COMMENT
Hayward Boat Landing	Need a pier by boat landing
Hayward Boat Landing	Need a pier at the boat landing
Hayward Boat Landing	There needs to be a dock at the boat landing
Hayward Boat Landing	For single participant boating, would be nice to have boat dock
Hayward Beach/Park	Awesome
Hayward Beach/Park	Add shower to beach changing area
Hayward Beach/Park	Recommend fish sticks added to fishing areas
Hayward Beach/Park	Dirty beach (cigarettes in sand)
Hayward Beach/Park	Nice, quiet, beautiful beach; love the new dock
Hayward Beach/Park	Thank you for allowing dogs off-leash. This is the best
Hayward Beach/Park	Goose population makes its mark in all parks, but yours has been reasonably clean; nice bathroom.
Hayward Beach/Park	Smoking disposal cans by the beach area
Canoe Portage	Needs to be cleaned out
General	Concerned about invasive species
General	Weeds need to be addressed, Association has been started, but needs help
General	Best lake ever. Been enjoying Hayward lake and area for over 47 years

Table 6. Summary of comments provided during the Lake Hayward Recreation Study.

7.0 DISCUSSION OF ADEQUACY OF CURRENT FACILITIES

Overall, the Lake Hayward area offers a good amount of recreational opportunity for both land and water users. There appears to be ample opportunity for day users but little opportunity for overnight recreational users (i.e. campers, etc.) but the Hayward area as a whole offers a great deal of overnight opportunities. The facilities are limited in number but in good condition, and receive regular maintenance and upgrades when required. The number and size/capacity of the facilities present appear sufficient to accommodate the current amount of use on all but the busiest of days. The sections below discuss the level of use and adequacy for day use boat and day use non-boat users.

7.1 Day use by boaters

The number of boaters on Lake Hayward appears to have remained fairly low over the last six years and does not appear to be causing any congestion, safety concerns or competition for space among recreationists engaging in different activities. The small size of the lake, coupled with the availability of numerous larger lakes in the area is likely to keep boating pressure low and help avoid safety risks, high chance of user interference, or high probability of environmental harm. The single boat landing is adequate for the current amount of use, although the parking lot can be overwhelmed by other vehicles at times. No complaints have been received of any competition for space or conflicts between anglers and recreational boaters.

7.2 Day use by Non-boaters

The Hayward Beach and Park is a very popular recreation destination for swimmers, shore anglers and other people wishing to take part in non-boat activities, especially during summer days. The beach and park areas receive heavy use during the summer when the weather is pleasant. This facility is the only public swimming area on the lake and is a popular recreation area due to its playground facilities, picnic areas and other such amenities. While it appears that these facilities are meeting the current demand of summertime day-users on many days, it would seem that the area does get overcrowded on certain days. Unfortunately, a large percentage of the shoreline of Lake Hayward is privately owned and there is little opportunity to create additional day-use areas to help distribute the current demand more evenly.

There are few areas around Lake Hayward where public shore fishing is possible, and only one ADA compliant fishing pier exists on the lake. The pier has been very heavily used since its installation, and it appears that the area could benefit from additional fishing piers or shore fishing opportunities in other areas of the lake.

8.0 RECOMMENDATIONS FOR THE FUTURE

Based on the results of this recreation study, including the evaluation of existing facilities and discussions with key personnel associated with Lake Hayward, we've made the following recommendations. Please note that these recommendations are solely the opinion of the author(s) and do not necessarily reflect those of Xcel Energy, the applicable resource agencies, or any of the organizations/persons referenced in this report.

City of Hayward

1. Consider adding a dock to the Hayward boat landing to make loading and unloading boats easier.
2. Evaluate the effectiveness of the light in the boat landing parking area to ensure adequate lighting for users.
3. Increase awareness (signs, etc.) of the damaging effects of power-loading a boat at landings. This can help decrease the need for maintenance of the landing area.
4. Consider ways to develop the access currently owned by the City on the north-central portion of the lake

Xcel Energy

5. Evaluate the potential erosion and washout of the tailwater fishing areas and add drainage as necessary.

9.0 REFERENCES

Morris, Randolph, P. 2007. The contribution of outdoor-based recreation opportunities to local economies: the economic impacts of rock-climbing to the Squamish region. Master's thesis. Simon Frasier University. 115 pp.

Schreuder, H.T., Tyre, G.L. & James, G.A. (1975). Instant- and interval-count sampling: two new techniques for estimating recreation use. Forest Science, 21(1): 40-44.

APPENDIX A

Agency Correspondence

1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

June 23, 2015

Ms. Cheryl Laatsch
WI Dept. of Natural Resources
N7725 Hwy 28
Horicon WI, 53032

Ms. Angela Tornes
National Park Service
626 E. Wisconsin Ave., Suite 400
Milwaukee, WI 53202

Nick Utrup
US Fish & Wildlife Service
4101 American Boulevard East
Bloomington, MN 55425

Mr. John McCue
City of Hayward Public Works
P.O. Box 969
Hayward, WI 54843

Subject: **Draft Recreation Report**
Hayward Hydro Project (P-2417)

Dear Ms. Laatsch, Mr. Utrup, Ms. Tornes and Mr. McCue:

Article 414 of the Federal Energy Regulatory Commission's (FERC) license for the Hayward Hydro Project requires Xcel Energy (licensee) to monitor recreational use within the project area to determine whether the existing recreation facilities are adequate for recreation needs. The Hayward Recreation Report addresses all of the items requested in Article 414. A summary of the reporting requirements is provided at the beginning of the report.

Please provide any comments you may have by July 25, 2015. If I do not hear from you by then, I will assume you are satisfied with the report and will file it accordingly with FERC. Should you have any questions, feel free to contact me by telephone at (715) 737-1353 or by e-mail at matthew.j.miller@xcelenergy.com.

Sincerely,

Matthew Miller
Hydro Licensing Specialist

Enclosure: Draft Hayward Recreation Report

c: Hayward Project File

United States Department of the Interior
NATIONAL PARK SERVICE
Midwest Regional Office/ Wisconsin Field Office
Hydropower Assistance Program
626 E. Wisconsin Avenue, Suite 400
Milwaukee, WI 53202

August 3, 2015

Mr. Matt Miller,
Xcel Energy
P.O. Box 8
Eau Claire, WI 54702

Subject: Review of Draft Recreation Report for Hayward Hydro, FERC No. 2417

Dear Mr. Miller,

Thank you for sending the Draft Recreation Report for Hayward Hydro; we have the following comments.

The report and analysis are well done. We concur with all of the recommendations made in Section 8, "Recommendations for the Future" and believe Xcel Energy should bear the greater percentage e.g. 80%, of the financial burden of implementing the measures. This includes the improvements listed for properties owned by the City of Hayward as well as the Xcel Energy.

We appreciate the opportunity to provide comment. Feel free to contact me at 414.297.3605 or angie_tornes@nps.gov if you have questions.

Sincerely,

Angela M. Tornes

Angela M. Tornes

Cc:
Federal Energy Regulatory Commission
Cheryl Laatsch, Wisconsin Department of Natural Resources

Below is the text or summary of agency comments in bold italics with licensees' responses following.

National Park Service

The report and analysis are well done. We concur with all of the recommendations made in Section 8, "Recommendations for the Future" and believe Xcel Energy should bear the greater percentage e.g. 80%, of the financial burden of implementing the measures. This includes the improvements listed for properties owned by the City of Hayward as well as the Xcel Energy.

The recommendations for the City boat landing (dock, lighting, and signage) in Section 8 would fall under the responsibility of the City of Hayward and do not directly relate to the adequacy of the facility.

The decision to develop the City-owned parcel on the north-central portion of the lake for recreation purposes is the sole discretion of the City of Hayward. Furthermore, the report found no evidence of a need for additional recreation facilities.

Licensee's operator routinely inspects the tailwater area for evidence of washout, erosion or seepage as this may be evidence of a dam safety issue. Currently there is no need for erosion or drainage control in the tailwater area at this time.

APPENDIX 5.2.7.2-1 June 23, 2015 Trego Recreation Report

Recreation Report

for the

Trego Hydroelectric Project

(FERC Project No. 2711)

Prepared for:

Xcel Energy
Dba: Northern States Power - WI
P.O. Box 8
Eau Claire, WI 54702

Prepared by:

739 Hastings Street
Traverse City, MI 49686

Principal Contact Person:
Christopher J. Turner
cturner@glec.com

Submitted: June 23, 2015

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1.0 INTRODUCTION

Trego Flowage (located within the Township of Trego) is a 460 acre impoundment of the Namekagon River located in Washburn County, WI. The lake contains 16.9 miles of shoreline, approximately 14 percent of which is accessible to the public. The Namekagon River is a popular river for canoeing, kayaking and inner tubing and several local outfitters are available for rentals and shuttle service. Much of this activity, however, takes place in portions of the river outside the project boundary. The entirety of Trego Flowage is located within the St. Croix National Scenic Riverway and considered a National Park. As such, there are no personal watercraft (i.e. jet skis) allowed on the water, and snowmobiles and ATVs may cross the river at locations along designated trails, but may not travel the length of the river. At the time of this report, no such trails existed and therefore ice travel by snowmobile or ATV is prohibited on Trego Flowage.

The Trego Hydroelectric Project (FERC Project No. 2711) operates under a 30-year license issued by the Federal Energy Regulatory Commission (FERC). License Article 408 requires that the Licensee (Xcel Energy) monitor recreation use of the Trego Hydroelectric Project area to determine whether existing recreation facilities are meeting recreation needs. Concurrent with filing FERC Form-80, required by section 8 of the Commission's Regulations (18 CFR 8.11), the Licensee shall file a report with the Commission on the monitoring results. This report shall include:

1. annual recreation use figures;
2. a discussion of the adequacy of the Licensee's recreation facilities at the project site to meet recreation demand;
3. a description of the methodology used to collect all study data; and
4. if there is a need for additional facilities, a recreation plan proposed by the Licensee to accommodate recreation needs in the project area.

In order to meet the FERC requirements, Great Lakes Environmental Center, Inc. (GLEC) consulted with Xcel Energy to devise and implement a plan of study aimed specifically at meeting all the FERC requirements. The goals of the Trego Recreation Study were to:

- inventory the recreational facilities on Trego Flowage to determine their amenities and capacities;
- estimate the recreational usage on Trego Flowage both as a whole and at specific recreational facilities;
- determine the adequacy of each of the recreational facilities and their ability to meet the current recreational demand; and
- obtain feedback from users of the recreational facilities to help gauge facility adequacy and receive input from the public on recommended improvements to facilities.

The Trego Recreation Study was conducted from May 2014 through March 2015. This report was prepared by Great Lakes Environmental Center, Inc., 739 Hastings Street, Traverse City, MI. The report's principal author and Lead investigator was Chris Turner.

2.0 METHODS

This section describes the methods used to collect, summarize and extrapolate the raw data acquired during the study. Each subsection focuses on the different types of data/information collected.

2.1 Inventory of Facilities

In order to list and inventory each of the facilities on Trego Flowage, GLEC used previous recreation studies, maps/aerial images of the area, internet resources and field visits to identify both public and private recreational facilities within the Project. Each public facility was visited to determine the amenities available and their capacity (e.g. number of parking spots, docks, boat ramps, etc.), and an initial overview of the apparent adequacy of the facility was noted. Section 3.0 describes each of the following public recreational facilities in detail:

- Town of Trego Boat Landing
- Trego Town Park Landing
- Tailwater Access and Canoe Portage
- National Park Service (NPS) river access

2.2 Interviews with Owners and Operators of Facilities and other Key Personnel

GLEC staff arranged phone interviews with key personnel associated with recreational facilities on Trego Flowage. These included owners and/or operators of facilities, Wisconsin Department of Natural Resources (WDNR) staff, public works staff, etc. Where possible, interviews were conducted with the same people that were interviewed for the 2009 recreation report. The goals of these interviews were to characterize current recreation, assess the adequacy of the facilities, identify any changes that have occurred since the last recreation report, and discuss improvements that are planned to take place over the next several years. Details of each interview are contained in Section 4.0.

2.3 Counts of Recreational Users

Daily recreational use estimates were made using data from a combination of sources including data collected from trail counters, counts/estimates of day-time recreational users from local sources, and estimates of overnight and multi-day usage provided by operators of individual lodging facilities adjacent to the Trego Flowage project area. The following subsections details each of the data collection efforts.

2.3.1 Trail Counter Data

During the study period trail counters were installed at the Town of Trego Landing, Trego Town Park Landing, North Tailwater, and the canoe portage (Figure 1). The trail counters that were installed use active infrared technology to obtain vehicle or pedestrian count statistics that include the date and time of the count as well as the total number of “events” (defined as a

break in the infrared beam). The all-weather, portable, battery powered counting devices utilize active infrared technology to count vehicular traffic in one-hour intervals continuously. In the case of a counter placed directly across the road which accesses a facility, an event was expected to be produced for every vehicle or pedestrian that passed on the road. Counters placed on walking trails were expected to produce and event for pedestrian that passed on the trail. The assumption was made that the same number of people that entered via the road/trail also left via the road/trail. The configuration of the south tailwater fishing area is such that it was not possible to install a trail counter. In lieu of the data from a trail counter, the operator of the Trego Hydro was asked to compare the amount of use at the south tailwater versus the north tailwater (which was monitored with a trail counter). The direct observations made by the hydro operator were used to extrapolate the use of the south tailwater from the north tailwater data.

2.3.2 Counts/Estimates of Recreational Users from Local Sources

During the Trego recreation study, we identified the following three sources of day-use recreation in addition to the previously identified and monitored facilities:

- Jack's canoe rental (outfitter)
- Log Cabin Campground (outfitter)
- National Park Service River Access

Both of the outfitters that provide rentals of canoes and inner tubes provide their services to facilitate recreationists on various parts of the Namekagon River. A portion of those users end their journey at one of the outfitters, both of which are located in the upper portion of Trego Flowage. Both outfitters were contacted and asked to provide the number of people that used their services during the 2014 season, which are tracked and provided to the National Park Service. These outfitters were then asked to estimate the percentage of the users which took out at their facilities and were therefore recreating on Trego Flowage for a portion of their day.

The NPS maintains an access point on each side of the upper flowage at the intersection of Highway 63 and Lakeside Road. A visitor's center is also located in this area on the south side of Highway 63. The NPS does not make counts or estimates of the users of the two river access points, but they do make counts of people at their visitor's center. The annual visitor count at the visitor's center during the study period was provided by the NPS and those counts were used to extrapolate estimates of users of the access points during the current time period. In 2008 (the period of study for the previous recreation report), 4,387 visitors were counted at the NPS visitors center. In 2014, that number declined slightly to 4,056 visitors (a 7.5 percent decrease).

Ice fishing on Trego Flowage is essentially nonexistent on Trego Flowage due to the often thin and unsafe ice. The WDNR warden that patrols this area indicated that over the course of any winter, less than 50 people are expected to be found ice fishing on Trego Flowage. Since many of these users are likely shoreline residents and do not use any of the facilities on the flowage, ice fishing was considered to be negligible and not added to the recreational use estimates contained within this report.

The NPS maintains several ski trails immediately north of the Trego Flowage, but these trails do not provide direct access to the flowage and are not included in this report. The NPS also maintains a boat landing downstream of the Trego Hydro at County Highway K. This landing is not within the project boundary and is also not included in this report.

2.3.3 Usage Numbers from Private Facilities

Trego Flowage contains four private lodging facilities (campgrounds, resorts, etc). Overnight use was considered to be restricted to these facilities. In order to estimate the nighttime use, the owner/operator of each facility was contacted (with a letter during the beginning of the study period and a follow-up phone call after the study period when required) and asked to provide estimates of overnight stay information. The facilities at which overnight use is available are listed below:

- Bay Park Resort & Campground
- Jack's Campground
- Log Cabin Resort & Campground
- Trego Town Park

Most owners/operators were unable to provide an exact number of people that used their facility and instead provided an estimated percent capacity of their facility for each day type (weekend, weekday, peak weekend) and month. The percent capacity estimates were multiplied by the average daily full load capacity of each facility to calculate an average number of overnight users for each day type and month. This figure was then multiplied by the number of each day type in each month and summed to calculate an overall estimate of nighttime use per month and for the entire study period. This method is consistent with the previous recreational use estimate and report (2009). Based on information from owners/operators of facilities of various types, the average group size for this study was defined as 2.5 for RV users, 3.5 for campsites and 4.5 for cabins. These averages were used whenever specific user information was unavailable from the owner/operator of the overnight use facility. A summary of overnight use on Trego Flowage is contained in Section 5.2.

For purposes of estimating total recreation usage, the assumption was made that people using facilities for nighttime usage were also using the facilities during the day. Therefore, when calculating daytime recreational usage, nighttime estimates were added to daytime estimates obtained from trail counters and other sources.

2.4 Self-Reporting Surveys

GLEC developed a self-reporting survey form (Figure 2) that invited users of recreational facilities to provide information about themselves and their opinion of the recreational opportunities on Trego Flowage. GLEC designed, fabricated and installed weatherproof survey boxes (Figure 3) that housed both blank and completed surveys. These boxes were placed at the north tailwater fishing area, south tailwater fishing area (which includes the canoe portage), Town of Trego boat landing, and Trego Town Park landing. The boxes were each checked and the completed forms retrieved on a regular basis.

The self-reporting surveys were aimed at collecting two primary types of information:

1. Characterization information about the users of the facility (i.e. party size, length of stay, types of recreation activities, mode of travel, etc.); and
2. Opinions of the adequacy of facilities on Trego Flowage and suggestions for improvements to any of the facilities or recreational opportunities in general.

The characterization information was used to help make accurate assumptions during the extrapolation of counter data and the information on adequacy helped to understand the public's viewpoint of any improvements that might be needed. Summaries of the self-reporting surveys can be found in Section 6.0.

Figure 1. Infrared Pedestrian/Vehicle Counters used at Trego Flowage Recreational Facilities

For photographic purposes, the counter has been mounted to be more visible. Normally the counter would be more hidden by the tree.

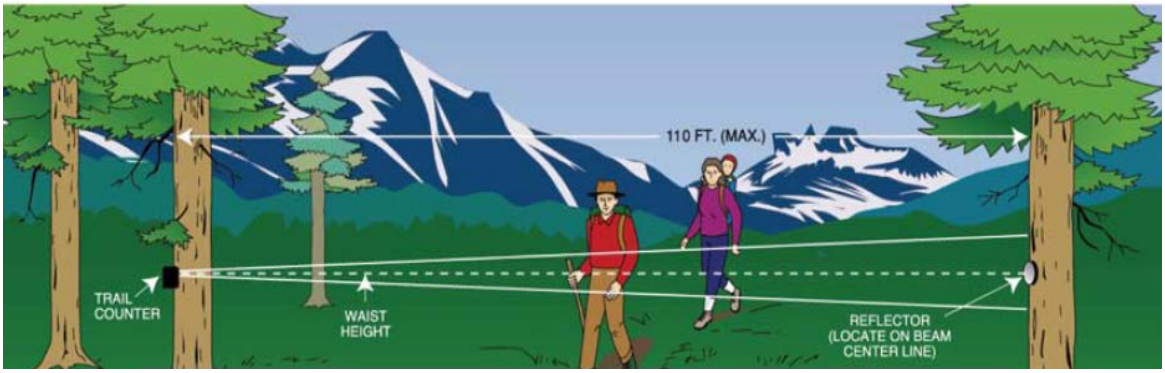


Figure 2. Trego Flowage self-reporting recreational use form

XCEL ENERGY TREGO FLOWAGE RECREATIONAL USE SURVEY

1. How many people (on average) are in your party when you recreate in the Trego Flowage area? _____
2. What percentage of the time do you travel to the recreation areas on Trego Flowage by:
   Car/Truck:_____% Motorcycle:_____% Bicycle:_____% Foot:_____%
3. How many **DAYS** have you spent or do you plan to spend recreating in the Trego Flowage area in the following months?
   ___March 2014 ___April 2014 ___May 2014 ___June 2014 ___ July 2014 ___August 2014
   ___Sept 2014 ___Oct 2014 ___Nov 2014 ___Dec 2014 ___January 2015 ___February 2015
4. How many **NIGHTS** have you spent or do you plan to spend recreating in the Trego Flowage area in the following months?
   ___March 2014 ___April 2014 ___May 2014 ___June 2014 ___ July 2014 ___August 2014
   ___Sept 2014 ___Oct 2014 ___Nov 2014 ___Dec 2014 ___January 2015 ___February 2015
5. For the period from March 2014 through February 2015, what percentage of your time spent recreating in the Trego Flowage area is during:
   weekdays?_____ weekends/holidays?_____ (Total should equal 100%)
6. On average for the period from March 2014 through February 2015, how many hours do you spend each day that you recreate in the Trego Flowage area during each of the following times?
   6 am to 10 am:_____ 10 am to 2 pm:_____ 2 pm to 6 pm:_____ 6 pm to 10 pm:_____ 10 pm to 6 am:_____
7. What is the average length of your visit to Trego Flowage? _____hours
8. For the period from March 2014 through February 2015, what percentage of your time recreating in the Trego Flowage area is spent accessed from each of the following recreational access areas? (Total should equal 100%)
   _____ Trego Lake County Park
   _____ NPS River Access (Hwy 63)
   _____ Tailwater (north side access)
   _____ Tailwater (south side access)
   _____ North landing (Trego Landing Rd)
   _____ Canoe portage area
   _____ Other (specify)_____
   _____ Other (specify)_____

8. Which of the following activities in the Trego Flowage area do you usually participate in? (Check up to five)
   ___Boat Fishing ___Shore Fishing ___Boating (canoe, sail, etc). ___Walking/Jogging/Hiking
   ___Swimming ___Picnicking ___Playing Sports ___Biking
   ___Hunting ___Enjoying nature ___Camping ___Parking (sitting in car eating, viewing)
   ___Jet skiing ___Photography ___Water skiing/tubing ___Relaxing/Visiting
   ___General Playing (playgrounds, etc) ___Other (specify)_____

1. Please rate the status of the following facilities in the Trego Flowage area on a scale of 1 to 5 where:
1 = Facility is not at all adequate **5 = Present facility is totally adequate**
If you have no knowledge of the specific facility, leave blank. Please provide comment where applicable to the specific facility.

Recreation Facilities

A. Trego Lake County Park Rating (1-5):_____ Comment:_____
B. North landing (Trego Landing Rd) Rating (1-5):_____ Comment:_____
C. Tailwater (north side access) Rating (1-5):_____ Comment:_____
D. Tailwater (south side access) Rating (1-5):_____ Comment:_____
E. Canoe Portage area Rating (1-5):_____ Comment:_____
F. NPS River Access (Hwy 63) Rating (1-5):_____ Comment:_____

10. On a scale from 1 to 10, how would you rate your overall recreational experiences at Trego Flowage?
    Very Poor **1 2 3 4 5 6 7 8 9 10** *Very Good*
11. Please make any comment you feel would be helpful about recreation at Trego Flowage.

_____

_____

Figure 3. Examples of survey boxes installed at select recreational facilities.

3.0 DESCRIPTIONS OF RECREATIONAL FACILITIES ON TREGO FLOWAGE

Each of the public recreational facilities on Trego Flowage is described below, and discussions of the use and adequacy of each facility are discussed in subsequent sections of this report. Figure 4 displays a map of the area showing the location of each of the recreational facilities present on Trego Flowage during the study period.

Other facilities such as parks, ski trails and other recreation areas are present in the general area of Trego Flowage. These facilities, however, are not within the development/project boundary and are not included in this recreation report.

3.1 Town of Trego Boat Landing

The Town of Trego owns and maintains this single launch boat landing on the south-central portion of the Flowage. It is the primary public landing on the Flowage and consists of a single cement launch with paved approach and a dock. It is the only public landing capable of launching larger motorized boats. The parking area is essentially the road right-of-way but there is typically ample room for the amount of use. The Town does not charge a fee for the use of this launch and no other amenities are present. The landing is in good condition and is adequate for the light to moderate use it receives. There are no road signs that direct users to the location of this landing, and two comments provided by survey respondents indicated that the landing was not easy to find.

3.2 Trego Town Park and Landing

The Town of Trego owns and maintains a campground on the east end of the flowage, upstream of Highway 53. It consists of 19 seasonal RV sites, 29 campsites, three pavilions, showers, picnic areas and shore fishing opportunities. The Town also owns and maintains a small boat landing adjacent to the Town Park. It consists of a single unpaved launch area with no dock. A gravel parking lot is provided that can accommodate 8-10 vehicles. The launch area is small and shallow and is primarily used as a take-out for canoers and kayakers before they enter the slack water of the flowage itself. Shallow water between this launch and the main flowage also limits the ability of larger motorized watercraft to use this launch to access the flowage. The area receives light use in the summer. Overall, the facility is in good condition and is adequate for the current usage. There is no fee associated with the use of the launch.

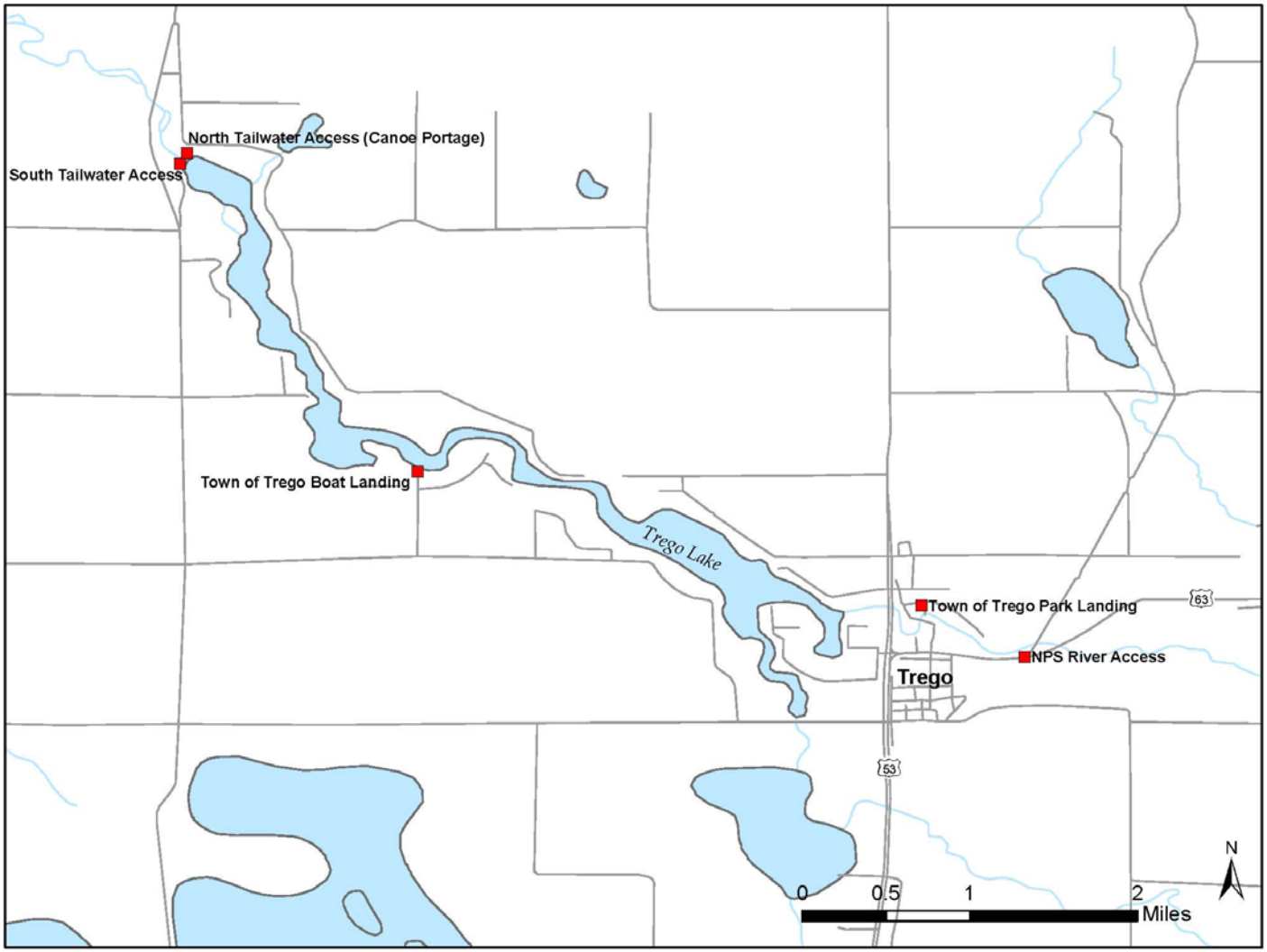
3.3 Tailwater Access and Canoe Portage

Xcel Energy owns, maintains, and provides public use of this area which includes tailwater fishing access on both sides of the river and canoe portage which consists of a take-out, signed trail, and put-in area. This enables canoeists who are navigating from an upstream location to a downstream location to safely bypass the dam. There are no fees associated with the use of this area. A garbage receptacle is available on the north side (near the canoe portage trail), but no additional amenities are provided and overall the area is adequate for the light but consistent use it receives.

3.4 NPS Namekagon River Access

The National Park Service maintains this access area in the upper portion of the flowage along Highway 63. It consists of two hand-carry access points, one on either side of the river. Each access point consists of steps that lead to the water's edge where users can put in or out canoes, kayaks or inner tubes. An area for picnicking, which includes a grill is available, but there are no other amenities. An NPS visitor's center is located immediately on the other side of Highway 63 and does offer outdoor garbage receptacles and restrooms and other facilities during open hours. The three parking areas combined are capable of holding more than 30 vehicles and the areas offer shoreline fishing, swimming or wading to those who would choose to do so. The access areas, while rustic, are in good condition and receive moderate to heavy use, mostly as a take-out area for canoeists and inner-tubers.

Figure 4. Map of Trego Flowage showing location of recreational facilities, 2014-2015.



4.0 SUMMARIES OF INTERVIEWS WITH KEY PERSONNEL

This section provides a brief summary of the interviews with owners/operators of facilities and other key personnel that have detailed knowledge of the recreational facilities and opportunities on Trego Flowage.

4.1 Dave Swanson, Conservation Warden - WDNR

Mr. Swanson has been a warden in the Trego area for the last 16 years and is therefore quite familiar with Trego Flowage and its recreational opportunities. He felt that the overall amount of recreation taking place on the flowage has remained fairly consistent over the last six years. He sees a mix of anglers and recreational boaters during the summer season, but noted that recreational boating is often more popular than fishing (especially during the weekends). This recreational boating takes the form of casual boating (pontoons, etc.) as well as water skiing. The flowage itself is fairly long and skinny and is therefore not ideal for waterskiing and tubing and conflicts and competition for space can occur between users.

Mr. Swanson stated that the Town of Trego Landing is in good shape and is the only public landing for motorized boats to access the main flowage. He felt the landing is adequate to handle the amount of use despite the fact that it essentially handles all the daily boat trailering activity. Mr. Swanson also mentioned that in the late summer and fall when weeds detach from their beds and float downstream, they can accumulate in the area of this landing making it important for users to clean their trailers off before leaving the area.

Mr. Swanson noted that the use of the tailwater fishing areas is fairly popular and can be used quite heavily at times. At no time, however, has he felt that the area is overly crowded and the current facility is adequate for the use it receives. He felt that the canoe portage is lightly used and in good condition. While he seldom sees canoeists using the portage, he himself has used it to portage his canoe and found it to be adequate.

According to Mr. Swanson, the landing adjacent to Trego Town Park is used only by small boats and canoes/kayaks. The shallow water in this part of the flowage precludes use by larger boats. Mr. Swanson stated that he does receive complaints of the shallow water and sedimentation occurring in the upper part of the flowage, but it does not cause any hindrance to recreation. He stated that the only users affected are residents that live in the upper flowage who may like to travel by boat into the main flowage, and any dredging (as has been proposed by some) would only be a temporary measure given the nature of the river system.

4.2 Tom Frost, Chair – Trego Lake District

Mr. Frost has been a Trego area resident for the last 10 years and currently serves as Chair of the Trego Lake District. He felt that the use of the flowage has been about the same over the last several years. Mr. Frost stated that the Town of Trego Landing is in good condition after some recent upgrades and is adequate for the current use; while the landing near the Town Park is essentially a hand-carry access, but still meets the needs of its users.

Mr. Frost expressed concerns about the sedimentation occurring in the upper part of the flowage. He stated that the Town and Lake District have been working on a dredging plan for serval years. The entities have secured a permit to complete the dredging, but the funds have not been completely secured. Mr. Frost noted that the upper end of the flowage has become difficult to use due to the shallow water and he fears that the condition will continue to worsen.

Mr. Frost also discussed the weed harvesting that has been conducted since 1998 to keep open several navigational channels. This effort is facilitated by the Lake District and fully funded by Xcel Energy as part of their FERC license requirements. Weed growth was low enough in 2014 that no weed cutting was needed, but in the previous several years, the harvesting of the weeds has been effective at keeping the channels open for boat traffic. Mr. Frost did express concern that the amount of navigable water in the flowage may decrease in future years due to a combination of weed growth and sedimentation and that additional crowding may result.

4.3 Ricky Reichert, Operator – Trego Hydroelectric Project

Mr. Reichert has been operating both the Hayward and Trego Hydroelectric Facilities for the past five years. His duties typically have him on site at the Trego Facility during weekdays, but he does observe the area during certain weekend and evening times as well. Mr. Reichert described the public access areas which include tailwater fishing areas on both the north and south side of the river as well as a canoe portage. He noted that the use of each these areas is fairly light but consistent and the current facilities are adequate for the amount of use. The tailwater fishing areas and canoe portage are all in good condition, and the north side fishing area may receive some general maintenance in the next few years, including a new railing. Overall, Mr. Reichert felt that recreation has remained fairly consistent over his five year tenure on both Trego Flowage itself and in the tailwater areas.

4.4 Gary Campbell, Chair – Town of Trego

Mr. Campbell has served as Chairperson for the Town of Trego since 1993. Overall, he felt that the amount of recreation on Trego Flowage has increased slightly over the last several years. He stated that the lake is not crowded and both the configuration of the lake and the placement of designated slow-no-wake zones helps keep conflict and competition for space among users down.

Mr. Campbell stated that the Town of Trego Landing is in good shape after receiving a new concreate slab and new rock fill in October of 2014. He stated that the landing receives moderate to heavy use during certain times and the parking area can be full which leads to trucks parking along both sides of the road. Fortunately, the road is a quiet rural road and wide enough to accommodate the vehicles, so there is no real safety concern associated with this parking. The landing is surrounded by private land, so there is little opportunity to expand the parking area, but other modifications may be made to the landing area to improve traffic flow.

Mr. Campbell also noted that use at the Town Park has increased somewhat and it is common for it to be 100 percent full on busy summer weekends. One of the three pavilions was recently rebuilt and all three are available to the public. A fee is charged for reserving a pavilion, but the

public may use them free of charge on a first-come-first-served basis. Overall, Mr. Campbell felt that all the amenities of the Park are in good condition and no changes are planned for the immediate future.

Mr. Campbell mentioned that the pondweed harvesting has been ongoing and has been successful at restricting the weeds from the navigational channels. The harvesting is planned to continue for years to come. He also noted the sedimentation issue in the upper end of the flowage and stated that the Town and Lake Association have been working together on a funding plan which may include special property tax assessments to some property owners.

5.0 RECREATIONAL USE ESTIMATES

5.1 Daytime Recreational Use

As described in Section 2.0, daytime recreational use estimates were extrapolated from multiple sources including trail counters, estimates from outfitters, NPS usage numbers and estimates from overnight facilities. Clearly these methods do not account for recreational use on the flowage that is not associated with a monitored facility or controlled site (i.e. residents or users of other unmonitored areas); therefore recreational use extrapolations do not refer to the use occurring on the flowage itself, just at the monitored facilities. Use estimates are divided into "daytime" and "nighttime" (e.g. overnight stays by the user). The next section describes the nighttime use estimates.

Total annual daytime use for the study period was estimated at 74,524 recreation days (Table 1). The majority of the day-use (use not associated with an overnight stay facility) was either canoeists and inner tubers that used one of the outfitters or users at the NPS River Access area. As would be expected, summertime use (May through September) far exceeded fall use at Trego Flowage. The month of July saw the largest portion of all use (31 percent), while all fall months (October and November) combined received 4 percent of the annual use. Wintertime use was essentially nonexistent on Trego Flowage during the study period.

During the summer months, total recreational use during weekdays exceeded use during weekends or peak weekend days (summer recreational holidays and their adjacent weekend days) (Table 2). Average use during any day of a peak weekend (982 visits) was higher than average use of either summer month non-peak weekend or weekday use (754 visits and 321 visits per day, respectively).

When calculated over the entire year, weekday use comprised 48 percent of all recreational visits, weekends comprised 40 percent and peak weekends comprised 12 percent. Average daily use across the entire year of study for peak weekends, non-peak weekends and weekdays was 982; 304; and 139 visits per day, respectively.

As one would expect, a fairly strong correlation between weather and recreational use has been documented in other recreational studies which included instantaneous counts of users and notations of current weather conditions. Temperature and weather conditions (i.e. sunny, cloudy, rain, snow, etc.) have a large effect on the number of recreational users on any given day. This leads to a potentially large variation in the amount of recreational use during any given year. Summers characterized by rainy or cool weather can be expected to yield lower recreational numbers than summers which include more fair weather days. The recreational estimates contained in this report are for the specific period of study and may not reflect recreational use during any other timeframe.

5.2 Nighttime Recreational Use

As described in Section 2.0, nighttime use (i.e. overnight stays) was estimated from information provided by each of the lodging facilities on Trego Flowage and is defined as each overnight

visit by a person to one of the facilities in the project area for the purpose of recreation. Total available overnight capacity at each facility is presented in Table 3 and breakdowns of the overnight stay estimates are provided in Appendix A. Overall, the number of overnight users during the study period of May 2014 through April 2015 was estimated at 39,257 (Table 4) and use was heaviest at the larger facilities, which have more total capacity. Overnight use was only recorded during the summer and fall months. July and August were the most popular overnight use months (24 and 22 percent of all overnight use, respectively; while October and November combined resulted in less than six percent of the total overnight recreation.

During the summer of 2014, total overnight use during weekdays exceeded overnight use during peak weekends or non-peak weekends. Average overnight use during any night of a peak weekend (493 visits) was higher than average use of either summer month non-peak weekend or weekday nighttime use (392 visits and 166 visits per night, respectively). During the fall, average nightly use was higher on weekdays than on weekends (152 visits and 66 visits per night, respectively). No peak weekends occurred during the fall time period.

When calculated over the entire year, weekday overnight use comprised 49 percent of all visits, weekends comprised 40 percent and peak weekends comprised 11 percent. Average nightly use across the entire year of study for peak weekends, non-peak weekends and weekdays was 493; 161; and 74 visits per night, respectively.

Month	Town of Trego Boat Landing	Trego Town Park Landing	Tailwater Fishing Areas	Canoe Portage	NPS River Access	All Outfitters	All Controlled Sites (Campgrounds/Resorts)	Totals by Month
May	519	163	823	228	506	74	5193	**7,506**
June	410	248	1109	194	2423	2368	7731	**14,483**
July	524	461	964	78	3770	7857	9300	**22,954**
August	448	186	680	354	3345	5615	8794	**19,421**
September	347	102	403	98	98	178	5934	**7,160**
October	298	80	253	64	0	0	1803	**2,498**
November	0	0	0	0	0	0	502	**502**
December	0	0	0	0	0	0	0	**0**
January	0	0	0	0	0	0	0	**0**
February	0	0	0	0	0	0	0	**0**
March	0	0	0	0	0	0	0	**0**
April	0	0	0	0	0	0	0	**0**
Total by Facility	**2,546**	**1,240**	**4,231**	**1,016**	**10,142**	**16,092**	**39,257**	**74,524**

Table 1. Extrapolated daytime recreational use (in recreation days) at Trego Flowage – May 2014 to April 2015

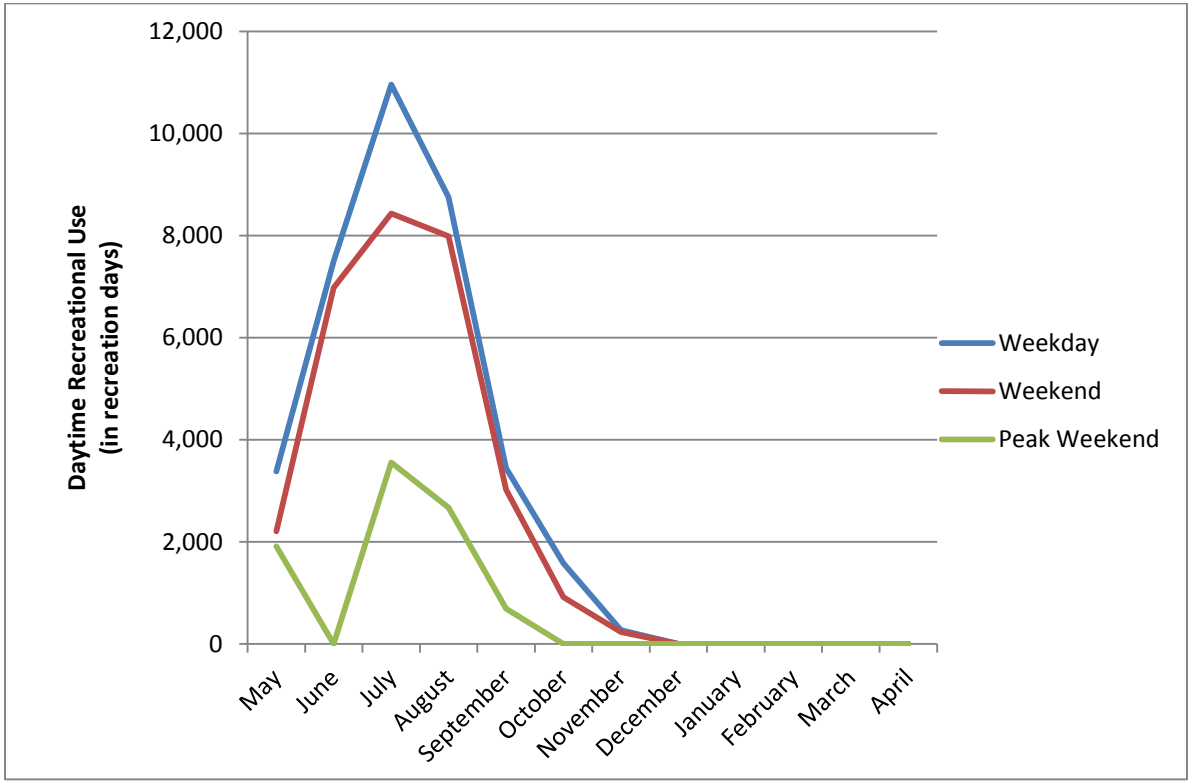
		Weekday	Weekend	Peak Weekend
Summertime	May	3,381	2,209	1,916
	June	7,500	6,983	0
	July	10,962	8,436	3,556
	August	8,754	7,991	2,676
	September	3,442	3,024	694
	TOTAL	34,039	28,643	8,841
	# days	106	38	9
	Ave Per Day	321	754	982

		Weekday	Weekend	Peak Weekend
Wintertime	October	1,580	918	0
	November	270	232	0
	December	0	0	0
	January	0	0	0
	February	0	0	0
	March	0	0	0
	April	0	0	0
	TOTAL	1,850	1,150	0
	# days	152	60	0
	Ave Per Day	12	19	N/A

		Weekday	Weekend	Peak Weekend
Year	***TOTAL***	35,889	29,793	8,841
	# days	258	98	9
	Ave Per Day	139	304	982

Table 2. Comparison of extrapolated recreational use at Trego Flowage by type of day – May 2014 to April 2015

Figure 5. Extrapolated recreational use by month at Trego Flowage – May 2014 to April 2015.



	Hotel / Motel Rooms:		Cabins:		Campsites:		RV Sites:		Maximum Capacity
	Year-Round	Seasonal	Year-Round	Seasonal	Year-Round	Seasonal	Year-Round	Seasonal	
Bay Park Resort & Campground	0	0	0	5	0	0	0	96	597
Jack's Campground	0	0	0	0	0	15	0	0	90
Log Cabin Resort & Campground	0	0	0	5	0	25	0	0	168
Trego Town Park	0	0	0	0	0	29	0	19	288

Table 3. Maximum overnight capacity at overnight stay facilities on Trego Flowage

		Weekday	Weekend	Peak Weekend
Summertime	May	2,365	1,566	1,262
	June	3,428	4,303	0
	July	4,829	2,863	1,608
	August	4,140	3,581	1,072
	September	2,847	2,592	496
	TOTAL	17,609	14,905	4,438
	# days	106	38	9
	Ave Per Day	166	392	493

		Weekday	Weekend	Peak Weekend
Wintertime	October	1,185	618	0
	November	270	232	0
	December	0	0	0
	January	0	0	0
	February	0	0	0
	March	0	0	0
	April	0	0	0
	TOTAL	1,455	850	0
	# days	152	60	0
	Ave Per Day	10	14	N/A

		Weekday	Weekend	Peak Weekend
Year	***TOTAL***	19,064	15,755	4,438
	# days	258	98	9
	Ave Per Day	74	161	493

Table 4. Extrapolated nighttime recreational use (overnight visits) at Trego Flowage – May 2014 to April 2015

6.0 RESULTS OF SELF-REPORTING SURVEYS

A total of 29 surveys were submitted and collected from the four survey box locations during the course of the study (Table 5). The majority of the surveys were collected during the month of July (20 of the 29 surveys), while no surveys were collected in May 2014 nor during any of the months of September 2014 through April 2015. For many of the submitted surveys, not all sections were completed. Almost all respondents listed activities that were important and most rated at least one individual facility.

Survey Collection Location	June	July	August	September	Total	Percentage
Town of Trego Boat Landing	1	3	1	2	7	24%
Town Park Landing	0	3	0	0	3	10%
North Tailwater / Canoe Portage	0	9	2	0	11	38%
South Tailwater	3	5	0	0	8	28%
Total (%)	**4 (14%)**	**20 (69%)**	**3 (10%)**	**2 (7%)**	**29**	**100%**

Table 5. Numbers and percentages of submitted surveys, by collection location, Trego Recreation Report

Respondents were asked to list up to five activities they considered to be important for the Trego Flowage area. Boating (including canoeing and kayaking) was the most popular activity, followed by enjoying nature, boat fishing and shore fishing (Table 6).

Activity	Respondents Reported
Boating (includes sailing, canoeing, etc.)	58%
Enjoying Nature	50%
Boat Fishing	42%
Shore Fishing	42%
Swimming	33%
Walking/Jogging/Hiking	33%
Relaxing/Visiting	33%
Photography	25%
Picnicking	21%
General Play (playgrounds, etc)	17%
Camping	17%
Water Skiing/Tubing	13%
Hunting	8%
Playing Sports	8%
Parking (sitting in car eating, viewing, etc)	8%
Jet Skiing	4%
Biking	4%
Cross Country Skiing	4%

Table 6. Percentage of respondents who reported listed activities as most important for the Trego Hydro Project.

Overall, visitors were satisfied with the facilities on Trego Flowage. The average ratings (on a scale of 1 to 5) ranged from 3.3 for the north tailwater fishing area to 4.7 for the Town of Trego Landing (Table 7). Each facility received at least one "5" (the maximum rating possible) and with the exception of the Town of Trego Landing, each facility received at least one "1" (the minimum rating for the Town of Trego Landing was "4").

	Trego Lake County Park	Town of Trego Landing	North Tailwater	South Tailwater	Canoe Portage	NPS River Access
Minimum Rating	1	4	1	1	1	
Median Rating	4	5	4	4.5	4	
Maximum Rating	5	5	5	5	5	
Average Rating	4.0	4.7	3.3	4.0	3.9	
Standard Deviation	1.4	0.5	2.1	1.5	1.2	
Number of responses	7	12	3	6	11	

Table 7. Summary statistics for ratings (on a scale of 1 to 5) of recreation facilities on Trego Flowage.

Comments provided by survey respondents (both facility-specific and general) provide valuable information about the public's view of the adequacy of the recreational facilities and opportunities on Trego Flowage. Comments ranged from simple compliments, to suggestions of additions or improvements to specific facilities, to notes about cleanliness or other issues. Only one of the comments noted that the facilities or Trego Flowage in general are busy or crowded. Facility-specific and general comments are summarized in Table 8.

Facility	COMMENT
Trego Town Park Landing	Nice park
Trego Town Park Landing	Need repair and dredging
Trego Town Park Landing	Trashy
Trego Town Park Landing	If Xcel is going to own the Trego Park Landing, it needs to be maintained. There is no other landing for people picking up canoes, etc. The bridge landing on south side is way too congested on busy weekends.
Town of Trego Landing	Very convenient, but hidden
Town of Trego Landing	Gorgeous, but no sign indicating location of boat launch
Town of Trego Landing	Love the place. Nice safety rail on south side of dam, thanks.
Town of Trego Landing	Clean up boat landing
South Tailwater	Pull weeds out
South Tailwater	Put a garbage can here so the gugans will quit littering all over the place.
South Tailwater	Thanks for railing by the dam, greatly appreciated
North Tailwater	Benches
Canoe Portage	pull weeds out
Canoe Portage	It would be nice to take out here
Canoe Portage	please remove log past landing
Canoe Portage	Nice portage, well maintained
Canoe Portage	Add a map at the portage point of the lake
NPS River Access	Could use a porta-potty
NPS River Access	Road needs work
General	Get rid of wild rice, Don't waste money on cutting weeds unless they really need it
General	A good sturgeon and catfish catch and release fishery
General	Poor fishing. Need landing on River Rd
General	Great for kids
General	Nice area, lots of people, empty plastic bottles/cans in water

Table 8. Summary of comments provided during the Trego Recreation Study.

7.0 DISCUSSION OF ADEQUACY OF CURRENT FACILITIES

Overall, the Trego Flowage area offers a good amount of recreational opportunity for water users and a small amount of recreational opportunity for land users. There also appears to be ample opportunity for overnight recreational users (i.e. campers, etc.). The facilities are limited in number but in good condition, and receive regular maintenance and upgrades when required. The number and size/capacity of the facilities present appear sufficient to accommodate the current amount of use on all but the busiest of days. The sections below discuss the level of use and adequacy for day use boat and day use non-boat users.

7.1 Day use by boaters, canoeists, and inner tubers

The number of boaters on Trego Flowage appears to have remained fairly low over the last six years and does not appear to be causing any congestion, safety concerns or competition for space among recreationists engaging in different activities. The small size of the lake, coupled with the availability of numerous larger lakes in the area is likely to keep boating pressure low and help avoid safety risks, high chance of user interference, or high probability of environmental harm. The single boat landing is adequate for the current amount of use, although the nature of the parking area can cause users to walk a fairly long distance at times. No complaints have been received of any competition for space or conflicts between anglers and recreational boaters.

The upper portion of Trego Flowage is a very popular place for users of the Namekagon River (canoeists, kayakers, and inner tubers) to terminate their trip (either at the NPS River Access, one of the outfitters, or the Trego Town Park Landing). Of all estimated day use, over 90 percent is use that occurs in the upper riverine portion of the flowage upstream of the Highway 53 Bridge. This section of the flowage would likely be considered by the general user to be the Namekagon River, not the Trego Flowage. It appears that the availability of access and the number of facilities is adequate to meet the current need.

7.2 Day use by Non-boaters

Trego Flowage has few day-use areas for land users. The Town of Trego Park offers some recreational day-use facilities while the tailwater fishing areas and canoe portage offer shoreline fishing opportunities. Of the total estimated recreational use of the flowage, approximately seven percent occurs on the Xcel Energy land adjacent to the Hydro Facility.

7.3 Overnight Use

According to the owners/operators of private overnight facilities who discussed the use of Trego Flowage, overnight use has increased slightly over the last several years. While many owners/operators indicated that facility is full on busy weekends (especially holiday weekends), there appears to still be some availability throughout the summer. Overall, it appears that facilities are in good condition and adequate to meet the needs of their users. There appears to be enough overnight stay opportunity to meet the current demand, but the flowage area does appear to be able to accommodate additional facilities in the future if demand increases.

APPENDIX A

Overnight Stay Information Provided by Controlled Sites

Trego Flowage

	Bay Park Resort & Campground			Jack's Campground			Log Cabin Resort & Campground			Trego Town Park			TOTAL		
Number users total	**Weekdays**	**Weekends**	**Peak Weekends**	**Weekdays**	**Weekends**	**Peak Weekends**	**Weekdays**	**Weekends**	**Peak Weekends**	**Weekdays**	**Weekends**	**Peak Weekends**	**Weekdays**	**Weekends**	**Peak Weekends**
May 2014	1,133	773	579	198	54	135	215	293	190	820	447	358	2,365	1,566	1,262
Jun 2014	1,545	1,931	-	450	225	-	390	731	-	1,043	1,416	-	3,428	4,303	-
July 2014	2,266	1,159	734	495	270	135	429	585	293	1,639	849	447	4,829	2,863	1,608
Aug 2014	2,163	1,545	489	473	360	90	410	663	195	1,095	1,013	298	4,140	3,581	1,072
Sept 2014	1,622	1,236	219	189	72	45	410	390	83	626	894	149	2,847	2,592	496
Oct 2014	1,185	618	-	-	-	-	-	-	-	-	-	-	1,185	618	-
Nov 2014	270	232	-	-	-	-	-	-	-	-	-	-	270	232	-
Dec 2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jan 2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb 2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar 2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr 2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		19,699			**3,191**			**5,275**			**11,093**			**39,257**	

APPENDIX B

Agency Correspondence

1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

June 25, 2015

Ms. Cheryl Laatsch
WI Dept. of Natural Resources
N7725 Hwy 28
Horicon WI, 53032

Ms. Angela Tornes
National Park Service
626 E. Wisconsin Ave., Suite 400
Milwaukee, WI 53202

Nick Utrup
US Fish & Wildlife Service
4101 American Boulevard East
Bloomington, MN 55425

Subject: **Draft Recreation Report**
Trego Hydro (P-2711)

Dear Ms. Laatsch, Mr. Utrup and Ms. Tornes:

Article 408 of the Federal Energy Regulatory Commission's (FERC) license for the Trego Project requires Xcel Energy (licensee) to monitor recreational use to determine whether the existing recreation facilities are meeting current needs. The requirements of Article 408 are summarized at the beginning of the report.

Should you have any comments regarding the report, please feel free to provide them to me by **July 30, 2015**. If I do not hear from you by then, I will assume that you are satisfied with the report and will file it with FERC for approval.

Should you have any questions, you may contact me by telephone at (715) 737-1353 or by e-mail at matthew.j.miller@xcelenergy.com.

Sincerely,

Matthew Miller
Hydro Licensing Specialist

Enclosure: Draft Recreation Report

c: Trego Project File

United States Department of the Interior

NATIONAL PARK SERVICE
Midwest Regional Office/ Wisconsin Field Office
Hydropower Assistance Program
626 E. Wisconsin Avenue, Suite 400
Milwaukee, WI 53202

August 3, 2015

Mr. Matt Miller,
Xcel Energy
P.O. Box 8
Eau Claire, WI 54702

Subject: Review of Draft Recreation Report for Trego Hydro, FERC No. 2711

Dear Mr. Miller,

Thank you for sending the Draft Recreation Report for Trego Hydro; we have the following comments.

The report and analysis are well done but apparently the copy you mailed me did not include a Section 8, "Recommendations for the Future" as other Xcel hydro recreation reports have. Therefore, we draw our recommendations from user feedback listed in Table 8.

We recommend Xcel address the repair and maintenance of the Trego Town Park Landing and ensure place/directional signs are visible. Similarly, the Town of Trego Landing needs cleaning up and signage. The canoe portage needs improvements and signage as stated. Discussions should be held with NPS regarding cost-sharing for enhancements (porta potty; road enhancements) at the NPS river access site.

We appreciate the opportunity to provide comment. Feel free to contact me at 414.297.3605 or angie_tornes@nps.gov if you have questions.

Sincerely,

Angela M. Tornes

Angela M. Tornes

Cc:
Federal Energy Regulatory Commission
Cheryl Laatsch, Wisconsin Department of Natural Resources

TAKE PRIDE® IN AMERICA

Below is the text or summary of agency comments in bold italics with licensee's response following.

National Park Service

The report and analysis are well done but apparently the copy you mailed me did not include a Section 8, "Recommendations for the Future" as other Xcel hydro recreation reports have. Therefore, we draw our recommendations from user feedback listed in Table 8.

We recommend Xcel address the repair and maintenance of the Trego Town Park Landing and ensure place/directional signs are visible. Similarly, the Town of Trego Landing needs cleaning up and signage. The canoe portage needs improvements and signage as stated. Discussions should be held with NPS regarding cost-sharing for enhancements (porta potty; road enhancements) at the NPS river access site.

In Section 3.2 of the report, licensee's consultant concluded that the Trego Town Park and Landing is in overall good condition and adequate for the current use is receives. Furthermore, the Town of Trego Chair, Gary Campbell, stated that the landing is in good shape after receiving a new concrete slab and new rock fill in October 2014 (Section 4.4). Any maintenance of signage is the responsibility of the Town of Trego.

In section 3.1 of the report, licensee's consultant concluded that the Town of Trego Landing is in good condition and is adequate for the "light to moderate use it receives." Maintenance and signage are the responsibility of the Town of Trego and outside the scope of Article 408.

The report concludes that licensee's canoe portage is adequate for the light use it receives. However, a portion of the canoe portage will be upgraded as part of the right downstream embankment drainage modifications scheduled for this year. The toe of the right downstream embankment forms a portion of the canoe portage.

Maintenance of the NPS river access site is the responsibility of the NPS.

APPENDIX 6-1 Questionnaire Consultation

Office of Attorney General Comment

Darrin Johnson

From: Henry, Carolyn J. <henrycj@doj.state.wi.us>
Sent: Tuesday, August 4, 2020 10:49 AM
To: Darrin Johnson
Subject: Remove from mailing list
Attachments: 2020_07_29_07_51_13.pdf

Hi Darrin,
Please remove us from your mailing list.

Here is the address to remove:

Wisconsin Office of Attorney General
114 East State Capitol
Madison, WI 53702-0001

Thank you, Carly

Carly Henry
Legal Associate
Wisconsin Department of Justice
Division of Legal Services - Public Protection Unit
17 West Main Street
Madison, WI 53707
608-279-0239 (tel)
608-294-2907 (fax)
henrycj@doj.state.wi.us

Mille Lacs Band of Ojibwe Comment

MILLE LACS BAND OF OJIBWE
DEPARTMENT OF NATURAL RESOURCES

Mead & Hunt

2440 Deming Way

Middleton Wisconsin53562

FERC No, 2711, Namekagon River Town of Trego, Washburn County, WI

Licensee: Norther States Power company-Wisconsin (d/b/a Xcel Energy)

Dear Sir:

Thank you for the opportunity to review the referenced project. We look forward to reviewing in Section 106 pursuant to the responsibilities given the Tribal Historic Preservation Officer (THPO) by the National Historic Preservation Act of 1966, as amended in 1992 and the Procedures of the Advisory Council on Historic Preservation (36CFR800).

I have reviewed the documentation: after careful consideration of our records, I have determined that the Mille Lacs Band of Ojibwe THPO does want to consult on the above states project.

Should you have any questions please contact Terry Kemper or Bridgett Quist at the THPO Department Mille Lacs Band of Ojibwe 43408 Oodena Drive Onamia MN 56359 office 320-532-7439 cell 320-362-1393

Real Estate Director

Bridgett Quist

Bridgett Quist TK

Trego Lake District Comment

Darrin Johnson

From: Charles Petersen <cjpetersen@msn.com>
Sent: Thursday, August 6, 2020 7:30 PM
To: Darrin Johnson
Subject: Trego and Hayward Dam FERC Projects

Mr. Johnson,

Can you please email to me an electronic version of the "Licensing Preliminary Application Document Information Questionnaire?" Please send the document to cjpetersen@msn.com.

I'm on the Trego Lake District Board and would like to use the electronic version to respond for the District rather than the hand written option. The Trego Lake District is very interested in providing input on this relicensing process.

Please feel free to contact me if you have any questions or concerns.

Thank you for your interest in Trego Lake.

Charlie Petersen
Trego Lake District Chair
cjpetersen@msn.com
612-803-8765

Trego Lake District Comment

Hayward Hydroelectric Project

FERC No. 2417: Namekagon River, City of Hayward, Sawyer County, WI
Licensee: Northern States Power Company - Wisconsin (d/b/a Xcel Energy)

Installed Capacity: 168 kilowatt (kW), 1 unit

License Expires: November 30, 2025

Notice of Intent to Relicense Due: November 30, 2020

Project Operation Mode: Run-of-River

Minimum Flow Requirement: 8 cubic feet per second (cfs) or inflow at all times

Reservoir Elevation Requirements:

- Target: 1,187.4 feet NGVD
- Minimum: 1,187.0 feet NGVD
- Maximum: 1,187.5 feet NGVD

Approximate Reservoir Surface Acreage: 247 acres

Northern States Power Company-Wisconsin ("NSPW") d/b/a Xcel Energy, has retained Mead & Hunt, Inc. ("Mead & Hunt") to assist with the federal relicensing process for the Hayward Hydroelectric Project ("Project") located on the Namekagon River in northwestern Wisconsin. Under Federal Energy Regulatory Commission ("FERC") regulations, NSPW is preparing a Preliminary Application Document ("PAD") that provides the FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project to help identify issues and related information needs, develop study requests and study plans, and prepare documents analyzing impacts. The PAD Information Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in NSPW's possession.

1. Information about person completing this questionnaire:

Name: ***Charlie Petersen*** ***Text*** Title: ***Board Member***

Organization: ***Trego Lake District (TLD)***

Address: ***5504 12th Ave South***

Minneapolis, MN 55417

Phone: ***612-803-8765*** Email: ***cjpetersen@msn.com***

2. Do you or your organization plan to participate in the 3 to 5 year-long licensing proceeding for the Hayward Hydroelectric Project?

☒ Yes ☐ No

X

3. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Project?

☒ Yes ***(Please complete 3a thru 3f)*** ☐ No ***(Proceed to 4)***

a. If yes, check box(es) to indicate the specific resource area(s) that the information relates to:

- ☐ Geology and soils
- ☒ Water resources
- ☒ Fish and aquatic resources
- ☐ Wildlife and botanical resources
- ☐ Wetlands, riparian, and littoral habitat
- ☐ Rare, threatened, and endangered species
- ☒ Recreational and land use
- ☐ Aesthetic resources
- ☐ Cultural resources
- ☒ Socio-economic resources
- ☐ Tribal resources
- ☒ Other resource information

Questions 3b – 3f are continued on the following pages

b. Briefly describe the information or list available documents:
(Additional information, if any, may be provided on page 4)

- hybrid water milfoil in Trego Lake - DNR identified the source as "coming down from Hayward Lake

- 35 plus years of sedimentation build up from sand coming down Namekagon River

- reduction in DNR acreage of Trego Lake because of sedimentation; potential decrease in land values for certain property

c. Where or how can NSPW obtain this information?

Contact Trego Lake District for information on hybrid water milfoil and sedimentation history. Check historcal information on Trego Lake from DNR website.

d. Please indicate whether there is a specific representative you wish to designate for potential follow-up contact by NSPW or its representative for the resource area(s) checked in 3a: ***(Additional information, if any, may be provided on page 4)***

Representative Contact Information

Name: ***Charlie Petersen*** Title: ***Trego Lake District Board Member (2020)***

Address: ***5504 12th Ave South***

Minneapolis, MN 55417

Phone: ***612-803-8765*** Email: ***cjpetersen@msn.com***

Name: ***Tom Frost*** Title: ***Trego Lake District Board Member (2020)***

Address: ***N7558 Wood Dr***

Trego, WI 54888

Phone: ***715-733-1870*** Email: ***thomas.h.frost@gmail.com***

Questions 3e – 3f are continued on the following page

e. Are you aware of any particular issues pertaining to the specific resource area(s) identified in 3a? ***(Additional information, if any, may be provided on page 4)***

☒ Yes ***(Please list specific issues below)*** ☐ No

Resource Area	Specific Issue
Aquatic invasive species	***Hybrid water milfoil coming down from Lake Hayward***
Sedimentation	***Sedimentation coming down Namekagon River has created impassable boating channels in certain areas of Trego Lake***

f. Based on the issues identified in 3e, are you aware of any potential studies or information needs associated with the identified issues? ***(Additional information, if any, may be provided on page 4)***

☒ Yes ***(Please list below)*** ☐ No

Potential Studies or Information Needs

Same as in 3 B & C above

4. NSPW is considering using the Traditional Licensing Process for relicensing the Hayward Project. Do you have concerns with the use of the TLP? If so, please specify your concerns.

☐ Yes ***(Please describe concerns below)*** ☐ No

Traditional Licensing Process Concerns

The TLD is unfamiliar with the TLP therefore not able to comment.

5. NSPW is interested in any additional comments, questions, or information you may have regarding the licensing of the Project. If the additional comments, questions, or information you provide below pertain to a particular question, please indicate the applicable question (such as 3b, 3d, 3e, 3f).

Additional comments, questions, or information

Please feel free to contact the TLD Board members identified above for any addition question or information.

Please return this completed questionnaire to Mead & Hunt using the enclosed self-addressed, stamped envelope **within 30 days of receipt** to allow for follow-up by NSPW or its representative.

Not responding within 30 days will indicate you are not aware of any existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Projects.

Comments and/or questions may also be sent via email to: Darrin.Johnson@meadhunt.com

Trego Lake District Comment

Trego Hydroelectric Project

FERC No. 2711: Namekagon River, Town of Trego, Washburn County, WI
Licensee: Northern States Power Company - Wisconsin (d/b/a Xcel Energy)

Installed Capacity: 1,200 kilowatt (kW)

- Unit 1: 700 kW
- Unit 2: 500 kW

License Expires: November 30, 2025

Notice of Intent to Relicense Due: November 30, 2020

Project Operation Mode: Run-of-River

Reservoir Elevation Requirements:

- Target: 1,034.9 feet NGVD
- Minimum: 1,034.6 feet NGVD
- Maximum: 1,035.2 feet NGVD

Approximate Reservoir Surface Acreage: 470 acres

Northern States Power Company-Wisconsin ("NSPW") d/b/a Xcel Energy, has retained Mead & Hunt, Inc. ("Mead & Hunt") to assist with the federal relicensing process for the Trego Hydroelectric Project ("Project") located on the Namekagon River in northwestern Wisconsin. Under Federal Energy Regulatory Commission ("FERC") regulations, NSPW is preparing a Preliminary Application Document ("PAD") that provides the FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project to help identify issues and related information needs, develop study requests and study plans, and prepare documents analyzing impacts. The PAD Information Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in NSPW's possession.

1. Information about person completing this questionnaire:

Name: ***Charlie Petersen*** Title: ***TLD Board Member***

Organization: ***Trego Lake District***

Address: ***5504 12th Ave South***

Minneapolis, MN 55417

Phone: ***612-803-8765*** Email: ***cjpetersen@msn.com***

2. Do you or your organization plan to participate in the 3 to 5 year-long licensing proceeding for the Trego Hydroelectric Project?

☒ Yes ☐ No

3. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Project?

☒ Yes ***(Please complete 3a thru 3f)*** ☐ No ***(Proceed to 4)***

a. If yes, check box(es) to indicate the specific resource area(s) that the information relates to:

- ☒ Geology and soils
- ☒ Water resources
- ☒ Fish and aquatic resources
- ☒ Wildlife and botanical resources
- ☒ Wetlands, riparian, and littoral habitat
- ☒ Rare, threatened, and endangered species
- ☒ Recreational and land use
- ☒ Aesthetic resources
- ☒ Cultural resources
- ☒ Socio-economic resources
- ☒ Tribal resources
- ☒ Other resource information

Questions 3b – 3f are continued on the following pages

b. Briefly describe the information or list available documents:
(Additional information, if any, may be provided on page 4)

Archives of Trego Lake District

Archives of Wisconsin DNR

Documents from licensure of Trego Lake Dam

Personal observations from Trego Lake residents and other interested parties

c. Where or how can NSPW obtain this information?

Contact Trego Lake District (see contact information below)

d. Please indicate whether there is a specific representative you wish to designate for potential follow-up contact by NSPW or its representative for the resource area(s) checked in 3a: ***(Additional information, if any, may be provided on page 4)***

Representative Contact Information

Name: ***Charlie Petersen*** Title: ***TLD Board Member***

Address: ***5504 12th Ave South***

Minneapolis, MN 55417

Phone: ***612-803-8765*** Email: ***cjpetersen@msn.com***

Name: ***Tom Frost*** Title: ***TLD Board Member***

Address: ***N7558 Wood Dr.***

Trego, WI 54888

Phone: ***715-733-1870*** Email: ***thomas.h.frost@gmail.com***

Questions 3e – 3f are continued on the following page

e. Are you aware of any particular issues pertaining to the specific resource area(s) identified in 3a? ***(Additional information, if any, may be provided on page 4)***

☒ Yes ***(Please list specific issues below)*** ☐ No

Resource Area	Specific Issue
Aquatic vegitation	*- Weeds affecting navigation and recreational use*
Fishing	*- Reduction in sport fishing*
Aquatic invasive species	*- Hybrid water milfoil and curly leaf pondweed in Trego Lake*
Sedimentation	*- Sedimentation coming into Trego Lake from the Namekagon River and Potato Creek have created shallow area that facilitate aquatic plant growth and impassable boating channels in certain areas of Trego Lake*
	- Reduction in DNR acreage of Trego Lake because of sedimentation; potential decrease in land values for certain property
Recreation	*- Sedimentation and aquatic plants create the loss of recreation areas and/or access to recreation area*

f. Based on the issues identified in 3e, are you aware of any potential studies or information needs associated with the identified issues? ***(Additional information, if any, may be provided on page 4)***

☒ Yes ***(Please list below)*** ☐ No

Potential Studies or Information Needs

Contact TLD for current and historical documents

4. NSPW is considering using the use of the Traditional Licensing Process for relicensing the Trego Project. Do you have concerns with the use of the TLP? If so, please specify your concerns.

☐ Yes ***(Please describe concerns below)*** ☐ No

Traditional Licensing Process Concerns

The TLD is unfamiliar with the TLP therefore not able to comment.

5. NSPW is interested in any additional comments, questions, or information you may have regarding the licensing of the Project. If the additional comments, questions, or information you provide below pertain to a particular question, please indicate the applicable question (such as 3b, 3d, 3e, 3f).

Additional comments, questions, or information

TLD is vitally interest in the protection and rehabilitation of the Trego Lake resource. We were intimately involved in the last licensing process and expect to continue to be involved with dam licensing into the future.

Please feel free to contact the TLD Board members identified above for any addition question or information.

Please return this completed questionnaire to Mead & Hunt using the enclosed self-addressed, stamped envelope **within 30 days of receipt** to allow for follow-up by NSPW or its representative.

Not responding within 30 days will indicate you are not aware of any existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Project.

Comments and/or questions may also be sent via email to: Darrin.Johnson@meadhunt.com

Town of Trego Comment

Darrin Johnson

From: clerk@townoftregowi.com
Sent: Thursday, August 20, 2020 2:30 PM
To: Darrin Johnson
Subject: Trego Hydroelectric Project - FERC Project No. 2711

Please be advised of the Trego Town Board's intent to offer comment for the 'Licensing Preliminary Application Document Information Questionnaire' for the Trego Hydroelectric Project. The questionnaire was just recently received by me and presented to the town board at a meeting held on Tuesday, August 18. The envelope was address to William Allard, Chairman (William Allard is a Supervisor) and addressed to W5690 Trego River Street, Trego, WI 54888. This address is the physical location of the town hall, however there is no mail receptacle there. Luckily, with much delay, the envelope showed up in my mailbox (W6097 River Rd, Trego, WI) which is the mailing address for correspondence to the town, as I am the clerk. I am in the process of compiling information/comment as received and will be forwarding within a day or two. Please acknowledge receipt of this email.
Thank you. Barb Hinkfuss, Clerk
Town of Trego
W6097 River Rd
Trego WI 54888
clerk@townoftregowi.com

Town of Trego Comment

Darrin Johnson

From: Darrin Johnson
Sent: Friday, August 21, 2020 8:15 AM
To: clerk@townoftregowi.com
Subject: RE: Trego Hydroelectric Project - FERC Project No. 2711

Categories: Filed by Newforma

Barb,

Sorry for the mix-up on the mailing address. We look forward to your response.

Who should we list as the official Town contact for the relicensing? We will be sending out other documents to stakeholders throughout the relicensing process. I will update the stakeholder list with the official Town contact and correct the mailing address of W6097 River Rd, Trego WI 54888.

DARRIN JOHNSON
FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: clerk@townoftregowi.com <clerk@townoftregowi.com>
Sent: Thursday, August 20, 2020 2:30 PM
To: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Subject: Trego Hydroelectric Project - FERC Project No. 2711

Please be advised of the Trego Town Board's intent to offer comment for the 'Licensing Preliminary Application Document Information Questionnaire' for the Trego Hydroelectric Project. The questionnaire was just recently received by me and presented to the town board at a meeting held on Tuesday, August 18. The envelope was address to William Allard, Chairman (William Allard is a Supervisor) and addressed to W5690 Trego River Street, Trego, WI 54888. This address is the physical location of the town hall, however there is no mail receptacle there. Luckily, with much delay, the envelope showed up in my mailbox (W6097 River Rd, Trego, WI) which is the mailing address for correspondence to the town, as I am the clerk. I am in the process of compiling information/comment as received and will be forwarding within a day or two. Please acknowledge receipt of this email.
Thank you. Barb Hinkfuss, Clerk
Town of Trego
W6097 River Rd
Trego WI 54888
clerk@townoftregowi.com

Town of Trego Comment

Darrin Johnson

From: clerk@townoftregowi.com
Sent: Monday, September 7, 2020 8:02 AM
To: Darrin Johnson
Subject: RE: Trego Hydroelectric Project - FERC Project No. 2711

Darrin
Town Offcials:

Wes Huffer, Chairman
N8521 Hwy 53
Trego WI 54888
715-635-3138
wchuffer@gmail.com

William Allard, Supervisor
N7069 Oak Hill Rd
Trego WI 54888
715-635-3120
billallard54@yahoo.com

Brian Vosberg, Supervisor
N7523 Lakeside Rd
Trego WI 54888
715-635-3112
bjvosberg@yahoo.com

Barb Hinkfuss, Clerk
W6097 River Rd
Trego WI 54888
clerk@townoftregowi.com

-----Original Message-----
From: "Darrin Johnson" <Darrin.Johnson@meadhunt.com>
Sent: Friday, August 21, 2020 9:14am
To: "clerk@townoftregowi.com" <clerk@townoftregowi.com>
Subject: RE: Trego Hydroelectric Project - FERC Project No. 2711

Barb,

Sorry for the mix-up on the mailing address. We look forward to your response.

Who should we list as the official Town contact for the relicensing? We will be sending out other documents to stakeholders throughout the relicensing process. I will update the stakeholder list with the official Town contact and correct the mailing address of W6097 River Rd, Trego WI 54888.

DARRIN JOHNSON
FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

Town of Trego Comment

From: clerk@townoftregowi.com <clerk@townoftregowi.com>
Sent: Thursday, August 20, 2020 2:30 PM
To: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Subject: Trego Hydroelectric Project - FERC Project No. 2711

Please be advised of the Trego Town Board's intent to offer comment for the 'Licensing Preliminary Application Document Information Questionnaire' for the Trego Hydroelectric Project. The questionnaire was just recently received by me and presented to the town board at a meeting held on Tuesday, August 18. The envelope was address to William Allard, Chairman (William Allard is a Supervisor) and addressed to W5690 Trego River Street, Trego, WI 54888. This address is the physical location of the town hall, however there is no mail receptacle there. Luckily, with much delay, the envelope showed up in my mailbox (W6097 River Rd, Trego, WI) which is the mailing address for correspondence to the town, as I am the clerk. I am in the process of compiling information/comment as received and will be forwarding within a day or two. Please acknowledge receipt of this email.
Thank you. Barb Hinkfuss, Clerk
Town of Trego
W6097 River Rd
Trego WI 54888
clerk@townoftregowi.com

Xcel Energy®

Town of Trego Comment

Hayward Hydroelectric Project – FERC Project No. 2417
Namekagon River – Sawyer County, Wisconsin
Licensing Preliminary Application Document Information Questionnaire

Northern States Power Company-Wisconsin ("NSPW") d/b/a Xcel Energy, has retained Mead & Hunt, Inc. ("Mead & Hunt") to assist with the federal relicensing process for the Hayward Hydroelectric Project ("Project") located on the Namekagon River in northwestern Wisconsin. Under Federal Energy Regulatory Commission ("FERC") regulations, NSPW is preparing a Preliminary Application Document ("PAD") that provides the FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project to help identify issues and related information needs, develop study requests and study plans, and prepare documents analyzing impacts. The PAD Information Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in NSPW's possession.

1. Information about person completing this questionnaire:

Name: Wes Hupfer Title: CHAIRMAN

Organization: TOWN OF TREGO

Address: N8531 Hwy 53
TREGO WI 54888

Phone: 7156353138 Email: clerk@townoftregowi.com

2. Do you or your organization plan to participate in the 3 to 5 year-long licensing proceeding for the Hayward Hydroelectric Project?

☑ Yes ☐ No

3. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Project?

☑ Yes ***(Please complete 3a thru 3f)*** ☐ No ***(Proceed to 4)***

a. If yes, check box(es) to indicate the specific resource area(s) that the information relates to:

- ☐ Geology and soils
- ☑ Water resources
- ☑ Fish and aquatic resources
- ☐ Wildlife and botanical resources
- ☐ Wetlands, riparian, and littoral habitat
- ☐ Rare, threatened, and endangered species
- ☑ Recreational and land use
- ☐ Aesthetic resources
- ☐ Cultural resources
- ☐ Socio-economic resources
- ☐ Tribal resources
- ☐ Other resource information

Questions 3b – 3f are continued on the following pages

b. Briefly describe the information or list available documents:
(Additional information, if any, may be provided on page 4)

Aquatic Invasive Species

Sedimentation

c. Where or how can NSPW obtain this information?

WDNR – dnr.wi.gov

NPS – nps.gov

d. Please indicate whether there is a specific representative you wish to designate for potential follow-up contact by NSPW or its representative for the resource area(s) checked in 3a: ***(Additional information, if any, may be provided on page 4)***

Representative Contact Information Trego #1.

Name: _____ Title: _____

Address: _____

_____

Phone: _____ Email: _____

Name: _____ Title: _____

Address: _____

_____

Phone: _____ Email: _____

Questions 3e – 3f are continued on the following page

e. Are you aware of any particular issues pertaining to the specific resource area(s) identified in 3a? ***(Additional information, if any, may be provided on page 4)***

☑ Yes ***(Please list specific issues below)*** ☐ No

Resource Area	Specific Issue
A.I.S.	Hybrid Eurasian / Northern Water-Milfoil

f. Based on the issues identified in 3e, are you aware of any potential studies or information needs associated with the identified issues? ***(Additional information, if any, may be provided on page 4)***

☐ Yes ***(Please list below)*** ☐ No

Potential Studies or Information Needs

4. NSPW is considering using the Traditional Licensing Process for relicensing the Hayward Project. Do you have concerns with the use of the TLP? If so, please specify your concerns.

☐ Yes *(Please describe concerns below)* ☐ No

Traditional Licensing Process Concerns

Would Need to KNOW more About TLP IN Order to Respond.

5. NSPW is interested in any additional comments, questions, or information you may have regarding the licensing of the Project. If the additional comments, questions, or information you provide below pertain to a particular question, please indicate the applicable question (such as 3b, 3d, 3e, 3f).

Additional comments, questions, or information

Please return this completed questionnaire to Mead & Hunt using the enclosed self-addressed, stamped envelope **within 30 days of receipt** to allow for follow-up by NSPW or its representative.

Not responding within 30 days will indicate you are not aware of any existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Projects.

Comments and/or questions may also be sent via email to: Darrin.Johnson@meadhunt.com

Northern States Power Company-Wisconsin ("NSPW") d/b/a Xcel Energy, has retained Mead & Hunt, Inc. ("Mead & Hunt") to assist with the federal relicensing process for the Trego Hydroelectric Project ("Project") located on the Namekagon River in northwestern Wisconsin. Under Federal Energy Regulatory Commission ("FERC") regulations, NSPW is preparing a Preliminary Application Document ("PAD") that provides the FERC and other entities with existing, relevant, and reasonably available information pertaining to the Project to help identify issues and related information needs, develop study requests and study plans, and prepare documents analyzing impacts. The PAD Information Questionnaire will be used to help identify sources of existing, relevant, and reasonably available information that is not in NSPW's possession.

1. Information about person completing this questionnaire:

Name: Wes Huffer Title: Chairman

Organization: Town of Trego

Address: N8521 Hwy 53
Trego WI 54888

Phone: 715-635-3138 Email: clerk@townoftregowi.com

2. Do you or your organization plan to participate in the 3 to 5 year-long licensing proceeding for the Trego Hydroelectric Project?

☑ Yes ☐ No

3. Do you or your organization know of existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Project?

☑ Yes ***(Please complete 3a thru 3f)*** ☐ No ***(Proceed to 4)***

a. If yes, check box(es) to indicate the specific resource area(s) that the information relates to:

- ☑ Geology and soils
- ☑ Water resources
- ☑ Fish and aquatic resources
- ☐ Wildlife and botanical resources
- ☐ Wetlands, riparian, and littoral habitat
- ☐ Rare, threatened, and endangered species
- ☑ Recreational and land use
- ☑ Aesthetic resources
- ☐ Cultural resources
- ☐ Socio-economic resources
- ☑ Tribal resources
- ☐ Other resource information

Questions 3b – 3f are continued on the following pages

b. Briefly describe the information or list available documents:
(Additional information, if any, may be provided on page 4)

WI Dept of Natural Resources

National Park Service

Trego Lake District

Washburn Co Land & Water Conservation

Town of Trego

c. Where or how can NSPW obtain this information?

WDNR: dnr.wi.gov

NPS: nps.gov

TLD: tregolakedistrict.com

Washburn Co: landwtr@co.washburn.wi.us

Town of Trego: clerk@townoftregowi.com

d. Please indicate whether there is a specific representative you wish to designate for potential follow-up contact by NSPW or its representative for the resource area(s) checked in 3a: ***(Additional information, if any, may be provided on page 4)***

Representative Contact Information Name AA #1.

Name: _____ Title: _____

Address: _____

_____

Phone: _____ Email: _____

Name: _____ Title: _____

Address: _____

_____

Phone: _____ Email: _____

Questions 3e – 3f are continued on the following page

e. Are you aware of any particular issues pertaining to the specific resource area(s) identified in 3a? ***(Additional information, if any, may be provided on page 4)***

☒ Yes ***(Please list specific issues below)*** ☐ No

Resource Area	**Specific Issue**
Aquatic Invasive Species:	Curly-Leaf Pondweed
	-Eurasian Water-Milfoil
Sedimentation:	monetary contribution to TLD for Dredging
Aquatic Vegetation:	Boat landing is un-usable
Flooding:	town road closure – campground
	-closure – loss of revenue to municipality
	damage to roads/washouts
	-damage to residences/personal property

f. Based on the issues identified in 3e, are you aware of any potential studies or information needs associated with the identified issues? ***(Additional information, if any, may be provided on page 4)***

☒ Yes ***(Please list below)*** ☐ No

Potential Studies or Information Needs

4. NSPW is considering using the use of the Traditional Licensing Process for relicensing the Trego Project. Do you have concerns with the use of the TLP? If so, please specify your concerns.

☐ Yes *(Please describe concerns below)* ☐ No

Traditional Licensing Process Concerns

Would Need to Know more About TLP IN order to respond.

5. NSPW is interested in any additional comments, questions, or information you may have regarding the licensing of the Project. If the additional comments, questions, or information you provide below pertain to a particular question, please indicate the applicable question (such as 3b, 3d, 3e, 3f).

Additional comments, questions, or information

Please return this completed questionnaire to Mead & Hunt using the enclosed self-addressed, stamped envelope **within 30 days of receipt** to allow for follow-up by NSPW or its representative.

Not responding within 30 days will indicate you are not aware of any existing, relevant, and reasonably available information that describes the existing environment or known potential impacts of the Project.

Comments and/or questions may also be sent via email to: Darrin.Johnson@meadhunt.com

WDNR Comments

Darrin Johnson

From: Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Sent: Monday, July 20, 2020 2:05 PM
To: Darrin Johnson
Cc: Laatsch, Cheryl - DNR
Subject: RE: Hayward and Trego Hydro Project SWIMS information
Attachments: Hayward P-2417 SWIMS Pull 2020.xlsx; Trego P-2711SWIMS Pull 2020.xlsx

Hi Darrin,

I've attached a SWIMS data pull from the past 10 years. Please let me know if you need additional information provided with these datasets.

Cheryl and I will be working with program staff to compile additional data for the PAD.

Thank you,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Macaulay Haller
Water Resources Management Specialist- Senior
Water Regulations and Zoning Specialist- Senior
Wisconsin Department of Natural Resources
Macaulay.Haller@wisconsin.gov

dnr.wi.gov

From: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Sent: Friday, July 17, 2020 2:15 PM
To: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>; Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Subject: RE: Hayward and Trego Hydro Project SWIMS information

Thanks Cheryl.

DARRIN JOHNSON
FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>
Sent: Friday, July 17, 2020 2:13 PM

WDNR Comments

To: Darrin Johnson <Darrin.Johnson@meadhunt.com>; Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Subject: RE: Hayward and Trego Hydro Project SWIMS information

I also found out the fish data base may not be accurate. Ill work with Macaulay to get the process started. WE will also check on mussel data and such.

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Cheryl Laatsch
Statewide FERC Coordinator
Bureau of Environmental Analysis and Sustainability
Wisconsin Dept of Natural Resources
N7725 Hwy 28
Horicon WI 53032
(T) 920-387-7869 (Fax) 920-387-7888
Cheryl.laatsch@wisconsin.gov

dnr.wi.gov

From: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Sent: Friday, July 17, 2020 2:02 PM
To: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>
Subject: RE: Hayward and Trego Hydro Project SWIMS information

Cheryl,

Yes we are beginning the PAD for the two projects now. The questionnaire has been finalized and will be mailed out early next week. I will send you an electronic version when it goes out. I typically pull fish data from the WDNR Fish Mapper Application, but that is currently being upgraded and is not accessible. I was able to find quite a bit of water quality monitoring information accessible via SWDV and the DNR Lakes Pages.

DARRIN JOHNSON
FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>
Sent: Friday, July 17, 2020 1:47 PM
To: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Subject: RE: Hayward and Trego Hydro Project SWIMS information

Hi Darrin – are we starting the existing data collection for these projects?

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Cheryl Laatsch

WDNR Comments

Statewide FERC Coordinator
Bureau of Environmental Analysis and Sustainability
Wisconsin Dept of Natural Resources
N7725 Hwy 28
Horicon WI 53032
(T) 920-387-7869 (Fax) 920-387-7888
Cheryl.laatsch@wisconsin.gov

dnr.wi.gov

From: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Sent: Friday, July 17, 2020 1:34 PM
To: Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Cc: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>; Shawn Puzen <Shawn.Puzen@meadhunt.com>
Subject: Hayward and Trego Hydro Project SWIMS information

Good Afternoon,

Mead & Hunt, Inc. is assisting Xcel Energy with relicensing of the Hayward (FERC No.2417) and Trego (FERC No. 2711) Hydroelectric Projects. I am inquiring to see if we could obtain SWIMS information (similar to what we received for the White River Project) that is available for the two projects to assist us in developing the Preliminary Application Document. Just let me know if you have any questions. Thank you.

DARRIN JOHNSON
FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

120 YEARS OF SHAPING THE FUTURE

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WDNR Comments

Darrin Johnson

From: Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Sent: Wednesday, July 29, 2020 2:40 PM
To: Darrin Johnson
Cc: Shawn Puzen; Laatsch, Cheryl - DNR
Subject: WDNR Hayward Data Submission - Fisheries (Part 1 of 2)
Attachments: WDNR Fisheries Data for Xcel_Hayward P-2417_ Part 1 of 2.zip

Hi Darrin,

Please find attached part 1 of 2 Hayward Hydro Project data and reports from WDNR's fisheries biologist. Attachments include reports, fisheries survey data (recent and historical), fish stocking/spawning data, and fish habitat information.

I will continue to send data and information as it comes in from our program staff.

Thank you,

Macaulay Haller
Wisconsin Department of Natural Resources
Macaulay.Haller@wisconsin.gov

From: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Sent: Wednesday, July 22, 2020 1:56 PM
To: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>; Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Cc: Shawn Puzen <Shawn.Puzen@meadhunt.com>
Subject: Hayward and Trego Questionnaire

Cheryl,

Per our discussion last week, I am sending electronic copies of the Hayward and Trego Hydroelectric Project Questionnaires and Factsheets. They were sent out in the mail today. Feel free to contact me if you have any questions.

DARRIN JOHNSON
FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

120 YEARS OF SHAPING THE FUTURE

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters
Sawyer	Hayward MWBC: 2725500
Sampling Objective	**Number and Locations of Stations (Habitat)**
Walleye Recruitment Survey	Source
	Miles Actually Shocked = 5.7 LM
Period Fished (Dates)	Acres = 247 LM
10/03/01	Total Miles of Shoreline = 8.6 LM
	Total Miles of Shockable Shoreline = 8.6 LM

GEAR

Boomshocker (Hours)	Time
2.8	√ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	**Time of Day**	**Trap Net (No. of Net Lifts)**	**Mesh Size**	**Depth**
Minnow Seine (No. of Hauls)	**Area Covered**	**Gill Net (No. of Feet x No. of Lifts)**	**Mesh Size**	**Depth**

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-NR
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit
Walleye (Age 0+)	54	5.5-5.9	5.0 - 7.9	19.29 / hour 9.47 / mile
Sems Index NA YOY / acre				
Walleye (Age 1+)	12	9.0-9.4	8.5 - 10.4	4.29 / hour 2.11 / mile
Walleye (Other)	17	None	11.5 - 27.0	6.07 / hour 2.98 / mile
Smallmouth Bass	0		-	0.00 / hour 0.00 / mile
Largemouth Bass	24	None	2.0 - 19.4	8.57 / hour 4.21 / mile
Muskellunge	6	None	6.0 - 38.4	2.14 / hour 1.05 / mile
Northern Pike	37	None	6.0 - 28.9	13.21 / hour 6.49 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
YOY Bluegill	Present		Black Crappie	Present	
Bluegill	Common		White Sucker	Common	
YOY Yellow Perch	Present		Redhorse spp.	Common	
Yellow Perch	Common		Common Shiner	Present	
Pumpkinseed	Present		Black Bullhead	Present	
YOY Black Crappie	Present		Chestnut Lamprey	Present	

1) Tank Mortality: None 2) Weather: Clear, Cold 3) Reliabilty: High

4) Stocking: 2,470 Walleye, 6.0 inches, 09/26/01, DNR

5) Comments:

Rev. 10-70

Signed (Compiler)	Date
Scott D. Plaster	12/10/01

WDNR Comments

of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191 8-95

ayward MWB Code: 2725500 Date: 10/03/01 County: Sawyer Collector(s): Pratt, Warwick, Drabek

t Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 57°F Station: Portion of Shoreline

verse Conditions: None Gear Type: Boomshocker Distance Shocked: 5.7 miles

Volts: 150 Amps: 5.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:20 Shocking End Time: 23:10 Generator Start Hour: 424.6 Generator End Hour: 427.4

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9	1	
3.0-3.4			17.0-17.4	2	
3.5-3.9			17.5-17.9	1	
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4	19		19.0-19.4		
5.5-5.9	22		19.5-19.9		
6.0-6.4	11		20.0-20.4		
6.5-6.9			20.5-20.9		
7.0-7.4	1		21.0-21.4		
7.5-7.9	1		21.5-21.9		
8.0-8.4			22.0-22.4		
8.5-8.9	1		22.5-22.9		
9.0-9.4	6		23.0-23.4		
9.5-9.9	3		23.5-23.9		
10.0-10.4	2		24.0-24.4		
10.5-10.9			24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9	2		25.5-25.9		
12.0-12.4	1		26.0-26.4		
12.5-12.9			26.5-26.9		
13.0-13.4			27.0-27.4	1	
13.5-13.9	5		27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9	1		28.5-28.9		
15.0-15.4	2		29.0-29.4		
15.5-15.9			29.5-29.9		
16.0-16.4	1		30.0 +		
Totals:	83				

WALLEYE

WDNR Comments

f Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186 8-95

yward MWB Code: 2725500 Date: 10/03/01 County: Sawyer Collector(s): Pratt, Warwick, Drabek

Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 57°F Station: Portion of Shoreline

erse Conditions: None Gear Type: Boomshocker Distance Shocked: 5.7 miles

olts: 150 Amps: 5.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:20 Shocking End Time: 23:10 Generator Start Hour: 424.6 Generator End Hour: 427.4

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4					1				25.5-25.9	2			
2.5-2.9									26.0-26.4				
3.0-3.4					1				26.5-26.9	2			
3.5-3.9									27.0-27.4				
4.0-4.4									27.5-27.9	1			
4.5-4.9					1				28.0-28.4				
5.0-5.4									28.5-28.9	1		1	
5.5-5.9									29.0-29.4				
6.0-6.4	2		1						29.5-29.9				
6.5-6.9					1				30.0-30.4				
7.0-7.4									30.5-30.9				
7.5-7.9	1								31.0-31.4				
8.0-8.4	7								31.5-31.9				
8.5-8.9	2				1				32.0-32.4				
9.0-9.4	3								32.5-32.9				
9.5-9.9									33.0-33.4				
10.0-10.4	1				2				33.5-33.9				
10.5-10.9	1				2				34.0-34.4				
11.0-11.4	1				1				34.5-34.9				
11.5-11.9	1				2				35.0-35.4				
12.0-12.4					1				35.5-35.9				
12.5-12.9	1				1				36.0-36.4				
13.0-13.4	2				1				36.5-36.9				
13.5-13.9	1				1				37.0-37.4				
14.0-14.4	1								37.5-37.9				
14.5-14.9	1				1				38.0-38.4			1	
15.0-15.4	1				1				38.5-38.9				
15.5-15.9									39.0-39.4				
16.0-16.4					1				39.5-39.9				
16.5-16.9	1		1		2				40.0-40.4				
17.0-17.4			1						40.5-40.9				
17.5-17.9			1						41.0-41.4				
18.0-18.4					1				41.5-41.9				
18.5-18.9					1				42.0-42.4				
19.0-19.4					1				42.5-42.9				
19.5-19.9	1								43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9									44.0-44.4				
21.0-21.4	1								44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4	1								45.5-45.9				
22.5-22.9	1								46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
Totals:	37	0	6	0	24	0	0	0	50.0+				

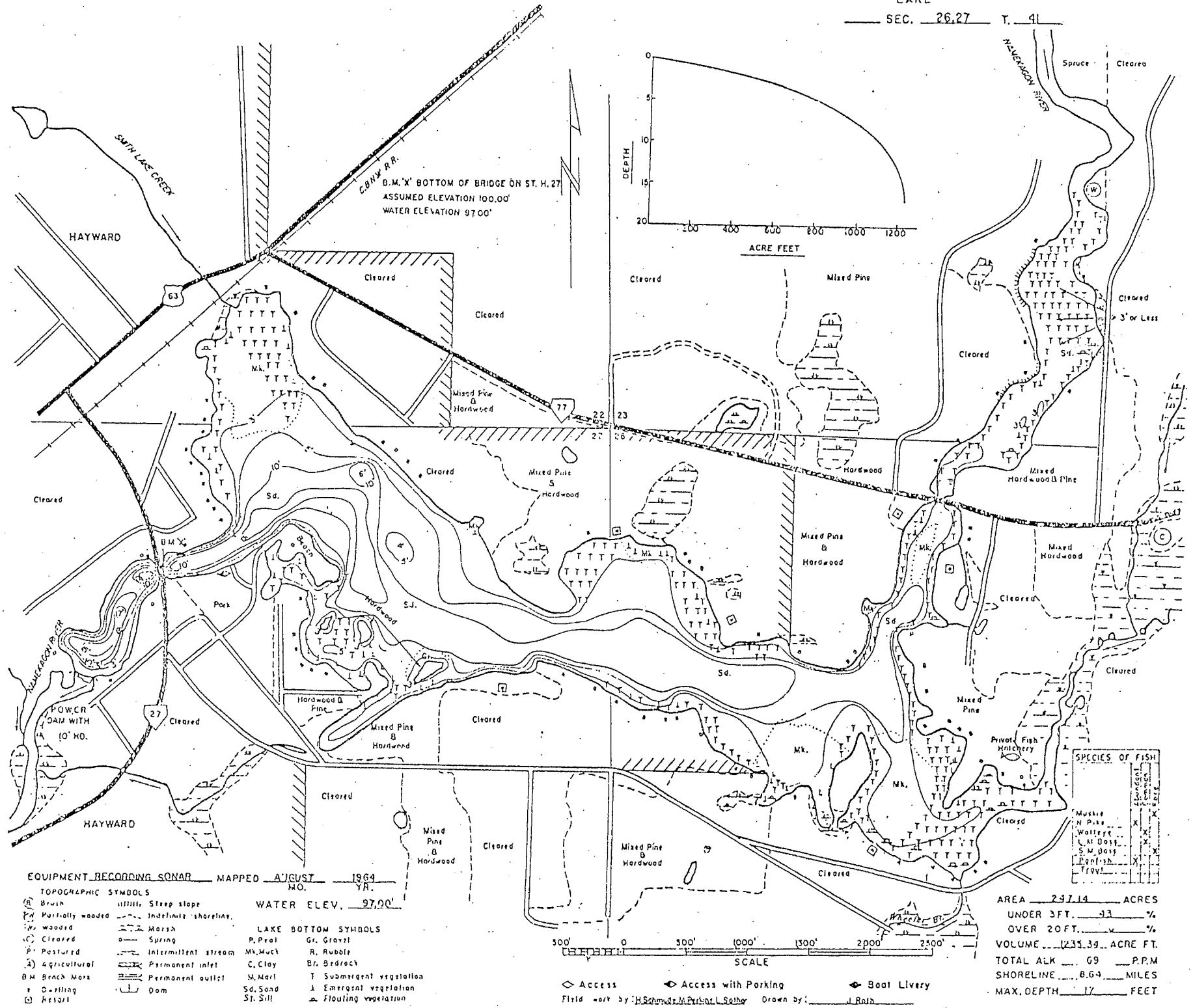
GAMEFISH

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

LAKE

SEC. 26,27 T. 41



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964
MO. YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

Brush; Partially wooded; Wooded; Cleared; Pastured; Agricultural; BM Beach Mark; Dwelling; Resort; Steep slope; Indefinite shoreline; Marsh; Spring; Intermittent stream; Permanent inlet; Permanent outlet; Dam

LAKE BOTTOM SYMBOLS

P. Peat, Mk. Muck, C. Clay, M. Marl, Sd. Sand, St. Silt, Gr. Gravel, R. Rubble, Br. Bedrock, T Submergent vegetation, ⊥ Emergent vegetation, Floating vegetation

Field work by: H. Schneider, M. Perlich, L. Sather Drawn by: J. Rath

AREA 297.14 ACRES
UNDER 3FT. 33 %
OVER 20FT. — %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

S0611
125500

SUMMARY FISHING RECORD
Form 3600-63

1-18-05

Department of Natural Resources

County	Waters	
Sawyer	Hayward	MWBC: 2725500
Sampling Objective	**Number and Locations of Stations (Habitat)**	
Walleye Recruitment Survey		Source
Period Fished (Dates)	Miles Actually Shocked = 6.2	LM
10/14/02 non-stocked year	Acres = 247	LM
	Total Miles of Shoreline = 8.6	LM
	Total Miles of Shockable Shoreline = 8.6	LM

GEAR

Boomshocker (Hours)	Time	
2.4	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code: C-NR
Dip Netter(s): 2	Dip Netter(s):	

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	8	None	6.0 - 8.4	3.33 / hour	1.29 / mile
Sems Index NA YOY / acre					non-stocked
Walleye (Age 1+)	9	10.0-10.4	9.0 - 10.9	3.75 / hour	1.45 / mile
Walleye (Other)	9	None	11.5 - 22.4	3.75 / hour	1.45 / mile
Smallmouth Bass			-	/ hour	/ mile
Largemouth Bass	16	15.5-15.9	2.0 - 19.4	6.67 / hour	2.58 / mile
Muskellunge	7	None	8.5 - 48.9	2.92 / hour	1.13 / mile
Northern Pike	59	6.0-6.4	5.0 - 29.9	24.58 / hour	9.52 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
Bluegill	45	3.3-8.3	White Sucker	Common	
Black Crappie	19	5.3-10.9	Redhorse spp.	Present	
Yellow Perch	15	4.8-10.7	Black Bullhead	Present	
Rock Bass	Present		Johnny Darter	Present	
Pumpkinseed	10	3.8-6.4	Central Mudminnow	Present	

) Tank Mortality: None 2) Weather: Cold, Windy 3) Reliabilty: Medium

) Stocking: 247 Muskellunge, 11.4 inches, 09/17/02, DNR

Comments:

ev. 10-70

Signed (Compiler)	Scott D. Plaster	Date	12/06/02

WDNR Comments

.nent of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191

8-95

.ake: Hayward MWB Code: 2725500 Date: 10/14/02 County: Sawyer Collector(s): Pratt, Warwick, Drabek

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 46°F Station: Portion of Shoreline

Adverse Conditions: Cold, Wind/waves, Dark stained water Gear Type: Boomshocker Distance Shocked: 6.2 miles

Volts: 200 Amps: 3.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:00 Shocking End Time: 22:30 Generator Start Hour: 476.6 Generator End Hour: 479.0

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/16 inch bar H20 Clarity: 4 feet

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4		
3.5-3.9			17.5-17.9		
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9	1	
5.0-5.4			19.0-19.4	1	
5.5-5.9			19.5-19.9		
6.0-6.4	1		20.0-20.4		
6.5-6.9	1		20.5-20.9		
7.0-7.4	2		21.0-21.4		
7.5-7.9	2		21.5-21.9		
8.0-8.4	2		22.0-22.4	1	
8.5-8.9			22.5-22.9		
9.0-9.4	2		23.0-23.4		
9.5-9.9	2		23.5-23.9		
10.0-10.4	4		24.0-24.4		
10.5-10.9	1		24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9	1		25.5-25.9		
12.0-12.4	2		26.0-26.4		
12.5-12.9	1		26.5-26.9		
13.0-13.4	1		27.0-27.4		
13.5-13.9			27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9			28.5-28.9		
15.0-15.4			29.0-29.4		
15.5-15.9			29.5-29.9		
16.0-16.4	1		30.0 +		
Totals:	26				

WALLEYE

WDNR Comments | Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186

8-95

ce: Hayward MWB Code: 2725500 Date: 10/14/02 County: Sawyer Collector(s): Pratt, Warwick, Drabek

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 46°F Station: Portion of Shoreline

Adverse Conditions: Cold, Wind/waves, Dark stained water Gear Type: Boomshocker Distance Shocked: 6.2 miles

Volts: 200 Amps: 3.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:00 Shocking End Time: 22:30 Generator Start Hour: 476.6 Generator End Hour: 479.0

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/16 inch bar H20 Clarity: 4 feet

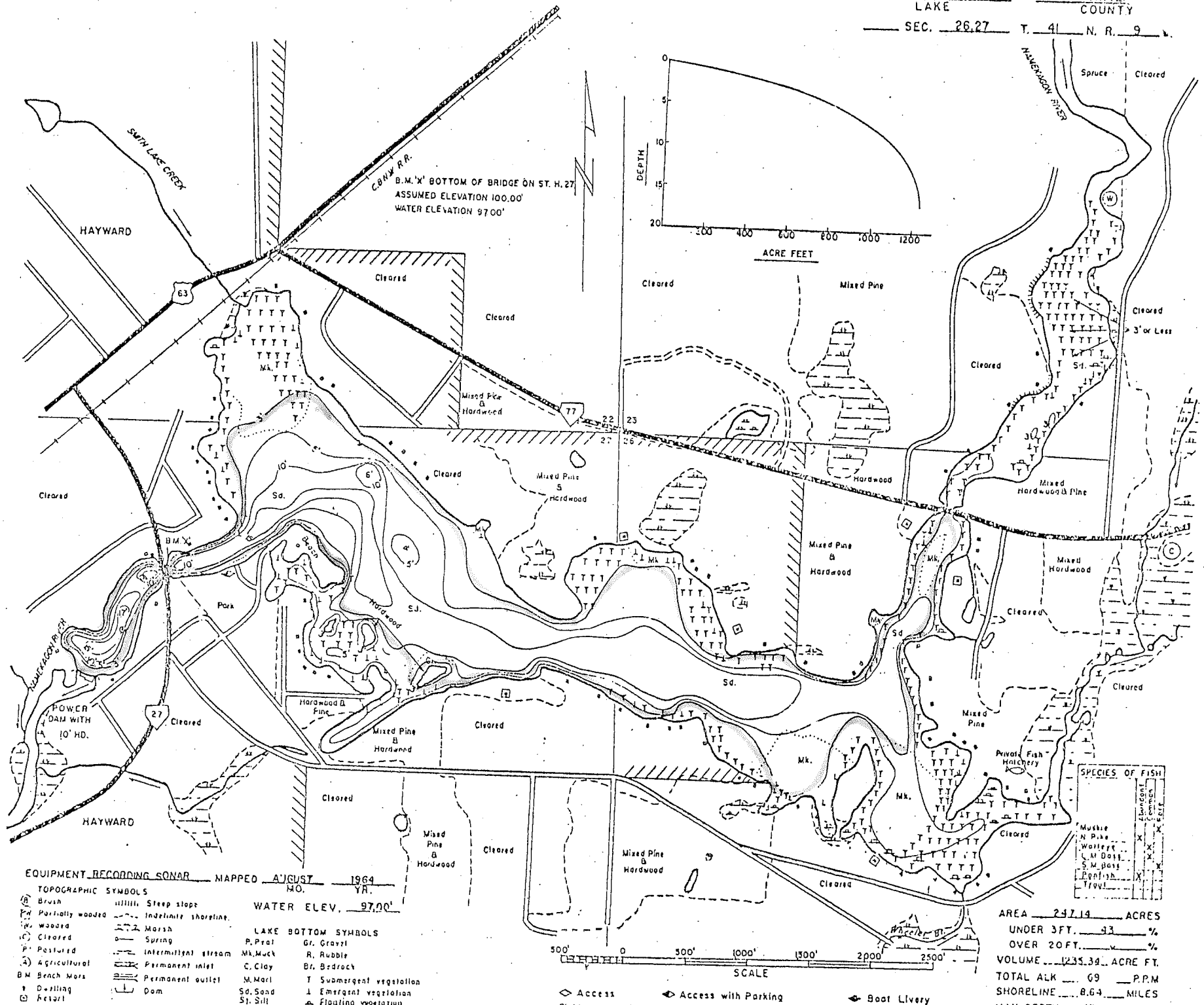
	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4					1				25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4					1				26.5-26.9	1			
3.5-3.9									27.0-27.4	1			
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4	1								28.5-28.9				
5.5-5.9	1								29.0-29.4				
6.0-6.4	6								29.5-29.9	1			
6.5-6.9	4								30.0-30.4				
7.0-7.4	2								30.5-30.9				
7.5-7.9	2								31.0-31.4				
8.0-8.4	1								31.5-31.9				
8.5-8.9			1						32.0-32.4				
9.0-9.4	4								32.5-32.9				
9.5-9.9	2				1				33.0-33.4				
10.0-10.4	2				1				33.5-33.9				
10.5-10.9	5								34.0-34.4				
11.0-11.4	3		2		1				34.5-34.9				
11.5-11.9	2		1						35.0-35.4				
12.0-12.4	3		1						35.5-35.9				
12.5-12.9									36.0-36.4				
13.0-13.4	1								36.5-36.9				
13.5-13.9	1								37.0-37.4				
14.0-14.4									37.5-37.9				
14.5-14.9					2				38.0-38.4				
15.0-15.4	2				2				38.5-38.9				
15.5-15.9	1				3				39.0-39.4				
16.0-16.4					1				39.5-39.9				
16.5-16.9									40.0-40.4				
17.0-17.4	3				1				40.5-40.9				
17.5-17.9			1		1				41.0-41.4				
18.0-18.4	1								41.5-41.9				
18.5-18.9	1								42.0-42.4				
19.0-19.4					1				42.5-42.9				
19.5-19.9	2								43.0-43.4				
20.0-20.4	1								43.5-43.9				
20.5-20.9	1								44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9	1								45.0-45.4				
22.0-22.4	1								45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4	2								47.0-47.9				
23.5-23.9									48.0-48.9			1	
24.0-24.4									49.0-49.9				
Totals:	59	0	7	0	16	0	0	0	50.0+				

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



EQUIPMENT RECORDING SONAR — MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (Pw) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- BM Beach Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmidt, M. Perlyn, L. Gothy — Drawn by: J. Roth

AREA 297.19 ACRES
UNDER 3 FT. 93 %
OVER 20 FT. — %
VOLUME 1235.39 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

Sheet

Site 125500
survey 51426
WBIC 484970

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET

GAMEFISH

Wisconsin Department of Natural Resources

Waterbody Name: Hayward
MWB Code/WBIC: 2725500
Waterbody Type: Imp
County: Sawyer
Date (MM/DD/YY): Oct. 04, 2002
Station:
Start Time:
End Time:
Collectors: Pratt

Target Fish: Juvenile Walleye
Mark(s) Given:
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather:
Adverse Conditions:
Water Temperature: 57
Water Conductivity:
Water Level: [HI] [NORM] [LOW]
Water Clarity: 7.5

Generator Start Time: 424.6
Generator End Time: 427.4
Volts: 150
Amps: 5
Pulse Rate:
Duty Cycle:
Current Type: AC
Distance Shocked: 6.5
Entire Shoreline Shocked: Y
Number of Dippers: 2
Dipnet Mesh Size: 3/8" bar

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clippped
<1.5							None	
1.5-1.9								
2.0-2.4					1			
2.5-2.9								
3.0-3.4					1			
3.5-3.9								
4.0-4.4								
4.5-4.9					1			
5.0-5.4					1			
5.5-5.9			1 Hyb					
6.0-6.4	2							
6.5-6.9					1			
7.0-7.4								
7.5-7.9	1							
8.0-8.4	7							
8.5-8.9	2							
9.0-9.4	3							
9.5-9.9								
10.0-10.4	1				2			
10.5-10.9	1				2			
11.0-11.4	1				1			
11.5-11.9	1				2			
12.0-12.4					1			
12.5-12.9	1				1			
13.0-13.4	2				1			
13.5-13.9	1				1			
14.0-14.4	1							
14.5-14.9	1				1			
15.0-15.4	1				1			
15.5-15.9								
16.0-16.4								
16.5-16.9	1		1					
17.0-17.4			1					
17.5-17.9			1					
18.0-18.4								
18.5-18.9								
19.0-19.4								
19.5-19.9	1							
20.0-20.4								
20.5-20.9								
21.0-21.4	1							
21.5-21.9								
22.0-22.4	1							
22.5-22.9	1							
23.0-23.4								
23.5-23.9								
24.0-24.4								
TOTALS	37				15			

	Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped
24.5-24.9				
25.0-25.4				
25.5-25.9	2			
26.0-26.4				
26.5-26.9	2			
27.0-27.4				
27.5-27.9	1			
28.0-28.4				
28.5-28.9	1		1	
29.0-29.4				
29.5-29.9				
30.0-30.4				
30.5-30.9				
31.0-31.4				
31.5-31.9				
32.0-32.4				
32.5-32.9				
33.0-33.4				
33.5-33.9				
34.0-34.4				
34.5-34.9				
35.0-35.4				
35.5-35.9				
36.0-36.4				
36.5-36.9				
37.0-37.4				
37.5-37.9				
38.0-38.4			1	
38.5-38.9				
39.0-39.4				
39.5-39.9				
40.0-40.4				
40.5-40.9				
41.0-41.4				
41.5-41.9				
42.0-42.4				
42.5-42.9				
43.0-43.4				
43.5-43.9				
44.0-44.4				
44.5-44.9				
45.0-45.4				
45.5-45.9				
46.0-46.9				
47.0-47.9				
48.0-48.9				
49.0-49.9				
50.0+	37 NP		6 Mu	

GAMEFISH

WDNR Comments

Department of Natural Resources

NETTING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-188 4-92

2725500

Lake Hayward MWB Code: A Date: 03 / 31 / 2000 County: Sawyer Collector: Brett/Wardy

Target Fish: WE Survey Type: WE PE Mark Given: ALP Play H_2O Temp: 42 Time 10 : 30 AM

Adverse Conditions: Stormy, current / lack access Station: Above STH '77'

Net Type: Fyke Length/Frame: 4' Bar Mesh: 1/2"

Color: 3BL / 1 WH. Mesh Type: W-Knotted Net Nights: 1
Bl-Woven

Two nets moved upstream, north of Ulmers in fast water.

Inches	Walleye Male	F	Unkwn						
4.4 - 4.4									
4.5 - 4.9									
5.0 - 5.4									
5.5 - 5.9									
6.0 - 6.4									
6.5 - 6.9									
7.0 - 7.9									
7.5 - 7.9									
8.0 - 8.4									
8.5 - 8.9									
9.0 - 9.4							Play Pen(K)		
9.5 - 9.9							0144	16.4	Unkwn
10.0-10.4			1				0148	14.3	Male
10.5-10.9							0147	15.6	Unknwn
11.0-11.4									
11.5-11.9									
12.0-12.4									
12.5-12.9									
13.0-13.4									
13.5-13.9									
14.0-14.4	1						RB	5.8	
14.5-14.9							NP	17.5	
15.0-15.4									
15.5-15.9			1						
16.0-16.4			1				2 Dityscis	water	beetle
16.5-16.9							1 Mud Puppy		
17.0-17.4							1 Green Frog		tadpole
17.5-17.9									
18.0-18.4									
18.5-18.9									
19.0-19.4									
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4		0	3						
29.5-29.9	1								

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

WDNR Comments

survey 5712
site 12243

SUMMARY FISHING RECORD

FORM 3600-63 REVISED 1-94

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS	MWB CODE
Sawyer	Lake Hayward	2725500
SAMPLING OBJECTIVE	**DATES FISHED**	**WATER TEMP.**
Spring Adult Panfish	June 09-15, 2003	63-70

GEAR

Pratt, Warwick,D

BOOMSHOCKER	PANFISH		NO. DIPPERS		NIGHT		AC	
HOURS	GAMEFISH		NO. MILES		VOLTS		AMPS	
FYKE NET	PANFISH	~~8~~ 15			Days- 6			
LIFTS	GAMEFISH	18	LEAD LEN:	50	FRAME:	4	MESH	1/2"
GILL NET	(NO. LIFTS)	~~18~~	NO. NETS: LENGTH:		DEPTH:		MESH:	
SEINE	(NO. PULLS)		LENGTH:		DEPTH:		MESH:	
ANGLING	(TOT. HRS.)		NO. ANGLERS:		TIME OF DAY:			

OTHER These comments go to the summary sheet under OTHER.

FISHING RESULTS

GAMEFISH	NUMBER	MODAL SIZES (IN.)	SIZE RANGE (IN.)	CATCH/EFFORT
Walleye	2		-	**0.1** per net
Musky			-	per net
Northern Pike	8		-	**0.4** per net
Largemouth Bass	5		-	**0.3** per net
Smallmouth Bass			-	per net
White Sucker	4		-	**1.3** per net
			-	#####
			-	##### #DIV/0!
			-	#DIV/0!

PANFISH	NUMBER	MODAL SIZES (IN.)	SIZE RANGE (IN.)	CATCH/EFFORT
Bluegill	731		-	~~244~~ per net
Pumpkinseed	711		-	~~237~~ per net
Black Crappie	12		-	~~4~~ per net
Yellow Perch	20		-	~~7~~ per net
Rock Bass	2		-	**0** per net
Black Bullhead	7		-	**0** per net
Brown Bullhead	8			
			-	

Observations: For panfish field-transfer to Shues Pond and NFWFHOF. Disease Certification by Eric Sawnson DVM. Supplemental a

Compiled By:	Date
E. Pratt ~~Skip Sommerfeldt~~	6/26/03 ~~9/25/02~~

WDNR Comments

State of Wisconsin
Department of Natural Resources

Water Temp: 63-70

Gamefish Length Frequency

Form 3600-65 Rev.7-93

County	Water	Date	Gear: 3 fyke nets
Sawyer	Lake Hayward	06/09-15/2003	Sets: 18 Pratt, Wau blee/Risch

Size Range Inches	Walleye	N Pike	Musky	LMB	SMB	W. Sucker		Size Range Inches	N Pike	Musky
<3.0								27.0 - 27.4		
3.0 - 3.4								27.5 - 27.9		
3.5 - 3.9								28.0 - 28.4		
4.0 - 4.4				1				28.5 - 28.9		
4.5 - 4.9				1				29.0 - 29.4		
5.0 - 5.4								29.5 - 29.9		
5.5 - 5.9								30.0 - 30.4		
6.0 - 6.4								30.5 - 30.9		
6.5 - 6.9								31.0 - 31.4		
7.0 - 7.4		1		1				31.5 - 31.9		
7.5 - 7.9		2						32.0 - 32.4		
8.0 - 8.4		1						32.5 - 32.9		
8.5 - 8.9								33.0 - 33.4		
9.0 - 9.4								33.5 - 33.9		
9.5 - 9.9								34.0 - 34.4		
10.0 - 10.4								34.5 - 34.9		
10.5 - 10.9								35.0 - 35.4		
11.0 - 11.4								35.5 - 35.9		
11.5 - 11.9								36.0 - 36.4		
12.0 - 12.4								36.5 - 36.9		
12.5 - 12.9								37.0 - 37.4		
13.0 - 13.4		1						37.5 - 37.9		
13.5 - 13.9		1						38.0 - 38.4		
14.0 - 14.4								38.5 - 38.9		
14.5 - 14.9								39.0 - 39.4		
15.0 - 15.4								39.5 - 39.9		
15.5 - 15.9								40.0 - 40.9		
16.0 - 16.4				1				41.0 - 41.9		
16.5 - 16.9								42.0 - 42.9		
17.0 - 17.4	1							43.0 - 43.9		
17.5 - 17.9								44.0 - 44.9		
18.0 - 18.4								45.0 - 45.9		
18.5 - 18.9						1		46.0 - 46.9		
19.0 - 19.4								47.0 - 47.9		
19.5 - 19.9								48.0 - 48.9		
20.0 - 20.4								49.0 - 49.9		
20.5 - 20.9								50.0 - 50.9		
21.0 - 21.4								51.0 - 51.9		
21.5 - 21.9								52.0 - 52.9		
22.0 - 22.4								53.0 - 53.9		
22.5 - 22.9								54.0 - 54.9		
23.0 - 23.4	1							55.0 - 55.9		
23.5 - 23.9								56.0 - 56.9		
24.0 - 24.4								57.0 - 57.9		
24.5 - 24.9								58.0 - 58.9		
25.0 - 25.4								59.0 - 59.9		
25.5 - 25.9		1						60.0+		
26.0 - 26.4										
26.5 - 26.9										
TOTALS	**2**			**4**	**0**	**1**	**0**	**TOTALS**	**7**	**0**

OBSERVATIONS: Walleye PSD15 = 100% (10" stock size) LMB PSD12 = 50% (6" stock size)

These comments go to the summary sheet under OTHER.
These go to the observation section - second line.

WDNR Comments

...rtment of Natural Resources

Panfish Length Frequency

Form 3600-64 Rev. 1-00

...unty	Water	Date	Gear	Sets
Sawyer	Lake Hayward	06/09-15/2003	Fyke nets	18

Size Range Inches	Species					Size Range Inches	Species				
	Bluegill	B Crap.	Y Perch	Pksd	R Bass		Blg	BC	YP	Pkd	RB
Count	634			511		**7.0**	10			4	
1.0 - 1.4						7.1					
1.5 - 2.0						7.2					
2.1						7.3					
2.2						7.4					
2.3						7.5	4		2	1	1
2.4						7.6					
2.5	8			7		7.7					
2.6						7.8					
2.7						7.9					
2.8						**8.0**	2				
2.9						8.1					
3.0	4			3		8.2					
3.1						8.3					
3.2						8.4					
3.3						8.5	1				
3.4						8.6					
3.5	2			6		8.7					
3.6						8.8					
3.7						8.9					
3.8						**9.0**	1	9	2		
3.9						9.1					
4.0	7		5	7		9.2					
4.1						9.3					
4.2						9.4					
4.3						9.5		2			
4.4						9.6					
4.5	1		3	20		9.7					
4.6						9.8					
4.7						9.9					
4.8						**10.0**		1	1		
4.9						10.2					
5.0	4			31		10.4					
5.1						10.6			1		
5.2						10.8					
5.3						**11.0**					
5.4						11.2					
5.5	10		5	48	1	11.4					
5.6						11.6					
5.7						11.8					
5.8						**12.0**					
5.9						12.2					
6.0	26		1	54		12.4					
6.1						12.6					
6.2						12.8					
6.3						**13.0**					
6.4						13.2					
6.5	17			19		13.4					
6.6						13.6					
6.7						13.8					
6.8						**14.+**					
6.9						TOTAL	**731**	**12**	**20**	**711**	**2**

Notes:

Bluegill PSD6 = 69% Bluegill RSD7 = 20%

B. Crappie PSD8 = 100% B. Crappie RSD10 = 8%

Also 7 black bullheads 8-10.5"

WDNR Comments

1-18-05 122431 52166 survey 0

SUMMARY FISHING RECORD

FORM 3600-63 REVISED 1-94

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS	MWB CODE
Sawyer	Lake Hayward- ST2 North	2725500
SAMPLING OBJECTIVE	DATES FISHED	WATER TEMP.
	October 1, 2003	50

GEAR

BOOMSHOCKER	PANFISH	0.2	NO. DIPPERS	1	NIGHT	X	AC	X
HOURS	GAMEFISH	0.8	NO. MILES	2.00	VOLTS	150	AMPS	1
FYKE NET	PANFISH							
LIFTS	GAMEFISH		LEAD LEN:		FRAME:		MESH:	
GILL NET	(NO. LIFTS)		LENGTH:		DEPTH:		MESH:	
SEINE	(NO. PULLS)		LENGTH:		DEPTH:		MESH:	
ANGLING	(TOT. HRS.)		NO. ANGLERS:		TIME OF DAY:			

OTHER

FISHING RESULTS

GAMEFISH	NUMBER	MODAL SIZES (IN.)	SIZE RANGE (IN.)	CATCH/EFFORT
Walleye	4		-	2.0
Musky	3		-	1.5
Northern Pike	12		-	6.0
Largemouth Bass	6		-	3.0
			-	
White Sucker	6		-	12.0
Walleye EG	1		-	
			-	
			-	

PANFISH	NUMBER	MODAL SIZES (IN.)	SIZE RANGE (IN.)	CATCH/EFFORT
BG	25		-	50
Pumpkinseed	5		-	10
Black Crappie	12		-	24
Yellow Perch	4		-	8
Common shiner	13		-	24
Mud minnow	4		-	8
Brown Bullhead				
			-	

Observations:

Only one EG walleye this main-lake station- they were all up in the river channel. Small musky were hybrids.

Compiled By:	Date
Frank Pratt	10/1/03

WDNR Comments

...in
...partment of Natural Resources

Panfish Length Frequency

Form 3600-64 Rev. 1-00

County	Water	Date	Gear
Sawyer	LH-St2 N	10/30/2003	vv AC bs

Size Range Inches	Species					Size Range Inches	Species				
	BG	BC	YP	PS	CS		Blg	BC	YP	Pkd	
Count						**7.0**	5			1	
1.0 - 1.4					5	7.1					
1.5 - 2.0		2			6	7.2					
2.1					1	7.3					
2.2						7.4					
2.3						7.5	1	1			
2.4						7.6					
2.5					1	7.7					
2.6				1		7.8					
2.7						7.9					
2.8						**8.0**		1			
2.9						8.1					
3.0						8.2					
3.1						8.3					
3.2						8.4					
3.3						8.5					
3.4						8.6					
3.5						8.7					
3.6						8.8					
3.7						8.9					
3.8						**9.0**		1			
3.9						9.1					
4.0						9.2					
4.1						9.3					
4.2						9.4					
4.3						9.5		1			
4.4						9.6					
4.5		1				9.7					
4.6						9.8					
4.7						9.9					
4.8						**10.0**		2			
4.9				1		10.2					
5.0	2					10.4					
5.1						10.6					
5.2						10.8					
5.3						**11.0**		1			
5.4						11.2					
5.5	3			1		11.4					
5.6						11.6					
5.7						11.8					
5.8						**12.0**					
5.9						12.2					
6.0	9	1		1		12.4					
6.1						12.6					
6.2						12.8					
6.3						**13.0**					
6.4						13.2					
6.5	5	1				13.4					
6.6						13.6					
6.7						13.8					
6.8						**14.+**					
6.9					13tot	TOTAL	**25**	**12**	**4**	**5**	

Notes:

Bluegill PSD6 = Bluegill RSD7 =

B. Crappie PSD8 = B. Crappie RSD10 = 33%

S **WDNR Comments**

Department of Natural Resources

Water Temp:

Gamefish Length Frequency

Form 3600-65 Rev.7-93

County	Water	Date	Gear: vv AC
Sawyer	Lake Hayward St2 N	10/01/2003	hrs: 0.8

Size Range Inches	Walleye	N Pike	Musky	LMB		W. Sucker		Size Range Inches	N Pike	Musky
<3.0				2				27.0 - 27.4		
3.0 - 3.4				1				27.5 - 27.9		
3.5 - 3.9								28.0 - 28.4		
4.0 - 4.4								28.5 - 28.9		
4.5 - 4.9								29.0 - 29.4		
5.0 - 5.4		1	1 hybrid					29.5 - 29.9		
5.5 - 5.9								30.0 - 30.4		
6.0 - 6.4	1	1						30.5 - 30.9		
6.5 - 6.9		1	2 hybrid					31.0 - 31.4		
7.0 - 7.4								31.5 - 31.9		
7.5 - 7.9								32.0 - 32.4		
8.0 - 8.4								32.5 - 32.9		
8.5 - 8.9								33.0 - 33.4		
9.0 - 9.4		2				1		33.5 - 33.9		
9.5 - 9.9								34.0 - 34.4		
10.0 - 10.4								34.5 - 34.9		
10.5 - 10.9								35.0 - 35.4		
11.0 - 11.4								35.5 - 35.9		
11.5 - 11.9								36.0 - 36.4		
12.0 - 12.4								36.5 - 36.9		
12.5 - 12.9						1		37.0 - 37.4		
13.0 - 13.4								37.5 - 37.9		
13.5 - 13.9				1				38.0 - 38.4		
14.0 - 14.4								38.5 - 38.9		
14.5 - 14.9								39.0 - 39.4		
15.0 - 15.4		1						39.5 - 39.9		
15.5 - 15.9								40.0 - 40.9		
16.0 - 16.4	1	1						41.0 - 41.9		
16.5 - 16.9								42.0 - 42.9		
17.0 - 17.4						1		43.0 - 43.9		
17.5 - 17.9						1		44.0 - 44.9		
18.0 - 18.4				1				45.0 - 45.9		
18.5 - 18.9				1				46.0 - 46.9		
19.0 - 19.4								47.0 - 47.9		
19.5 - 19.9	1							48.0 - 48.9		
20.0 - 20.4						2		49.0 - 49.9		
20.5 - 20.9								50.0 - 50.9		
21.0 - 21.4								51.0 - 51.9		
21.5 - 21.9		1						52.0 - 52.9		
22.0 - 22.4								53.0 - 53.9		
22.5 - 22.9		1						54.0 - 54.9		
23.0 - 23.4		1						55.0 - 55.9		
23.5 - 23.9								56.0 - 56.9		
24.0 - 24.4								57.0 - 57.9		
24.5 - 24.9								58.0 - 58.9		
25.0 - 25.4								59.0 - 59.9		
25.5 - 25.9								60.0+		
26.0 - 26.4	1									
26.5 - 26.9										
TOTALS	**4**			**6**		**6**		**TOTALS**	**12**	**3**

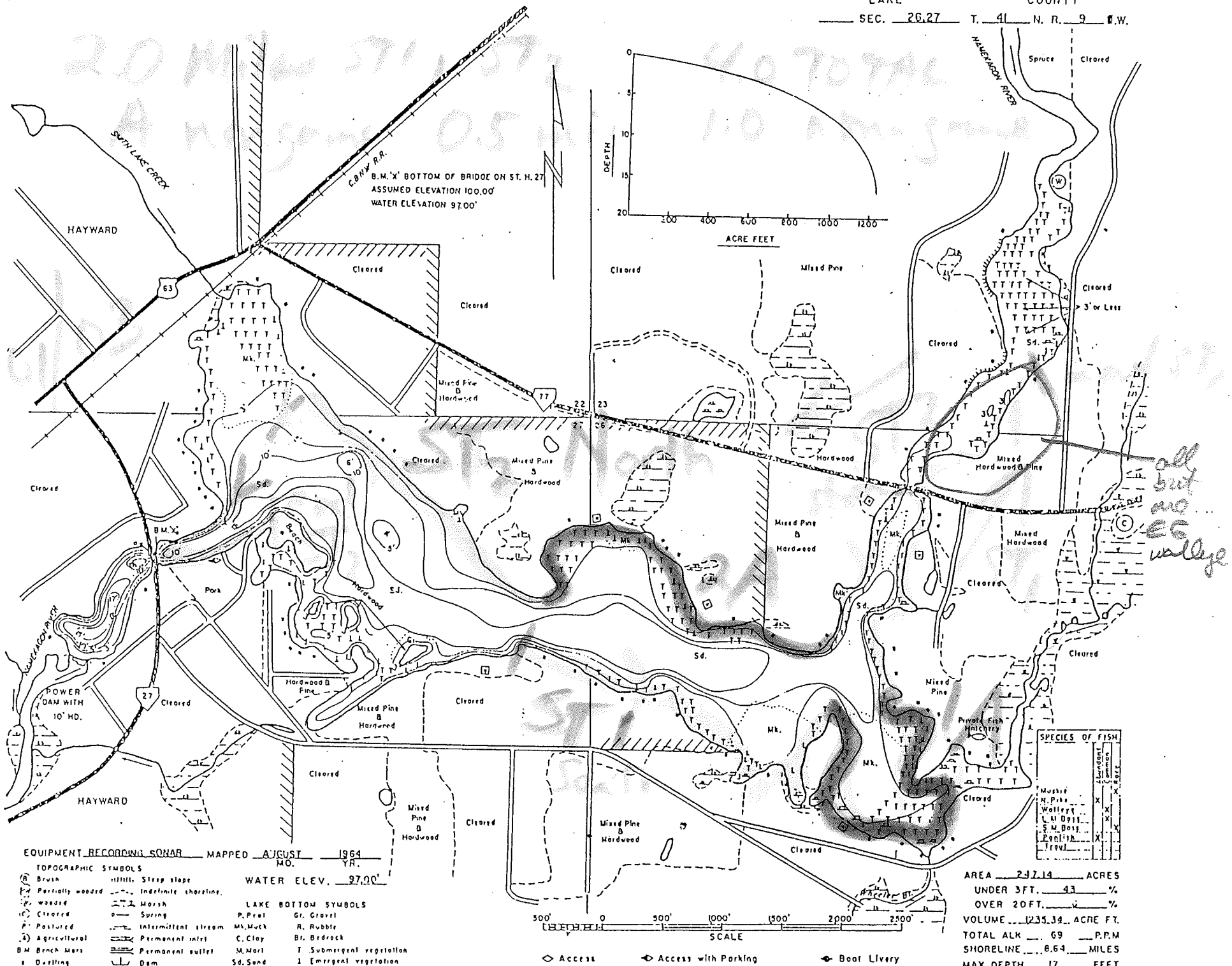
OBSERVATIONS:

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.W.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- Brush
- Partially wooded
- Wooded
- Cleared
- Pastured
- Agricultural
- BM Bench Mark
- Drilling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- E Emergent vegetation
- Floating vegetation

SCALE: 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmidt, M. Perlich, L. Sather Drawn by: L. Rath

SPECIES OF FISH

	Abundant	Common	Scarce
Muskie			
N. Pike			
Walleye			
L.M. Bass			
S.M. Bass			
Panfish			
Trout			

AREA 247.14 ACRES

UNDER 3FT. 43 %

OVER 20FT. — %

VOLUME 1235.39 ACRE FT.

TOTAL ALK. 69 P.P.M.

SHORELINE 8.64 MILES

MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County: Sawyer	Waters: Hayward MWBC: 2725500
Sampling Objective: Baseline Monitoring	Number and Locations of Stations (Habitat)
Period Fished (Dates): 10/01/03 AM/PM	Miles Actually Shocked = 4.4 (Source: LM) Acres = 247 (LM) Total Miles of Shoreline = 8.6 (LM) Total Miles of Shockable Shoreline = 8.6 (LM)

GEAR

Boomshocker (Hours): 1.9		Time: √ Night Day		
Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth
Other (Hours or Lifts) Boomshocker(s): 1 Dip Netter(s): 1		Mini-boomshocker(s): Dip Netter(s):	Characteristics Walleye Recruitment Code: C-NR	

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	29	7.0-7.4	6.0 - 9.4	15.26 / hour	6.59 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	1	None	10.5 - 10.9	0.53 / hour	0.23 / mile
Walleye (Other)	6	None	13.5 - 27.4	3.16 / hour	1.36 / mile
Smallmouth Bass	0		-	0.00 / hour	0.00 / mile
Largemouth Bass	7	None	2.5 - 18.9	3.68 / hour	1.59 / mile
Muskellunge	7	None	5.0 - 9.4	3.68 / hour	1.59 / mile
Northern Pike	20	None	5.0 - 36.4	10.53 / hour	4.55 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
Bluegill	Common	4.0-7.9	Common Shiner	Present	
Pumpkinseed	Present	2.5-7.4	Central Mudminnow	Present	
Black Crappie	Common	1.5-11.4			
Yellow Perch	Present	6.5-11.4			
White Sucker	Present	9.0-20.4			

1) Tank Mortality: None 2) Weather: NA 3) Reliabilty: Medium

4) Stocking: 2470 Walleye, 7.7 inches, 09/18/03, DNR

5) Comments:

Rev. 10-70

Signed (Compiler) Scott D. Plaster Date 11/26/03

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191

8-95

Lake: Hayward MWB Code: 2725500 Date: 10/01/03 County: Sawyer Collector(s): Warwick, Pratt

Target Fish: All species Survey Type: Baseline monitoring Mark Given: None Water Temperature: 50°F Station: Portion of Shoreline

Adverse Conditions: NA Gear Type: Boomshocker Distance Shocked: 4.4 miles

Volts: 150 Amps: 1.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: NA Shocking End Time: NA Generator Start Hour: 0.0 Generator End Hour: 1.9

Number of Dippers: [X]1 [ ]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/16 inch bar H20 Clarity: NA

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4		
3.5-3.9			17.5-17.9		
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4			19.0-19.4		
5.5-5.9			19.5-19.9	1	
6.0-6.4	2		20.0-20.4		
6.5-6.9	5		20.5-20.9		
7.0-7.4	7		21.0-21.4		
7.5-7.9	6		21.5-21.9		
8.0-8.4	5		22.0-22.4		
8.5-8.9	2		22.5-22.9		
9.0-9.4	2		23.0-23.4		
9.5-9.9			23.5-23.9		
10.0-10.4			24.0-24.4		
10.5-10.9	1		24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9			25.5-25.9		
12.0-12.4			26.0-26.4		
12.5-12.9			26.5-26.9		
13.0-13.4			27.0-27.4	1	
13.5-13.9	2		27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9			28.5-28.9		
15.0-15.4			29.0-29.4		
15.5-15.9	1		29.5-29.9		
16.0-16.4	1		30.0 +		
Totals:	36				

WALLEYE

WDNR Comments

artment of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186 8-95

Lake: Hayward MWB Code: 2725500 Date: 10/01/03 County: Sawyer Collector(s): Warwick, Pratt

Target Fish: All species Survey Type: Baseline monitoring Mark Given: None Water Temperature: 50°F Station: Portion of Shoreline

Adverse Conditions: NA Gear Type: Boomshocker Distance Shocked: 4.4 miles

Volts: 150 Amps: 1.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: NA Shocking End Time: NA Generator Start Hour: 0.0 Generator End Hour: 1.9

Number of Dippers: [X]1 [ ]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/16 inch bar H20 Clarity: NA

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9				
2.5-2.9					2				26.0-26.4				
3.0-3.4					1				26.5-26.9				
3.5-3.9									27.0-27.4				
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4	1		1						28.5-28.9				
5.5-5.9			1						29.0-29.4				
6.0-6.4	1		1						29.5-29.9				
6.5-6.9	2		2						30.0-30.4				
7.0-7.4			1						30.5-30.9				
7.5-7.9	1								31.0-31.4				
8.0-8.4									31.5-31.9				
8.5-8.9									32.0-32.4				
9.0-9.4	2		1						32.5-32.9				
9.5-9.9									33.0-33.4				
10.0-10.4									33.5-33.9				
10.5-10.9	1								34.0-34.4				
11.0-11.4	1								34.5-34.9				
11.5-11.9	1								35.0-35.4				
12.0-12.4	1								35.5-35.9				
12.5-12.9	1								36.0-36.4	1			
13.0-13.4									36.5-36.9				
13.5-13.9					1				37.0-37.4				
14.0-14.4									37.5-37.9				
14.5-14.9									38.0-38.4				
15.0-15.4	1								38.5-38.9				
15.5-15.9									39.0-39.4				
16.0-16.4	1								39.5-39.9				
16.5-16.9									40.0-40.4				
17.0-17.4					1				40.5-40.9				
17.5-17.9									41.0-41.4				
18.0-18.4					1				41.5-41.9				
18.5-18.9					1				42.0-42.4				
19.0-19.4									42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9									44.0-44.4				
21.0-21.4	1								44.5-44.9				
21.5-21.9	1								45.0-45.4				
22.0-22.4									45.5-45.9				
22.5-22.9	1								46.0-46.9				
23.0-23.4	2								47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
Totals:	20	0	7	0	7	0	0	0	50.0+				

GAMEFISH

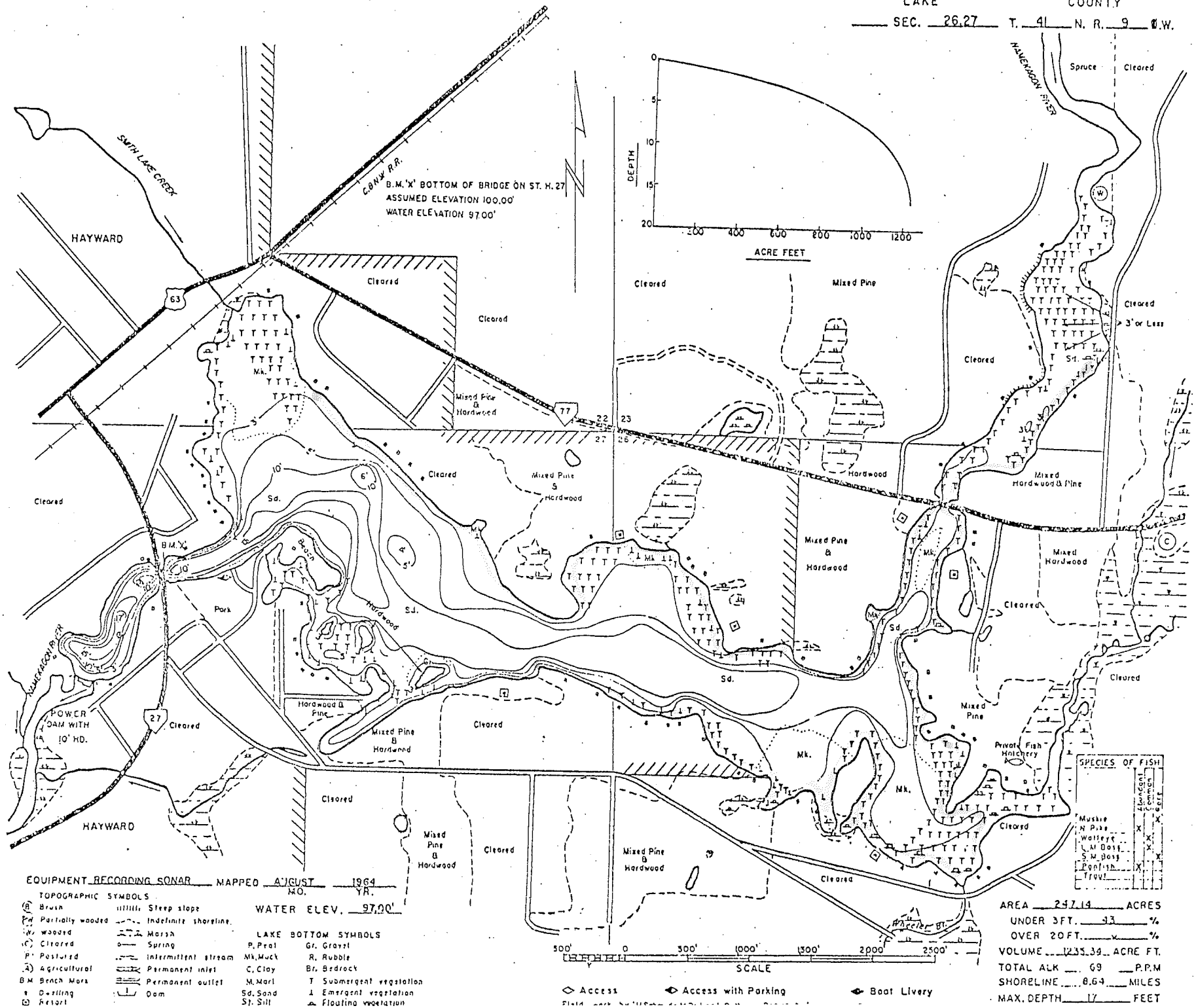
WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.

WDNR Comments



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964
MO. YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

(B) Brush	Steep slope		
(Pw) Partially wooded	Indefinite shoreline		
(W) Wooded	Marsh		
(C) Cleared	Spring		
(P) Pastured	Intermittent stream		
(A) Agricultural	Permanent inlet		
BM Bench Mark	Permanent outlet		
Dwelling	Dam		
Resort			

LAKE BOTTOM SYMBOLS

P, Peat	Gr, Gravel
Mk, Muck	R, Rubble
C, Clay	Br, Bedrock
M, Marl	T Submergent vegetation
Sd, Sand	⊥ Emergent vegetation
St, Silt	Floating vegetation

◇ Access ◆ Access with Parking ◆ Boat Livery

AREA 247.14 ACRES
UNDER 3FT. 33 %
OVER 20FT. x %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

site 1255000
survey 52164
Visit 486467

SUMMARY FISHING RECORD

FORM 3600-63 REVISED 1-94

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS	MWB CODE
Sawyer	Lake Hayward ST 1	2725500
SAMPLING OBJECTIVE	**DATES FISHED**	**WATER TEMP.**
	October 1, 2003	50

GEAR

BOOMSHOCKER	PANFISH	0.4	NO. DIPPERS	1	NIGHT	X	AC	X
HOURS	GAMEFISH	1.1	NO. MILES	2.00	VOLTS	150	AMPS	1
FYKE NET	PANFISH							
LIFTS	GAMEFISH		LEAD LEN:		FRAME:		MESH:	
GILL NET	(NO. LIFTS)		LENGTH:		DEPTH:		MESH:	
SEINE	(NO. PULLS)		LENGTH:		DEPTH:		MESH:	
ANGLING	(TOT. HRS.)		NO. ANGLERS:		TIME OF DAY:			
OTHER								

FISHING RESULTS

GAMEFISH	NUMBER	MODAL SIZES (IN.)	SIZE RANGE (IN.)	CATCH/EFFORT
Walleye	32		-	**16.0**
Musky	4		-	**2.0**
Northern Pike	8		-	**4.0**
Largemouth Bass	1		-	**0.5**
Smallmouth Bass			-	
White Sucker	5		-	**10.0**
Walleye EG	28		-	14.0
			-	
ST 1A			-	

PANFISH	NUMBER	MODAL SIZES (IN.)	SIZE RANGE (IN.)	CATCH/EFFORT
BG	31		-	**62**
Pumpkinseed	3		-	**6**
Black Crappie	6		-	**12**
Yellow Perch	4		-	**8**
Common shiner	8		-	**16**
Mud minnow	2		-	**4**
Brown Bullhead				
			-	

Observations: All muskellunge were yoy hybrids. EG walleye all in river upstream of STH 77 bridge.

Compiled By:	Date
Frank Pratt	10/1/03

WDNR Comments

State of Wisconsin
Department of Natural Resources

Water Temp: 50

Gamefish Length Frequency

Form 3600-65 Rev.7-93

County	Water	Date	Gear: VV AC
Sawyer	Lk Hayward-South St1	10/01/2003	hrs: 1.3

Size Range Inches	Walleye	N Pike	Musky	LMB	W. Sucker	Size Range Inches	N Pike	Musky
<3.0						27.0 - 27.4		
3.0 - 3.4						27.5 - 27.9		
3.5 - 3.9						28.0 - 28.4		
4.0 - 4.4						28.5 - 28.9		
4.5 - 4.9						29.0 - 29.4		
5.0 - 5.4						29.5 - 29.9		
5.5 - 5.9			1hybrid			30.0 - 30.4		
6.0 - 6.4	1		1hybrid			30.5 - 30.9		
6.5 - 6.9	5	1				31.0 - 31.4		
7.0 - 7.4	7					31.5 - 31.9		
7.5 - 7.9	6	1	1 hybrid			32.0 - 32.4		
8.0 - 8.4	5					32.5 - 32.9		
8.5 - 8.9	2					33.0 - 33.4		
9.0 - 9.4	2		1hybrid			33.5 - 33.9		
9.5 - 9.9						34.0 - 34.4		
10.0 - 10.4						34.5 - 34.9		
10.5 - 10.9	1	1				35.0 - 35.4		
11.0 - 11.4		1				35.5 - 35.9		
11.5 - 11.9						36.0 - 36.4	1	
12.0 - 12.4						36.5 - 36.9		
12.5 - 12.9		1			1	37.0 - 37.4		
13.0 - 13.4						37.5 - 37.9		
13.5 - 13.9	2					38.0 - 38.4		
14.0 - 14.4					1	38.5 - 38.9		
14.5 - 14.9						39.0 - 39.4		
15.0 - 15.4						39.5 - 39.9		
15.5 - 15.9	1					40.0 - 40.9		
16.0 - 16.4						41.0 - 41.9		
16.5 - 16.9					1	42.0 - 42.9		
17.0 - 17.4						43.0 - 43.9		
17.5 - 17.9					1	44.0 - 44.9		
18.0 - 18.4				1		45.0 - 45.9		
18.5 - 18.9						46.0 - 46.9		
19.0 - 19.4						47.0 - 47.9		
19.5 - 19.9					1	48.0 - 48.9		
20.0 - 20.4						49.0 - 49.9		
20.5 - 20.9						50.0 - 50.9		
21.0 - 21.4		1				51.0 - 51.9		
21.5 - 21.9						52.0 - 52.9		
22.0 - 22.4						53.0 - 53.9		
22.5 - 22.9						54.0 - 54.9		
23.0 - 23.4		1				55.0 - 55.9		
23.5 - 23.9						56.0 - 56.9		
24.0 - 24.4						57.0 - 57.9		
24.5 - 24.9						58.0 - 58.9		
25.0 - 25.4						59.0 - 59.9		
25.5 - 25.9						60.0+		
26.0 - 26.4								
26.5 - 26.9								
TOTALS	**32**					**TOTALS**		

OBSERVATIONS:

WDNR Comments

...nsin
...artment of Natural Resources

Panfish Length Frequency

Form 3600-64 Rev. 1-00

...unty	Water	Date	Gear
Sawyer	LH-St1 South	10/30/2003	vv AC bs

Size Range Inches	Species					Size Range Inches	Species				
	BG	BC	YP	CS	PS		Blg	BC	YP	Pkd	
Count						**7.0**	4	1	1		
1.0 - 1.4				3		7.1					
1.5 - 2.0				3		7.2					
2.1						7.3					
2.2						7.4					
2.3						7.5	3				
2.4						7.6					
2.5				1		7.7					
2.6						7.8					
2.7						7.9					
2.8						**8.0**		1			
2.9					1	8.1					
3.0						8.2					
3.1						8.3					
3.2						8.4					
3.3						8.5					
3.4						8.6					
3.5						8.7					
3.6						8.8					
3.7						8.9					
3.8						**9.0**		1	1		
3.9						9.1					
4.0	1				1	9.2					
4.1						9.3					
4.2						9.4					
4.3						9.5		2			
4.4						9.6					
4.5						9.7					
4.6						9.8					
4.7						9.9					
4.8						**10.0**					
4.9						10.2					
5.0	3				1	10.4					
5.1						10.6					
5.2						10.8					
5.3						**11.0**			1		
5.4						11.2					
5.5	4					11.4					
5.6						11.6					
5.7						11.8					
5.8						**12.0**					
5.9						12.2					
6.0	5					12.4					
6.1						12.6					
6.2						12.8					
6.3						**13.0**					
6.4						13.2					
6.5	8		1			13.4					
6.6						13.6					
6.7						13.8					
6.8						**14.+**					
6.9						TOTAL	**31**	**6**	**4**	**3**	

Notes:

1A nongame station= 0.5 mi. Bartz' Bay

WDNR Comments

11.6 and

State of Wisconsin
Department of Natural Resources

Water Temp: 50°F

Gamefish Length Frequency

Form 3600-65 Rev.7-93

County	Water	Date	Gear: VV AC
Sawyer	Lk Hayward-South St1	10/01/2003	hrs:

Size Range Inches	Walleye	N Pike	Musky	LMB	OTHER SMB	OTHER W. Sucker	RH	WS	Size Range Inches	N Pike	Musky
<3.0					-BG-	-PS-			27.0 - 27.4		
3.0 - 3.4					1				27.5 - 27.9		
3.5 - 3.9									28.0 - 28.4		
4.0 - 4.4					2				28.5 - 28.9		
4.5 - 4.9									29.0 - 29.4		
5.0 - 5.4			1Hyb		3	1			29.5 - 29.9		
5.5 - 5.9			1Hyb						30.0 - 30.4		
6.0 - 6.4	1 1				4 1	1			30.5 - 30.9		
6.5 - 6.9	5	1							31.0 - 31.4		
7.0 - 7.4	7		1Hyb		5	1			31.5 - 31.9		
7.5 - 7.9	6	1				3PS			32.0 - 32.4		
8.0 - 8.4	5				6				32.5 - 32.9		
8.5 - 8.9	2								33.0 - 33.4		
9.0 - 9.4	2		1Hyb		7				33.5 - 33.9		
9.5 - 9.9									34.0 - 34.4		
10.0 - 10.4					8 BG				34.5 - 34.9		
10.5 - 10.9	1	1	1Yoy 1 hyb						35.0 - 35.4		
11.0 - 11.4		1							35.5 - 35.9		
11.5 - 11.9									36.0 - 36.4	1	
12.0 - 12.4					-YP-	-BC-			36.5 - 36.9		
12.5 - 12.9		1			1			1	37.0 - 37.4		
13.0 - 13.4									37.5 - 37.9		
13.5 - 13.9	2				2				38.0 - 38.4		
14.0 - 14.4			4Yoy 1						38.5 - 38.9		
14.5 - 14.9					3				39.0 - 39.4		
15.0 - 15.4								1	39.5 - 39.9		
15.5 - 15.9	1 1				4				40.0 - 40.9		
16.0 - 16.4									41.0 - 41.9		
16.5 - 16.9					5				42.0 - 42.9		
17.0 - 17.4				1				1	43.0 - 43.9		
17.5 - 17.9					6				44.0 - 44.9		
18.0 - 18.4					1			1	45.0 - 45.9		
18.5 - 18.9					7 1	1			46.0 - 46.9		
19.0 - 19.4									47.0 - 47.9		
19.5 - 19.9					8	1		1	48.0 - 48.9		
20.0 - 20.4						1			49.0 - 49.9		
20.5 - 20.9					9 1	1			50.0 - 50.9		
21.0 - 21.4		1				11			51.0 - 51.9		
21.5 - 21.9					10				52.0 - 52.9		
22.0 - 22.4								5	53.0 - 53.9		
22.5 - 22.9					11 1			WS	54.0 - 54.9		
23.0 - 23.4		1							55.0 - 55.9		
23.5 - 23.9									56.0 - 56.9		
24.0 - 24.4									57.0 - 57.9		
24.5 - 24.9									58.0 - 58.9	6	
25.0 - 25.4									59.0 - 59.9		
25.5 - 25.9									60.0+	MP	
26.0 - 26.4											
26.5 - 26.9											
TOTALS									TOTALS		

OBSERVATIONS:

CS - 4.5 mm - 2.5 11

ST 1 include Bard 2 Bay as 0.5 mi. non-some hybrid Mu Yoy 1

All CS above bridge - Plenty of food there

CS 1.5 - 2.0 111
1.0 11
<1 11

WDNR Comments

12,1

State of Wisconsin
Department of Natural Resources

Water Temp: 52

Gamefish Length Frequency

Form 3600-65 Rev.7-93

County	Water	Date	Gear: VV AC
Sawyer	Lake Hayward St2 N	10/01/2003	hrs:

Size Range Inches	Walleye	N Pike	Musky	LMB	OTHER SMB	OTHER W. Sucker	RH	WS	Size Range Inches	N Pike	Musky
<3.0				2.7"	BG	PS			27.0 - 27.4		
3.0 - 3.4				3.3	1				27.5 - 27.9		
3.5 - 3.9									28.0 - 28.4		
4.0 - 4.4					2				28.5 - 28.9		
4.5 - 4.9						1			29.0 - 29.4		
5.0 - 5.4		1	Hyb		3				29.5 - 29.9		
5.5 - 5.9									30.0 - 30.4		
6.0 - 6.4	1	1			4				30.5 - 30.9		
6.5 - 6.9		1	Hyb"						31.0 - 31.4		
7.0 - 7.4					5 11	1			31.5 - 31.9		
7.5 - 7.9						1			32.0 - 32.4		
8.0 - 8.4					6 ~~HH~~ IIII	1			32.5 - 32.9		
8.5 - 8.9									33.0 - 33.4		
9.0 - 9.4		11			7 ~~HH~~	1		1	33.5 - 33.9		
9.5 - 9.9					1				34.0 - 34.4		
10.0 - 10.4					8				34.5 - 34.9		
10.5 - 10.9									35.0 - 35.4		
11.0 - 11.4					YP	BC			35.5 - 35.9		
11.5 - 11.9		1			1				36.0 - 36.4		
12.0 - 12.4						11			36.5 - 36.9		
12.5 - 12.9					2			1	37.0 - 37.4		
13.0 - 13.4									37.5 - 37.9		
13.5 - 13.9				1	3				38.0 - 38.4		
14.0 - 14.4									38.5 - 38.9		
14.5 - 14.9					4				39.0 - 39.4		
15.0 - 15.4		1				1			39.5 - 39.9		
15.5 - 15.9					5				40.0 - 40.9		
16.0 - 16.4	1	1							41.0 - 41.9		
16.5 - 16.9					6	1		1	42.0 - 42.9		
17.0 - 17.4									43.0 - 43.9		
17.5 - 17.9					7				44.0 - 44.9		
18.0 - 18.4				1	8 1	1			45.0 - 45.9		
18.5 - 18.9				1					46.0 - 46.9		
19.0 - 19.4									47.0 - 47.9		
19.5 - 19.9	1				9 1	1			48.0 - 48.9		
20.0 - 20.4								11	49.0 - 49.9		
20.5 - 20.9					10 1	11			50.0 - 50.9		
21.0 - 21.4					11 1	1			51.0 - 51.9		
21.5 - 21.9		1							52.0 - 52.9		
22.0 - 22.4									53.0 - 53.9		
22.5 - 22.9		1							54.0 - 54.9		
23.0 - 23.4		1							55.0 - 55.9		
23.5 - 23.9									56.0 - 56.9		
24.0 - 24.4									57.0 - 57.9		
24.5 - 24.9									58.0 - 58.9		
25.0 - 25.4									59.0 - 59.9		
25.5 - 25.9									60.0+		
26.0 - 26.4											
26.5 - 26.9	27.0										
TOTALS									TOTALS		

OBSERVATIONS:

ST 2 includes LP Bay as 0.5 mi.
Non-game

0.5 - 2,5
2,0
1.0 11
1.5 1

MM 3.0, 3.5
2.0
2.5

S **WDNR Comments**

SVR 1324351
Site 814107

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET **GAMEFISH** Wisconsin Department of Natural Resources

Waterbody Name:	Hayward	Target Fish:	Juvenile Walleye	Generator Start Time:	542
MWB Code/WBIC:	2725500	Mark(s) Given:	None	Generator End Time:	543.8
Waterbody Type:	Drainage Impoundment	Survey Type:	CPE (Fall Shoreline)	Volts:	1.8
County:	Sawyer	Gear Type:	Boomshocker	Amps:	6
Date (MM/DD/YY):	06-Oct-04	Weather:	Clear, breezy, warm	Pulse Rate:	250
Station:	Entire lake and inlet	Adverse Conditions:	Weedy- walleye yoy very DEEP	Duty Cycle:	
Start Time:	1845	Water Temperature:	49 F	Current Type:	AC
End Time:	2145	Water Conductivity:	High	Distance Shocked:	6.6
Collectors:	Rw, JD, CS	Water Level:	Normal	Entire Shoreline Shocked:	Y
		Water Clarity:	L Brwn	Number of Dippers:	2
				Dipnet Mesh Size:	0.1285

	Walleye		Muskellunge		Largemouth Bass		Northern Pike			Northern Pike		Muskellunge	
inches	Above 77	Below77							inches				
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4	1			
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4									26.5-26.9	2			
3.5-3.9									27.0-27.4	1			
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9				
5.5-5.9							1		29.0-29.4	1			
6.0-6.4	4						3		29.5-29.9				
6.5-6.9	1				1				30.0-30.4			1	
7.0-7.4	3		1 Hybrid						30.5-30.9	1			
7.5-7.9	1				1		1		31.0-31.4				
8.0-8.4	1								31.5-31.9				
8.5-8.9	2				1		1		32.0-32.4				
9.0-9.4	1				1		3		32.5-32.9				
9.5-9.9	2				1		3		33.0-33.4			1	
10.0-10.4	1				1		2		33.5-33.9				
10.5-10.9	1						2		34.0-34.4				
11.0-11.4					1		3		34.5-34.9			1	
11.5-11.9			2				1		35.0-35.4				
12.0-12.4	2		1		2		1		35.5-35.9				
12.5-12.9	1	1	4		2		4		36.0-36.4				
13.0-13.4		1					2		36.5-36.9				
13.5-13.9					2		2		37.0-37.4				
14.0-14.4							2		37.5-37.9				
14.5-14.9					2				38.0-38.4				
15.0-15.4									38.5-38.9				
15.5-15.9	1				2				39.0-39.4				
16.0-16.4					4		2		39.5-39.9				
16.5-16.9							2		40.0-40.4				
17.0-17.4									40.5-40.9				
17.5-17.9					1				41.0-41.4				
18.0-18.4							2		41.5-41.9				
18.5-18.9							1		42.0-42.4				
19.0-19.4			1		1		1		42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9							1		44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4							1		45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
TOTALS	23 WE tot				23 LMB				50.0+	46NP		12 MU tot	

WDNR Comments

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET — **GAMEFISH** — Wisconsin Department of Natural Resources

Waterbody Name:	Hayward	Target Fish:	Juvenile Walleye	Generator Start Time:	543
MWB Code/WBIC:	2725500	Mark(s) Given:	None	Generator End Time:	543.8
Waterbody Type:	Drainage Impoundment	Survey Type:	CPE (Fall Shoreline)	Volts:	250
County:	Sawyer	Gear Type:	Boomshocker	Amps:	6
Date (MM/DD/YY):	06-Oct-04	Weather:	Clear, cold	Pulse Rate:	
Station:	Entire lake and inlet	Adverse Conditions:		Duty Cycle:	
Start Time:	1845	Water Temperature:	~~5 F~~ 48.8	Current Type:	AC
End Time:		Water Conductivity:		Distance Shocked:	6.6
Collectors:	Rw, JD, CS	Water Level:	Normal	Entire Shoreline Shocked:	Y
		Water Clarity:	L Brwn	Number of Dippers:	2
				Dipnet Mesh Size:	0.1285

LMB Musky

inches	Walleye ~~Above 77~~	Walleye ~~Below 77~~	Muskellunge	Largemouth Bass	Smallmouth Bass	inches	Northern Pike		Muskellunge	
							NP	Y.P		
<1.5	Below 77	Above 77				24.5-24.9				Musky 44
1.5-1.9						25.0-25.4				11.0
2.0-2.4						25.5-25.9				
2.5-2.9	Lot of					26.0-26.4				Lots
3.0-3.4	Walleye					26.5-26.9				11.0
3.5-3.9						27.0-27.4				
4.0-4.4	But					27.5-27.9				10.9
4.5-4.9	Deep					28.0-28.4				
5.0-5.4						28.5-28.9				10.5
5.5-5.9						29.0-29.4				
6.0-6.4	IIII					29.5-29.9				
6.5-6.9	I					30.0-30.4			I	
7.0-7.4	III	to	I			30.5-30.9				
7.5-7.9	I	Deep		HYZY		31.0-31.4				
8.0-8.4	I		I			31.5-31.9				
8.5-8.9	II					32.0-32.4				
9.0-9.4	I		I			32.5-32.9				
9.5-9.9	II		I			33.0-33.4			I	
10.0-10.4			I			33.5-33.9				
10.5-10.9	I					34.0-34.4			I	
11.0-11.4			I	II		34.5-34.9				
11.5-11.9				I		35.0-35.4				
12.0-12.4	II		II	III		35.5-35.9				
12.5-12.9	I	I	II			36.0-36.4				
13.0-13.4		I				36.5-36.9				
13.5-13.9			II			37.0-37.4				
14.0-14.4						37.5-37.9				
14.5-14.9			II			38.0-38.4				
15.0-15.4						38.5-38.9				
15.5-15.9	I		II			39.0-39.4				
16.0-16.4			IIII			39.5-39.9				
16.5-16.9						40.0-40.4				
17.0-17.4						40.5-40.9				
17.5-17.9			I			41.0-41.4				
18.0-18.4						41.5-41.9				
18.5-18.9						42.0-42.4				
19.0-19.4			I	I		42.5-42.9				
19.5-19.9						43.0-43.4				
20.0-20.4	A Bundant					43.5-43.9				
20.5-20.9						44.0-44.4				
21.0-21.4	Suckers					44.5-44.9				
21.5-21.9	Y.P Yoy					45.0-45.4				
22.0-22.4						45.5-45.9				
22.5-22.9						46.0-46.9				
23.0-23.4	Shiner					47.0-47.9				
23.5-23.9						48.0-48.9				
24.0-24.4	Perch					49.0-49.9				
TOTALS		9				50.0+				

YP	
10.4	
10.2	
9.3	

Lot of		
Chippie		
Sucker		
Sun Fish		
Very		
A Bundant		1

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County: Sawyer	Waters: Hayward MWBC: 2725500
Sampling Objective: Walleye Recruitment Survey	Number and Locations of Stations (Habitat)
Period Fished (Dates): 10/06/04	Miles Actually Shocked = 6.6 (Source: LM)
	Acres = 247 (LM)
	Total Miles of Shoreline = 8.6 (LM)
	Total Miles of Shockable Shoreline = 8.6 (LM)

GEAR

Boomshocker (Hours): 1.8	Time: √ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)
Boomshocker(s): 1 Mini-boomshocker(s):
Dip Netter(s): 2 Dip Netter(s):

Characteristics
Walleye Recruitment Code: C-NR

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	9	None	6.0 - 7.9	5.00 / hour	1.36 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	*		-	/ hour	/ mile
Walleye (Other)	13	None	8.0 - 15.9	7.22 / hour	1.97 / mile
Smallmouth Bass	0		-	0.00 / hour	0.00 / mile
Largemouth Bass	22	16.0-16.4	7.0 - 19.4	12.22 / hour	3.33 / mile
Muskellunge	12	12.0-12.4	7.0 - 34.4	6.67 / hour	1.82 / mile
Northern Pike	47	None	5.5 - 30.9	26.11 / hour	7.12 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
Bluegill	Abundant				
Black Crappie	Common				
Yellow Perch	Abundant	9.3-10.5			
White Sucker	Common	10.5-11.0			
Shorthead Redhorse	Present	11.0			

1) Tank Mortality: None 2) Weather: Clear, Breeze, Warm 3) Reliabilty: Medium

4) Stocking: 247 Muskellunge, 11 inches, 09/10/04, DNR 2460 Walleye, 6.8 inches, 09/20/04, DNR

5) Comments: *Age 1+ walleye included with Other walleye; no ageing available.

Rev. 10-70

Signed (Compiler): Jamison L. Wendel Date: 11/23/04

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)
Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 10/06/04 County: Sawyer Collector(s): Warwick, Pratt, Drabeck

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 49°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation, Stained water Gear Type: Boomshocker Distance Shocked: 6.6 miles

Volts: 250 Amps: 6.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 18:45 Shocking End Time: NA Generator Start Hour: 542.0 Generator End Hour: 543.8

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/16 inch bar H20 Clarity: NA

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4		
3.5-3.9			17.5-17.9		
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4			19.0-19.4		
5.5-5.9			19.5-19.9		
6.0-6.4	4		20.0-20.4		
6.5-6.9	1		20.5-20.9		
7.0-7.4	3		21.0-21.4		
7.5-7.9	1		21.5-21.9		
8.0-8.4	1		22.0-22.4		
8.5-8.9	2		22.5-22.9		
9.0-9.4	1		23.0-23.4		
9.5-9.9	2		23.5-23.9		
10.0-10.4			24.0-24.4		
10.5-10.9	1		24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9			25.5-25.9		
12.0-12.4	2		26.0-26.4		
12.5-12.9	2		26.5-26.9		
13.0-13.4	1		27.0-27.4		
13.5-13.9			27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9			28.5-28.9		
15.0-15.4			29.0-29.4		
15.5-15.9	1		29.5-29.9		
16.0-16.4			30.0 +		
			Totals:	22	0

WALLEYE

WDNR Comments

Department of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)
Form 3600F-186 8-95

Lake: Hayward MWB Code: 2725500 Date: 10/06/04 County: Sawyer Collector(s): Warwick, Pratt, Drabeck

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 49°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation, Stained water Gear Type: Boomshocker Distance Shocked: 6.6 miles

Volts: 250 Amps: 6.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 18:45 Shocking End Time: NA Generator Start Hour: 542.0 Generator End Hour: 543.8

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/16 inch bar H20 Clarity: NA

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4	1			
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4									26.5-26.9	2			
3.5-3.9									27.0-27.4	1			
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9	1			
5.5-5.9	1								29.0-29.4	1			
6.0-6.4	3								29.5-29.9				
6.5-6.9									30.0-30.4			1	
7.0-7.4			1		1				30.5-30.9	1			
7.5-7.9									31.0-31.4				
8.0-8.4	1				1				31.5-31.9				
8.5-8.9	1								32.0-32.4				
9.0-9.4	4				1				32.5-32.9				
9.5-9.9	3				1				33.0-33.4			1	
10.0-10.4	2				1				33.5-33.9				
10.5-10.9	2								34.0-34.4			1	
11.0-11.4	2		2		1				34.5-34.9				
11.5-11.9	1		1						35.0-35.4				
12.0-12.4	1		4		2				35.5-35.9				
12.5-12.9	1				2				36.0-36.4				
13.0-13.4	5								36.5-36.9				
13.5-13.9					2				37.0-37.4				
14.0-14.4	2								37.5-37.9				
14.5-14.9	1				2				38.0-38.4				
15.0-15.4	2								38.5-38.9				
15.5-15.9					2				39.0-39.4				
16.0-16.4	2				4				39.5-39.9				
16.5-16.9	2								40.0-40.4				
17.0-17.4									40.5-40.9				
17.5-17.9					1				41.0-41.4				
18.0-18.4	1								41.5-41.9				
18.5-18.9	1								42.0-42.4				
19.0-19.4			1		1				42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9	1								44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4	1								45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
Totals:	47	0	12	0	22	0	0	0	50.0+				

GAMEFISH

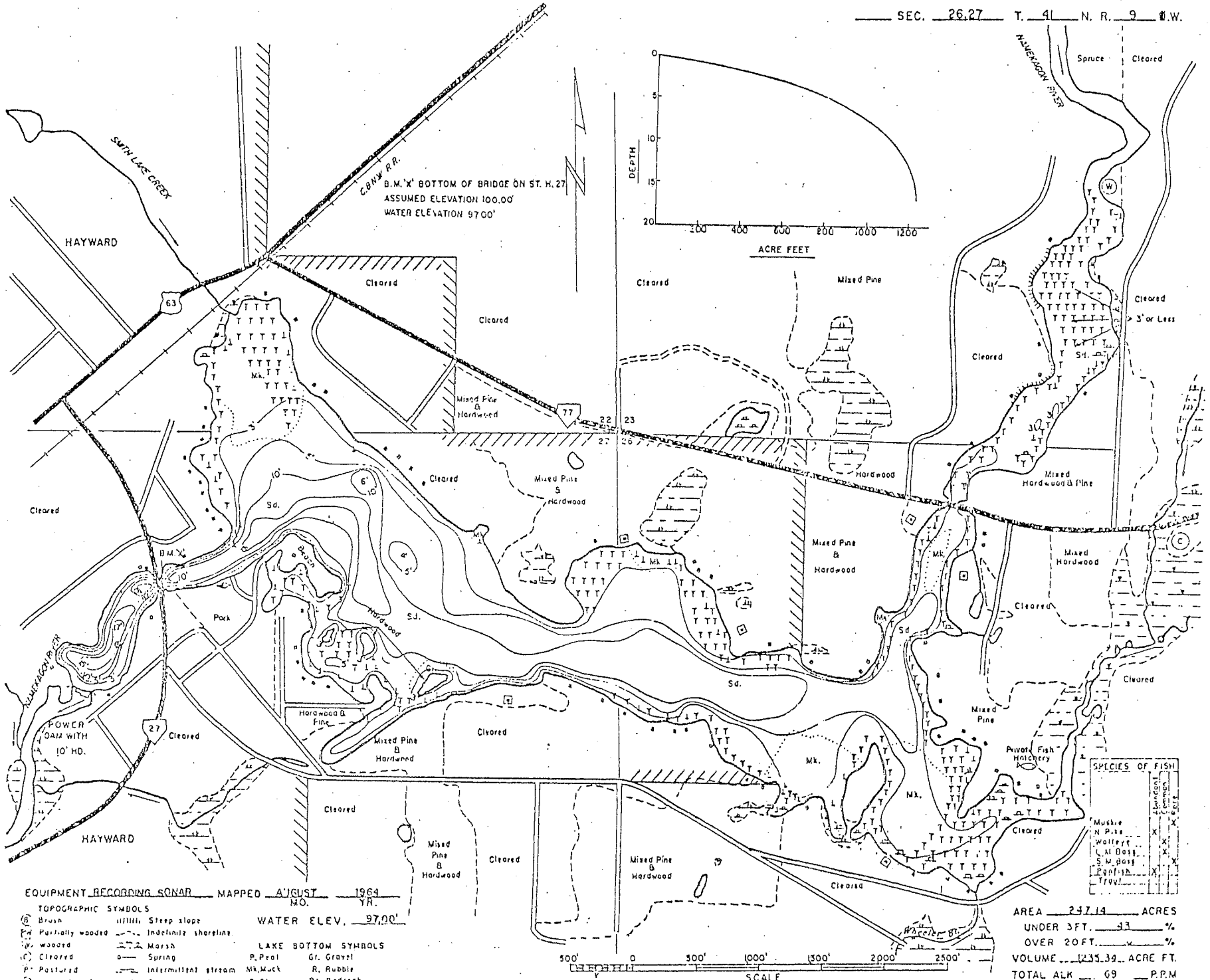
WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.

WDNR Comments



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- Pw Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- BM Beach Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- Si. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- ⊥ Emergent vegetation
- Floating vegetation

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmidt, W. Pollard, L. Sather Drawn by: J. Rota

AREA 247.14 ACRES

UNDER 3 FT. 33 %

OVER 20 FT. — %

VOLUME 1235.39 ACRE FT.

TOTAL ALK. 69 P.P.M.

SHORELINE 8.64 MILES

MAX. DEPTH 17 FEET

WDNR Comments

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET **GAMEFISH** Wisconsin Department of Natural Resources

Waterbody Name:	Hayward	Target Fish:	Juvenile Walleye	Generator Start Time:	542
MWB Code/WBIC:	2725500	Mark(s) Given:	None	Generator End Time:	543.8
Waterbody Type:	Drainage Impoundment	Survey Type:	CPE (Fall Shoreline)	Volts:	1.8
County:	Sawyer	Gear Type:	Boomshocker	Amps:	6
Date (MM/DD/YY):	06-Oct-04	Weather:	Clear, breezy, warm	Pulse Rate:	250
Station:	Entire lake and inlet	Adverse Conditions:	Weedy- walleye yoy very DEEP	Duty Cycle:	
Start Time:	1845	Water Temperature:	49 F	Current Type:	AC
End Time:	2145	Water Conductivity:	High	Distance Shocked:	6.6
Collectors:	Rw, JD, CS	Water Level:	Normal	Entire Shoreline Shocked:	Y
		Water Clarity:	L Brwn	Number of Dippers:	2
				Dipnet Mesh Size:	0.1285

	Walleye		Muskellunge		Largemouth Bass		Northern Pike			Northern Pike		Muskellunge	
inches	Above 77	Below77							inches				
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4	1			
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4									26.5-26.9	2			
3.5-3.9									27.0-27.4	1			
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9				
5.5-5.9							1		29.0-29.4	1			
6.0-6.4	4						3		29.5-29.9				
6.5-6.9	1				1				30.0-30.4			1	
7.0-7.4	3		1 Hybrid						30.5-30.9	1			
7.5-7.9	1				1		1		31.0-31.4				
8.0-8.4	1								31.5-31.9				
8.5-8.9	2				1		1		32.0-32.4				
9.0-9.4	1				1		3		32.5-32.9				
9.5-9.9	2				1		3		33.0-33.4			1	
10.0-10.4	1				1		2		33.5-33.9				
10.5-10.9	1						2		34.0-34.4				
11.0-11.4					1		3		34.5-34.9			1	
11.5-11.9			2				1		35.0-35.4				
12.0-12.4	2		1		2		1		35.5-35.9				
12.5-12.9	1	1	4		2		4		36.0-36.4				
13.0-13.4		1					2		36.5-36.9				
13.5-13.9					2		2		37.0-37.4				
14.0-14.4							2		37.5-37.9				
14.5-14.9					2				38.0-38.4				
15.0-15.4									38.5-38.9				
15.5-15.9	1				2				39.0-39.4				
16.0-16.4					4		2		39.5-39.9				
16.5-16.9							2		40.0-40.4				
17.0-17.4									40.5-40.9				
17.5-17.9					1				41.0-41.4				
18.0-18.4							2		41.5-41.9				
18.5-18.9							1		42.0-42.4				
19.0-19.4			1		1		1		42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9							1		44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4							1		45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
TOTALS	23 WE tot				23 LMB				50.0+	46NP		12 MU tot	

WDNR Comments

Hrs 25.7 to 26.7 2.0 hrs. on line shock

H_2O - 51 °F

2725500

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

pick-up only targeted game fish

INCHES

COUNTY Sawyer COUNTY CODE 58

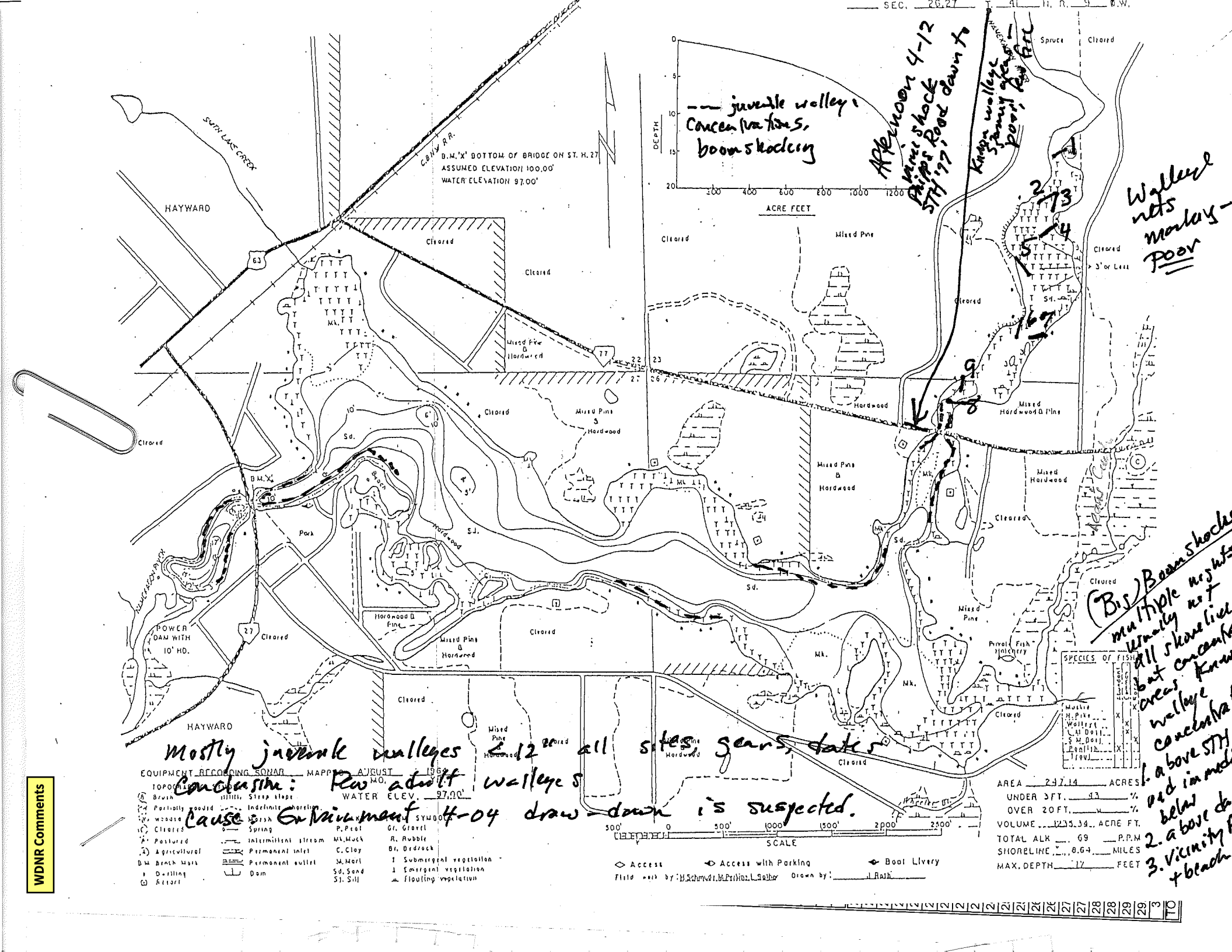
WATER Lake Hayward WATER CODE

DATE 5-25-04

GEAR 200 BS V 2-4 / Amps

SIZE RANGE — INCHES	SPECIES WE	LMB	NP	MU
<3.0				
3.0- 3.4				
3.5- 3.9				
4.0- 4.4				
4.5- 4.9				
5.0- 5.4				
5.5- 5.9				
6.0- 6.4	1			
6.5- 6.9	5			
7.0- 7.4	8			
7.5- 7.9	7			
8.0- 8.4	7			
8.5- 8.9	2	2		
9.0- 9.4	1	2	1	
9.5- 9.9				
10.0-10.4	3			
10.5-10.9	1		1	
11.0-11.4	3	1		
11.5-11.9	1	1		
12.0-12.4		4		
12.5-12.9	1	2		
13.0-13.4		1	1	
13.5-13.9		3		
14.0-14.4		7		
14.5-14.9		3		
15.0-15.4	1			
15.5-15.9		1		
16.0-16.4	1	1		
16.5-16.9		1		
17.0-17.4				
17.5-17.9			1	
18.0-18.4				
18.5-18.9				
19.0-19.4				
19.5-19.9				
20.0-20.4				
20.5-20.9				
21.0-21.4				
21.5-21.9			1	
22.0-22.4				
22.5-22.9				
23.0-23.4				
23.5-23.9				
24.0-24.4				
24.5-24.9			1	
25.0-25.4				
25.5-25.9				
26.0-26.4				
26.5-26.9				
TOTAL	42 WE	28 LMB		

SIZE RANGE — INCHES	SPECIES NP	MU	
27.0-27.4	1		
27.5-27.9			
28.0-28.4	1		
28.5-28.9			
29.0-29.4			
29.5-29.9			BL - C
30.0-30.4			BG - A
30.5-30.9			YP - C
31.0-31.4			RB - P
31.5-31.9			WS - C
32.0-32.4			RH - P
32.5-32.9			
33.0-33.4			
33.5-33.9			
34.0-34.4			
34.5-34.9			
35.0-35.4			
35.5-35.9			
36.0-36.4			SMB 4.0
36.5-36.9			
37.0-37.4			
37.5-37.9			
38.0-38.4			
38.5-38.9			
39.0-39.4			
39.5-39.9			
40.0-40.9			YP 11.6
41.0-41.9		1	9.0
42.0-42.9			10.0
43.0-43.9			9.9
44.0-44.9			8.0
45.0-45.9			RB 7.2
46.0-46.9			
47.0-47.9			
48.0-48.9			
49.0-49.9			BC 10.6
50.0-50.9			
51.0-51.9			
52.0-52.9			
53.0-53.9			
54.0-54.9			
55.0-55.9			
56.0-56.9			
57.0-57.9			
58.0-58.9			
59.0-59.9			
60.0+			
TOTAL	14 NP	1 MU	



juvenile walleye concentrations, boom shocking

Afternoon 4-12 mini shock Phipps STH '97, Road down to Kenyon walleye spawning area, Poor, Fair, Poor

Walleye nets marsh - Poor

(B.S.) Boom shocke multiple nights usually not all shoreline but concentr areas. Know walleye concentra

1. above STH pad in mod
2. above & below
3. Vicinity + beach

Mostly juvenile walleyes 4-12 all sites, years, dates

Conclusion: Few adult walleyes

Cause: Environment 4-04 drawdown is suspected.

WDNR Comments

WDNR Comments

WALLEYE

Wisconsin Department of Natural Resources

Body Name: Namekagon R @ Lk Hayward
MWB Code/WBIC:
Waterbody Type: River-nonwadeable
County: Sawyer
Date (MM/DD/YY): ####### ####### 4/11/
Station: nonwadeable mini Phipps Rd
Start Time:
End Time:
Total Time Shocking : 1.4 hrs.
Collectors: Pratt and Warwick

Target Fish: Walleye
Mark(s) Given: LP
Survey Type: Population Estimate
Gear Type: ~~Boomshocker~~ Mini-boom
Weather: Clear, warm
Adverse Conditions: None

Water Temperature: 49 F
Water Conductivity: Moderate
Water Level: early sprin Normal [LOW]
Water Clarity: L Br

Pulser Box Meter Start Time:
Pulser Box Meter End Time:
Total Elapsed Time:
Volts/Amps: 230/2.4
Pulse Rate:
Duty Cycle:
Current Type: AC
Distance Shocked: 2.7 miles
Entire Shoreline Shocked: No
Number of Dippers: One
Dipnet Mesh Size: 3/8"

	MALE			FEMALE			UNKNOWN			
inches	Unclipped	Clipped	inches	Unclipped	Clipped	inches	Unclipped	NOCLIP	Clipped Prim	Clipped Sec
<4.0			<4.0			<4.0				
4.0-4.4			4.0-4.4			4.0-4.4				
4.5-4.9			4.5-4.9			4.5-4.9				
5.0-5.4			5.0-5.4			5.0-5.4				
5.5-5.9			5.5-5.9			5.5-5.9				
6.0-6.4			6.0-6.4			6.0-6.4				
6.5-6.9			6.5-6.9			6.5-6.9				
7.0-7.4			7.0-7.4			7.0-7.4				
7.5-7.9			7.5-7.9			7.5-7.9				
8.0-8.4			8.0-8.4			8.0-8.4				
8.5-8.9			8.5-8.9			8.5-8.9				
9.0-9.4			9.0-9.4			9.0-9.4				
9.5-9.9			9.5-9.9			9.5-9.9				
10.0-10.4			10.0-10.4			10.0-10.4				
10.5-10.9			10.5-10.9			10.5-10.9				
11.0-11.4			11.0-11.4			11.0-11.4				
11.5-11.9			11.5-11.9			11.5-11.9				
12.0-12.4			12.0-12.4			12.0-12.4	1			
12.5-12.9			12.5-12.9			12.5-12.9	1			
13.0-13.4			13.0-13.4			13.0-13.4				
13.5-13.9			13.5-13.9			13.5-13.9				
14.0-14.4	1		14.0-14.4			14.0-14.4				
14.5-14.9	2		14.5-14.9			14.5-14.9				
15.0-15.4	1		15.0-15.4			15.0-15.4				
15.5-15.9	1		15.5-15.9			15.5-15.9				
16.0-16.4	1		16.0-16.4	1		16.0-16.4				
16.5-16.9	1		16.5-16.9			16.5-16.9				
17.0-17.4	2		17.0-17.4			17.0-17.4				
17.5-17.9	1		17.5-17.9			17.5-17.9				
18.0-18.4			18.0-18.4			18.0-18.4				
18.5-18.9	1		18.5-18.9	1		18.5-18.9				
19.0-19.4			19.0-19.4			19.0-19.4				
19.5-19.9			19.5-19.9			19.5-19.9				
20.0-20.4			20.0-20.4			20.0-20.4				
20.5-20.9			20.5-20.9	1		20.5-20.9				
21.0-21.4			21.0-21.4			21.0-21.4				
21.5-21.9			21.5-21.9			21.5-21.9				
22.0-22.4			22.0-22.4			22.0-22.4				
22.5-22.9			22.5-22.9	1		22.5-22.9				
23.0-23.4			23.0-23.4			23.0-23.4				
23.5-23.9			23.5-23.9			23.5-23.9				
24.0-24.4			24.0-24.4			24.0-24.4				
24.5-24.9			24.5-24.9			24.5-24.9				
25.0-25.4			25.0-25.4			25.0-25.4				
25.5-25.9			25.5-25.9			25.5-25.9				
26.0-26.4			26.0-26.4			26.0-26.4				
26.5-26.9			26.5-26.9			26.5-26.9				
27.0-27.4			27.0-27.4			27.0-27.4				
27.5-27.9			27.5-27.9			27.5-27.9				
28.0-28.4			28.0-28.4			28.0-28.4				
28.5-28.9			28.5-28.9			28.5-28.9				
29.0-29.4			29.0-29.4			29.0-29.4				
29.5-29.9			29.5-29.9			29.5-29.9				
30.0 +			30.0 +			30.0 +				
TOTALS:	11 males all LP clipped		TOTALS:	4 Females all LP clipped		TOTALS:	2 Immatures LP clipped			

WALLEYE / ELECTROFISHING / RUN: Mainstem Main

River N

KOA → 77

WDNR Comments

DATA COLLECTION SHEET (3600-190-G/E/A1) **GAMEFISH** Wisconsin Department of Natural Resources

Waterbody Name: Namekagon Above LH
MWB Code/WBIC:
Waterbody Type: River
County: Sawyer
Date (MM/DD/YY): 4/11/2005 Minishock
Station: Phipps road nw mini
Start Time: 2:00 PM
End Time: 4:00 PM
Total Time Shocking : 1.4 hrs
Collectors: Pratt/Warwick

Target Fish: Spawning walleye/Brwn trout
Mark(s) Given: LP walleye only
Survey Type: Population Estimate
Gear Type: Boomshocker
Weather: suny, warm
Adverse Conditions: None
Water Temperature: 49
Water Conductivity: Moderate
Water Level: Normal
Water Clarity: L Brwn

Pulser Box Meter Start Time: MINI
Pulser Box Meter End Time:
Total Elapsed Time:
Volts/Amps: 230/2.3
Pulse Rate:
Duty Cycle:
Current Type: AC
Distance Shocked: 2.7 miles
Entire Shoreline Shocked:
Number of Dippers: [1
Dipnet Mesh Size: 3/8"

	MALrown trou Brwn Trout		FEMALE		UNKNOWN Rainbow Trout			OTHER Abundance					
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclip	Clip	Unclip	Clip	Unclip	Clip
<3.0							25.5-25.9						
3.0-3.4							26.0-26.4						
3.5-3.9							26.5-26.9	WS Abundant-spawning					
4.0-4.4							27.0-27.4	NHS-Common, spawning					
4.5-4.9							27.5-27.9	RH spp.-Common, pre-spawn					
5.0-5.4							28.0-28.4	WE-Present, post-spawn					
5.5-5.9							28.5-28.9	Brook trout- Rare					
6.0-6.4							29.0-29.4	Trout perch- Common, spawning					
6.5-6.9							29.5-29.9						
7.0-7.4	1						30.0-30.4						
7.5-7.9							30.5-30.9						
8.0-8.4	4						31.0-31.4						
8.5-8.9							31.5-31.9						
9.0-9.4	1						32.0-32.4						
9.5-9.9	1						32.5-32.9						
10.0-10.4	1						33.0-33.4						
10.5-10.9	1						33.5-33.9						
11.0-11.4	2						34.0-34.4						
11.5-11.9	1						34.5-34.9						
12.0-12.4	2						35.0-35.4						
12.5-12.9	1						35.5-35.9						
13.0-13.4	1						36.0-36.4						
13.5-13.9	3						36.5-36.9						
14.0-14.4	2						37.0-37.4						
14.5-14.9	4						37.5-37.9						
15.0-15.4	3						38.0-38.4						
15.5-15.9	4				1		38.5-38.9						
16.0-16.4							39.0-39.4						
16.5-16.9							39.5-39.9						
17.0-17.4	1						40.0-40.4						
17.5-17.9	2						40.5-40.9						
18.0-18.4	1						41.0-41.4						
18.5-18.9							41.5-41.9						
19.0-19.4							42.0-42.4						
19.5-19.9	2						42.5-42.9						
20.0-20.4	1						43.0-43.4						
20.5-20.9	1						43.5-43.9						
21.0-21.4							44.0-44.4						
21.5-21.9							44.5-44.9						
22.0-22.4							45.0-45.4						
22.5-22.9							45.5-45.9						
23.0-23.4							46.0-46.9						
23.5-23.9							47.0-47.9						
24.0-24.4							48.0-48.9						
24.5-24.9							49.0-49.9						
25.0-25.4							50.0+						
TOTALS:	40 Brwn				1 Rainbow								

_____ / ELECTROFISHIN TROUT

WDNR Comments

Hayward Survey

Status

Status 75985
Survey 81463
Visit 4966642 → Lake Lalla Hayward General

Out of Greater WE RE. Survey

Netting + MW boom Shocking for Marking

Boom shocker for recap.

Talk to Joanna

WISCONSIN CONSERVATION DEPARTMENT LAKE SURVEY MAP

Used BTS members Poor

Boom Shocker

WDNR Comments

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PANFISH LENGTH FREQUENCY

FORM 3600-64 REV. 3-81

net 1 - 130 TOT. WS - 19.5

INCHES net 2 - 50 TOT
net 3 - 30 TOT / 230 TOT - SHAKES PD.

Turtles: Soft shell - III; PT mth II; PT mth +16 mth; SNT - 1

16.8 26.5 NP 12.0
30.0 17.0 7.0
8.8 13.0 23.5
21.0 13.5 19.0
15.1

COUNTY COUNTY CODE 58

WATER LH WATER CODE _____

DATE 5/18/05

GEAR 8 Fykes (4')

SIZE RANGE INCHES	SPECIES BG	BC	YP	PS	SIZE RANGE INCHES	SPECIES BG	BC	YP	PS
1.0-1.4					7.0				
1.5-2.0					7.1				
2.1					7.2				
2.2					7.3				
2.3					7.4				
2.4					7.5				
2.5					7.6				
2.6					7.7				
2.7					7.8				
2.8					7.9				
2.9					8.0				
3.0					8.1				
3.1					8.2				
3.2					8.3				BIBH
3.3					8.4				10.0
3.4					8.5				
3.5					8.6				
3.6					8.7				
3.7					8.8				
3.8					8.9				
3.9					9.0				
4.0					9.1				
4.1					9.2				NE.
4.2					9.3				
4.3					9.4				24.5 Rake
4.4					9.5				19.8 Rake
4.5					9.6				
4.6					9.7				
4.7					9.8				
4.8					9.9				
4.9					10.0				
5.0					10.2				
5.1					10.4				
5.2					10.6				
5.3					10.8				
5.4					11.0				
5.5					11.2				
5.6					11.4				
5.7					11.6				
5.8					11.8				
5.9					12.0				
6.0					12.2				
6.1					12.4				
6.2					12.6				
6.3					12.8				
6.4					13.0				
6.5					13.2				
6.6					13.4				
6.7					13.6				
6.8					13.8				
6.9					14.0+				
TOTALS					TOTALS				

net 4 - 10 | net 5 - 15 | net 6 - 20 | net 7 - 15 | net 8 - 10 | 60 to NFWFTOF

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Sawyer	Hayward	MWBC: 2725500

Sampling Objective	Number and Locations of Stations (Habitat)	
Basic Inventory		Source
	Miles Actually Shocked = 5.4	LM
Period Fished (Dates)	Acres = 247	LM
09/25/06	Total Miles of Shoreline = 8.6	LM
	Total Miles of Shockable Shoreline = 8.6	LM

GEAR

Boomshocker (Hours)	Time	
1.5	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-NR
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	0		-	0.00 / hour	0.00 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	0		-	0.00 / hour	0.00 / mile
Walleye (Other)	10	None	11.0 - 23.4	6.67 / hour	1.85 / mile
Smallmouth Bass	1	None	17.0 - 17.4	0.67 / hour	0.19 / mile
Largemouth Bass	31	8.5-8.9	3.0 - 19.4	20.67 / hour	5.74 / mile
Muskellunge	5	None	10.0 - 48.9	3.33 / hour	0.93 / mile
Northern Pike	24	None	6.5 - 30.4	16.00 / hour	4.44 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
Bluegill	Common		Bullhead spp.	Present	
Pumpkinseed	Present		Redhorse spp.	Common	
Black Crappie	Present				
Yellow Perch	Common				
Rock Bass	Present				
White Sucker	Common				
Bluntnose Minnow	Present				
Blacknose Shiner	Present				

1) Tank Mortality: None 2) Weather: NA 3) Reliabilty: Medium

4) Stocking: 2469 Walleye, 6.8 inches, 09/15/06, DNR 136 Muskellunge, 12.4 inches, 09/21/06, DNR

5) Comments:

Rev. 10-70

Signed (Compiler)	Jamison L. Wendel	Date	12/12/06

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SH
Form 3600A-191

Lake: Hayward MWB Code: 2725500 Date: 09/25/06 County: Sawyer Collector(s): Warwick, Pratt

Target Fish: All Species Survey Type: Basic Inventory Mark Given: None Water Temperature: 59°F Station: Portion of Shoreline

Adverse Conditions: NA Gear Type: Boomshocker Distance Shocked: 5.4 miles

Volts: NA Amps: NA Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: NA Shocking End Time: NA Generator Start Hour: 584.1 Generator End Hour: 585.6

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4	1	
3.5-3.9			17.5-17.9		
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4			19.0-19.4	1	
5.5-5.9			19.5-19.9		
6.0-6.4			20.0-20.4		
6.5-6.9			20.5-20.9		
7.0-7.4			21.0-21.4		
7.5-7.9			21.5-21.9	1	
8.0-8.4			22.0-22.4	1	
8.5-8.9			22.5-22.9		
9.0-9.4			23.0-23.4	1	
9.5-9.9			23.5-23.9		
10.0-10.4			24.0-24.4		
10.5-10.9			24.5-24.9		
11.0-11.4	1		25.0-25.4		
11.5-11.9	2		25.5-25.9		
12.0-12.4			26.0-26.4		
12.5-12.9			26.5-26.9		
13.0-13.4	1		27.0-27.4		
13.5-13.9			27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9			28.5-28.9		
15.0-15.4	1		29.0-29.4		
15.5-15.9			29.5-29.9		
16.0-16.4			30.0 +		
			Totals:	10	0

WALLEYE

WDNR Comments

of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)
Form 3600F-186
8-95

ayward MWB Code: 2725500 Date: 09/25/06 County: Sawyer Collector(s): Warwick, Pratt

Fish: All Species Survey Type: Basic Inventory Mark Given: None Water Temperature: 59°F Station: Portion of Shoreline

/erse Conditions: NA Gear Type: Boomshocker Distance Shocked: 5.4 miles

/olts: NA Amps: NA Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: NA Shocking End Time: NA Generator Start Hour: 584.1 Generator End Hour: 585.6

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

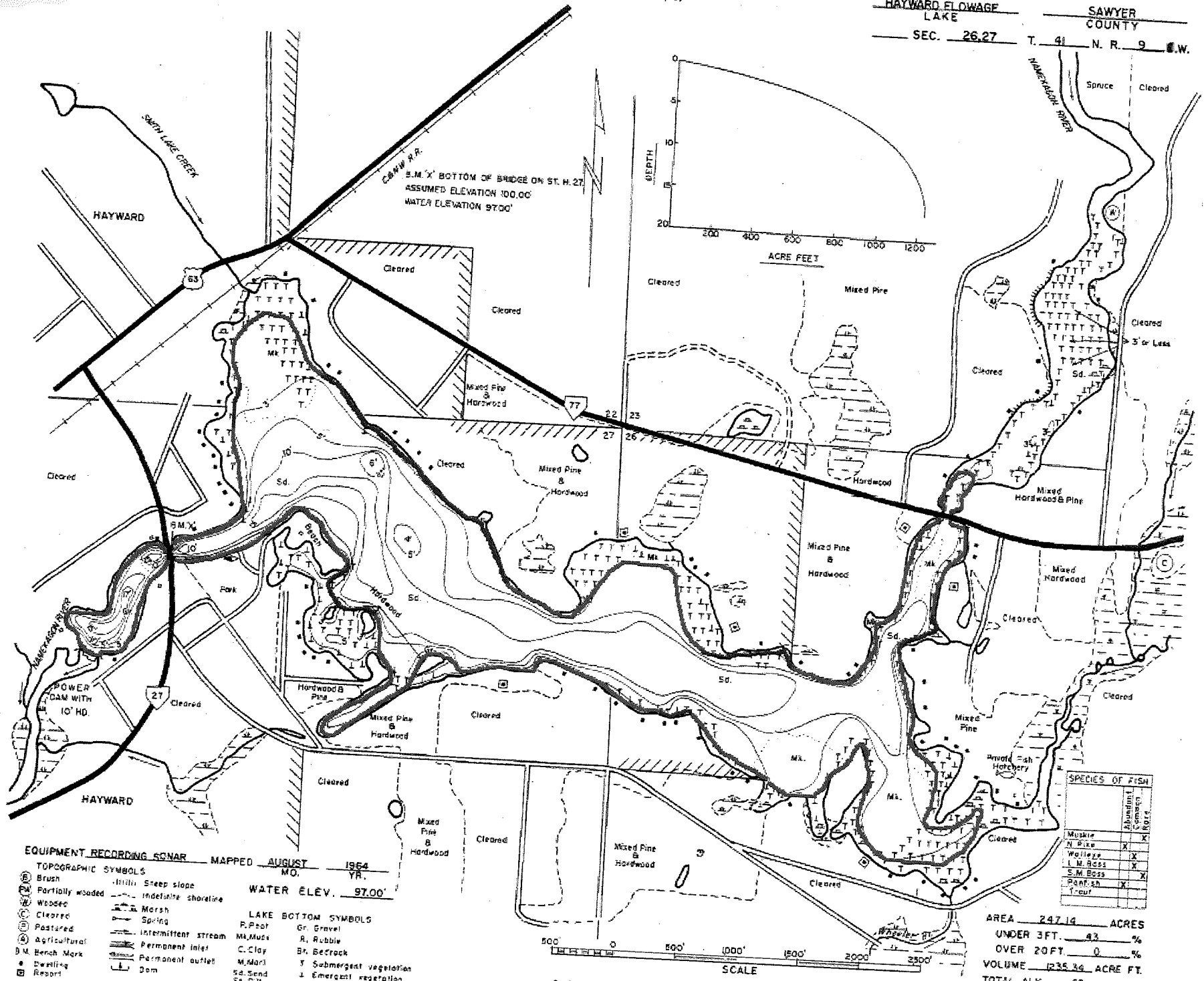
	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4					2				26.5-26.9				
3.5-3.9									27.0-27.4				
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9				
5.5-5.9									29.0-29.4				
6.0-6.4					2				29.5-29.9	1			
6.5-6.9	1				1				30.0-30.4	1			
7.0-7.4	1								30.5-30.9				
7.5-7.9					1				31.0-31.4				
8.0-8.4									31.5-31.9				
8.5-8.9	3				6				32.0-32.4				
9.0-9.4					1				32.5-32.9				
9.5-9.9					1				33.0-33.4				
10.0-10.4	1		1						33.5-33.9				
10.5-10.9									34.0-34.4				
11.0-11.4	3								34.5-34.9				
11.5-11.9	2		1		1				35.0-35.4				
12.0-12.4	2				4				35.5-35.9				
12.5-12.9									36.0-36.4				
13.0-13.4	3		1		3				36.5-36.9				
13.5-13.9	2		1		1				37.0-37.4				
14.0-14.4	2								37.5-37.9				
14.5-14.9	1								38.0-38.4				
15.0-15.4									38.5-38.9				
15.5-15.9	1				3				39.0-39.4				
16.0-16.4					1				39.5-39.9				
16.5-16.9									40.0-40.4				
17.0-17.4					1		1		40.5-40.9				
17.5-17.9									41.0-41.4				
18.0-18.4					2				41.5-41.9				
18.5-18.9									42.0-42.4				
19.0-19.4					1				42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9									44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4									45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9			1	
24.0-24.4									49.0-49.9				
Totals:	24	0	5	0	31	0	1	0	50.0+				

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

SCALE: 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H.Schmude, W.Perkins, J.Sather Drawn by: J.Path

SPECIES OF FISH

	Abundant	Common	Rare
Muskie			X
N. Pike	X		
Walleye		X	
L.M. Bass		X	
S.M. Bass			X
Panfish	X		
Trout			

AREA 247.16 ACRES
UNDER 3FT. 43 %
OVER 20FT. 0 %
VOLUME 1235.36 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX DEPTH 17 FEET

WDNR Comments

Department of Natural Resources

WDNR Comments

Back for "A" (non-game, 0.5 mi.) Start 5841 stop 585.6

MONITORING
STATION FISH SAMPLING SUMM
Form 3600-57

TCMP 58.7

Nongame Crack J

LAKE: HAYWARD

INVESTIGATOR: RW-JD L.N

Area Sampled:	LENGTH	~~WIDTH~~	~~AREA (ACRES)~~	STATION NO.	NO. PER ACRE	DATE
		TOTAL Shoreline		All		9/25/06

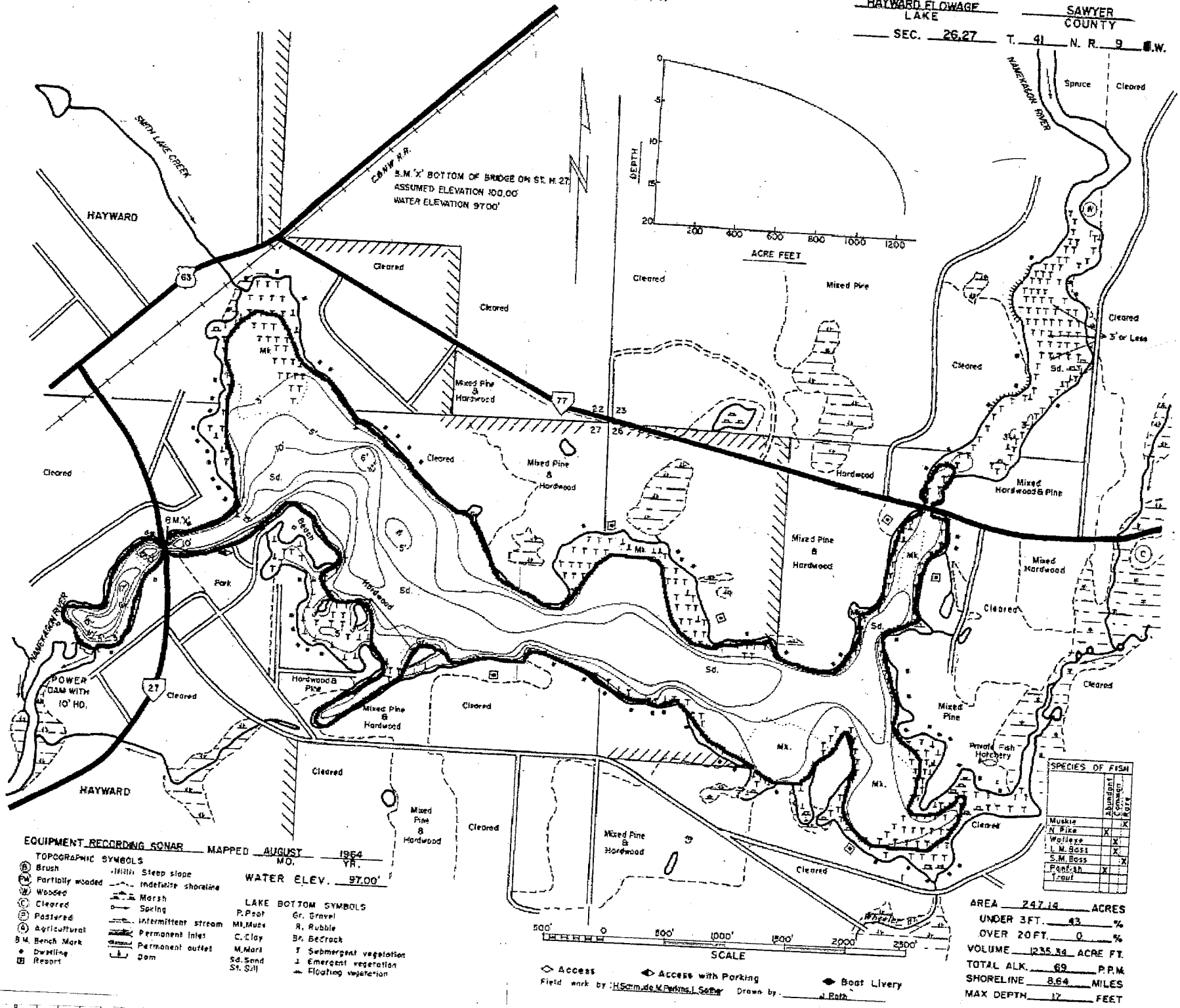
SIZE RANGE	SPECIES: Walleye	LMB	SMB	Mu	NP	Other
1						
1.0 - 1.4				36# +		
1.5 - 1.9				48.0 LV		
2.0 - 2.4	Survey ID					
2.5 - 2.9					29.5	
3.0 - 3.4	94137	II			30.0	
3.5 - 3.9						
4.0 - 4.4						
4.5 - 4.9						
5.0 - 5.4						
5.5 - 5.9						
6.0 - 6.4		II				
6.5 - 6.9					I	
7.0 - 7.4		I			I	
7.5 - 7.9						
8.0 - 8.4		I				
8.5 - 8.9		IIII I			III	
9.0 - 9.4		I				
9.5 - 9.9		I				
10.0 - 10.4				I	I	
10.5 - 10.9						
11.0 - 11.4	I				III	
11.5 - 11.9	II	I		I	III	BG - C
12.0 - 12.4		III			II	YP - C
12.5 - 12.9						BC - P
13.0 - 13.4	I	III		I	III	BNM - P
13.5 - 13.9		I			II	BNS - P
14.0 - 14.4					II	BH - P
14.5 - 14.9					I	WS/RH - C
15.0 - 15.4	I					PS - P
15.5 - 15.9		III			I	RB - P
16.0 - 16.4		I				
16.5 - 16.9						
17.0 - 17.4	I					
17.5 - 17.9						
18.0 - 18.4		II				
18.5 - 18.9						
19.0 - 19.4	I	I				
19.5 - 19.9						
20.0 - 20.4						
20.5 - 20.9						
21.0 - 21.4						
21.5 - 21.9	I					
22.0 - 22.4	I					
22.5 - 22.9						
23.0 - 23.4	I					
23.5 - 23.9						
24.0 - 24.4						
24.5 - 24.9						
25 + (give actual size)						
TOTAL	10 W E	26 LMB	15 SMB	5 Mu	24 NP	

Rev. 3-75

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



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- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Stil
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

SPECIES OF FISH

	Abundant	Common	More
Muskie			X
N. Pike	X		
Walleye		X	
L.M. Bass		X	
S.M. Bass			X
Panfish	X		
Trout			

AREA 247.14 ACRES

UNDER 3FT. 43 %

OVER 20FT. 0 %

VOLUME 1235.34 ACRE FT.

TOTAL ALK. 69 P.P.M.

SHORELINE 8.64 MILES

MAX DEPTH 17 FEET

◇ Access ◆ Access with Parking ● Boat Livery

Field work by: H.Schmude, M.Perkins, J.Sather Drawn by: J.Roth

WDNR Comments

1.3 hrs. / 4.0 miles ST 1 Swims

WDNR Comments

Wisconsin
Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 Rev. 4-94

1000 5687

~~Tues~~ WED.

Lake Hayward MWB Code: 2725500 Date: 10 / 04 / 07 County: SAWYER Collector: RW / FBP / JD

Target Fish: All Survey Type: FERC ~~Lake Monitor~~ Mark Given: None* H_2O Temp: 58.9 Time 21 : 30

Adverse Conditions: None H_2O Conduct: High Station: 1 / 1A South

Volts: 190 Amps: 8 Current Type (AC/~~DC/Pulsed DC~~) ~~Pulse Rate:~~ ~~Duty Cycle:~~

Gear Type: VV AC BS Start Time: 20:30 End Time: Distance Shocked: 4.0 (0.5*)

# of Dippers: ~~1~~ (2) Entire Shoreline Shocked: ~~Y~~/N/I ~~Dip~~ net mesh size: 3/8" H_2O Clarity: (Clear/Turbid/Very Turbid)

Inches	W.E.	LMB	SMB	NP	Inches	NP	MU		Other
4.0 - 4.4		1.8			30.0 - 30.4				
4.5 - 4.9		1.9			30.5 - 30.9				17 mud minnows
5.0 - 5.4		2.5			31.0 - 31.4				2.4 - 4.2" - "A"
5.5 - 5.9		2.5			31.5 - 31.9		None		
6.0 - 6.4		|| 3.9	None		32.0 - 32.4				SH RH
6.5 - 6.9		| 2.7			32.5 - 32.9				14.5
7.0 - 7.9		|			33.0 - 33.4	|			
7.5 - 7.9		|			33.5 - 33.9				Chestnut Lamprey
8.0 - 8.4		|			34.0 - 34.4				9.6"
8.5 - 8.9				|	34.5 - 34.9				
9.0 - 9.4		|			35.0 - 35.4				YBH
9.5 - 9.9		|		||	35.5 - 35.9				10.4
10.0-10.4	|	|			36.0 - 36.4				12.5
10.5-10.9	|	||||			36.5 - 36.9				BIBH
11.0-11.4		|		|	37.0 - 37.4				11.0
11.5-11.9				||	37.5 - 37.9				
12.0-12.4		|			38.0 - 38.4				
12.5-12.9	|			|	38.5 - 39.9	17 NP	0 MU		
13.0-13.4		||		|	39.0 - 39.4				
13.5-13.9	||				39.5 - 39.9				
14.0-14.4	|				40 +				
14.5-14.9		|		|	* Nongame / PAN - 0.5 mile sub-station "A"				
15.0-15.4									
15.5-15.9						BG	BC	PS	YP
16.0-16.4		|		|	||| 3 <1.0	Abundant			
16.5-16.9	|||	|			1.5				
17.0-17.4	||				2.0	|| 2	|		
17.5-17.9					2.5	:: 14			|	
18.0-18.4		||		|	3.0	:: 4		| 1	
18.5-18.9				|||	3.5	C 17			
19.0-19.4	|			|	4.0	:: 22		|||| 4	||
19.5-19.9		|			4.5	: 11		||| 3	
20.0-20.4					5.0	| |		|| 2	
20.5-20-9					5.5	|||| 5			
21.0-21.4					6.0	:: 15		||||| 7	|
21.5-21.9					6.5	: 11	||	|||| 5	|
22.0-22.4					7.0	: 11			
22.5-22.9					7.5	|||| 5		| |	|
23.0-23.4				|	8.0	| |			||
23.5-23.9					8.5		|||		||
24.0-24.4					9.0				|
24.5-24.9					9.5				|
25.0-25.4					10.0		|		|
25.5-25.9					10.5					|
26.0-26.4					11.0					|
26.5-26.9					11.5					
27.0-27.4					12.0					
27.5-27.9										
28.0-28.4										
28.5-28.9										
29.0-29.4				NP 16 sub TOT						
29.5-29.9	12 W.E.	30 LMB	0 SMB				~~0 MU~~			

Proofed Done

A very small <1.0" BG very abundant

Other fish: Can include rarely caught species and fish greater than 30 inches.
*Stocked GG fgl ~2500 OTC marked

WS - 21.0" 10.0, 13.6, 8.2
20.0" TOT. - "A"

1.0 hrs / 2.6 miles ST 2 "A" = 0.5 mi

WDNR Comments

nt of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 Rev. 4-94

: Hayward MWB Code: _____ Date: 10 / 05 / 07 (WED) County: SAWYER Collector: RW / PBP / JD

rget Fish: All Survey Type: Pfff Mark (FERC) Mark Given: orc Stocked w/ 6 hr 57.6 H_2O Temp: _____ Time 22 : 00

Adverse Conditions: Cloudy, Rain H_2O Conduct: Hsh Station: 2 North "A" = 0.5

Volts: 290 Amps: 8 Current Type (AC/~~DC/Pulsed DC~~) ~~Pulse Rate:~~ _____ ~~Duty Cycle:~~ _____

Gear Type: VV AC BS Start Time: _____ End Time: 2300 Distance Shocked: 2.6 (0.5) * A

# of Dippers: ~~1~~ (2) Entire Shoreline Shocked: ~~Y~~/N/~~I~~ Dip net mesh size: 3/8" H_2O Clarity: (Clear/Turbid/Very Turbid)

Inches	W.E.	LMB	SMB	NP	Inches	NP	MU
4.0 - 4.4					30.0 - 30.4		41.0
4.5 - 4.9					30.5 - 30.9		
5.0 - 5.4					31.0 - 31.4		
5.5 - 5.9					31.5 - 31.9		
6.0 - 6.4					32.0 - 32.4		
6.5 - 6.9					32.5 - 32.9		
7.0 - 7.9					33.0 - 33.4		
7.5 - 7.9					33.5 - 33.9	1	
8.0 - 8.4					34.0 - 34.4		
8.5 - 8.9					34.5 - 34.9		
9.0 - 9.4					35.0 - 35.4		
9.5 - 9.9					35.5 - 35.9		
10.0-10.4					36.0 - 36.4		
10.5-10.9					36.5 - 36.9		
11.0-11.4					37.0 - 37.4		
11.5-11.9					37.5 - 37.9		1 MU
12.0-12.4		1			38.0 - 38.4		
12.5-12.9		1			38.5 - 39.9		
13.0-13.4					39.0 - 39.4		
13.5-13.9					39.5 - 39.9		
14.0-14.4					40 +		
14.5-14.9				1	BS	TL	BG
15.0-15.4				III		1.0	* A
15.5-15.9		1		1		1.5	
16.0-16.4	1					2.0	
16.5-16.9						2.5	II
17.0-17.4						3.0	
17.5-17.9				1		3.5	
18.0-18.4					1	4.0	
18.5-18.9		1				4.5	
19.0-19.4					1	5.0	
19.5-19.9					II	5.5	
20.0-20.4					II	6.0	
20.5-20-9			0		II	6.5	
21.0-21.4						7.0	
21.5-21.9						7.5	
22.0-22.4						8.0	
22.5-22.9	1					8.5	
23.0-23.4						9.0	
23.5-23.9						9.5	
24.0-24.4						10.0	
24.5-24.9						10.5	
25.0-25.4						11.0	
25.5-25.9						11.5	
26.0-26.4						12.0	
26.5-26.9						12.5	
27.0-27.4						13.0	
27.5-27.9							
28.0-28.4							
28.5-28.9							
29.0-29.4							
29.5-29.9							

BC	YP
II	
	I
I	
	I
	II
* < 1	BG - Common

Plot Done

1/4" = Pan

Other fish: Can include rarely caught species and fish greater than 30 inches. mm - 2.9

WS - 17.5, 18.5, 19.0
SHRH - 14.5, 10.2

CS - 3.1

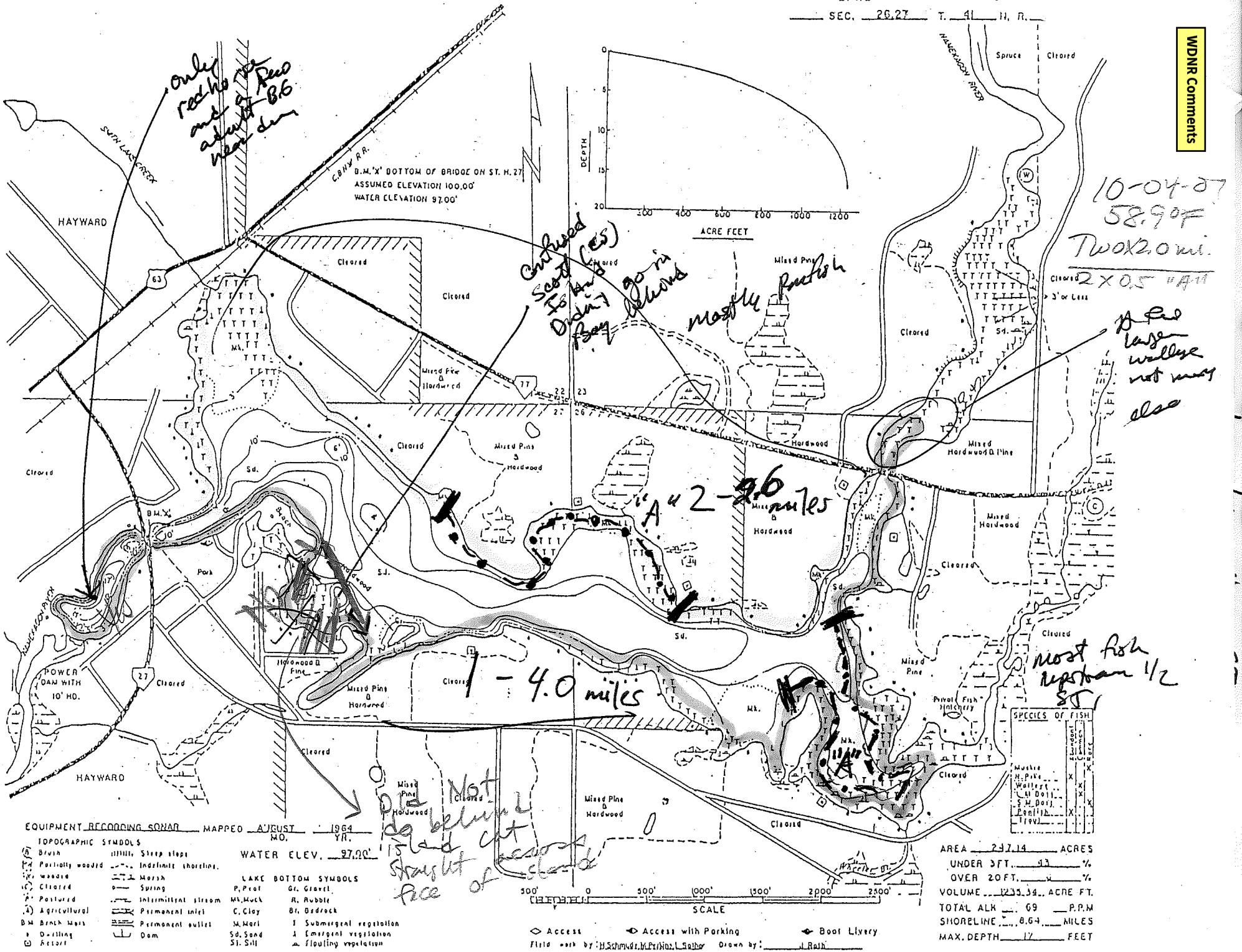
WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE
LAKE

SEC. 26,27 T. 41 N. R.

WDNR Comments



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964
MO. YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

Brush; Partially wooded; Wooded; Cleared; Pastured; Agricultural; Bench Mark; Dwelling; Resort; Steep slope; Indistinct shoreline; Marsh; Spring; Intermittent stream; Permanent inlet; Permanent outlet; Dam

LAKE BOTTOM SYMBOLS

P, Peat; Mk, Muck; C, Clay; M, Marl; Sd, Sand; Si, Silt; Gr, Gravel; R, Rubble; Br, Bedrock

I Submergent vegetation; I Emergent vegetation; Floating vegetation

◇ Access ◇ Access with Parking ◇ Boat Livery

Field work by: H. Schmidt, W. Pfeifer, L. Sather Drawn by: J. Roth

AREA 247.14 ACRES
UNDER 3FT. 53 %
OVER 20FT. X %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WISCONSIN CONSERVATION DEPARTMENT

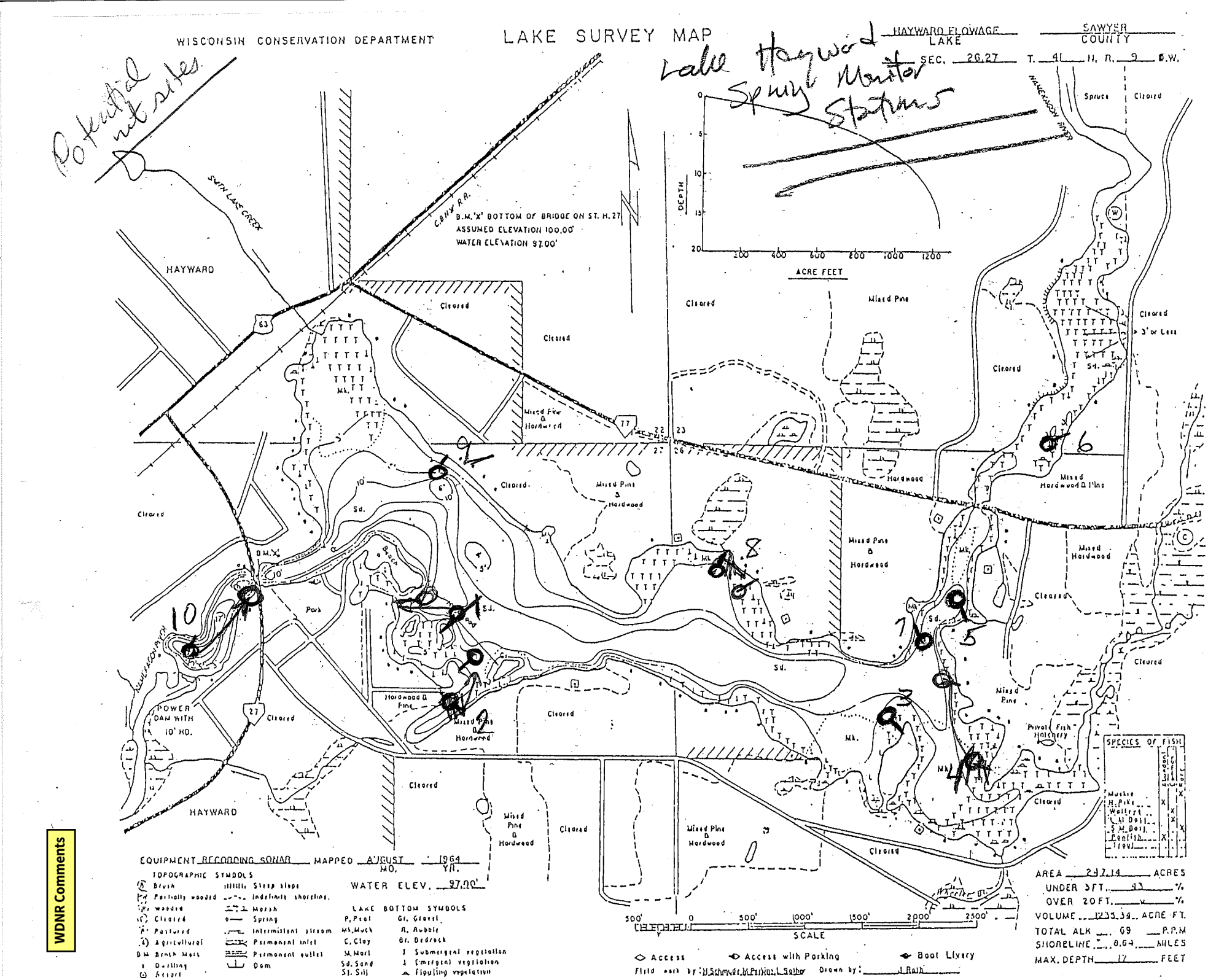
LAKE SURVEY MAP

Lake Hayward
Spring Monitor Stations

Potential nit sites

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.W.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

Brush; Partially wooded; Wooded; Cleared; Pastured; Agricultural; BM Bench Mark; Dwelling; Resort; Steep slope; Indefinite shoreline; Marsh; Spring; Intermittent stream; Permanent inlet; Permanent outlet; Dam

LAKE BOTTOM SYMBOLS

P. Peat; Mk. Muck; C. Clay; M. Marl; Sd. Sand; St. Silt; Gr. Gravel; R. Rubble; Br. Bedrock; I Submergent vegetation; I Emergent vegetation; Floating vegetation

SCALE 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◇ Access with Parking ◆ Boat Livery

Field work by: W. Schmidt, M. Prince, L. Sather Drawn by: J. Reis

AREA 297.14 ACRES
UNDER 3FT. 93 %
OVER 20FT. — %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

She **WDNR Comments** moved 1-12-09 ~~Survey~~ Station 122431
Survey 3692814
WBIC 610312

rain paper

NETTING CPE DATA COLLECTION SHEET (3600-186-CPE/N)

Wisconsin Department of Natural Resources

Waterbody Name: Lake Hayward DAY 1-PAY
MWB Code/WBIC: 272 5500
Waterbody Type: Impoundment
County: Sawyer
Date (MM/DD/YY): 4/24/08
Station: 1 – 10
Start Time: 9 AM
End Time:
Collectors: JK
AJP
JD

Target Fish: BC, YP
Mark Given: None
Survey Type: Population Estimate
Gear Type: Fyke Net 3/4"
Weather: Rainy
Adverse Conditions: High Water
Water Temperature: 46
Water Level: [HI] [NORM] [LOW]
Water Clarity: LBR

Number of Nets: 10
Number of Nights: 1
Net Frame Height: 4
Net Frame Width: 5
Lead Length: 75'
Largest Bar Mesh Size: 3/4"
Smallest Bar Mesh Size:
Mesh Color: Green
Mesh Material: Nylon

SPECIES	Net # 6	Net # 5	Net # 7	Net # 4	Net # 3	Net # 8	Net # 2	Net # 1	Net # 9	Net # 10	Net #	Net #	TOTALS
BLG	23	38,9	22	26,13	21	23	23	12,11	22	1			248 BG
Rock bass	1	1	3	1	1	1	0	1	0	IIII			
LMB	0	3	4	0	4	2	0	1	0	1			13 RB
BLKB. II	0	2	0	11	0	1	1	III	0	0			15 LMB
SHRH	1	0	0	0	0	0	0	0	0	0			9 BLH
													1 SHRH
BCP	2	39	7	30	23								BC 116 TOT
~~BLG~~				52 18									
NPK		16	IIII IIII I	23	6								103 NP
WAL		2						1	1	IIII			9 WG
~~LMB~~						1							15 LMB
YLP		2		12	11								98 TOT YP
MSK			2	2	3								
PKS			2	IIII II 7	3	8	7	4					31 PS
CNL				1			1						2 CL
WHS					1					III			4 WS
NHS					2			1					3 NHS
YELBull								1	1				2 YBH

O. vernalis common 1 mudpuppy in #1

WDNR Comments

ment of Natural Resources

NETTING DATA COLLECTION SHEET (3.0 in. - 12.9 in.)
Form 3600-191 Rev. 5-95

2725500

Lake Hayward MWB Code: _____ Date: 4 / 24 / 08 County: Sawyer Collector: JIC, FBP, JP

Target Fish: WE, E, YP, BC Survey Type: BLM Mark Given: None H_2O Temp: 46 Time ____ : ____

Adverse Conditions: Rainy, high water Station: _____

Latitude: _____ Longitude: _____

Net Type: Fyke 3/4" Length/Frame: 4x5 Bar Mesh: 3/4"

Color: Green Mesh Type: Mylon Net Nights: 10

Inches	BCP	YCP	WHS	WHS
<3.0				
3.0			5.2	9.8
3.1			19.0	8.6
3.2			18.5	4.5
3.3			19.5	3 WHS
3.4			17.0	
3.5				
3.6			5 WS TOT	
3.7				
3.8				
3.9				
4.0				
4.1				
4.2				
4.3				
4.4				
4.5				
4.6				
4.7				
4.8				
4.9				
5.0				
5.1		1 1		
5.2		1 1		
5.3		1 1		
5.4				
5.5		1 1		
5.6	1 1			
5.7	1 1	4		
5.8	2			
5.9	1			
6.0		2		
6.1	1 1	3		
6.2	2	4		
6.3				
6.4	2	1		
6.5	2	6		
6.6	1			
6.7	1	6		
6.8	2	4		
6.9	2	1		
7.0	2	4		
7.1	3	3		
7.2	5	5		
7.3				
7.4	2	3		
7.5	2	1		
7.6	3	2		
7.7	3	2		
7.8	2	3		
7.9	1	3		

Inches	BCP	YCP
8.0	6	5
8.1	3	2
8.2	5	4
8.3	5	2
8.4	7	2
8.5	4	
8.6	6	3
8.7	4	1
8.8	5	2
8.9	4	
9.0		3
9.1	3	1
9.2	3	2
9.3	3	1
9.4	3	2
9.5		
9.6	3	
9.7		2
9.8	1	
9.9	3	
10.0		1
10.1		1
10.2	1	1
10.3		
10.4	1	1
10.5	1	
10.6		
10.7		
10.8		
10.9		
11.0		
11.1		
11.2	1	
11.3		
11.4		
11.5		
11.6	1	1 1
11.7		
11.8		
11.9	1	
12.0		1
12.1		
12.2		
12.3		
12.4		
12.5		
12.6		
12.7		
12.8		
12.9		

NET 1	
Species	Count
Species	Count
Species	Count
NET 2	
Species	Count
Species	Count
Net 3	
Species	Count
Species	Count
Net 4	
Species	Count
Species	Count
Net 5	
Species	Count
Species	Count
Species	Count

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

16 30 35 — 21 — 26 32 37 — 11 YCP / BC

248 BG counted / not measured

WDNR Comments

ənt of Natural Resources

NETTING DATA COLLECTION SHEET (4.0 in. - 40+ in.)

Form 3600-188 Rev. 4-94

Lake Hayward MWB Code: _____ Date: 4/24/08 County: _____ Collector: JK, FBP, JD

Target Fish: YP, E, WE, BS Survey Type: BHM Mark Given: None H_2O Temp: 46 Time 9:00 AM

Adverse Conditions: Rain, high water/flow Station: Ten (See Map

Net Type: Fyke 3/4" Length/Frame: _____ Bar Mesh: _____

Color: Green Mesh Type: Nylon Net Nights: 10 x 1

Inches	NPK	LMB	WAL	SMBH	Inches	MSK	NPK	NET 1		
13.0-13.4					30.0 - 30.4			Species		
4.5 - 4.9					30.5 - 30.9		F	Count		
5.0 - 5.4					31.0 - 31.4					
5.5 - 5.9					31.5 - 31.9		F	Species		
6.0 - 6.4					32.0 - 32.4			Count		
6.5 - 6.9					32.5 - 32.9					
7.0 - 7.9					33.0 - 33.4			Species		
7.5 - 7.9					33.5 - 33.9			Count		
8.0 - 8.4					34.0 - 34.4	F	F			
8.5 - 8.9					34.5 - 34.9			NET 2		
9.0 - 9.4					35.0 - 35.4			Species		
9.5 - 9.9					35.5 - 35.9			Count		
10.0-10.4					36.0 - 36.4		F			
10.5-10.9					36.5 - 36.9			Species		
11.0-11.4	1 1		III	1	37.0 - 37.4	M		Count		
11.5-11.9					37.5 - 37.9	F				
12.0-12.4	1 1				38.0 - 38.4			Species		
12.5-12.9	FIMII 6				38.5 - 39.9	M		Count		
13.0-13.4	IIMMIMM 7				39.0 - 39.4					
13.5-13.95	MMMMM 5				39.5 - 39.9			NET 3		
14.0-14.46	MFFMM 5				40 +			Species		
14.5-14.94	MMFM 4		1		46.2	F		Count		
15.0-15.47	IIMFMM									
15.5-15.95	IMMMF 5		1		28.0	M		Species		
16.0-16.45	MFMFM 5		1					Count		
16.5-16.96	MFMMMF 6		1		48.4F					
17.0-17.45	FMMMM 5				46.5 F			Species		
17.5-17.93	IMM 3				42.5 U			Count		
18.0-18.45	FIFMM 4									
18.5-18.96	FIMMMM 6				9 TOT MU			NET 4		
19.0-19.44	MIIM 4							Species		
19.5-19.92	FF 2						103 TOT NP	Count		
20.0-20.4	I 1									
20.5-20-91	F 1							Species		
21.0-21.4	F 1							Count		
21.5-21.9	M 1									
22.0-22.4	F 1							Species		
22.5-22.9	FM 2							Count		
23.0-23.4	FFF 3									
23.5-23.9	F 1		II					NET 5		
24.0-24.43	FFM 3							Species		
24.5-24.9	F 1							Count		
25.0-25.4	F 1									
25.5-25.9								Species		
26.0-26.4								Count		
26.5-26.9										
27.0-27.42	FF		9 TOTAL WE					Species		
27.5-27.9	F 1							Count		
28.0-28.42	FF									
28.5-28.9										
29.0-29.4										
29.5-29.9	F 1									

Other fish: Can include rarely caught species and fish greater than 30 inches.

38.6 - 16:13 - M, 37.2 - 13:14 - M, ← MU weights lbs:oz fish are included above

Shee **WDNR Comments** provided SHK 1-12-09 Station 1224 31
survey 3092814
visit 610313

NETTING CPE DATA COLLECTION SHEET (3600-186-CPE/N) Wisconsin Department of Natural Resources

Waterbody Name: Lake Hayward
MWB Code/WBIC:
Waterbody Type:
County:
Date (MM/DD/YY): 4/25/08
Station:
Start Time:
End Time:
Collectors:

Target Fish:
Mark Given:
Survey Type: Population Estimate
Gear Type: Fyke Net
Weather:
Adverse Conditions:
Water Temperature:
Water Level: [HI] [NORM] [LOW]
Water Clarity:

Number of Nets:
Number of Nights:
Net Frame Height:
Net Frame Width:
Lead Length:
Largest Bar Mesh Size:
Smallest Bar Mesh Size:
Mesh Color:
Mesh Material:

SPECIES	Net # 6	Net # 5	Net # 7	Net # 4	Net # 3	Net # 8	Net # 2	Net # 1	Net # 9	Net # 10	Net #	Net #	TOTALS
BLG	(4)	17,1,7 6,7,3 (41)	10,4 (14)	5,5,2 5,9,3,12 (41)	13,2,3 2 (20)	8,4,5 2,6 (25)	2	4,10,1 1 (16)	9,9,4 13,5,12 1,1 (54)	1			185 TOT BG
BC													69 BC
YP													111 YP
Mu													5 Mu
BIK bullhead	1		1					1,1,1 (3)					5 BIK
SHRH	1			1				1					3 SHRH
Bwbt	1												1 Bwbt
Rockbass		3,2,1 (6)	2,1 (3)	1,2,3 (6)	1,1 (2)	1				8,3,1			30 RB
WAL		1							1				6 WE
LMB		1	1			1,1,1 (3)							5 LMB
PKS		1		12,1,7,3 (14)	1,3 (4)	2,3 (5)	3,1,1 (5)	2,1,1 (4)	1	2,			36 PS
Yellow bullhead				1				1	1				3 YBH
WHS	1									11			3 WHS

CPE / NETTING

Lots of Big NP

WDNR Comments

Natural Resources

NETTING DATA COLLECTION SHEET (4.0 in. - 40+ in.)

Form 3600-188 Rev. 4-94

e Hayward MWB Code: _____ Date: 4/25/08 County: 58 Collector: RW/JD/JK

arget Fish: WE, NP, YP, BG Survey Type: RLM Mark Given: None H_2O Temp: 50°F Time 8:00

Adverse Conditions: Rain / high-water / Deer Lk. schedule Station: 1-10

Net Type: Fyke Length/Frame: 4X5 Bar Mesh: 3/4"

Color: Green Mesh Type: Nylon Net Nights: 10 x 1 net

Inches	NPK		WS	Wal	Inches	MSK	NP	NET 1		
4.0 - 4.4					30.0 - 30.4		M1	Species		
4.5 - 4.9					30.5 - 30.9		1	Count		
5.0 - 5.4					31.0 - 31.4		1			
5.5 - 5.9					31.5 - 31.9			Species		
6.0 - 6.4					32.0 - 32.4			Count		
6.5 - 6.9			1		32.5 - 32.9		F1			
7.0 - 7.9					33.0 - 33.4		F	Species		
7.5 - 7.9					33.5 - 33.9		F	Count		
8.0 - 8.4					34.0 - 34.4					
8.5 - 8.9	1				34.5 - 34.9			NET 2		
9.0 - 9.4					35.0 - 35.4			Species		
9.5 - 9.9					35.5 - 35.9		1	Count		
10.0-10.4					36.0 - 36.4					
10.5-10.9					36.5 - 36.9			Species		
11.0-11.4	M				37.0 - 37.4			Count		
11.5-11.9	M				37.5 - 37.9					
12.0-12.4	1M1			1	38.0 - 38.4			Species		
12.5-12.9	1			1	38.5 - 39.9	M		Count		
13.0-13.4	M1M				39.0 - 39.4					
13.5-13.9	MMM			1	39.5 - 39.9			NET 3		
14.0-14.4 F	M1FMMMM				40 +			Species		
14.5-14.9	1MFM			F	48.5 F			Count		
15.0-15.4	MFFM				41.0 M					
15.5-15.9	MMF				45.5 M	(LV) *		Species		
16.0-16.4	MMMM		1		46.5 F			Count		
16.5-16.9	M1M1MF		1							
17.0-17.4	M1M							Species		
17.5-17.9	1M							Count		
18.0-18.4	FIMMM									
18.5-18.9	M							NET 4		
19.0-19.4	F1MFMM							Species		
19.5-19.9	MMMMM							Count		
20.0-20.4	MMMFM			M						
20.5-20-9	F1M							Species		
21.0-21.4	FF							Count		
21.5-21.9	MM									
22.0-22.4	M							Species		
22.5-22.9								Count		
23.0-23.4	F									
23.5-23.9								NET 5		
24.0-24.4	MM			1				Species		
24.5-24.9	F							Count		
25.0-25.4	F									
25.5-25.9								Species		
26.0-26.4								Count		
26.5-26.9	F1M									
27.0-27.4								Species		
27.5-27.9								Count		
28.0-28.4										
28.5-28.9	F									
29.0-29.4										
29.5-29.9										

Other fish: Can include rarely caught species and fish greater than 30 inches.

38.5 = 14:0 41.0 = 19:4 * LV-Clip 45.5 = 24:10 Tiger = 20.0

WDNR Comments

Resources

NETTING DATA COLLECTION SHEET (3.0 in. - 12.9 in.)
Form 3600-191 Rev. 5-95

Hayward MWB Code: _____ Date: 4/25/08 County: _____ Collector: RW/JD/JK

Target Fish: WE, NP, YP, BC Survey Type: BLM Mark Given: _____ H_2O Temp: 50°F Time 8 : ____

Adverse Conditions: Rain, high-water/walleye up-river Station: 1-10

Latitude:_____ Longitude:_____

Net Type: Fyke 3/4" Length/Frame: 4 x 5 Bar Mesh: 3/4"

Color: Green Mesh Type: Nylon Net Nights: 10

Inches	BCP	YP		NHS	Inches	BCP	YP		
<3.0									NET 1
3.0				9.0	8.0	II	++++ II		Species
3.1					8.1		I		Count
3.2					8.2	I	III		
3.3					8.3	III	III		Species
3.4					8.4	II	II		Count
3.5					8.5	III	II		
3.6					8.6	II	I		Species
3.7					8.7	I	I		Count
3.8					8.8	IIII	II		
3.9					8.9				NET 2
4.0	I				9.0	II	IIII		Species
4.1					9.1	I			Count
4.2					9.2	II	II		
4.3					9.3	II	I		Species
4.4					9.4	I			Count
4.5		II			9.5	I	I		
4.6					9.6				Species
4.7					9.7	I	I		Count
4.8					9.8				
4.9					9.9	I			Net 3
5.0	I				10.0	I			Species
5.1					10.1				Count
5.2		II			10.2				
5.3					10.3	I			Species
5.4					10.4				Count
5.5	I	II			10.5		I		
5.6					10.6				Species
5.7		II			10.7	II	I		Count
5.8		II			10.8				
5.9		II			10.9		III		Net 4
6.0		IIII			11.0	I			Species
6.1	I	II			11.1		YP		Count
6.2	II	IIII			11.2				
6.3	II	III			11.3	I			Species
6.4	I	III			11.4				Count
6.5	++++ II	++++ II			11.5				
6.6	II	II			11.6				Species
6.7		++++			11.7				Count
6.8		III			11.8				
6.9	IIII	I			11.9				Net 5
7.0		++++ II			12.0				Species
7.1	I	II			12.1				Count
7.2		++++			12.2				
7.3	III	++++ I			12.3				Species
7.4	I	I			12.4				Count
7.5	IIII	++++			12.5				
7.6		II			12.6				Species
7.7	IIII	III			12.7				Count
7.8		I			12.8				
7.9		I			12.9				

69 BC

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

SHRH = 11.0, 8.7, 8.3

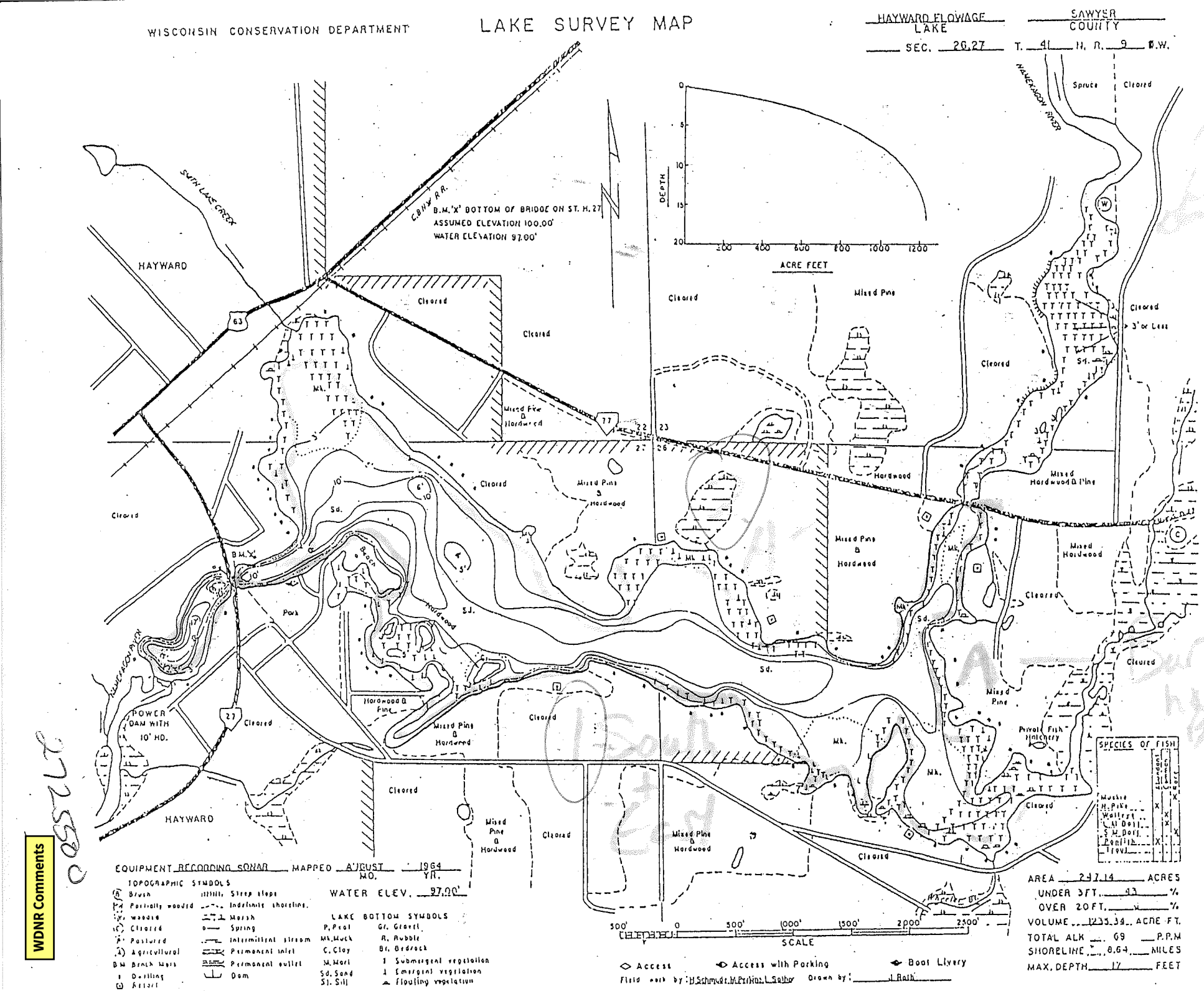
Burbot = 19.5

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.W.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- Brush
- Partially wooded
- Wooded
- Cleared
- Pastured
- Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

◇ Access ◇ Access with Parking ◆ Boat Livery

Field work by: H. Schneider, M. Perkins, L. Sather Drawn by: J. Reith

AREA 247.14 ACRES
UNDER 20FT. 93 %
OVER 20FT. — %
VOLUME 1235.39 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

085716

WDNR Comments

Department of Natural Resources

Stop 617.8 Barts Bay - Bridge @ C 1 mile

LAKE ELECTROFISHING DATA COLLECTION SHEET (3.0 in. - 13.1 in.)

Form 3600-190 Rev. 5-95

1A

Lake Haywood MWB Code: _____ Date: 6 / 9 / 08 County: Sawyer Collector: _____

Target Fish: Panfish Survey Type: _____ Mark Given: _____ H_2O Temp: 66.0 Time ____ : ____

Adverse Conditions: _____ H_2O Conduct: _____ Station: _____

Latitude: _____ Longitude: _____ 1 mile Panfish

Volts: 200 Amps: 8 Current Type (AC/DC/Pulsed DC) Pulse Rate: _____ Duty Cycle: _____

Gear Type: _____ Start Time: _____ End Time: _____ Distance Shocked: 1 mile

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: _____ H_2O Clarilty: (Clear/Turbid/Very Turbid)

Inches	BG	PS	YP	BC	Inches	BG	PS	YP		WS
<3.0	IIII IIII	II	II						SHRH	
3.0	II		I		8.0				15.0	14.5
3.1	I				8.1					14.0
3.2	I		I		8.2					
3.3	I I	II	I		8.3					15.5
3.4	II	I			8.4					8.0
3.5		I			8.5					
3.6	I	II			8.6			I		8.5
3.7	III				8.7					14.5
3.8	I I				8.8					
3.9	IIII	IIII			8.9					20.5
4.0	IIIII II	I			9.0					
4.1	II				9.1					19.5
4.2	IIII	I			9.2					
4.3	II				9.3					20.0
4.4	II	III			9.4					16.5
4.5	IIII				9.5				BG	12.5
4.6	I				9.6				7.9	10.5
4.7	III				9.7					11.0
4.8					9.8				2.5	11.5
4.9					9.9					
5.0		I			10.0				(2)	9.5
5.1			I		10.1					
5.2	I	I			10.2					8.5
5.3	I	I			10.3					(16)
5.4	I	I			10.4					
5.5	II				10.5					MM
5.6	I				10.6					(3.2)
5.7	I		I		10.7					
5.8					10.8					(3.1)
5.9		I			10.9					
6.0	III	I			11.0					(2.3)
6.1	II	I			11.1					
6.2	I				11.2					(3.0)
6.3	III	I			11.3					(2.6)
6.4	II	I			11.4					
6.5	II	I	I		11.5					(2.9)
6.6	II				11.6					
6.7	II	I			11.7					(3.4)
6.8					11.8					
6.9	II				11.9					(3.0)
7.0	IIII		I		12.0					(2.7)
7.1					12.1					
7.2	II	I			12.2					(9)
7.3	I		I		12.3					
7.4	II				12.4					
7.5					12.5				CMLP	
7.6	II				12.6					
7.7					12.7					
7.8					12.8					
7.9			II		12.9					

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

(93) (30) (13)

Station 122431
Survey 5957379
visit 080515
proofed SHK 1-12-09

WDNR Comments

nent of Natural Resources

LP BAY - Olsen 2A

LAKE ELECTROFISHING DATA COLLECTION SHEET (3.0 in. - 13.1 in.)

Form 3600-190 Rev. 5-95

½ mile

Lake L. Hayward MWB Code: _____ Date: 6/9/08 County: _____ Collector: _____

Target Fish: PANFISH Survey Type: B.L Mark Given: _____ H_2O Temp: 67.1 Time ____ : ____

Adverse Conditions: _____ H_2O Conduct: _____ Station: _____

Latitude: _____ Longitude: _____

STOP 618.1

Volts: 200 Amps: 6 Current Type (AC/DC/Pulsed DC) Pulse Rate: _____ Duty Cycle: PAN FISH

Gear Type: _____ Start Time: _____ End Time: _____ Distance Shocked: ½ mile

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: _____ H_2O Clarilty: (Clear/Turbid/Very Turbid)

Inches	BG	PS	YP		Inches		RedH / HOUSC	SMH	WS
<3.0	IIII	II	III						
3.0	II	II	I		8.0		JRH GRH 7.0	9.5	2.0
3.1					8.1				
3.2					8.2			6.5	
3.3					8.3			7.5	
3.4					8.4				
3.5	II				8.5				
3.6	I	I			8.6				
3.7	II				8.7				
3.8	II	I			8.8				
3.9	IIII				8.9				
4.0	IIII	I			9.0				
4.1	IIII				9.1				
4.2	IIII	I			9.2				
4.3	II		I		9.3				
4.4	II	I			9.4				
4.5	II	II			9.5				
4.6	III	I			9.6				
4.7		I			9.7				
4.8	II	I			9.8				
4.9	II	I			9.9				
5.0	II		I		10.0				
5.1	II	I			10.1				
5.2		I			10.2				
5.3	I	I			10.3				
5.4	I				10.4				
5.5		I			10.5				
5.6	III	III			10.6				
5.7		I			10.7				
5.8		II			10.8				
5.9	III				10.9				
6.0	I	IIII			11.0				
6.1	II				11.1				
6.2	I				11.2				
6.3	IIII	I	I		11.3				
6.4					11.4			6.5	
6.5	III				11.5				
6.6	I				11.6			3.5	
6.7	II				11.7		RB	3.1	
6.8	III	I			11.8				
6.9	I				11.9				
7.0	IIII	I	I		12.0		4.7		
7.1	I	I			12.1				
7.2	III				12.2				
7.3					12.3				
7.4	I				12.4				
7.5	I				12.5				
7.6					12.6				
7.7					12.7				
7.8					12.8				
7.9	II		I		12.9				

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

(89) (33) (11)

Station 122431
Survey 5957379 1-12-09
Visit 610514 profile site

TPMT 3.0

WDNR Comments

1

Wisconsin
Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 Rev. 4-94

S 616.7
stop 617.8

Lake LH MWB Code: _____ Date: 6 / 9 / 08 County: Sawyer Collector: D - K W

Target Fish: X100 Survey Type: B. C Mark Given: _____ H_2O Temp: 65.5 Time _____ : _____

Adverse Conditions: _____ H_2O Conduct: _____ Station: _____

Volts: 200 Amps: 8 Current Type (AC/DC/Pulsed DC) Pulse Rate: _____ Duty Cycle: _____

Gear Type: _____ Start Time: _____ End Time: _____ Distance Shocked: 3 miles

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: _____ H_2O Clarilty: (Clear/Turbid/Very Turbid)

Inches	NP	WC	LMB	SMB	Inches					
4.0 - 4.4			2		30.0 - 30.4					
4.5 - 4.9					30.5 - 30.9					
5.0 - 5.4					31.0 - 31.4					
5.5 - 5.9					31.5 - 31.9					
6.0 - 6.4					32.0 - 32.4					
6.5 - 6.9					32.5 - 32.9					
7.0 - 7.9			1		33.0 - 33.4					
7.5 - 7.9					33.5 - 33.9					
8.0 - 8.4				1	34.0 - 34.4					
8.5 - 8.9	1				34.5 - 34.9					
9.0 - 9.4	1		111		35.0 - 35.4					
9.5 - 9.9			1111		35.5 - 35.9					
10.0-10.4		1	1		36.0 - 36.4					
10.5-10.9					36.5 - 36.9					
11.0-11.4			1		37.0 - 37.4					
11.5-11.9	1				37.5 - 37.9					
12.0-12.4	1	1	1		38.0 - 38.4					
12.5-12.9					38.5 - 39.9					
13.0-13.4		1	1		39.0 - 39.4					
13.5-13.9	1		1		39.5 - 39.9					
14.0-14.4	1	1	1		40 +					
14.5-14.9	1		111							
15.0-15.4	1		1							
15.5-15.9	1									
16.0-16.4	1									
16.5-16.9	1									
17.0-17.4	1									
17.5-17.9	1									
18.0-18.4	1		1							
18.5-18.9										
19.0-19.4										
19.5-19.9										
20.0-20.4										
20.5-20-9										
21.0-21.4										
21.5-21.9										
22.0-22.4										
22.5-22.9										
23.0-23.4										
23.5-23.9										
24.0-24.4										
24.5-24.9										
25.0-25.4										
25.5-25.9										
26.0-26.4										
26.5-26.9										
27.0-27.4										
27.5-27.9										
28.0-28.4										
28.5-28.9										
29.0-29.4										
29.5-29.9										

Other fish: Can include rarely caught species and fish greater than 30 inches.

(14) (4) (20) (1)

proofed SHH 1-12-09

Station 122431
Survey 5957330
UBT 6105716

WDNR Comments

...nt of Natural Resources

2

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 Rev. 4-94

Start 6.178

Lake Hayward MWB Code: _____ Date: 06 / 9 / 08 County: Sawyer Collector: STOP 618.5

Target Fish: Z100 Survey Type: B. Line Mark Given: _____ H_2O Temp: 66.0 Time _____ : _____

Adverse Conditions: _____ H_2O Conduct: _____ Station: 2 GAME

Volts: 200 Amps: 8 Current Type (AC/DC/Pulsed DC) Pulse Rate: _____ Duty Cycle: _____

Gear Type: B.S. Start Time: _____ End Time: _____ Distance Shocked: 2 miles

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: _____ H_2O Clarilty: (Clear/Turbid/Very Turbid)

Inches	NP	LMB	WE		Inches
4.0 - 4.4					30.0 - 30.4
4.5 - 4.9					30.5 - 30.9
5.0 - 5.4					31.0 - 31.4
5.5 - 5.9					31.5 - 31.9
6.0 - 6.4					32.0 - 32.4
6.5 - 6.9		1			32.5 - 32.9
7.0 - 7.9					33.0 - 33.4
7.5 - 7.9					33.5 - 33.9
8.0 - 8.4		1			34.0 - 34.4
8.5 - 8.9					34.5 - 34.9
9.0 - 9.4					35.0 - 35.4
9.5 - 9.9					35.5 - 35.9
10.0-10.4		11			36.0 - 36.4
10.5-10.9					36.5 - 36.9
11.0-11.4					37.0 - 37.4
11.5-11.9		11	1		37.5 - 37.9
12.0-12.4	11		1		38.0 - 38.4
12.5-12.9	1	1			38.5 - 39.9
13.0-13.4	1	1	1		39.0 - 39.4
13.5-13.9			1		39.5 - 39.9
14.0-14.4		1	1		40 +
14.5-14.9					
15.0-15.4	11				
15.5-15.9	1				
16.0-16.4		1	1		
16.5-16.9			1		
17.0-17.4		11	11		
17.5-17.9	1	1	1		
18.0-18.4		1	11		
18.5-18.9					
19.0-19.4		11			
19.5-19.9	1				
20.0-20.4	1				
20.5-20-9					
21.0-21.4					
21.5-21.9					
22.0-22.4					
22.5-22.9					
23.0-23.4					
23.5-23.9					
24.0-24.4					
24.5-24.9					
25.0-25.4					
25.5-25.9					
26.0-26.4	1				
26.5-26.9					
27.0-27.4					
27.5-27.9					
28.0-28.4					
28.5-28.9					
29.0-29.4					
29.5-29.9					

MW
24.0

HY MUSK
7.5

Other fish: Can include rarely caught species and fish greater than 30 inches.

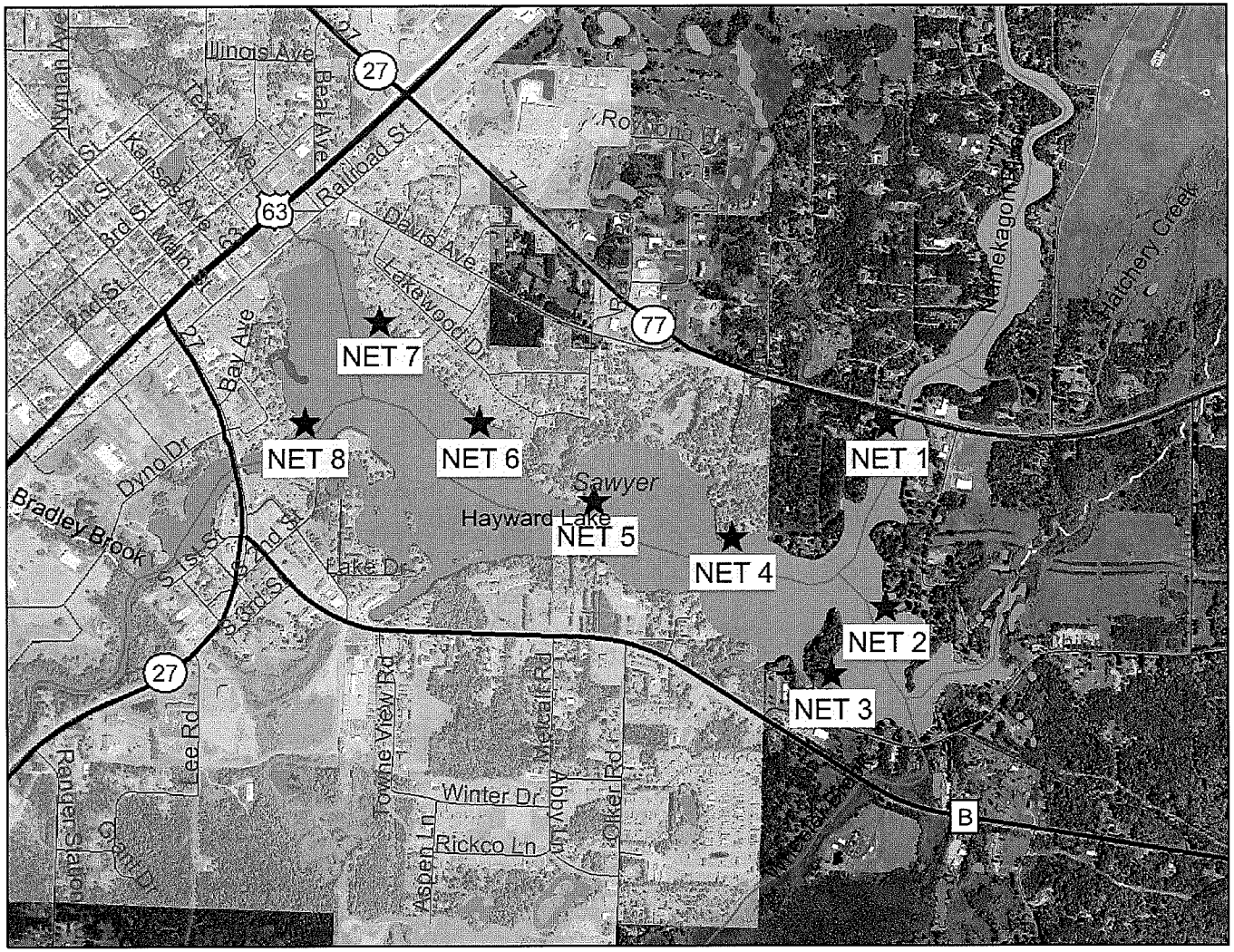
(11) (16) (11)

MU (1)
TIGER (1)

Station 122431
Survey 5957380

Entered JMK 12-09

Lake Hayward SN1



0 1750 3500 5250 ft.

Legend

Major Highways
- Interstate
- State Highway
- U.S. Highways
- County Roads
- Local Roads

Rivers and Streams
- Intermittent
- Fluctuating
- Perennial

24K Open Water

County Boundary

Municipalities
- Village
- City

N

Scale: 1:18,716

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Notes: Net locations used in "bonus" SN1 in 2013. May not need all 8 nets in the future.

WDNR Comments

WDNR Comments Resources

NETTING DATA COLLECTION SHEET (4.0 in. - 40+ in.)

Form 3600-188 Rev. 4-94

Taylor MWB Code: _____ Date: 5/2/13 County: Sawyer Collector: MW RW SB BS

Fish: WAE, NOP, MUE Survey Type: SNI Mark Given: _____ H_2O Temp: 45 Time _____ : _____

erse Conditions: _____ Station: _____

t Type: Fyke Length/Frame: _____ Bar Mesh: _____

Color: _____ Mesh Type: _____ Net Nights: 1 8 NETS

ALL Nets SMB CMB MUE NOP

Inches	NOP	WAE	MUE		Inches			NET 1		
4.0 - 4.4					30.0 - 30.4			Species		
4.5 - 4.9					30.5 - 30.9			Count		
5.0 - 5.4					31.0 - 31.4		II			
5.5 - 5.9					31.5 - 31.9			Species		
6.0 - 6.4					32.0 - 32.4		I	Count		
6.5 - 6.9					32.5 - 32.9					
7.0 - 7.9					33.0 - 33.4		I	Species		
7.5 - 7.9	I				33.5 - 33.9			Count		
8.0 - 8.4				I	34.0 - 34.4					
8.5 - 8.9	I				34.5 - 34.9			NET 2		
9.0 - 9.4					35.0 - 35.4			Species		
9.5 - 9.9	II				35.5 - 35.9			Count		
10.0-10.4	II				36.0 - 36.4					
10.5-10.9					36.5 - 36.9			Species		
11.0-11.4	II			I	37.0 - 37.4			Count		
11.5-11.9					37.5 - 37.9	I				
12.0-12.4	I	I			38.0 - 38.4	I		Species		
12.5-12.9	II			III	38.5 - 39.9			Count		
13.0-13.4	III			I	39.0 - 39.4					
13.5-13.9	III			IIII	39.5 - 39.9			NET 3		
14.0-14.4	IIII			IIII	40 +			Species		
14.5-14.9	I			IIII		48.5F		Count		
15.0-15.4	IIII II			IIIII		42.0m				
15.5-15.9	IIII			III		39.5F (running)		Species		
16.0-16.4	IIII			II		39.0m	2	Count		
16.5-16.9						47.5F				
17.0-17.4						41.5F		Species		
17.5-17.9	I					44F		Count		
18.0-18.4	IIII	F (Hyb)				46.5F				
18.5-18.9	I					45.5F		NET 4		
19.0-19.4	IIII			I		42		Species		
19.5-19.9	II					42		Count		
20.0-20.4	III									
20.5-20-9								Species		
21.0-21.4	II							Count		
21.5-21.9	I									
22.0-22.4								Species		
22.5-22.9	II							Count		
23.0-23.4	I									
23.5-23.9	III							NET 5		
24.0-24.4	III							Species		
24.5-24.9								Count		
25.0-25.4	I									
25.5-25.9			I					Species		
26.0-26.4	II							Count		
26.5-26.9	II									
27.0-27.4	II	I						Species		
27.5-27.9	III							Count		
28.0-28.4	II									
28.5-28.9	II									
29.0-29.4	II									
29.5-29.9	I									

Other fish: Can include rarely caught species and fish greater than 30 inches.

Pumpkin not measured

MF mucky ponds common

Fantastic would spot

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters
Sawyer	Hayward MWBC: 2725500
Sampling Objective	**Number and Locations of Stations (Habitat)**
Walleye Recruitment Survey	Source
	Miles Actually Shocked = 4.6 GPS
Period Fished (Dates)	Acres = 247 LM
09/11/14	Total Miles of Shoreline = 8.6 LM
	Total Miles of Shockable Shoreline = 8.6 LM

GEAR

Boomshocker (Hours)	Time
1.4	√ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-ST
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit
Walleye (Age 0+)	0			0.00 / hour 0.00 / mile
Serns Index NA YOY / acre				
Walleye (Age 1+)	0			0.00 / hour 0.00 / mile
Walleye (Other)	0			0.00 / hour 0.00 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range

1) Tank Mortality: None 2) Weather: Clear, Calm, Cold 3) Reliabilty: Medium

4) Stocking: 253 Muskellunge, 10.7 inches, 09/09/14, DNR

5) Comments: Only walleye <12.0" targeted.

Rev. 10-70

Signed (Compiler) Gene Hatzenbeler Date 11/26/14

WDNR Comments

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL) Department of Natural Resources
Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/11/14 County: Sawyer Collector(s): Rood, Kufahl, Sunderland

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None Water Temperature: 55°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 4.6 miles

Volts: 125 Amps: 2.8 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 2007 Shocking End Time: 2137 Generator Start Hour: 292.1 Generator End Hour: 293.5

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: Clear

Walleye < 12.0"			
Inches	Number	Inches	Number
<3.0		**7.5**	
3.0		**7.6**	
3.1		**7.7**	
3.2		**7.8**	
3.3		**7.9**	
3.4		**8.0**	
3.5		**8.1**	
3.6		**8.2**	
3.7		**8.3**	
3.8		**8.4**	
3.9		**8.5**	
4.0		**8.6**	
4.1		**8.7**	
4.2		**8.8**	
4.3		**8.9**	
4.4		**9.0**	
4.5		**9.1**	
4.6		**9.2**	
4.7		**9.3**	
4.8		**9.4**	
4.9		**9.5**	
5.0		**9.6**	
5.1		**9.7**	
5.2		**9.8**	
5.3		**9.9**	
5.4		**10.0**	
5.5		**10.1**	
5.6		**10.2**	
5.7		**10.3**	
5.8		**10.4**	
5.9		**10.5**	
6.0		**10.6**	
6.1		**10.7**	
6.2		**10.8**	
6.3		**10.9**	
6.4		**11.0**	
6.5		**11.1**	
6.6		**11.2**	
6.7		**11.3**	
6.8		**11.4**	
6.9		**11.5**	
7.0		**11.6**	
7.1		**11.7**	
7.2		**11.8**	
7.3		**11.9**	
7.4		**Total:**	0

Inches	Walleye	Northern Pike	Muskellunge	Largemouth Bass	Smallmouth Bass	Inches	Walleye	Northern Pike	Muskellunge
<1.5						**24.5-24.9**			
1.5-1.9						**25.0-25.4**			
2.0-2.4						**25.5-25.9**			
2.5-2.9						**26.0-26.4**			
3.0-3.4						**26.5-26.9**			
3.5-3.9						**27.0-27.4**			
4.0-4.4						**27.5-27.9**			
4.5-4.9						**28.0-28.4**			
5.0-5.4						**28.5-28.9**			
5.5-5.9						**29.0-29.4**			
6.0-6.4						**29.5-29.9**			
6.5-6.9						**30.0-30.4**			
7.0-7.4						**30.5-30.9**			
7.5-7.9						**31.0-31.4**			
8.0-8.4						**31.5-31.9**			
8.5-8.9						**32.0-32.4**			
9.0-9.4						**32.5-32.9**			
9.5-9.9						**33.0-33.4**			
10.0-10.4						**33.5-33.9**			
10.5-10.9						**34.0-34.4**			
11.0-11.4						**34.5-34.9**			
11.5-11.9						**35.0-35.4**			
12.0-12.4						**35.5-35.9**			
12.5-12.9						**36.0-36.4**			
13.0-13.4						**36.5-36.9**			
13.5-13.9						**37.0-37.4**			
14.0-14.4						**37.5-37.9**			
14.5-14.9						**38.0-38.4**			
15.0-15.4						**38.5-38.9**			
15.5-15.9						**39.0-39.4**			
16.0-16.4						**39.5-39.9**			
16.5-16.9						**40.0-40.4**			
17.0-17.4						**40.5-40.9**			
17.5-17.9						**41.0-41.4**			
18.0-18.4						**41.5-41.9**			
18.5-18.9						**42.0-42.4**			
19.0-19.4						**42.5-42.9**			
19.5-19.9						**43.0-43.4**			
20.0-20.4						**43.5-43.9**			
20.5-20.9						**44.0-44.4**			
21.0-21.4						**44.5-44.9**			
21.5-21.9						**45.0-45.4**			
22.0-22.4						**45.5-45.9**			
22.5-22.9						**46.0-46.9**			
23.0-23.4						**47.0-47.9**			
23.5-23.9						**48.0-48.9**			
24.0-24.4						**49.0-49.9**			
Totals:	0	0	0	0	0	**50.0+**			

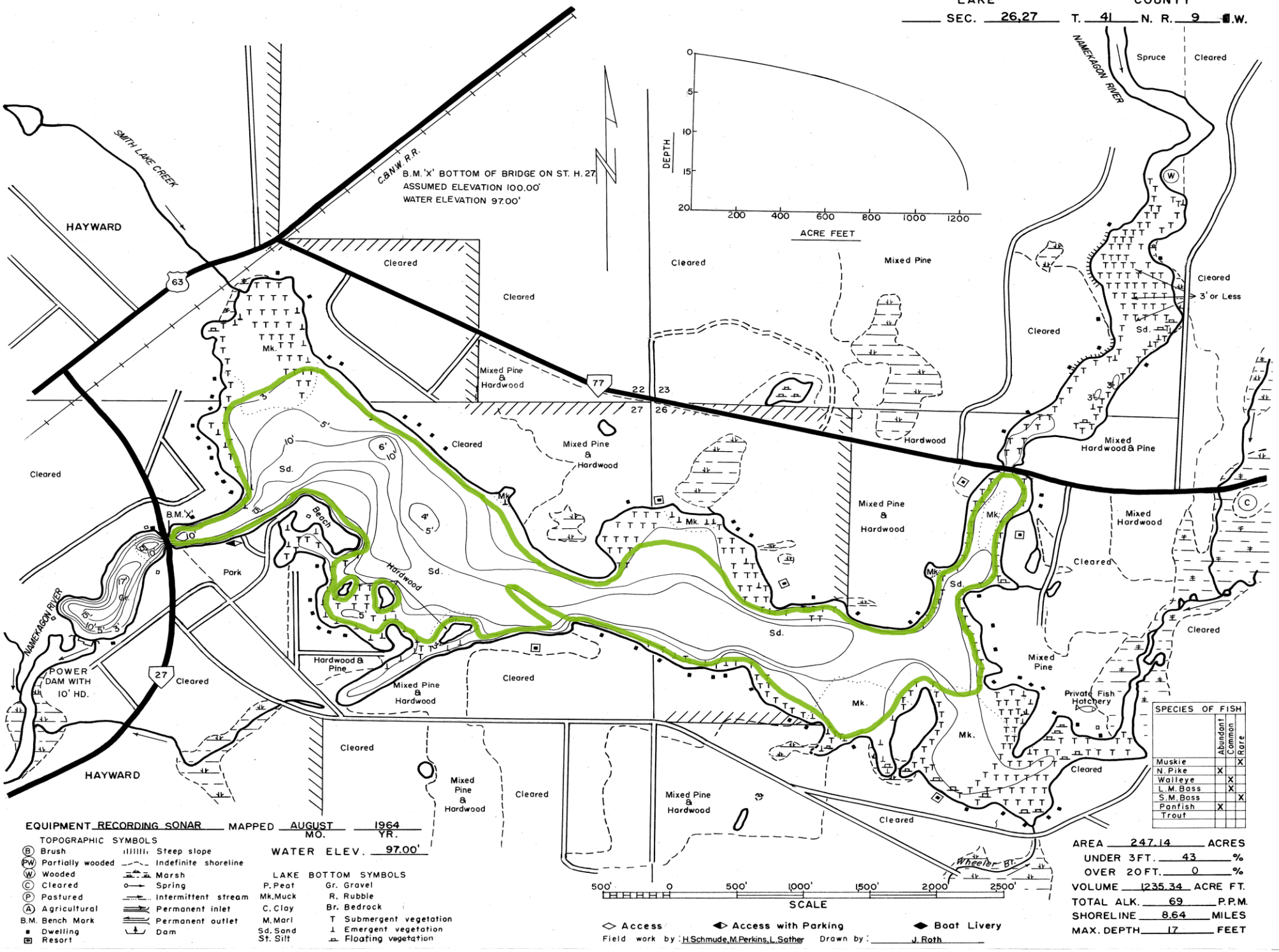
WDNR Comments

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



SPECIES OF FISH	Abundant	Common	Rare
Muskie			X
N. Pike	X		
Walleye		X	
L.M. Bass		X	
S.M. Bass			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST MO. 1964 YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- Emergent vegetation
- Floating vegetation

SCALE 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◀◇ Access with Parking ◆ Boat Livery

Field work by: H. Schmude, M. Perkins, L. Sather Drawn by: J. Roth

AREA 247.14 ACRES
UNDER 3FT. 43 %
OVER 20FT. 0 %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

Darrin Johnson

From: Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Sent: Wednesday, July 29, 2020 2:42 PM
To: Darrin Johnson
Cc: Shawn Puzen; Laatsch, Cheryl - DNR
Subject: RE: WDNR Hayward Data Submission - Fisheries (Part 2 of 2)
Attachments: WDNR Fisheries Data for Xcel_Hayward P-2417_ Part 2 of 2.zip

Hi Darrin,

Here is part 2 of 2 Hayward Hydro WDNR fisheries information.

Thanks,
Macaulay

From: Haller, Macaulay G - DNR
Sent: Wednesday, July 29, 2020 2:39 PM
To: 'Darrin Johnson' <Darrin.Johnson@meadhunt.com>
Cc: Shawn Puzen <Shawn.Puzen@meadhunt.com>; Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>
Subject: WDNR Hayward Data Submission - Fisheries (Part 1 of 2)

Hi Darrin,

Please find attached part 1 of 2 Hayward Hydro Project data and reports from WDNR's fisheries biologist. Attachments include reports, fisheries survey data (recent and historical), fish stocking/spawning data, and fish habitat information.

I will continue to send data and information as it comes in from our program staff.

Thank you,

Macaulay Haller
Wisconsin Department of Natural Resources
Macaulay.Haller@wisconsin.gov

From: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Sent: Wednesday, July 22, 2020 1:56 PM
To: Laatsch, Cheryl - DNR <Cheryl.Laatsch@wisconsin.gov>; Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Cc: Shawn Puzen <Shawn.Puzen@meadhunt.com>
Subject: Hayward and Trego Questionnaire

Cheryl,

Per our discussion last week, I am sending electronic copies of the Hayward and Trego Hydroelectric Project Questionnaires and Factsheets. They were sent out in the mail today. Feel free to contact me if you have any questions.

DARRIN JOHNSON

WDNR Comments

FERC COMPLIANCE AND LICENSING, WATER
Mead & Hunt
Direct: 608-443-0313 | Cell: 715-697-3130 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

120 YEARS OF SHAPING THE FUTURE

WDNR Comments

Discussion of Lake Hayward Fishery Status for Inclusion in the Aquatic Plant Management Plan

Max Wolter- WDNR Fisheries Biologist

Overview of the fishery- Lake Hayward contains muskellunge (stocked), northern pike, largemouth bass, smallmouth bass, walleye (stocked), bluegill, pumpkinseed sunfish, yellow perch, black crappie, yellow and black bullhead, white sucker, and several species of redhorse that primarily inhabit the area surrounding the inlet of the Namekagon River. Brook and chestnut lamprey are also present (chestnut lamprey are parasitic on fish and can be seen on bass, pike, and muskellunge in Lake Hayward on occasion).

There is very little successful muskellunge reproduction in Lake Hayward but stocked fish appear to have high survival and reach trophy length (see accompanying report and photograph). Muskellunge in Lake Hayward benefit from the influx of forage fish from the Namekagon River (redhorse, sucker, and likely the occasional trout). Muskellunge will use aquatic vegetation as a refuge when young, and as foraging habitat as they grow.

Northern pike are entirely self-sustaining and size of pike is very good compared to many lakes in the area. Pike likely benefit from the same forage base as muskellunge. Northern pike are very reliant on aquatic vegetation for reproduction (eggs stick to aquatic plants) and foraging.

Largemouth bass are common in Lake Hayward and size structure is better than many other lakes in the area with many legal sized (>14 inches) fish present. Largemouth bass use aquatic vegetation as their primary habitat. Smallmouth bass are considerably rarer and are focused in the area around the inlet of the Namekagon River. Smallmouth bass are more keyed on rocky habitat in comparison to aquatic plants.

Walleye are relatively rare in Lake Hayward indicating that stocking success is low and natural reproduction is non-existent. Walleye of several sizes were stocked aggressively for many years with little result. Stocked walleye that do survive grow well and are a nice "bonus" species in the lake for anglers. Both walleye and muskellunge are susceptible to "dam escapement", which is movement through or over a dam in a manner that prevents their return to the lake. We suspect that many stocked walleye and muskellunge wind up in the Namekagon River below Lake Hayward. From 2005 to 2010 there was a barrier net installed seasonally (purchased by DNR and Xcel) to address this issue, but over time this project was deemed infeasible because the net had to be cleaned ~3 times a week as a result of entrainment of dead aquatic plants (primarily CLP).

Bluegill and pumpkinseed sunfish are abundant in Lake Hayward but have above average size. These species use aquatic plants as refuge from predation but excessive plant growth can pose management problems for panfish. Healthy fish populations rely on a large percentage of the panfish born each year to be eaten by predators, otherwise stunting can occur. These high levels of predation are not possible when aquatic vegetation becomes

WDNR Comments

overly dense. Despite dense vegetation in some areas of Lake Hayward stunting of panfish has not been observed in Lake Hayward up to this point.

Yellow perch and black crappie are more rare than bluegill and do not comprise a significant portion of the fishery. Both can reach large sizes.

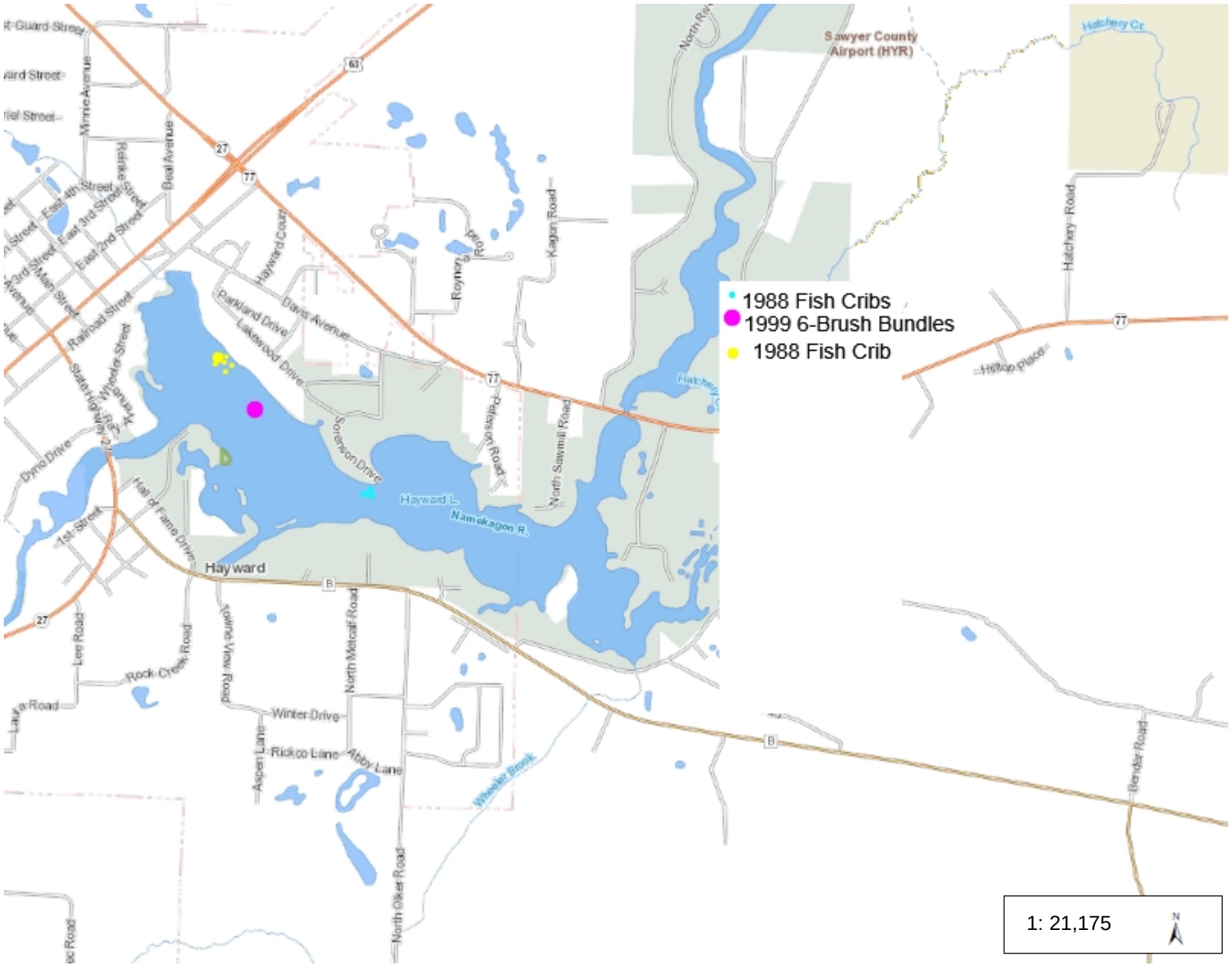
General comments on aquatic plants and the fish community- The fish community of Lake Hayward benefits from the diversity of the plant community and the inflowing water of the Namekagon River. Without either of these factors it is reasonable to presume that the fishery would decrease in quality. While sections of the lake certainly have aquatic plant densities that are too high for optimum fish habitat (these areas are impacted by invasive species) there has not been a noticeable impact on the overall fish community to date. Manual removal of aquatic plants if undertaken should be done after fish spawning if possible. Disturbance of the sediments and plants themselves could have negative effects on spawning success of essentially all species of fish in Lake Hayward it timed incorrectly. Chemical treatment of aquatic invasive plants should be undertaken with great caution and with intense scrutiny of any potential chemical product. Any chemical selected should ideally lead to no further restrictions on fish consumption since this is a popular lake for families to fish.

Schedule of upcoming surveys- Lake Hayward was surveyed in 2013 for early spawning species (muskellunge, northern pike, and walleye, see attached report). The next survey is scheduled for 2015 and will include a comprehensive study of the fish population including estimations of the total number of muskellunge and walleye. Lake Hayward is officially on a 7 year survey rotation based on its size, but because of its proximity to town it is typically surveyed more often.

Stocking plan- At this point in time the DNR plans to continue to stock Lake Hayward with both muskellunge and walleye when they are available. However, Lake Hayward is a lower priority stocking location than many other lakes in the area due to the low success of previous walleye stocking and lack of necessity to stock muskellunge more frequently than every few years. Private stocking of both muskellunge and walleye will be permitted if the stocking specifications match DNR protocol.

WDNR Comments

Surface Water Data Viewer Map



Legend

- PNW-PRF Other Public Rights
- PNW-ASNRI Sensitive Areas
- PNW-ASNRI Wild and Scenic
- PNW-ASNRI Outstanding and Streams
- PNW-ASNRI Trout Streams
- PNW-ASNRI Wild Rice Stream
- PNW-ASNRI Quality Wetland
- PNW-ASNRI Outstanding and Lakes
- PNW-ASNRI Quality Wetland
- PNW-ASNRI Wild Rice Areas
- PNW-ASNRI Trout Spring Pon
- PNW-ASNRI State Natural Are
- PNW Musky Streams
- PNW Sturgeon Streams
- PNW Musky Areas
- PNW Sturgeon Areas
- PNW Walleye Areas
- PNW Lakes Less Than 50 Acr
- Municipality
  - City or Village
  - Township
- State Boundaries
- County Boundaries
- Major Roads

Notes

1: 21,175

0.7 0 0.33 0.7 Miles

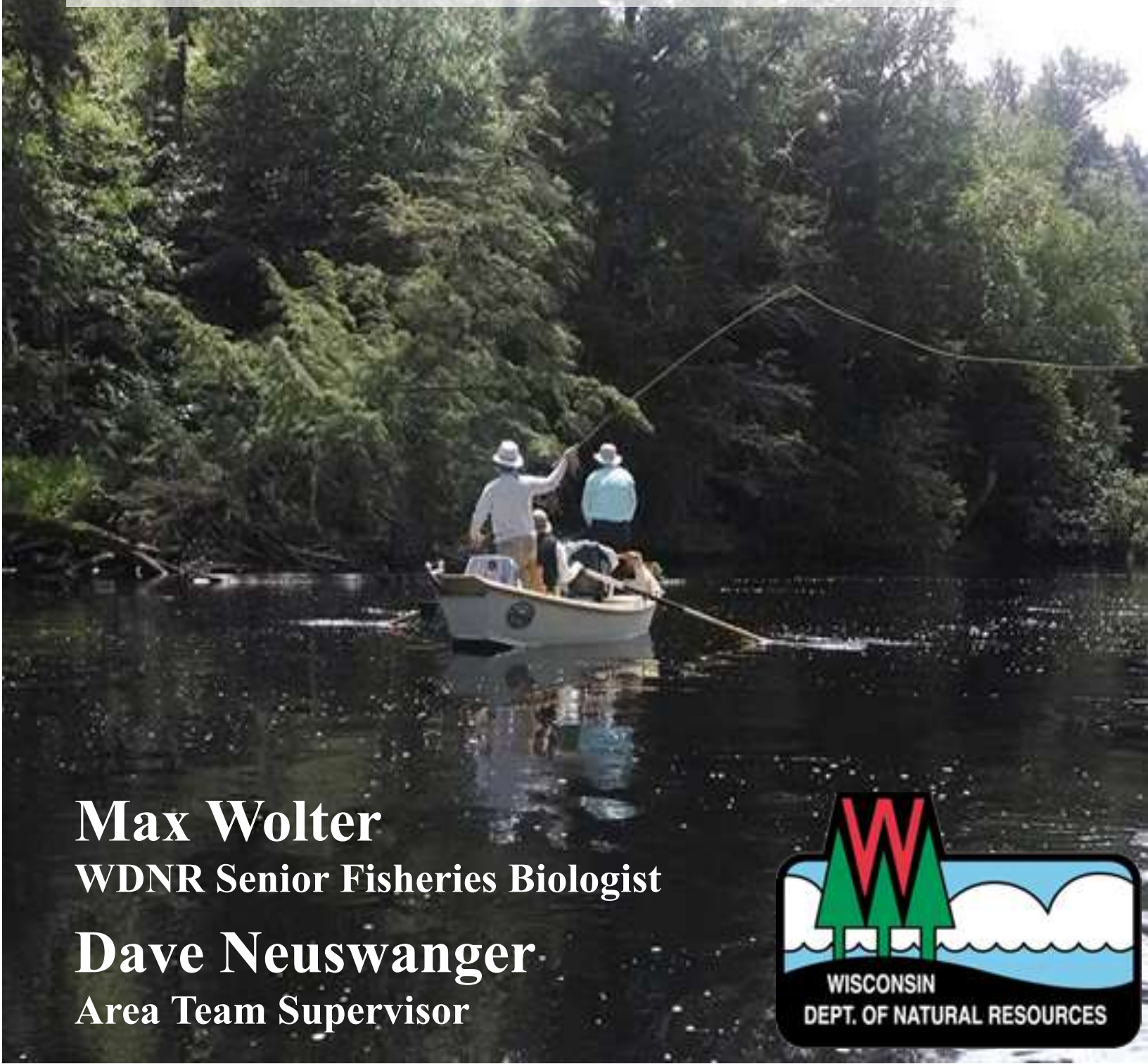
NAD_1983_HARN_Wisconsin_TM

WDNR Comments

Smallmouth Bass and Muskellunge Fisheries in Northwestern Wisconsin Rivers:

A Guide to the Future Project

5-year report



Max Wolter
WDNR Senior Fisheries Biologist

Dave Neuswanger
Area Team Supervisor

WISCONSIN
DEPT. OF NATURAL RESOURCES

WDNR Comments

Foreword and Acknowledgments

The "Guide to the Future" project was initiated in 2012 to meet a data collection need for sportfish populations in some of the most popular rivers in northwest Wisconsin. Five years of partnership between the Wisconsin DNR and the Hayward Fly Fishing Company has generated 1,487 records of guided angler trips. The data from these guided trips has allowed for comparisons of catch rate for smallmouth bass, muskellunge, and other species among rivers, times of year, different river conditions, and more. Collection of this large volume of data would not be possible without the excellent participation of each of the individual guides working for the Hayward Fly Fishing Company including Wendy Williamson, Larry Mann, Stu Neville, Erik Huber, Brett Nelson, and Cory Andraschko. Rarely does science get to be as fun as this project has been.

Max Wolter

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WDNR Comments

Summary of Major Findings

- Angler skill accounts for a significant amount of variation in catch rates for both smallmouth bass and muskellunge. Accounting for skill with a correction factor allows for more meaningful comparisons of catch rate, particularly when sample size is limiting.
- Smallmouth bass catch rate (relative abundance) and size structure varied among rivers. Rivers with high catch rate demonstrated smaller size of fish caught, and vice versa.
- Muskellunge catch rate varied among rivers, but size differences among rivers were generally less pronounced. The Namekagon River emerged as a better river for catching larger muskellunge (>40”) than the Chippewa or Flambeau.
- Catch rates for smallmouth bass and muskellunge appeared relatively stable from one year to the next. Smallmouth catch rates were positively related to water temperature and were highest during peak summer (July). Muskellunge catch rates appeared higher in early summer and fall compared to mid-summer, though the relationship was not statistically significant.
- Spatial trends in catch rates for both species within rivers did not demonstrate consistent increases or decreases from upstream to downstream reaches.
- The amount of discharge on a river (cubic feet per second) generally had a negative impact on both smallmouth bass and muskellunge catch rates, though the relationship was typically not statistically significant.
- Catch rates for smallmouth bass were significantly higher under flat water conditions compared to rising water. There was an indication of a similar trend for muskellunge but it was not statistically significant.
- Northern pike catch rates were significantly higher on the Namekagon compared to the Flambeau with the Chippewa being intermediate. Incidental catch of other species like walleye and largemouth bass were rare.

WDNR Comments

Project Objectives and General Methods

Due to a variety of factors including current, water clarity, structural complexity, and access, river fish populations are often not easily (or representatively) sampled by traditional fisheries methods such as netting or electrofishing. On an experimental and voluntary basis from 2012 to 2016, the Wisconsin Department of Natural Resources (WDNR) enlisted a group of river fishing guides who completed hundreds of fishing trips on these rivers annually with their clients while targeting smallmouth bass and muskellunge using fly fishing gear. Records of the effort and catch from these fishing trips can provide important information on relative abundance and size structure of river populations of smallmouth bass and muskellunge in a manner that is efficient to the monitoring agency (WDNR) and informative to the guides, their clients, and other anglers.

WDNR personnel and guides met and developed the following protocol for data collection. For each trip, the guide recorded the catch for each client (typically two people) separately. There was no set schedule or locations that guides were asked to follow with their fishing activities. However, as a result of the use of logical access points, fishing trips were assigned to "reaches" within each river with set start and end points. Each captured fish was recorded on a labeled 12-key mechanical counter corresponding to the angler that caught the fish. Four sizes categories of smallmouth bass (7-11, 11-14, 14-17, and >17 inches) and muskellunge (20-30, 30-40, 40-50, and >50 inches) were recorded. Guides also recorded catches, but not sizes, of northern pike, walleye, and largemouth bass. "Encounters" with muskellunge were recorded whenever a fish followed but did not strike, struck and missed, or was lost after hooking but before landing.

Each guide recorded daily water temperature (degrees F), which was measured in a shaded portion of the river near noon. Guides also recorded "mitigating conditions" (inclement weather, challenging water level, off-color water, etc.) that they judged may have negatively impacted fishing success. Data on river discharge (cubic feet per second) was obtained for each day from nearby USGS or hydropower dam gauges. Short-term variation in discharge was calculated and expressed as the most recent 3-day change in discharge (noon discharge three days prior minus noon discharge on day of fishing). Based on this calculation, river conditions on each day of fishing were classified as either falling (≥15% *decrease* in discharge over 3-day period), stable (<15% change in discharge over 3 day period), or rising (≥15% *increase* in discharge over 3-day period).

Data were entered into an Excel database and analyzed using R software. Trips when guides noted "mitigating conditions", as described above, were excluded from all analyses unless specified otherwise. Similarly, only trips where at least four hours of targeted effort for a species were used for analyses of that species. A non-parametric Kruskal-Wallis test was used to make statistical comparisons of catch rates across classes of data (i.e. different rivers, months) because of non-normal shape of the catch rate data. When significant differences were found between classes, multiple comparison analysis was made using a Dunn Test with a Holm modification of the Bonferroni adjustment. Comparisons between catch rate and river discharge or temperature were made using standard linear regression. Results of statistical tests were considered significant at P values less than 0.05.

WDNR Comments

Study Area

There was no set schedule or locations that guides were asked to follow with their fishing activities. However, as a result of the use of logical access points, fishing trips were assigned to "reaches" within each river with set start and end points. In this report these are labeled with the river name (or abbreviation) and a number corresponding to the relative downstream location of the reach within that river (e.g., Chippewa 4 is downstream from Chippewa 3). To protect the proprietary information of these guides, the specific start and end points of each reach are not presented in this report. Individual reaches were rarely fished on sequential days. Three rivers were primarily fish by the guides– the Flambeau (Figure 1, Price and Sawyer counties), Chippewa (Sawyer and Rusk counties), and Namekagon (Sawyer, Washburn, and Burnett counties). However, data was also collected on the West Fork of the Chippewa River (Sawyer County) and the St. Croix River (Burnett County). Because of smaller sample size, these two rivers are not included in all analyses.

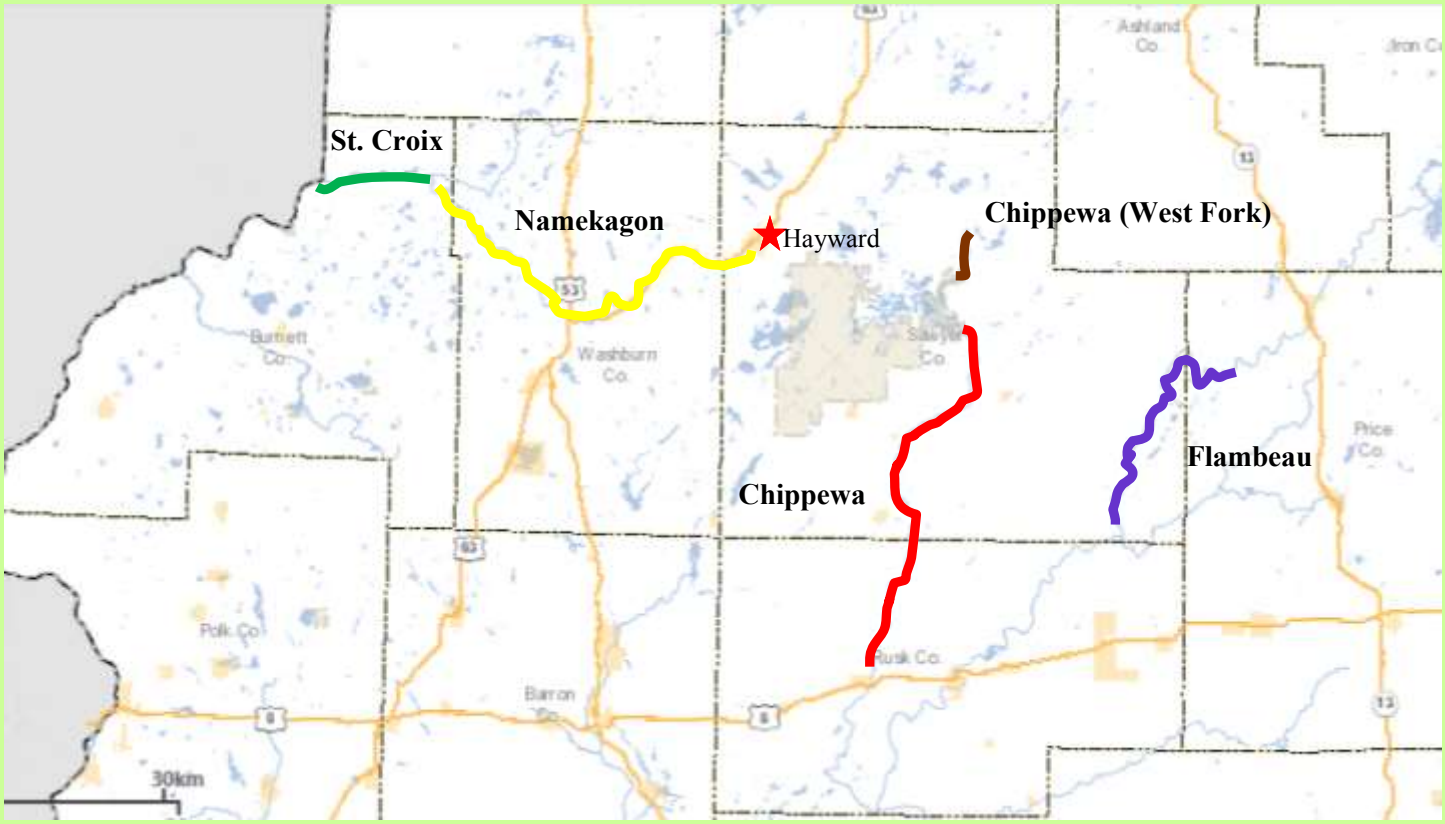


Figure 1. The sections of rivers fished by guides in the "Guide to the Future" fisheries data collection program. Each river is broken into multiple reaches that are fished for single-day float trips. Hayward, the home base for the guides, is denoted with a star.

WDNR Comments

Description of Angling Effort and Skill

Fishing effort for guides varied considerably among rivers, with the Namekagon River receiving the most total trips and hours of targeted effort for each species (Table 1). Most guided trips took place between June and October. October had the most overall trips (353) followed by July (278) and August (224). Trips in the summer (May-August) were more likely to target smallmouth bass while trips in the fall (September-November) are more likely to target muskellunge.

Table 1. Total number of angler trips and hours spent targeting muskellunge (musky) and smallmouth bass between 2012 and 2016 as a part of the Guide to the Future project.

River	Total trips	Hours targeting musky	Hours targeting smallmouth bass
Chippewa	315	1,035	1,194
Chippewa (West Fork)	70	161	295
Flambeau	155	677	493
Namekagon	851	2,086	3,987
St. Croix	94	481	189

It was known at the onset of this project that anglers fishing with guides would have wide variation in their skill, which would likely affect catch rate data. To account for this, we asked guides to discreetly assign a skill level rating to each client. Assignment of a skill level rating was done early in the trip and was based on casting ability and prior experience so rating would not be influenced by the day's catch. The three rating categories were inexperienced/beginner, average, or expert.

As expected, catch rates for both muskellunge and smallmouth (Figure 2) differed by angler skill level. To prevent this known source of variation from influencing other comparisons, we developed a correction factor to standardize catch rates. Multipliers were applied to catch rates in each skill level (Table 2).

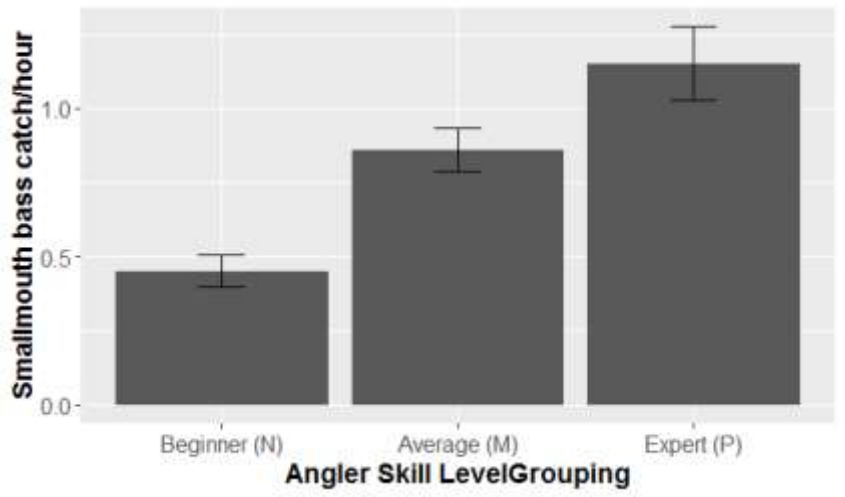


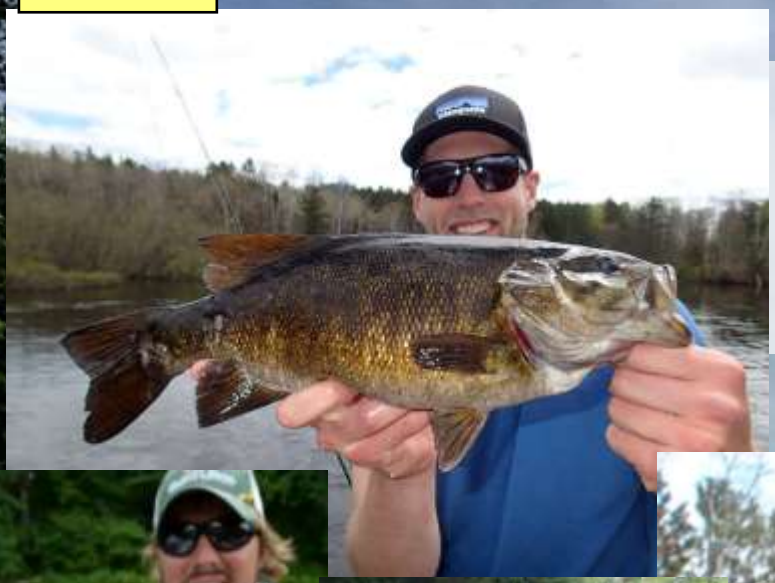
Figure 2. Catch rates (number of fish per hour of targeted angling effort) for smallmouth bass by anglers of different skill levels, shown with no correction factor applied. Error bars represent 95% confidence intervals. Skill levels were assigned by guides to account for the expected variation in catch due to individual anglers' fishing experience. Differences between the three skill levels were used to develop a correction factor to account for this variation when making other comparisons (i.e. catch rate among rivers).

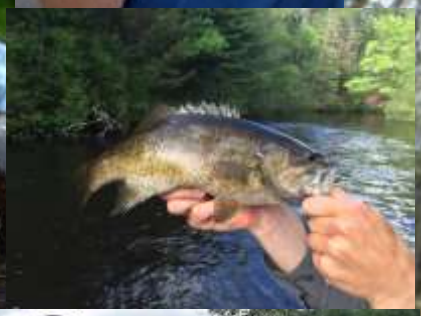
Table 2. Correction factors applied to smallmouth bass and muskellunge catch rates.

	Beginner	Average	Expert
Smallmouth Bass	2.0	1.0	0.75
Muskellunge	1.5	1.0	0.5

WDNR Comments

SMALLMOUTH BASS ABUNDANCE AND SIZE





WDNR Comments

Smallmouth Bass Relative Abundance and Size

Smallmouth bass are well-suited for life in shallow rocky riverine habitats and as a result they are one of the most abundant sportfish in many northern Wisconsin rivers. Smallmouth bass are a popular target for anglers fishing either from shore or on float trips, yet little is known about the relative abundance of smallmouth in one river compared to the next or how size distribution compares among rivers. Data collected by guides demonstrated significantly different catch rates for smallmouth bass among five northwestern Wisconsin Rivers (Figure 3). Differences in catch rate are assumed to reflect differences in abundance.

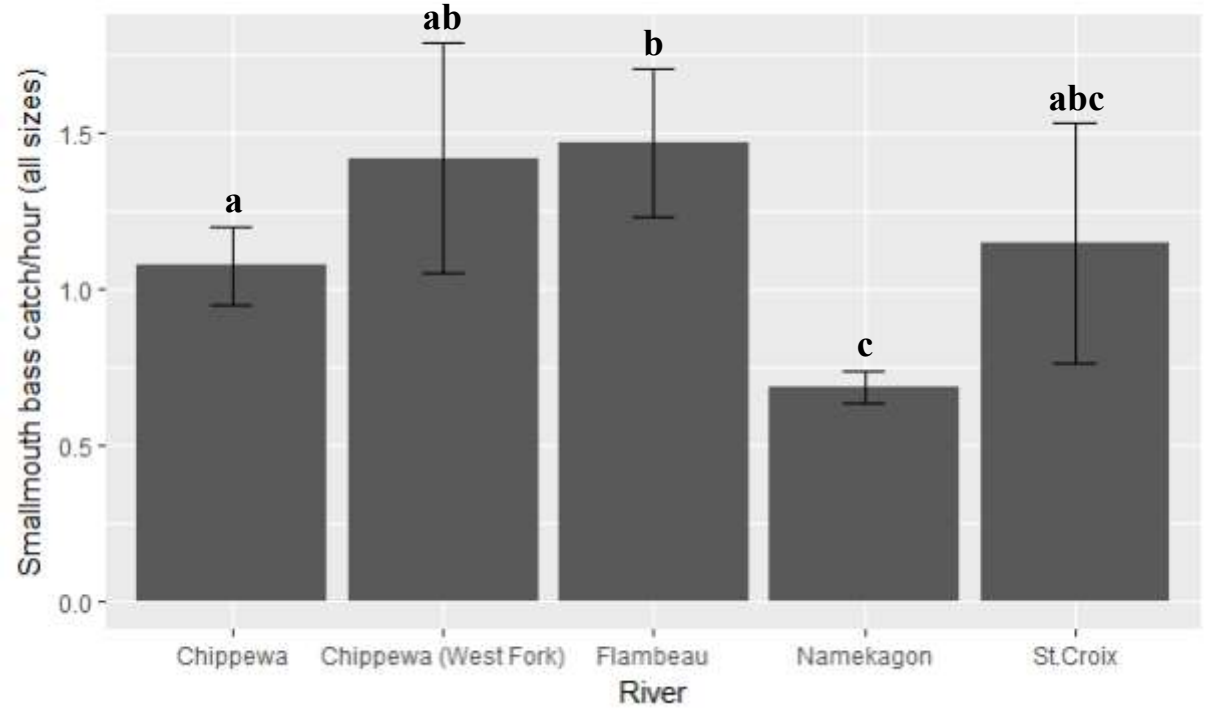


Figure 3. Skill level corrected catch rates (number of fish per hour of targeted angling effort) for smallmouth bass by river from 2012-2016. Error bars represent 95% confidence intervals. Statistically different groupings are denoted with letters.

Variation in overall catch rate of smallmouth bass among rivers is driven by variation within specific size classes. Comparing just the three rivers with the largest volume of data, the catch rates for smaller smallmouth bass was significantly higher on the Flambeau River than on the Chippewa or Namekagon (Table 3). However, catch rate for larger smallmouth bass (>17 inches) was significantly higher on the Namekagon River than the Chippewa or Flambeau. These three rivers offer differing fishing experiences. The Flambeau would be considered more of an action destination, with high overall catch rates but smaller fish, while the Namekagon is clearly more of a trophy opportunity with lower catch rates but higher catch of large smallmouth.

Table 3. Skill level corrected catch rates (number of fish per hour of targeted angling effort) of smallmouth bass by size class for three northwestern Wisconsin Rivers from 2012-2016. Statistically different groupings are denoted with letters.

Size Class	Chippewa	Flambeau	Namekagon
7-11 inches	0.38 (±0.07)^{b}	0.70 (±0.16)^{a}	0.10 (±0.02)^{c}
11-14 inches	0.39 (±0.06)^{a}	0.44 (±0.09)^{a}	0.20 (0.02)^{b}
14-17 inches	0.24 (±0.05)	0.30 (±0.08)	0.27 (±0.03)
>17 inches	0.07 (±0.02)^{b}	0.03 (±0.02)^{b}	0.11 (±0.02)^{a}
All sizes	1.07 (±0.12)^{b}	1.47 (±0.24)^{a}	0.69 (±0.05)^{c}

WDNR Comments

Smallmouth Bass Size Structure

Based on reported data from guides, size structure of smallmouth bass varied considerably among rivers. Catch in the Flambeau River was dominated by smaller bass, while catch in the Namekagon was predominantly larger fish, the Chippewa River catch was intermediate with the three smaller size classes represented fairly evenly in the catch (Figure 4). In the Flambeau, only 22% of smallmouth caught were over 14 inches, while on the Chippewa 33% were over 14 inches, and on the Namekagon 56% were over 14 inches. Interestingly, all three rivers have the same fishing regulations. It is not clear why the apparent difference in size structure among rivers exists. It appears, based on catch rate, that density of smallmouth bass is higher in the Flambeau River which may lead to slower, density-dependent growth. It is possible that prey availability differs among these three rivers independent of smallmouth bass density. Mortality may also play a role in structuring these smallmouth bass populations. If mortality of adult smallmouth bass is higher on one river compared to another it may result in differing size structure. Mortality could be due to environmental conditions, including overwintering habitat, or angler harvest, though harvest is believed to be minimal on all three rivers. A growth rate and age structure analysis would be beneficial to better understanding dynamics of these populations.

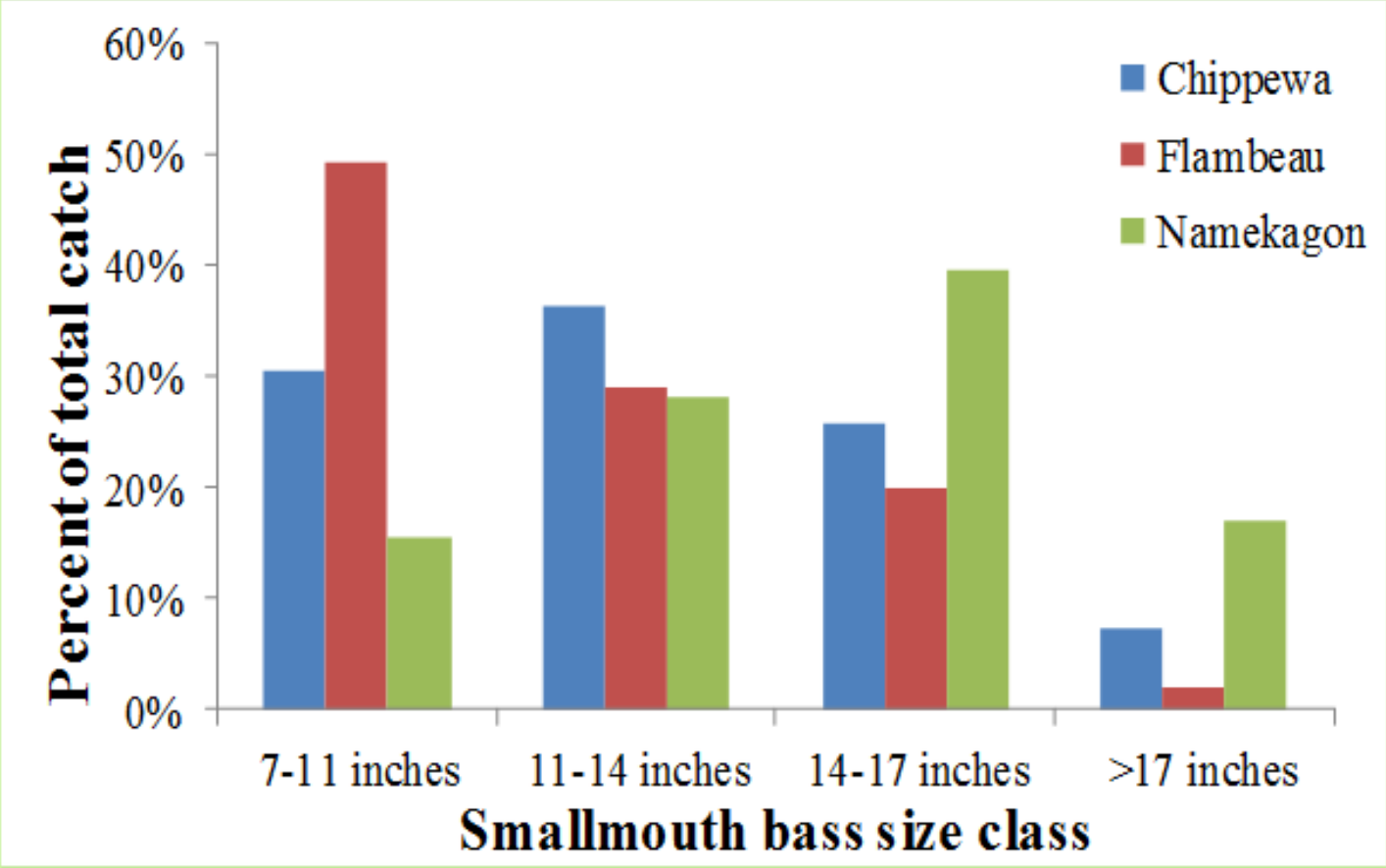


Figure 4. Smallmouth bass catch by size category for three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016.

WDNR Comments

MUSKELLUNGE ABUNDANCE AND SIZE

WDNR Comments

Muskellunge Relative Abundance and Size

Interpreting muskellunge catch rate data was made more difficult by the high degree of variation that inevitably exists when dealing with a species that occurs in low abundance and is challenging to catch. However, five seasons of data collection have provided enough data to start making statistical comparisons of muskellunge catch. Data collected by guides demonstrated significantly different catch rates for muskellunge among five northwestern Wisconsin Rivers (Figure 5). Differences in catch rate are assumed to reflect differences in abundance.

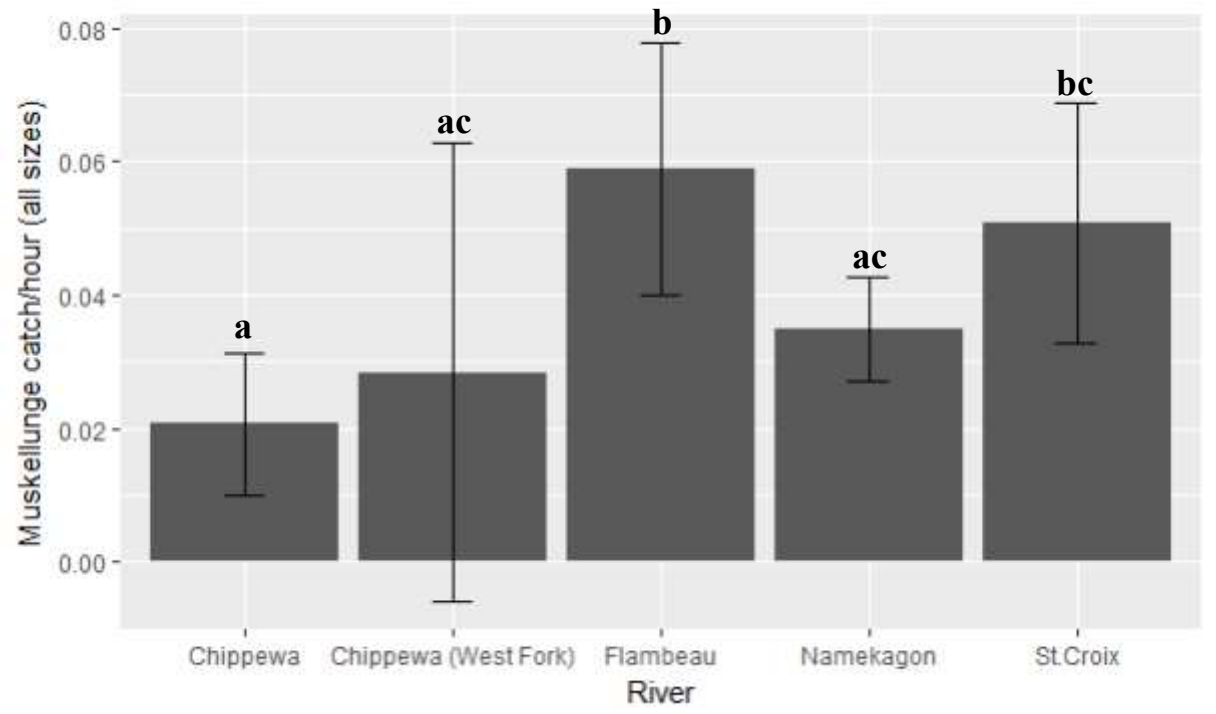


Figure 5. Skill level corrected catch rates (number of fish per hour of targeted angling effort) for muskellunge by river from 2012-2016. Error bars represent 95% confidence intervals. Statistically different groupings are denoted with letters.

Variation in overall catch rate of muskellunge among rivers was driven by variation within specific size classes. Comparing just the three rivers with the largest volume of data, the catch rates for smaller muskellunge (20-30 inches and 30-40 inches) were significantly higher on the Flambeau River than on the Chippewa or Namekagon (Table 4). However, catch rate for larger muskellunge (>40 inches) was significantly higher on the Namekagon River than the Chippewa or Flambeau. Catching a musky is rare under any circumstances, but the average catch rate of muskellunge by guided anglers as a part of this project (17.1 hours of fishing per musky) compare favorably to catch rates for anglers on lakes (~33 hours of angling per musky).

Table 4. Skill level corrected catch rates (number of fish per hour of targeted angling effort) of muskellunge by size class for three northwestern Wisconsin Rivers from 2012-2016. Statistically different groupings are denoted with letters.

Size Class	Chippewa	Flambeau	Namekagon
20-30 inches	0.008 (±0.006)^{b}	0.033 (±0.017)^{a}	0.013 (±0.005)^{b}
30-40 inches	0.011 (±0.008)^{b}	0.024 (±0.011)^{a}	0.013 (±0.005)^{b}
40-50 inches	0.002 (±0.003)^{b}	0.003 (±0.003)^{ab}	0.009 (±0.004)^{a}
>50 inches	0.000	0.000	0.001 (±0.001)
All sizes	0.021 (±0.011)^{b}	0.059 (±0.019)^{a}	0.035 (±0.008)^{b}

WDNR Comments

Muskellunge Size Structure

Based on reported data from guides, size structure of muskellunge varied slightly among rivers. Catch in all three rives is dominated by fish in the 20-40 inch range (Figure 6). The Namekagon River has demonstrated the best size potential evidenced by a larger percentage of the catch being over 40 inches and producing the only 50 inch muskellunge recorded by guides and their clients during the span of this project.

The relative infrequency of muskellunge over 40 inches being caught by guided anglers on these rivers is of interest. Many of the rivers fished as a part of this project are connected to impoundments which generally have larger fish than what was being caught in the rivers. The discrepancy in size structure between impoundments and rivers may be due to gear selectivity where fly fishing disproportionately targets the smaller sized muskellunge. But it may also be a result of habitat selection by larger fish, slower growth of fish inhabiting rivers, higher mortality of adult muskellunge in rivers, or other factors. More exploration into these trends is warranted.

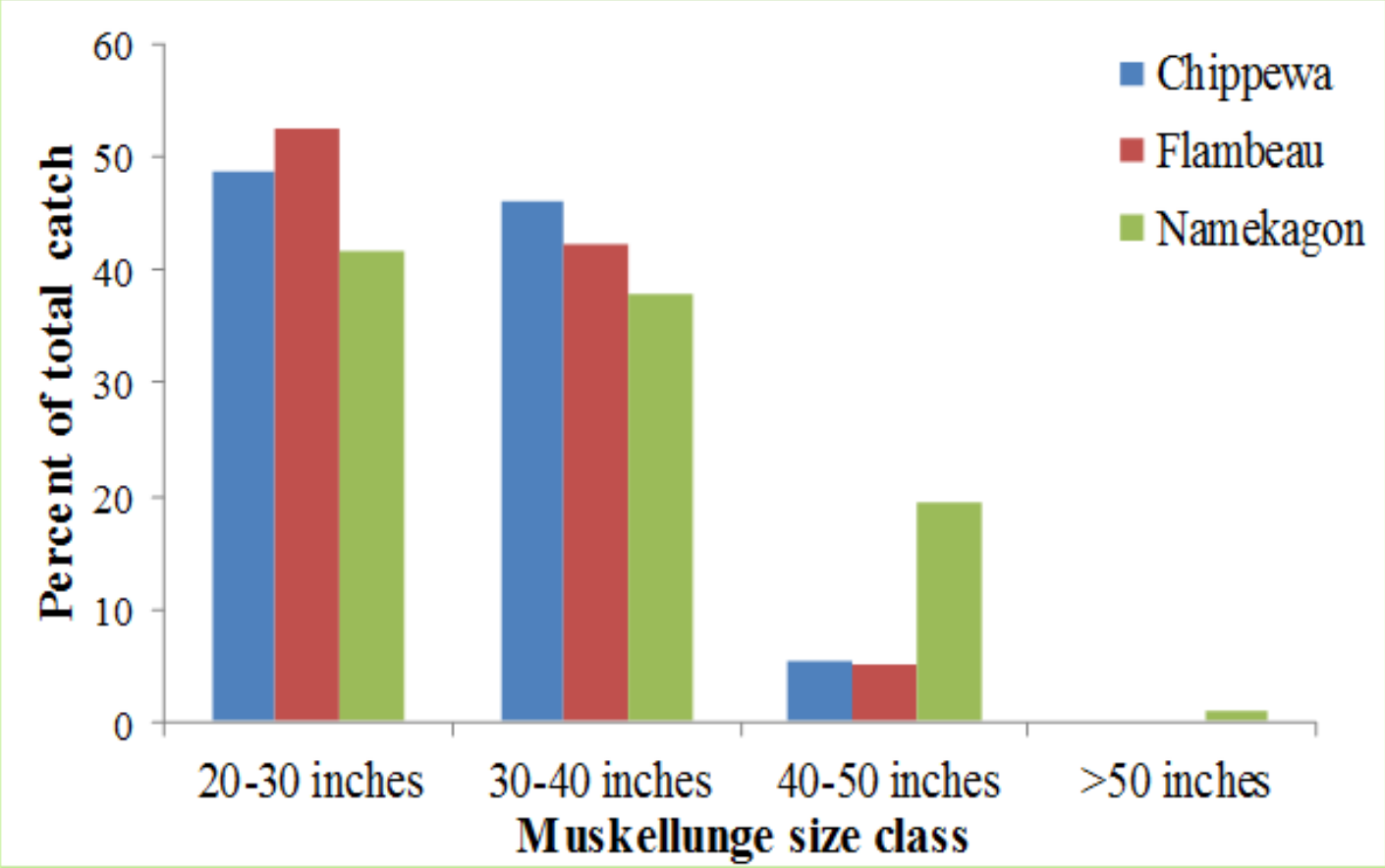


Figure 6. Muskellunge catch by size category for three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016.

WDNR Comments

TEMPORAL TRENDS IN CATCH RATES

WDNR Comments

Catch By Year

Clear trends in catch rate by year within individual rivers were not always evident for either species. Catch rate for smallmouth bass on the Namekagon has been remarkably consistent across time. Catch rate for smallmouth bass on the Flambeau River demonstrated the greatest oscillation (Figure 7). Year-to-year data for muskellunge catch rate on the St. Croix and West Fork Chippewa rivers was limiting and therefor those rivers were excluded from that analysis. Other rivers demonstrated relatively consistent catch rates for muskellunge, with some evidence of declining catch rate for the Chippewa River. Once again, catch rate data for muskellunge was marked by a high degree of variability.

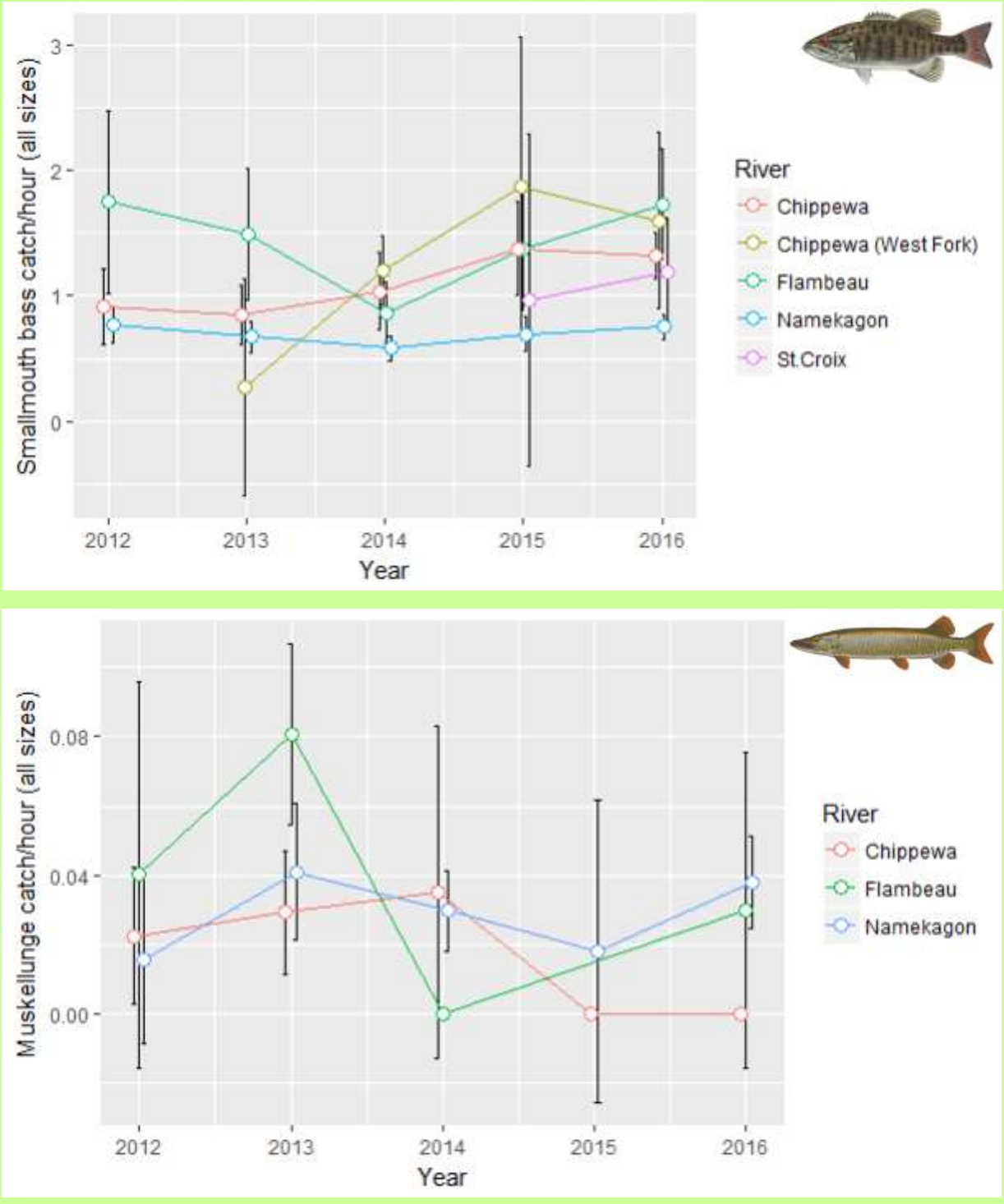


Figure 7. Smallmouth bass (top panel) and muskellunge (bottom panel) skill level corrected catch rates in three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals.

WDNR Comments

Catch By Month

Catch rates by month showed interesting patterns for both smallmouth bass and muskellunge, though differences were not always statistically significant. For smallmouth, catch rate was higher in July than in the cooler months of June and September (Figure 8). Guides have anecdotally reported poor success targeting smallmouth in these rivers after September, and as a result very little smallmouth bass data exists for those months. Catch rates for muskellunge showed an inverse pattern to smallmouth, with generally higher catch in cooler months (early summer and fall), though there were not statistically significant differences among months. It should be noted that muskellunge catch data from summer months is more limited since guides are typically targeting smallmouth bass at that time. Trips targeting muskellunge in December have been rare, but successful.

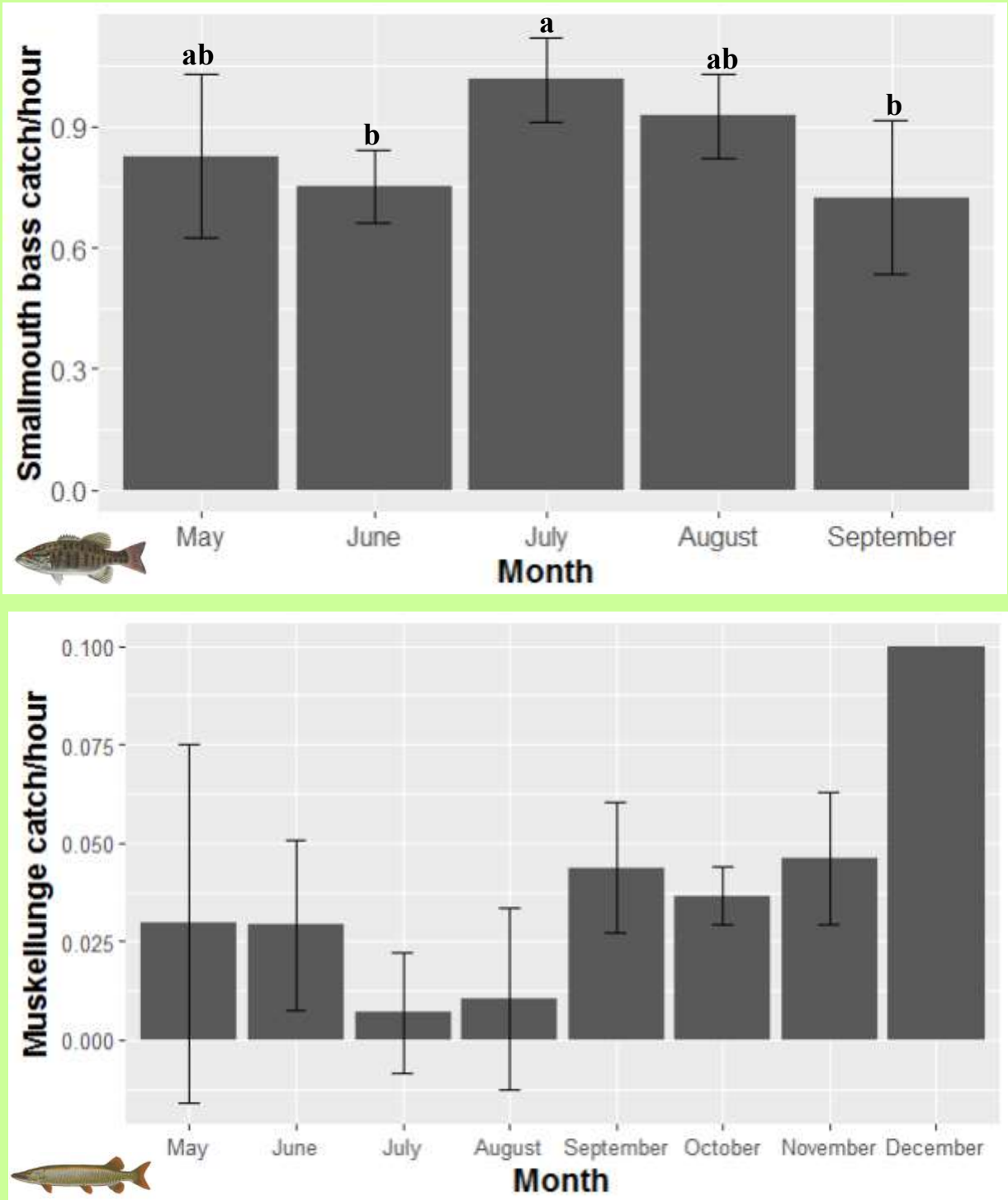
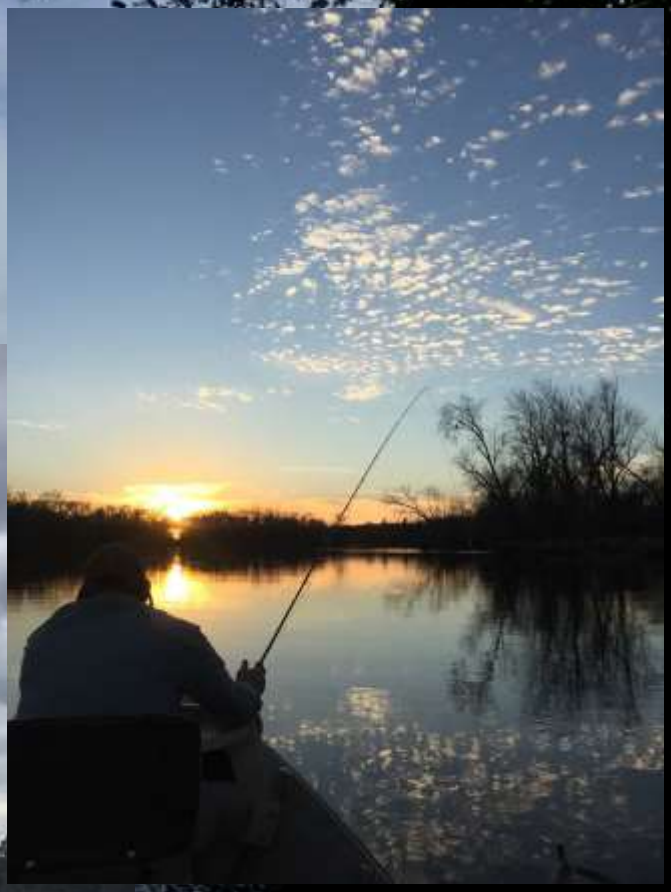


Figure 8. Smallmouth bass (top panel) and muskellunge (bottom panel) skill level corrected catch rates by month in three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings.

WDNR Comments

SPATIAL TRENDS IN CATCH RATES



WDNR Comments

Smallmouth Bass Catch By River Reach

Smallmouth bass catch rate across different reaches within the same river did not reveal many consistent patterns (Figure 9). For example, there was no evidence that smallmouth bass catch rate consistently increased or decreased from upstream reaches to downstream reaches. Catch rates on the Chippewa River were significantly lower at Chip3 compared to Chip1 and Chip5, but no other trends were present. Catch rates on the Flambeau and Namekagon were statistically similar across all reaches. Given that few differences in catch rate were observed, one can conclude that smallmouth bass fishing quality is generally similar along the entire stretch of each river fished by guides as a part of this project. It also indicates that there are few major habitat issues (dams, impaired discharge, etc.) that limit smallmouth bass populations in particular reaches.

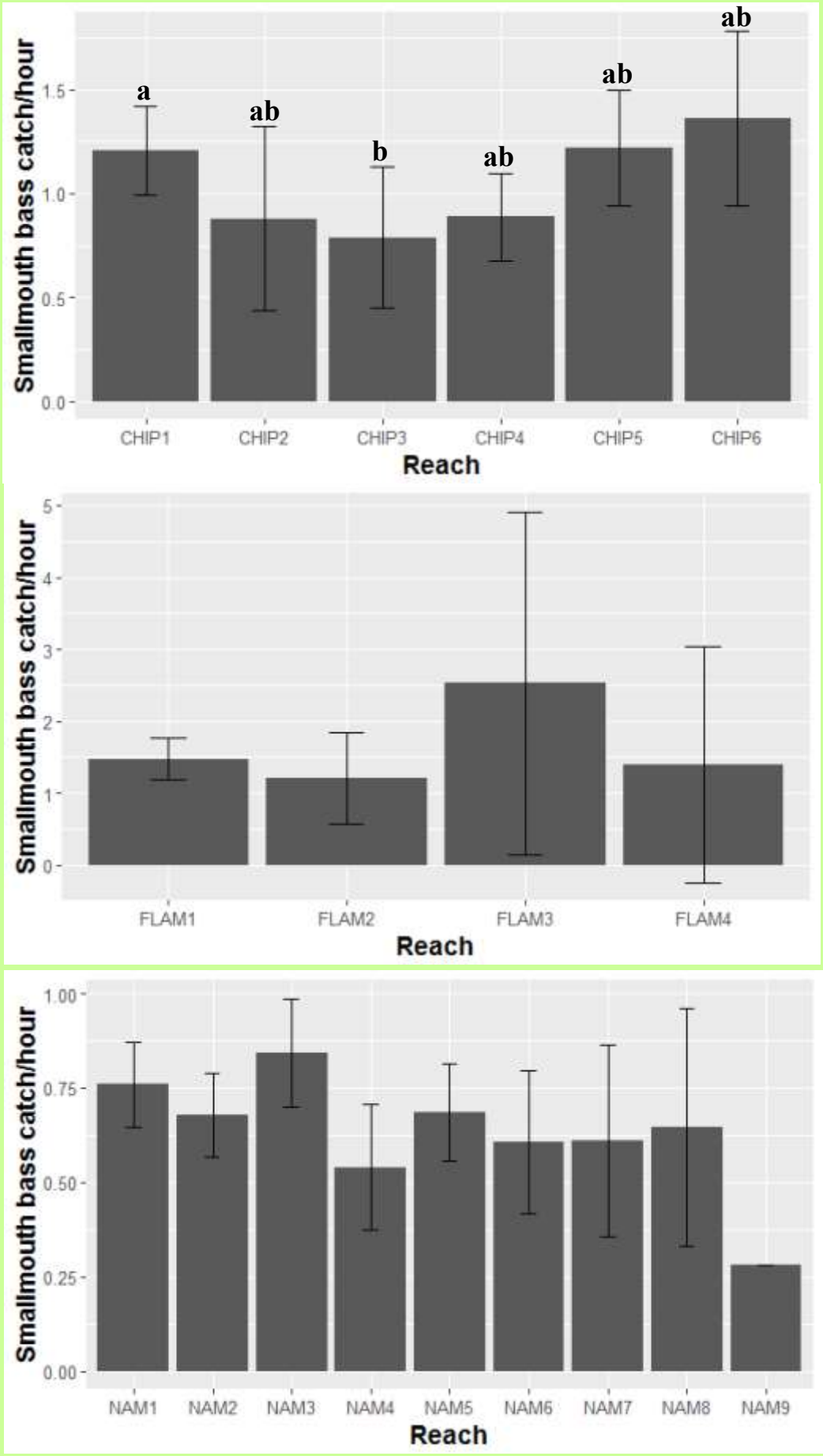


Figure 9. Smallmouth bass skill level corrected catch rates by reach in three rivers (top=Chippewa, middle=Flambeau, bottom=Namekagon) in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings. Reaches are arranged from upstream to downstream (i.e. CHIP1 is upstream of CHIP2 and so on).

WDNR Comments

Muskellunge Catch By River Reach

Muskellunge catch rate by river reach similarly did not reveal statistically significant patterns (Figure 10). However, several notable trends are present. Almost no muskellunge are caught on the Namekagon River upstream from Namekagon4. Muskellunge are known to inhabit these upper reaches and it is not clear why this pattern exists

As with other analyses in this report, the comparison of muskellunge catch by river reach was limited by high variation (see wide error bars in Figure 10) and was exacerbated by low sample size for some reaches. Perhaps the inclusion of more data from future years of fishing will allow for better comparisons of muskellunge catch within rivers.

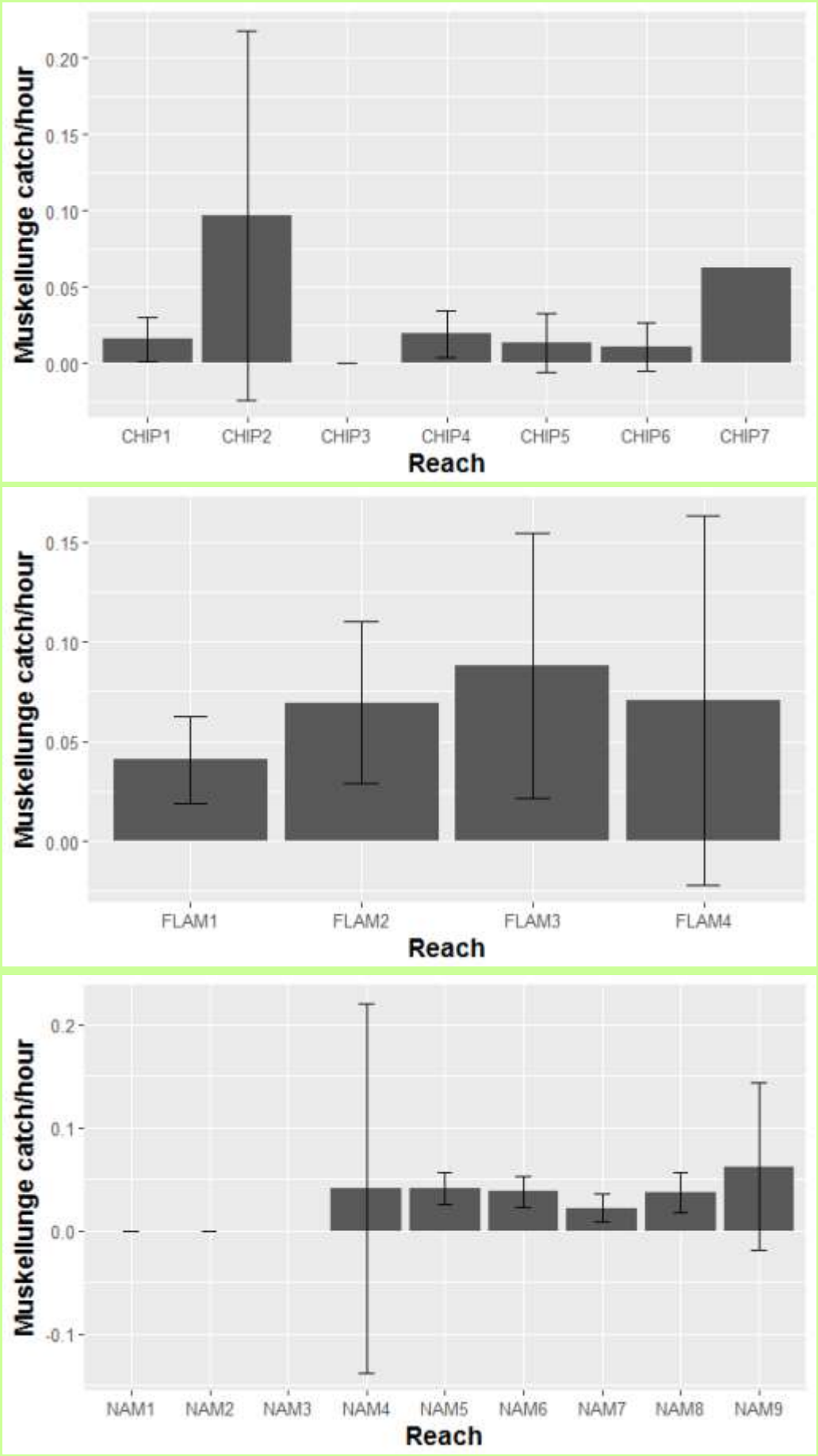
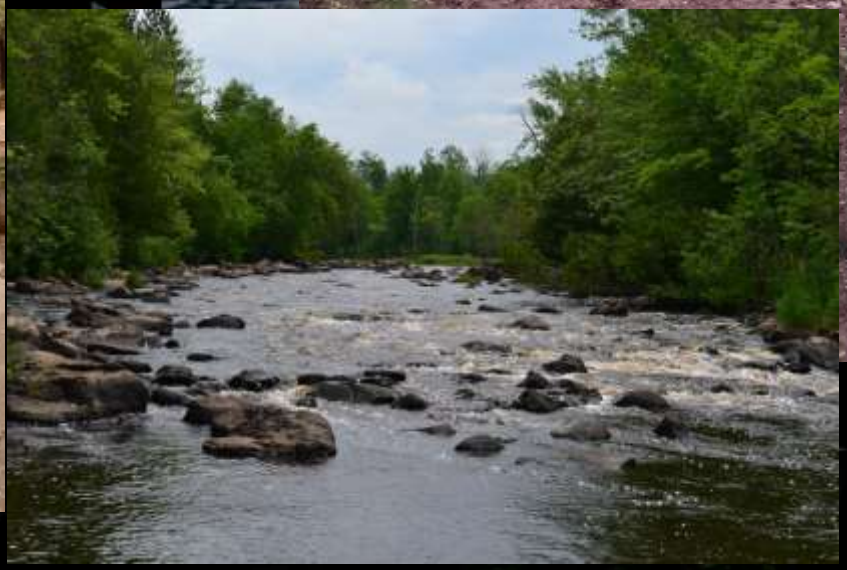


Figure 10. Muskellunge skill level corrected catch rates by reach in three rivers (top=Chippewa, middle=Flambeau, bottom=Namekagon) in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings. Reaches are arranged from upstream to downstream (i.e. CHIP1 is upstream of CHIP2 and so on).

WDNR Comments

INFLUENCE OF ENVIRONMENTAL CONDITIONS ON CATCH RATES



WDNR Comments

Catch Rates and River Discharge

The guides who participated in this project consider river discharge to have a considerable impact on fishing success. We conducted a regression analysis to compare catch rates for smallmouth bass and muskellunge with discharge. This analysis included days with mitigating conditions to capture fishing under extreme discharge. A separate model was constructed for each species x river combination. Generally speaking, catch rates for both smallmouth bass and muskellunge demonstrated a negative trend with increasing discharge. However, in all but one case (smallmouth bass in the Flambeau River) the trend was not statistically significant (Figure 11). Future data collection may allow us to better describe this relationship. Similarly, more data may allow for exploration of quadratic or nonlinear relationships, which may effectively allow for determination of "ideal" discharge conditions for catching each species.

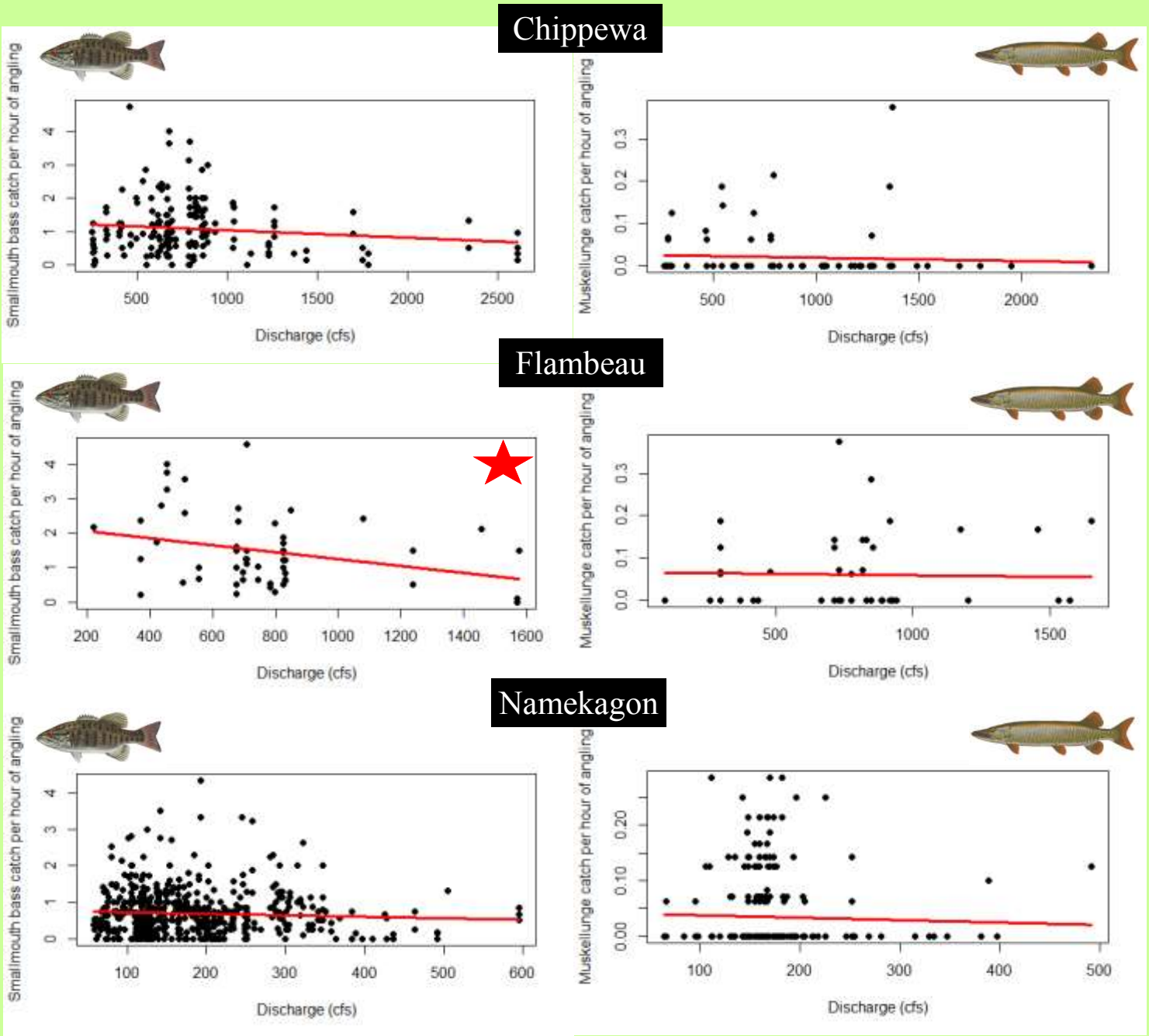


Figure 11. Comparison of skill level corrected catch rates for smallmouth bass (left column) and muskellunge (right columns) with river discharge (cubic feet per second) on the day of fishing for guided anglers on three northwestern Wisconsin rivers from 2012-2016. A red star in a panel demotes a statistically significant relationship ($P<0.05$).

WDNR Comments

Catch Rates and River Level Changes

Changing river conditions prior to a day of fishing is also considered to be an important factor determining fishing success. We compared catch rates for smallmouth bass and muskellunge from all rivers under three different conditions: falling water level (>15% drop in discharge over 3 days), flat water level (<15% change in discharge over 3 days), and rising water level (>15% increase in discharge over 3 days). Catch rates for smallmouth were significantly higher under flat water conditions compared to rising water (Figure 12). A similar pattern appears to be present for muskellunge, though it was not statistically significant.

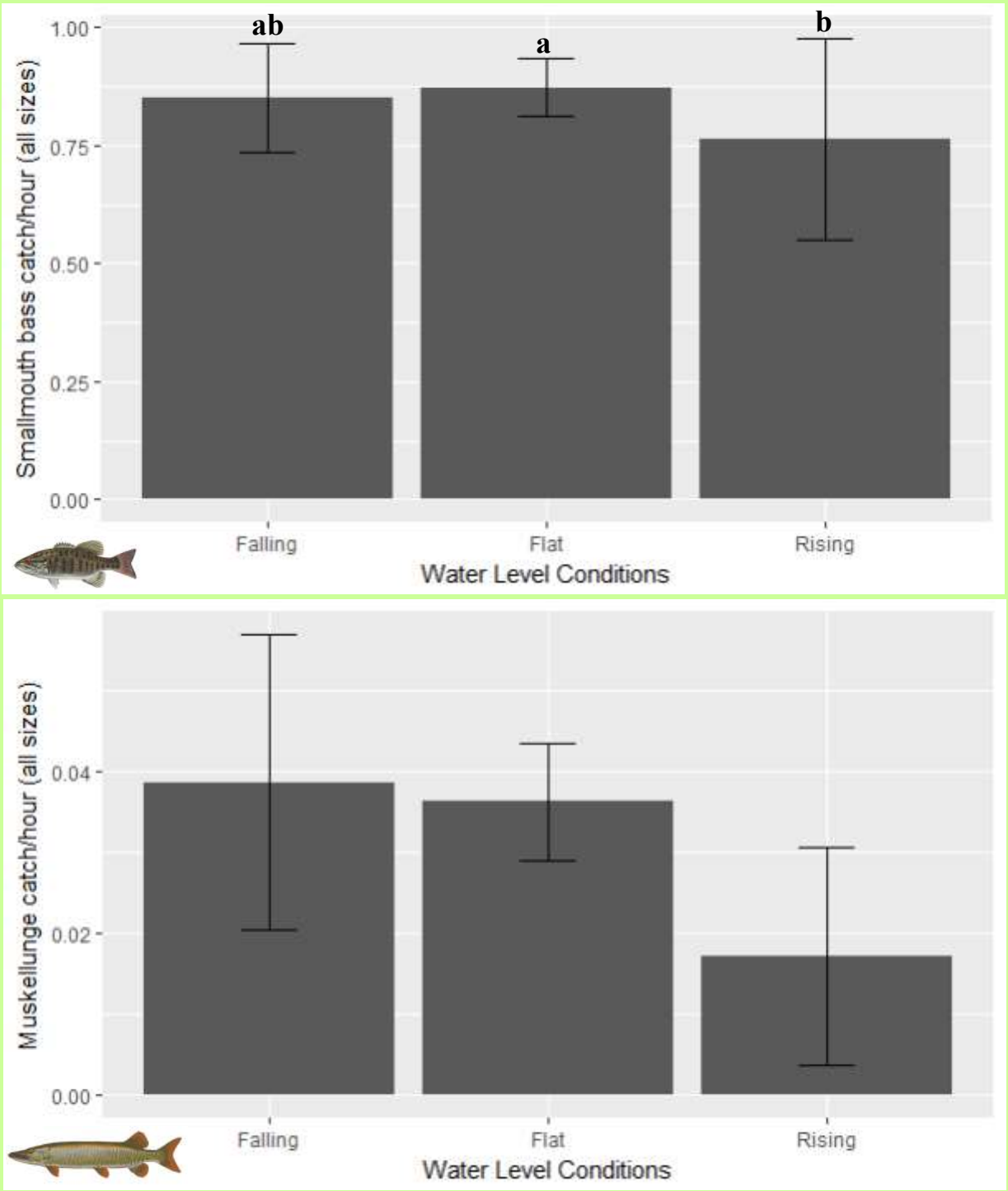


Figure 12. Skill level corrected catch rates of smallmouth bass (top panel) and muskellunge (bottom panel) under three different river conditions. Data was collected by in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings.

WDNR Comments

Catch Rates and Water Temperature

Water temperature is an important factor determining many aspects of fish behavior. Guides participating in this project collect daily water temperature data on-site at noon in a shaded area. We compared catch rates for smallmouth bass and muskellunge with water temperature across all rivers (Figure 13). Smallmouth bass demonstrated a significant positive relationship between water temperature and catch rate. This result matches the observed higher catch rates in peak summer months. There was no statistically significant trend between muskellunge catch rate and temperature, but there was an indication of higher catch between 50-70F.

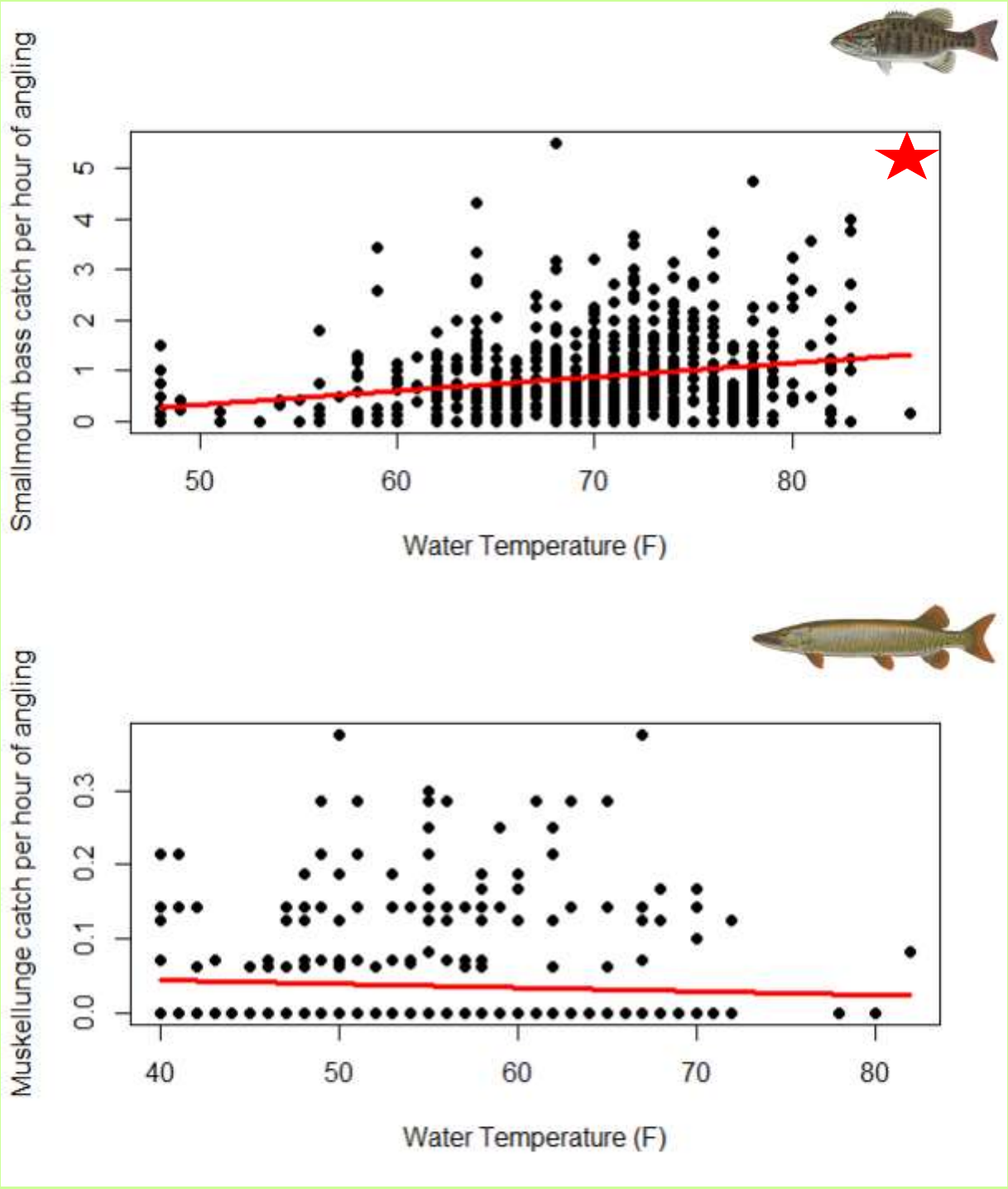


Figure 13. Comparison of skill level corrected catch rates for smallmouth bass (top panel) and muskellunge (bottom panel) with water temperature on the day of fishing for guided anglers on three northwestern Wisconsin rivers from 2012-2016. A red star in a panel demotes a statistically significant relationship ($P<0.05$).

WDNR Comments

CATCH RATES FOR OTHER SPECIES

WDNR Comments

Catch Rate of Northern Pike and Other Species

While smallmouth bass and muskellunge were the target species for all trips included in this project, other predator species were caught incidentally. Guides recorded all incidental catch which provided at least a limited amount of information on northern pike, walleye, and largemouth bass populations. Catch rates for northern pike were significantly higher on the Namekagon River in comparison to the Flambeau River, with the Chippewa River being intermediate (Figure 14). Overall, incidental catch rate of northern pike was similar to that of targeted catch rate for muskellunge. Northern pike density appears to be relatively low in these rivers in comparison to lakes in the area. Incidental catch of walleye and largemouth bass was rare. Only 22 walleye were caught in 1,486 angler days of fishing. Walleye are believed to be more common in these rivers than the low catch would indicate. As a result, we believe that fly fishing guide data may not be a representative way to sample walleye populations in rivers. Only 34 largemouth bass were captured incidentally as a part of this project. Based on their similarities to smallmouth bass we feel more confident that the low catch of largemouth bass is, in fact, representative of the populations in these rivers. Largemouth bass likely occur at a very low density in these fast, rocky rivers. Largemouth bass are generally considered to be better suited for lake environments.

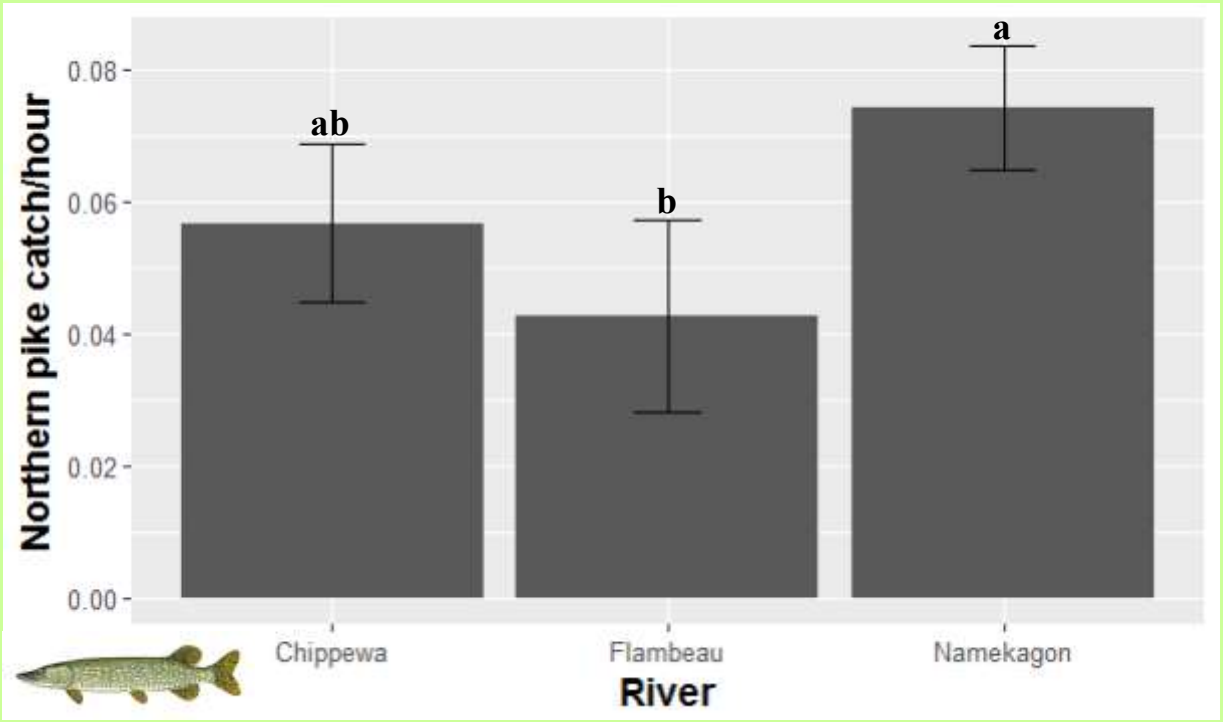


Figure 14. Northern pike incidental catch rates (number per hour of total angling) in three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals.

WDNR Comments

WISCONSIN CONSERVATION DEPARTMENT
Madison, Wisconsin 53701

Fi-320

LIMNOLOGY

County Sawyer (5 8) Waters Hayward Lake (9 1)

Location: Section 26,27 Township 41N Range 9W

Area (acres): 247.1

Type of Water: Lake ..... Stream ..... Impoundment x

Dimensions: Length (miles and tenths) 1.80 Width .33

Depth: Mean ..... Maximum (feet) 17
> 20 feet (percent) 0
< 3 feet (percent) 43

Shore Length (miles and tenths): 8.64

Littoral Bottom Types (percent): Sand 60 Clay .....
Gravel 8 Hardpan .....
Bedrock ..... Boulder .....
Silt ..... Marl ..... Rubble ..... Detritus 32

Direct Drainage Area (square miles): 1.85

Watershed Land Cover (percent): Agriculture 60
Wetland ..... Wild 40

Watershed: Area (square miles) 93.51

Inlets: Number ..... Width (feet) ..... Navigability yes Volume

Outlet: Width (feet) ..... Navigability yes Volume

Landlocked: no

Water Control Structure:
Owner ..... Height (feet) 17 Type ..... Purpose .....

Water Source: Drainage x Seepage ..... Spring ..... Drained .....

Flow of Outlet (cfs): 275.0

Water Chemistry:
Date July 1964 MPA Alkalinity (ppm) 69

pH: 8.2

Phosphates: Total ..... Dissolved .....

Conductance: C_t ..... C_{f77} 130

Watercolor: Lt. Brown ..... Med. Brown ..... Drk. Brown ..... Clear x Turbid .....

Secchi Disk (depth in feet): 15
Conditions .....

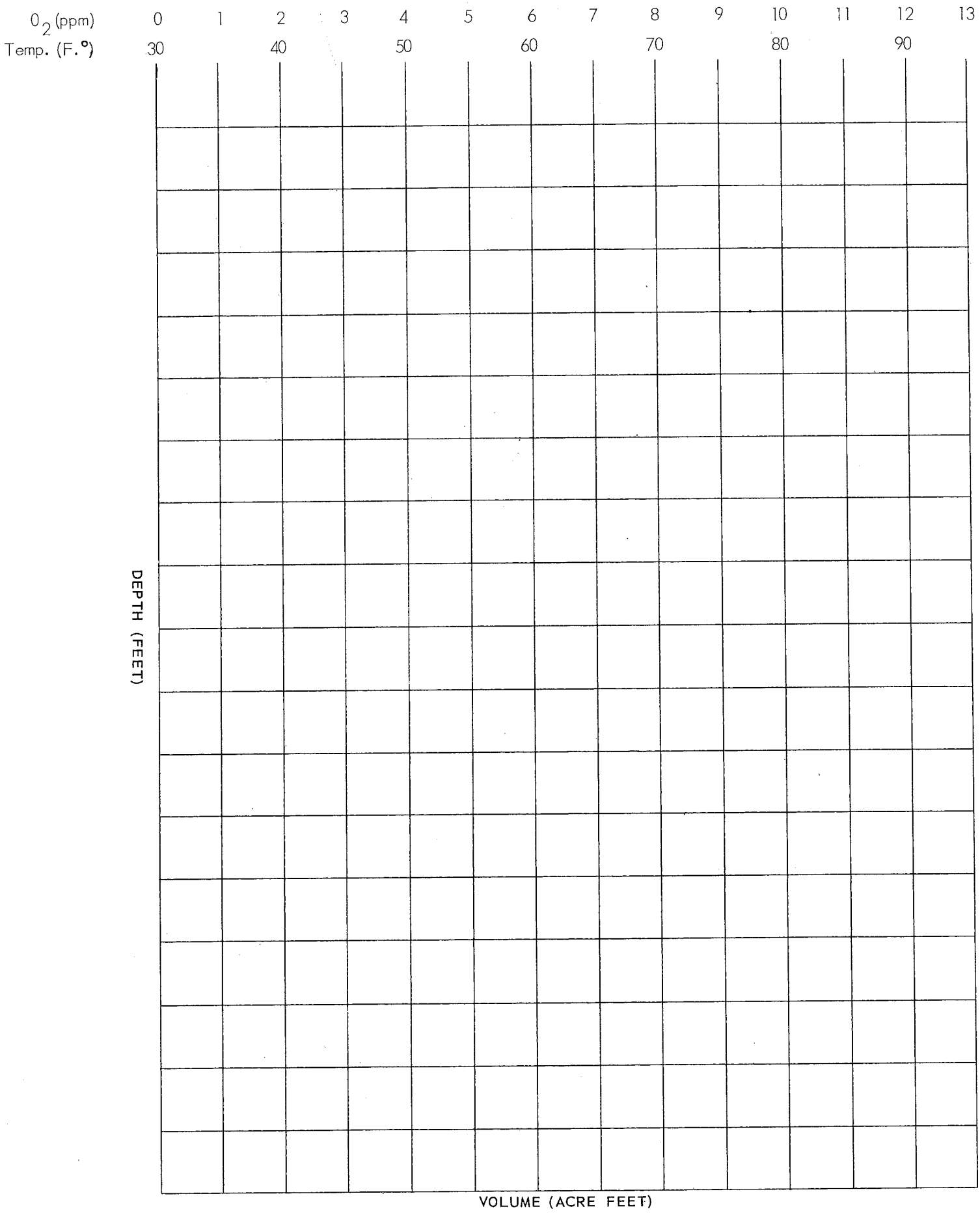
Upper Thermocline Depth (feet): ..... Chloride (ppm) .....

Comments: .....

Signed M. Perkins (Compiler) Date July 1964

WDNR Comments

OXYGEN, TEMPERATURE, VOLUME PROFILE



Date of Collection .....

WDNR Comments

WISCONSIN CONSERVATION DEPARTMENT
Madison, Wisconsin 53701

Fi-321

FISH DATA

County ..... Sawyer ..... 5 8 Waters ..... Hayward Lake 9 1

Use Problems Sec. 26, 27, T41N, R9W

Winterkill: Yes ..... No ..... X ..... Frequency .....

Macrophytic Vegetation

Yes ..... No ..... X ..... Control Measures .....

Species	Abundance	Species	Abundance	Species	Abundance

Algae: Yes ..... No ..... X ..... Species .....

Carp: Yes ..... No ..... X ..... Comment on Condition .....

.....

Stunted Panfish: Yes ..... No ..... X ..... Species .....

Pollution: Yes ..... No ..... X ..... Source .....

Fluctuating Water Levels: None ..... X ..... Man ..... Natural ..... Range .....

Basic Management: .....

Walleye, Northern Pike, Bass, and panfish.

.....

.....

.....

Fish Species: Describe as Present (P), Common (C), or Abundant (A)

Esocidae

Muskellunge	P	15
Northern pike	A	16
Mud pickerel		17

Percidae

Walleye	C	18
Sauger		19
Perch	C	20

Centrarchidae

Largemouth bass	C	21
Smallmouth bass	P	22
Bluegill	A	23
Black crappie	C	24
White crappie		25
Rock bass	P	26
Pumpkinseed	C	27
Warmouth		28
Green sunfish		29

Serranidae

White bass		30
Yellow bass		31

Ameiuridae

Channel catfish		32
Flathead catfish		33
Black bullhead	C	34
Brown bullhead		35
Yellow bullhead		36

Salmonidae

Lake trout		37
Brook trout		38
Brown trout		39
Rainbow trout		40
Cisco		41
Whitefish		42
Carp		43

Catostomidae

White sucker	C	44
Buffalo		45
Spotted sucker		46
Quillback		47
Sturgeon sucker		48
Redhorse	P	49
Lake chub sucker		50

Lepisosteidae

Longnose gar		51
Shortnose gar		52
Bowfin		53
Mooneye		54
Gizzard shad		55
Burbot		56
Sheepshead		57

Acipens

Rock sturgeon		58
Shovelnose sturgeon		59

Cyprinidae

Bluntnose minnow		60
Common shiner		61
Golden shiner		62
Redbelly dace		63
Creek chub		64
Emerald shiner		65

Other species		66
		67
Johnny Darter	P	68
Bluntnose Minnow	P	69
		70
		71
		72
		73
		74
		75
		76
		77
		78
Crayfish		79

Signed ..... L. M. Sather July 1964 ..... (Compiler)

Data Source Area File & Gen. Lake Cond.

4-66

WDNR Comments

WISCONSIN CONSERVATION DEPARTMENT
Madison, Wisconsin 53701

Fi-326

PUBLIC ACCESS AND GAME ASSETS

County Sawyer (5 8) Waters Hayward Lake (9 1)
Sec. 26,27, T41N, R9W

ACCESS

Parks (name and number): Town 0 City 1
County 0 State 0 Federal 0
Access Roads With Parking (number):
Town 0 City 1 County 0 State 0 Federal 0
Access Roads Without Nearby Parking (number): NONE
Town City County State Federal
Navigable Water Access: Yes X No Name
Unimproved or Difficult Access: Yes No X
Wilderness (describe)
Commercial and Cottage Facilities (number): Resorts 7 Boat Rentals 7
Campgrounds 0 Cottages or Dwellings 6 9 Private Camps 1
Observations:

GAME RESOURCES

Type of Wetland Area of Adjoining Wetland (acres) 2 8
Percent Woody 5 0 Percent Nonwoody
Muskrat (significant ~~or insignificant~~): Yes No
Beaver (~~presence or~~ absence): Yes No
Waterfowl:

Broods	Yes X No		Mallard	Yes X No	
Black	Yes No X		Teal	Yes X No	
Wood	Yes No X		Hooded Merganser	Yes No X	
Coot	Yes No		Loon	Yes No X	
			Heron Rookery	Yes No X	

Other

Migration:

	Puddle Ducks	Diving Ducks	Coot	Canada Geese	Other
Spring	10-100	10-100	1-10	0	0
Fall	~~10-100~~	~~10-100~~	1-10	0	0

Restrictions on Hunting (refuges, local ordinances): YES
Observations

OTHER DATA

Access Priority (describe): Important
Public Frontage (miles and hundredths): 0.2 5
Watershed Number:
Observations:
Park 0.22
(3) Undeveloped platted accesses .03

Signed L. M. Sather (Compiler) Date July 1964

4-66

WDNR Comments

Fi-264 NWA - Lakes

County Sawyer

Water Hayward Lake

Drainage system Namekagon

Lake types:

I. Water chemistry & source (X)

Hard water drainage	x
Soft water drainage	
Hard water seepage	
Soft water seepage	
Acid bog	
Alkaline bog	
Spring pond	

II Shoreline vegetation % species

Hardwood upland	± Mixed	
Conifer upland		
Grass upland		
Hardwood swamp		
Conifer swamp		
Shrub swamp	5	
Fresh meadow		

III. Shoreline type %

Firm upland	90
Soft marsh	10
Bog	

IV. Shore Use

		%
Wild or undeveloped		20
Pastured		
Cultivated	est.	
Developed		80

V. Aquatic vegetation - Predominant

Emergent: cattails

Floating: water lily

Submergent: Pondweeds, etc.

VI. Rearing pond potential: Yes - No x

Mapped previously: '64 Yes x No

Reliable: Yes x No

Map data - Acres:

Miles shoreline:

Maximum depth:

Shore development figure: 3.92

Conservation Area: Yes ___ No x

Name

Park Facilities: Yes x No ___

Name

Acres ___ Owner

(X)	
Swimming	x
Picnicking	x
Camping	
Access	x

Private hatchery: Yes x No ___

Lic. No.

Operator:

Pollution: Yes ___ No x

Source:

Boating conflict: Yes ___ No x

Regulation

Sources of data: (X)

	Fish	Winter kill
Dist. Manager		
Area file	x	x
Local		
Gen. lake condition		x
Observation		
Other		

Extent of winterkill: (X)

Annual complete	
Occasional complete	
Occasional partial	
None	x

D. O. = ___.___ ppm ___ 19 ___

Remarks:

Possible weed problem in future.

WDNR Comments

UNIT FISHING RECORD
FORM 3600–62

DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS
Sawyer	Lake Hayward - South shore
DATE	**TIME**
5-16-77 (First Night)	9:15 PM - 1:40 AM

SITE FISHED (STATION AND HABITAT)

Rt. 27 bridge along south shore to Rt. 77 bridge entire shoreline including one island.

GEAR

BOOM SHOCKER (HOURS)	DAYTIME	DARKNESS
2.2		X

VISUAL HOURS	TIME	HAUL SEINE (LENGTH)	AREA	MESH
ANGLING (HOURS)	TIME	TRAP NET (DIMENSIONS)	MESH	DEPTH
MINNOW SEINE (LENGTH)	DISTANCE	GILL NET (LENGTH)	MESH	DEPTH

OTHER

FISHING CONDITIONS (Describe)

Clear, calm, warm, buggy, Air 68°, H_2O 65°

FISHING RESULTS

SPECIES	NUMBER	ESTIMATED MODAL LENGTH	ESTIMATED SIZE RANGE	CPE No./hr.
Largemouth bass	9	15.0	7.0 - 18.6	4.1
Smallmouth bass	3	10.0	8.0 - 10.3	1.4
Northern pike	24	12.0,16.0,18.0	9.5 - 27.0	10.9
Muskellunge	1 seen	35"	35"	0.4
N. redhorse	134	5.0,8.0,13.0	3.5 - 18.4	Abundant
White sucker	15	6.0,14.0,17.5	4.0 - 18.9	Common
Walleye	4	11.0	10.0 - 12.3	1.8
Bluegill	268	1.6,2.8,5.2,6.0,7.2	0.9 - 8.2	121.8
Pumpkinseed	167	2.5,4.5,5.2,6.0	1.4 - 7.4	75.9
Rock bass	11	5.1,7.0	2.1 - 8.0	5.0
Bl. crappie	3	N/A	5.2 - 9.1	1.4
Y. perch	63	2.2,3.0,4.2,5.3,11.0	1.5 - 11.3	28.6

OBSERVATIONS Bob Kinney and son watched. A lot of panfish and redhorse. Gamefish don't seem to be in tonight. Warm water necessitated processing fish at frequent intervals. Rt. 77 bridge too low - couldn't sample basin just above dam. No minnow sample taken, scales not taken (no envelopes). (Must be done 5-17-77). Also common and golden shiners, johnny darters, one longear sunfish. Small creek chubs 1.5 - 2.0" common to abundant in upper river channel. Bay near Wilson Creek inlet very weedy and shallow. Slow going, but wall to wall sunfish. Hard water - drew 10-11 Amps at 230 volts, 6-8 Amps at next lower voltage.

Crew: Pratt, Kowalski, Libby	COMPILER'S SIGNATURE F. Pratt	DATE 5-17-77

REV. 2–71

RY . ISHING RECORD
3600-63

Spring Shocker Runs
Two Nights

DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS
Sawyer	Lake Hayward
SAMPLING OBJECTIVE	NUMBER AND LOCATION OF STATIONS (HABITAT)
Running Inventory	Entire shoreline except basin between Rt. 27 bridge and dam
PERIOD FISHED (DATES)	
5/16,17/77	

GEAR

BOOM SHOCKER (HOURS)	TIME
4.1 gamefish 2.8 panfish	X NIGHT _____ DAY

VISUAL HOURS	TIME OF DAY	HAUL SEINE (LENGTH)	MESH	AREA COVERED
ANGLING (HOURS)	TIME OF DAY	TRAP NET (NO. OF NET LIFTS)	MESH	DEPTH
MINNOW SEINE (NO. HAULS)	AREA COVERED	GILL NET (NO. OF FEET X NO. OF LIFTS)	MESH SIZE	DEPTH

OTHER (HOURS OR LIFTS)	CHARACTERISTICS
	Clear, calm, unseasonably warm air and water temps.

FISHING RESULTS

NO/hr.

SPECIES	NO.	MODAL SIZE(S)	SIZE RANGE	CATCH/UNIT
Largemouth bass	22	8.5,12.0,15.0, 17.0	7.0 - 20.5	5.4
Smallmouth bass	15	10.0,13.5	7.0 - 16.8	3.7
Northern pike	45	8.5,12.5,16.0	7.0 - 27.0	11.0
Muskellunge	1 seen and 1 found dead		35 - 51.5	0.3
Walleye	6	11.0	10.0 - 16.4	1.5
Bluegill	376	1.5,2.8,5.2, 6.0	0.9 - 8.3	134.3
Pumpkinseed	292	2.8,4.5,5.2	1.4 - 7.4	104.3
Rock bass	20	5.1,7.4	1.5 - 8.0	7.1
Black crappie	5	N/A	2.1 - 9.1	1.8
Yellow perch	92	2.2,3.0,4.6, 5.3,8.7,11.0	1.5 - 11.3	32.9

OBSERVATIONS

Redhorse and sunfish appear to dominate. Gamefish not inshore in large numbers either night. Bluegills already on spawning beds. Also shiners, lamprey, darters, mudminnows.

SIGNED (COMPILER)	DATE
F. Pratt	5-18-77

REV. 10-70

WDNR Comments

FISH LENGTH FREQUENCY

DEPARTMENT OF NATURAL RESOURCES

3600-65

Crew: Pratt, Kowalski, Libby

COUNTY	WATERS	DATE	GEAR
Sawyer	Lake Hayward - South shore	5-16-77	Vari volt boomshocker

Size Range	SPECIES								Size Range	SPECIES		
	LMB	SMB	We	NP	Musky	Lamprey	NRH	WS		WE	NP	Musky
3.0- 3.4									27.0-27.4		1	
3.5- 3.9							2		27.5-27.9			
4.0- 4.4							3	1	28.0-28.4			
4.5- 4.9							9		28.5-28.9			
5.0- 5.4							28		29.0-29.4			
5.5- 5.9							8		29.5-29.9			
6.0- 6.4							9	2	30.0-30.4			
6.5- 6.9						2	4		30.5-30.9			
7.0- 7.4						Attached	5		31.0-31.4			
7.5- 7.9						to two	8		31.5-31.9			
8.0- 8.4		1				redhorse	13		32.0-32.4			
8.5- 8.9							4	1	32.5-32.9			
9.0- 9.4							4		33.0-33.4			
9.5- 9.9				1			1		33.5-33.9			
10.0-10.4	1	2	1				2		34.0-34.4			
10.5-10.9				2			1	1	34.5-34.9			
11.0-11.4			2	1			3		35.0-35.4			1 seen
11.5-11.9							1		35.5-35.9			
12.0-12.4	1		1	2			5		36.0-36.4			
12.5-12.9				1			4		36.5-36.9			
13.0-13.4	1			1			6		37.0-37.4			
13.5-13.9	1			2			2	1	37.5-37.9			
14.0-14.4				1			3	2	38.0-38.4			
14.5-14.9							3	1	38.5-38.9			
15.0-15.4	2			1			2		39.0-39.4			
15.5-15.9				2			1		39.5-39.9			
16.0-16.4	1			2					40.0-40.4			
16.5-16.9									40.5-40.9			
17.0-17.4							1	1	41.0-41.4			
17.5-17.9				3			1	2	41.5-41.9			
18.0-18.4				2			1	2	42.0-42.4			
18.5-18.9	1							1	42.5-42.9			
19.0-19.4									43.0-43.4			
19.5-19.9							Very	Common	43.5-43.9			
20.0-20.4							Abundant!		44.0-44.4			
20.5-20.9									44.5-44.9			
21.0-21.4									45.0-45.4			
21.5-21.9									45.5-45.9			
22.0-22.4				1					46.0-46.4			
22.5-22.9									46.5-46.9			
23.0-23.4									47.0-47.4			
23.5-23.9									47.5-47.9			
24.0-24.4									48.0-48.4			
24.5-24.9									48.5-48.9			
25.0-25.4									49.0-49.4			
25.5-25.9									49.5-49.9			
26.0-26.4												
26.5-26.9										4	24 grand total	1 seen
Total	9	3	4	23 subtotal		2	134	15				

REV. 1-70

WDNR Comments

SH LENGTH FREQUENCY

DEPARTMENT OF NATURAL RESOURCES

3600-64

2.2 hours

COUNTY	WATERS	DATE	GEAR
Sawyer	Lake Hayward - South shore	5-16-77	Vari volt boomshocker

Size Range	SPECIES						Size Range	SPECIES					
	BG	PS	YP	RB	BC	B1 BH		BG	PS	YP	RB	BC	B1 BH
<1	3						7.0	9			2		
1-1.4	2	1					7.1	3					
1.5-1.9	13		1				7.2	10					
2.0			2				7.3	1			1		
2.1			3	1			7.4	2	1				
2.2			8				7.5	5					
2.3			2				7.6	2					
2.4	1		2				7.7	2					
2.5		2	1				7.8	1					
2.6							7.9	1					
2.7							8.0	1			1		
2.8	3	1	1				8.1					1	1
2.9			3				8.2	1					
3.0	2		3				8.3						
3.1	1		3				8.4						
3.2	1						8.5						
3.3	2	2					8.6						
3.4							8.7						
3.5							8.8						1
3.6	1		3				8.9						
3.7			1				9.0						
3.8			1				9.1					1	
3.9			1				9.2						3
4.0	4	2	2				9.3						5
4.1	2	4	2				9.4						1
4.2	4	5	6				9.5						1
4.3	2	2	1				9.6						2
4.4	1	2	1				9.7						2
4.5	5	7	2				9.8						
4.6	5	6	2				9.9						2
4.7	4	6	2				10.0						
4.8	2	4					10.1						1
4.9	4	3					10.2			1			
5.0	21	14					10.3						
5.1	7	7	1	3			10.4						
5.2	25	22	1		1		10.5						
5.3	7	8	3				10.6						
5.4	10	4	1				10.7						
5.5	18	11		1			10.8						
5.6	10	3					10.9			1			
5.7	11	11					11.0			1			
5.8	1	6					11.1						
5.9	2	5					11.2			1			
6.0	17	16					11.3			1			
6.1	7	3					11.4						
6.2	6	3					11.5						
6.3	2	2					11.6						
6.4	3	1					11.7						
6.5	7	1					11.8						
6.6	10						11.9						
6.7	3	1		1			>12						
6.8	5	1											
6.9	1						Total	273	167	64	11	3	20

REV. 2-70 CS - 3.2,3.7 GS - 3.6 JD - 1.8,1.9 Les - 6.3

WDNR Comments

ARY FISHING RECORD

3600-63

DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS
Sawyer	Lake Hayward, North shore
SAMPLING OBJECTIVE	NUMBER AND LOCATION OF STATIONS (HABITAT)
	North shore from Rt 27 bridge to Namekagon river inlet channel
PERIOD FISHED (DATES)	
5-17-77	

GEAR

BOOM SHOCKER (HOURS)	TIME
0.6 hours - panfish 1.9 hours - gamefish	9:30 - 2:00 AM X NIGHT _____ DAY

VISUAL HOURS	TIME OF DAY	HAUL SEINE (LENGTH)	MESH	AREA COVERED
ANGLING (HOURS)	TIME OF DAY	TRAP NET (NO. OF NET LIFTS)	MESH	DEPTH
MINNOW SEINE (NO. HAULS)	AREA COVERED	GILL NET (NO. OF FEET X NO. OF LIFTS)	MESH SIZE	DEPTH

OTHER (HOURS OR LIFTS)	CHARACTERISTICS
	H_2O - 72° Air - 67°F Clear, calm, warm, Littoral weed growth moderate to heavy.

FISHING RESULTS

SPECIES	NO.	MODAL SIZE(S)	SIZE RANGE	CPE No/hr CATCH/ UNIT
Largemouth bass	13	8.5,12.0,17.0	7.5 - 20.5	6.8
Smallmouth bass	12	11.0,13.5	7.0 - 16.8	6.3
Northernpike	21	8.5,12.5,15.5, 19.5	7.0 - 25.0	11.1
Walleye	2	N/A	12.5 - 16.4	1.1
Bluegill	108	1.5,3.2,5.0,7.3	0.9 - 8.3	180.0
Pumpkinseed	125	2.8,4.0,5.0,5.5	2.3 - 6.7	208.3
Rock bass	9	5.8,7.4	1.5 - 7.4	15.0
Black crappie	2	N/A	2.1 - 8.7	3.3
Yellow Perch	29	3.0,4.6,8.7	2.2 - 11.3	48.3
Black Bullhead	11	8.7	3.6 - 9.7	18.3

OBSERVATIONS

Also common and golden shiners, lampreys, and mud minnows. Water extremely warm for so early in year. Bluegills and pumpkinseeds are already on their spawning beds, along most of north shore. Three other walleyes seen in deep water above Rt. 27 .

SIGNED (COMPILER)	DATE
F. Pratt	5-18-77

REV. 10-70

WDNR Comments

FISH LENGTH FREQUENCY

M 3600-65

DEPARTMENT OF NATURAL RESOURCES

Crew: Pratt, Ives, Kowalski

COUNTY	WATERS	DATE	GEAR
Sawyer	Lake Hayward - North shore	5-17-77	Vari volt Boomshocker

Size Range	SPECIES								Size Range	SPECIES		
	LMB	SMB	WE	NP	Musky	Lamprey	NRH	WS		WE	NP	M
3.0- 3.4									27.0-27.4			
3.5- 3.9									27.5-27.9			
4.0- 4.4									28.0-28.4			
4.5- 4.9									28.5-28.9			
5.0- 5.4									29.0-29.4			
5.5- 5.9									29.5-29.9			
6.0- 6.4									30.0-30.4			
6.5- 6.9						1	No pickup		30.5-30.9			
7.0- 7.4		1		1		1	effort on		31.0-31.4			
7.5- 7.9	1						suckers		31.5-31.9			
8.0- 8.4									32.0-32.4			
8.5- 8.9	3			1			Abundant		32.5-32.9			
9.0- 9.4	1			1					33.0-33.4			
9.5- 9.9									33.5-33.9			
10.0-10.4		1			None				34.0-34.4			
10.5-10.9					Seen				34.5-34.9			
11.0-11.4		2							35.0-35.4			
11.5-11.9									35.5-35.9			
12.0-12.4	1			2					36.0-36.4			
12.5-12.9	1	1	1	2					36.5-36.9			
13.0-13.4		1		2					37.0-37.4			
13.5-13.9		3		1					37.5-37.9			
14.0-14.4		2		1					38.0-38.4			
14.5-14.9									38.5-38.9			
15.0-15.4				2					39.0-39.4			
15.5-15.9	1			2					39.5-39.9			
16.0-16.4	1		1						40.0-40.4			
16.5-16.9	1	1		1					40.5- 40.9			
17.0-17.4	2								41.0-41.4			
17.5-17.9				1					41.5-41.9			
18.0-18.4									42.0-42.4			
18.5-18.9				1					42.5-42.9			
19.0-19.4									43.0-43.4			
19.5-19.9				2					43.5-43.9			
20.0-20.4									44.0-44.4			
20.5-20.9	1								44.5-44.9			
21.0-21.4									45.0-45.4			
21.5-21.9									45.5-45.9			
22.0-22.4									46.0-46.4			
22.5-22.9									46.5-46.9			
23.0-23.4									47.0-47.4			
23.5-23.9									47.5-47.9			
24.0-24.4									48.0-48.4			
24.5-24.9									48.5-48.9			
25.0-25.4				1					49.0-49.4			
25.5-25.9									49.5-49.9			
26.0-26.4										2	21	0
26.5-26.9												
Total	13	12	2	21		2						

REV. 1-70

Also - 51½" Musky found dead and brought into office.
Just south of dam. Scales taken.

WDNR Comments

ISH LENGTH FREQUENCY

M 3600-64

DEPARTMENT OF NATURAL RESOURCES

COUNTY	WATERS	DATE	SEARI volt
Sawyer	Lake Hayward - North shore	5-17-77	Boomshocker

Size Range	SPECIES					
	BG	RB	PS	BC	YP	BlBH
<1	1					
1-1.4	4					
1.5-1.9	8	1				
2.0						
2.1				1		
2.2					2	
2.3	1		2			
2.4						
2.5						
2.6						
2.7	1					
2.8	1		2		1	
2.9	2				1	
3.0	1				4	
3.1					1	
3.2	3				1	
3.3	1					
3.4			1			
3.5	1					
3.6	2		1			1
3.7						
3.8					1	
3.9					1	
4.0			3		2	
4.1						
4.2	1		4			
4.3			2			
4.4			3			
4.5	2		6			
4.6			3		2	
4.7	3		8			
4.8	4	1	16		1	
4.9			4			
5.0	8		16			1
5.1	2		5			
5.2	7		12			
5.3	3					
5.4			5			
5.5	7		13			
5.6	4		3			
5.7	3	1	6			
5.8	2	1	2			
5.9	2		3			
6.0	1		2			1
6.1	3					
6.2					1	
6.3						
6.4	1		1			
6.5	1	1	1			1
6.6	1					
6.7	1		1			1
6.8	6	1			1	
6.9	2					

Size Range	SPECIES					
	BG	PS	RB	BC	YP	BlBH
7.0	3		1			1
7.1						
7.2					1	
7.3	4					
7.4	2		2		1	
7.5	3					
7.6	1					
7.7	1					
7.8	1					
7.9	1					
8.0					1	
8.1	1					
8.2					1	1
8.3	1					
8.4						
8.5						
8.6					1	1
8.7				1	2	1
8.8						
8.9						
9.0						
9.1						
9.2						
9.3						
9.4						
9.5					1	
9.6						1
9.7						1
9.8						
9.9						
10.0						
10.1						
10.2						
10.3						
10.4						
10.5						
10.6						
10.7						
10.8						
10.9						
11.0						
11.1						
11.2						
11.3					1	
11.4						
11.5						
11.6						
11.7						
11.8						
11.9						
>12						
Total	108	125	9	2	28	11

WDNR Comments

PANFISH LENGTH FREQUENCY

FORM 3600-64

DEPARTMENT OF NATURAL RESOURCES

LFSF-5.2

R.B. - 2.17 - 6.0

1 CRAWFISH
3 TURTLES

COUNTY	WATERS	DATE	GEAR
SAWYER	HAYWARD L.	MAY 1981	3 FYKE NETS

Size Range	SPECIES BG	SPECIES BC	SPECIES PS	SPECIES YP	Size Range	SPECIES BC	SPECIES BBH	SPECIES BG	SPECIES PS
<1				7.9	7.0		6.5	IIII	III
1-1.4				7.0	7.1				
1.5-1.9				5.5	7.2		I	II	
2.0				3.8	7.3			I	
2.1				5.8	7.4		I	I	
2.2				6.0	7.5			III	
2.3				6.2	7.6				
2.4				5.2	7.7				
2.5			I	4.0	7.8				
2.6			I	5.4	7.9				
2.7			I	6.7	8.0				
2.8				5.5	8.1				
2.9				5.0	8.2		IIII		
3.0			I	4.7	8.3		II		
3.1				6.0	8.4		I		
3.2	I			5.0	8.5		II		
3.3				6.2	8.6	I			
3.4					8.7		III		
3.5					8.8		I		
3.6					8.9		I		
3.7					9.0		IIII		
3.8					9.1				
3.9					9.2				
4.0					9.3				
4.1					9.4				
4.2	I			I	9.5				
4.3					9.6				
4.4					9.7	I			
4.5					9.8				
4.6					9.9				
4.7					10.0	I			
4.8					10.1				
4.9					10.2	I	I		
5.0			II		10.3				
5.1					10.4				
5.2			IIII		10.5				
5.3					10.6				
5.4			II		10.7				
5.5	II		IIII		10.8				
5.6					10.9				
5.7	I		I		11.0		I		
5.8	I		III		11.1				
5.9					11.2				
6.0	IIIII		IIII		11.3				
6.1	I				11.4				
6.2	IIIII		IIII		11.5				
6.3					11.6				
6.4	I				11.7				
6.5	IIIII I		IIII		11.8				
6.6	I				11.9				
6.7	I				>12				
6.8	III				Total				
6.9	III								

REV. 2-70

WDNR Comments

GAME FISH LENGTH FREQUENCY

FORM 3600-65

DEPARTMENT OF NATURAL RESOURCES

1 - SNAPPER - 3"

PAINTED TURTLES - 10, 4, 1, 1

LAMPREY - 1, 1,

CRAYFISH - 1, 1

COUNTY	WATERS	DATE	GEAR
	Lake Hayward	1981	3 FN

Size Range	NORTHERN	B.G.	P. Perch	BROWN	BS	Size Range	SPECIES BCBH
3.0- 3.4	4	5	1	1	3	27.0-27.4	
3.5- 3.9	4	20	1	1	20	27.5-27.9	3
4.0- 4.4	1	15	3	6	15	28.0-28.4	1
4.5- 4.9		3			5	28.5-28.9	3
5.0- 5.4		2			5	29.0-29.4	1
5.5- 5.9		5			1	29.5-29.9	2
6.0- 6.4		6			8	30.0-30.4	5
6.5- 6.9		5			6	30.5-30.9	6
7.0- 7.4		1			5	31.0-31.4	20
7.5- 7.9		1			1	31.5-31.9	5
8.0- 8.4		1				32.0-32.4	5
8.5- 8.9						32.5-32.9	
9.0- 9.4						33.0-33.4	
9.5- 9.9						33.5-33.9	
10.0-10.4						34.0-34.4	
10.5-10.9						34.5-34.9	
11.0-11.4						35.0-35.4	
11.5-11.9						35.5-35.9	
12.0-12.4						36.0-36.4	
12.5-12.9						36.5-36.9	
13.0-13.4						37.0-37.4	
13.5-13.9						37.5-37.9	
14.0-14.4						38.0-38.4	
14.5-14.9						38.5-38.9	
15.0-15.4						39.0-39.4	
15.5-15.9			B.C.	RB		39.5-39.9	
16.0-16.4			2	1		40.0-40.4	
16.5-16.9				1/2		40.5- 40.9	
17.0-17.4						41.0-41.4	
17.5-17.9						41.5-41.9	
18.0-18.4	RH	WS				42.0-42.4	
18.5-18.9	2	1				42.5-42.9	
19.0-19.4	2	1				43.0-43.4	
19.5-19.9	1					43.5-43.9	
20.0-20.4	1					44.0-44.4	
20.5-20.9						44.5-44.9	
21.0-21.4						45.0-45.4	
21.5-21.9						45.5-45.9	
22.0-22.4						46.0-46.4	
22.5-22.9						46.5-46.9	
23.0-23.4						47.0-47.4	
23.5-23.9						47.5-47.9	
24.0-24.4						48.0-48.4	
24.5-24.9						48.5-48.9	
25.0-25.4						49.0-49.4	
25.5-25.9						49.5-49.9	
26.0-26.4							
26.5-26.9							
Total							

REV. 1-70

WDNR Comments

GAME FISH LENGTH FREQUENCY

FORM 3600-65

DEPARTMENT OF NATURAL RESOURCES

1 - BROOK LAMPREY 5 - TURTLES - 1 POLLYWOG 1 CRAYFISH

COUNTY	WATERS	DATE	GEAR
Sawyer	Lake Hayward	5-19-81	FN

Size Range	N. Pike ~~Bluegill~~	~~SMB~~	SPECIES B.C.	~~LMB~~	~~R.B.~~	B.G. ~~B.G.~~	BBH
3.0- 3.4		7.0	10.5	7.0	6.4	6.2	9.2
3.5- 3.9	22.5				6.8	6.2	9.4
4.0- 4.4	12.2				6.2	6.0	9.2
4.5- 4.9						6.6	7.8
5.0- 5.4						6.4	7.1
5.5- 5.9						6.7	
6.0- 6.4						6.0	
6.5- 6.9						6.2	
7.0- 7.4						6.4	
7.5- 7.9						6.0	
8.0- 8.4						6.2	
8.5- 8.9						2.8	
9.0- 9.4						2.9	
9.5- 9.9						6.4	
10.0-10.4						7.2	
10.5-10.9						7.3	
11.0-11.4						6.5	
11.5-11.9						5.5	
12.0-12.4						6.2	
12.5-12.9						6.6	
13.0-13.4						6.5	
13.5-13.9						6.2	
14.0-14.4						7.2	
14.5-14.9						5.0	
15.0-15.4						6.1	
15.5-15.9						7.2	
16.0-16.4						5.2	
16.5-16.9						2.9	
17.0-17.4						6.6	
17.5-17.9						6.1	
18.0-18.4						6.2	
18.5-18.9						6.0	
19.0-19.4						6.5	
19.5-19.9						5.7	
20.0-20.4						5.8	
20.5-20.9						6.8	
21.0-21.4						6.2	
21.5-21.9						6.6	
22.0-22.4						7.0	
22.5-22.9						5.7	
23.0-23.4						5.7	
23.5-23.9						2.7	
24.0-24.4							
24.5-24.9							
25.0-25.4							
25.5-25.9							
26.0-26.4							
26.5-26.9							
Total							

Size Range	SPECIES P.S.	SPECIES Y.P.
27.0-27.4	5.2	4.2
27.5-27.9	6.3	7.1
28.0-28.4	6.4	5.7
28.5-28.9	6.1	3.5
29.0-29.4	6.2	4.2
29.5-29.9	6.0	5.5
30.0-30.4	4.2	5.5
30.5-30.9	6.1	4.0
31.0-31.4	6.1	5.2
31.5-31.9	5.2	6.2
32.0-32.4	5.2	7.0
32.5-32.9	4.6	4.8
33.0-33.4	5.2	4.2
33.5-33.9	6.2	6.6
34.0-34.4	6.4	4.9
34.5-34.9	4.7	5.7
35.0-35.4	6.1	
35.5-35.9	5.0	
36.0-36.4	4.9	
36.5-36.9	4.7	
37.0-37.4	6.2	
37.5-37.9		
38.0-38.4		
38.5-38.9		
39.0-39.4		
39.5-39.9		
40.0-40.4		
40.5-40.9		
41.0-41.4		
41.5-41.9		
42.0-42.4		
42.5-42.9		
43.0-43.4		
43.5-43.9		
44.0-44.4		
44.5-44.9		
45.0-45.4		
45.5-45.9		
46.0-46.4		
46.5-46.9		
47.0-47.4		
47.5-47.9		
48.0-48.4		
48.5-48.9		
49.0-49.4		
49.5-49.9		

REV. 1-70

WDNR Comments

PANFISH LENGTH FREQUENCY

FORM 3600-64

DEPARTMENT OF NATURAL RESOURCES

→ NFW FHF

COUNTY	WATERS	DATE	GEAR
Sawyer	Lake Hayward	4-28-80	VV BS

Size Range	SPECIES YP	BG	RH	BS.	Size Range	SPECIES SMB	LMB	NP	WS.
<1					7.0				
1-1.4	3.2	7.0	10.2	4.2	7.1				
1.5-1.9	3.2	6.5	11.5	6.5	7.2				
2.0	4.5	6.0	7.0	5.0	7.3				
2.1	5.0	6.0	8.0	6.0	7.4				
2.2	6.0	6.0	7.5		7.5				
2.3	6.0	4.8	11.0	4	7.6				
2.4	7.0	5.0	13.5		7.7	SMB	LMB	NP	WS.
2.5	6.8		9.5		7.8				
2.6	7.8	7	12.5		7.9	13.5	17.0	22.5	20.2
2.7	5.5		11.0		8.0	12.5	17.0	14.0	19.0
2.8	6.5		13.5		8.1		10.0	16.0	6.8
2.9					8.2	2	3	22.5	16.5
3.0	4		11		8.3			15.5	
3.1					8.4			6.5	4
3.2					8.5			10.5	
3.3					8.6				
3.4					8.7			7	
3.5					8.8				
3.6					8.9				
3.7					9.0				
3.8					9.1				
3.9					9.2				
4.0					9.3				
4.1					9.4				
4.2					9.5				
4.3					9.6				
4.4					9.7				
4.5					9.8				
4.6					9.9				
4.7					10.0				
4.8					10.1	G.B.H.			
4.9					10.2				
5.0					10.3	7.5			
5.1					10.4	8.5			
5.2					10.5	8.5			
5.3					10.6	7.5			
5.4					10.7	7.0			
5.5					10.8				
5.6					10.9	5			
5.7					11.0				
5.8					11.1				
5.9					11.2				
6.0					11.3				
6.1					11.4				
6.2					11.5				
6.3					11.6				
6.4					11.7				
6.5					11.8				
6.6					11.9				
6.7					>12				
6.8									
6.9					Total				

REV. 2-70

WDNR Comments

DEPARTMENT OF NATURAL RESOURCES

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 5-78

INCHES

COUNTY	WATERS	DATE	GEAR
	Hayward	May 81	3 FN

Size Range	SPECIES					Size Range	SPECIES	
	RH	NP	MUSKY					
3.0- 3.4	~~1~~	~~8.5~~	11.0			27.0-27.4		
3.5- 3.9	1	9.0				27.5-27.9		
4.0- 4.4		8.5				28.0-28.4		
4.5- 4.9		9.0				28.5-28.9		
5.0- 5.4						29.0-29.4		
5.5- 5.9						29.5-29.9		
6.0- 6.4						30.0-30.4		
6.5- 6.9						30.5-30.9		
7.0- 7.4						31.0-31.4		
7.5- 7.9						31.5-31.9		
8.0- 8.4						32.0-32.4		
8.5- 8.9						32.5-32.9		
9.0- 9.4						33.0-33.4		
9.5- 9.9						33.5-33.9		
10.0-10.4						34.0-34.4		
10.5-10.9						34.5-34.9		
11.0-11.4	1					35.0-35.4		
11.5-11.9	1					35.5-35.9		
12.0-12.4						36.0-36.4		
12.5-12.9						36.5-36.9		
13.0-13.4						37.0-37.4		
13.5-13.9						37.5-37.9		
14.0-14.4						38.0-38.4		
14.5-14.9						38.5-38.9		
15.0-15.4						39.0-39.4		
15.5-15.9						39.5-39.9		
16.0-16.4						40.0-40.4		
16.5-16.9						40.5- 40.9		
17.0-17.4						41.0-41.4		
17.5-17.9	1					41.5-41.9		
18.0-18.4						42.0-42.4		
18.5-18.9						42.5-42.9		
19.0-19.4						43.0-43.4		
19.5-19.9						43.5-43.9		
20.0-20.4						44.0-44.4		
20.5-20.9						44.5-44.9		
21.0-21.4						45.0-45.4		
21.5-21.9						45.5-45.9		
22.0-22.4						46.0-46.4		
22.5-22.9						46.5-46.9		
23.0-23.4						47.0-47.4		
23.5-23.9						47.5-47.9		
24.0-24.4						48.0-48.4		
24.5-24.9						48.5-48.9		
25.0-25.4						49.0-49.4		
25.5-25.9						49.5-49.9		
26.0-26.4								
26.5-26.9								
Total								

WDNR Comments

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

INCHES

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE 5 8	Hayward WATER CODE	9/21/82	Varivolt AC Boom-shocker

SIZE RANGE INCHES	SPECIES					SIZE RANGE INCHES	SPECIES			
	WE	LMB	SMB	NP	Mu		WE	NP	Mu	
<3.0		1				27.0-27.4				
3.0- 3.4						27.5-27.9				
3.5- 3.9						28.0-28.4				
4.0- 4.4	3					28.5-28.9				
4.5- 4.9	6					29.0-29.4				
5.0- 5.4	12					29.5-29.9				
5.5- 5.9	3					30.0-30.4				
6.0- 6.4	2			1		30.5-30.9				
6.5- 6.9	1			1	1	31.0-31.4				
7.0- 7.4	1			1	1	31.5-31.9				
7.5- 7.9				1	1	32.0-32.4				
8.0- 8.4						32.5-32.9				
8.5- 8.9						33.0-33.4				
9.0- 9.4				1	1	33.5-33.9				
9.5- 9.9					1	34.0-34.4				
10.0-10.4						34.5-34.9				
10.5-10.9						35.0-35.4				
11.0-11.4						35.5-35.9				
11.5-11.9				1		36.0-36.4				
12.0-12.4		1				36.5-36.9				
12.5-12.9	1			1		37.0-37.4	5 Chesnut lampreys			
13.0-13.4				2		37.5-37.9	on suckers and redhorse.			
13.5-13.9	1	1		1		38.0-38.4				
14.0-14.4	2			2		38.5-38.9				
14.5-14.9		1		2		39.0-39.4	One 30+" walleye			
15.0-15.4						39.5-39.9	seen.			
15.5-15.9						40.0-40.9				
16.0-16.4		1		1		41.0-41.9				
16.5-16.9		1				42.0-42.9				
17.0-17.4						43.0-43.9				
17.5-17.9					1	44.0-44.9	Bass/panfish have			
18.0-18.4						45.0-45.9	left shallows.			
18.5-18.9	1	1				46.0-46.9				
19.0-19.4				3		47.0-47.9				
19.5-19.9						48.0-48.9				
20.0-20.4						49.0-49.9				
20.5-20.9				1		50.0-50.9				
21.0-21.4						51.0-51.9				
21.5-21.9						52.0-52.9				
22.0-22.4	1					53.0-53.9				
22.5-22.9						54.0-54.9				
23.0-23.4						55.0-55.9				
23.5-23.9						56.0-56.9				
24.0-24.4						57.0-57.9				
24.5-24.9						58.0-58.9				
25.0-25.4						59.0-59.9				
25.5-25.9						60.0+				
26.0-26.4					1					
26.5-26.9										
TOTAL	34	7	0	19	7	TOTAL				

Redhorse 15" spp. - A+
WS - C

WS - 14.0
17.5, 19.7

WDNR Comments

LENGTH FREQUENCY

DEPARTMENT OF NATURAL RESOURCES

54

Sawyer (58)	WATERS Lake Hayward	DATE 9/22/82	GEAR BS

Length	SPECIES BG	PS	YP	BC	BBH
1					9.2
1.4					9.8
1.5-1.9					9.0
2.0					
2.1					
2.2					
2.3					
2.4					
2.5	1				
2.6					
2.7					
2.8					
2.9					
3.0	1		1		
3.1					
3.2			1		
3.3					
3.4					
3.5	1				
3.6	1				
3.7	1				
3.8	2				
3.9	1				
4.0	1	1			
4.1					
4.2					
4.3			1		
4.4					
4.5	3				
4.6	1				
4.7	1				
4.8					
4.9			1		
5.0			2		
5.1					
5.2		1	1		
5.3					
5.4		1			
5.5	1				
5.6			1		
5.7		3	1		
5.8	2	1			
5.9	1				
6.0	5				
6.1					
6.2	1	1	1		
6.3	1				
6.4	1	2			
6.5	7		1		
6.6	2				
6.7	4	1	1		
6.8	2		1		
6.9			1	1	
Total:	11				

Size Range	SPECIES BG	YP	BC	CS
7.0	3			4.2
7.1	1			5.0
7.2	4	1		2.8
7.3				3.5
7.4		1		3.5
7.5				7
7.6				
7.7				
7.8	1		1	
7.9	1	1		
8.0	1			
8.1				
8.2		1		
8.3		1		
8.4		1		
8.5		2	1	
8.6				
8.7				
8.8				
8.9		1		
9.0		1		
9.1				
9.2		1		
9.3				
9.4		1	1	
9.5				
9.6				
9.7			1	
9.8				
9.9				
10.0			1	
10.1				
10.2		1	1	
10.3				
10.4				
10.5				
10.6				
10.7		2		
10.8				
10.9				
11.0				
11.1				
11.2				
11.3				
11.4				
11.5		1	1	
11.6				
11.7				
11.8				
11.9				
>12				
Total	52	30	8	12

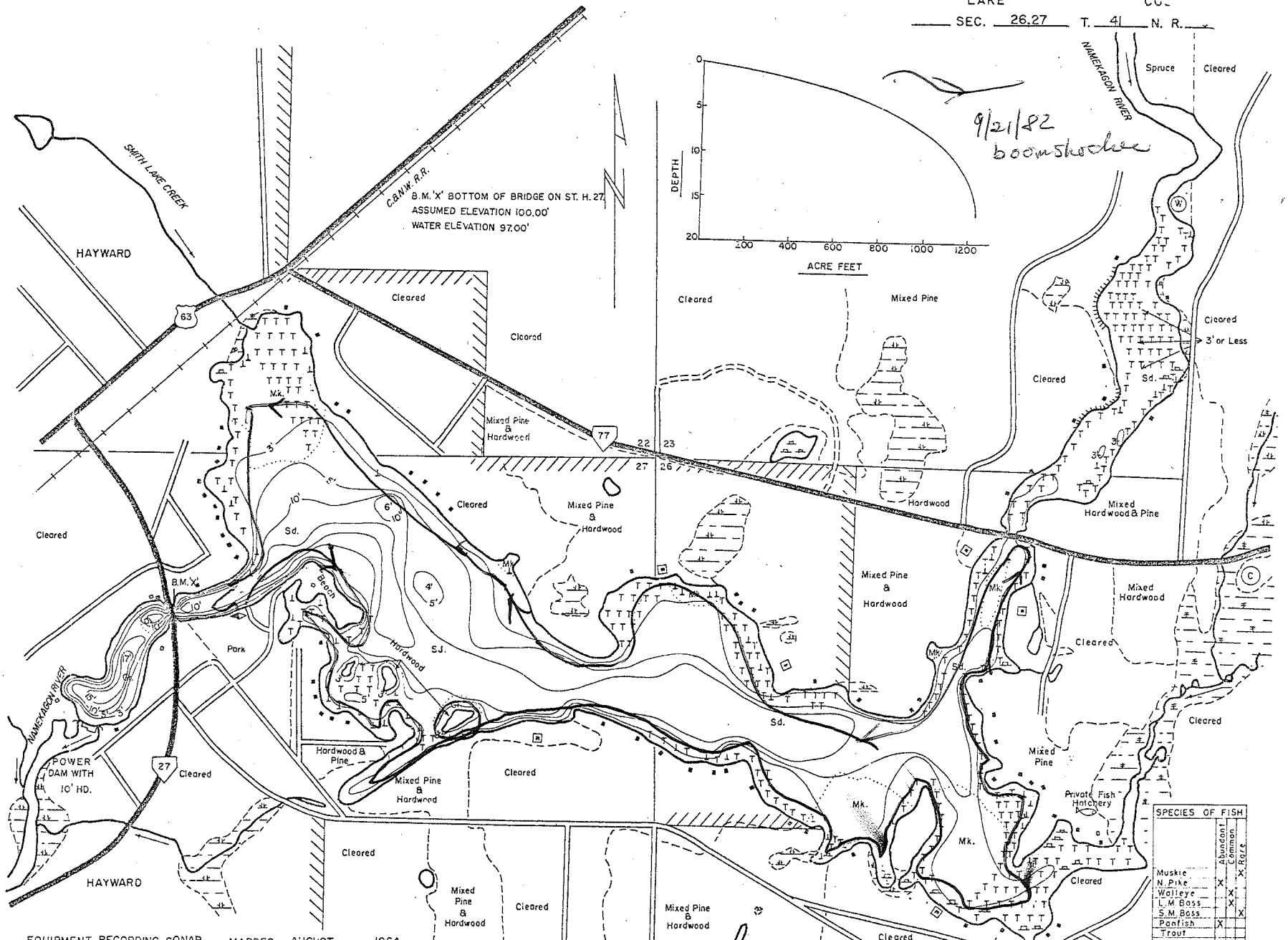
REV. 2-70

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE
LAKE

SEC. 26,27 T. 41 N. R.



SPECIES OF FISH	Abundant	Common	Rare
Muskie			X
N. Pike	X		
Walleye		X	
L.M. Bass		X	
S.M. Bass			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964
MO. YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- Emergent vegetation
- Floating vegetation

500' 0 500' 1000' 1500' 2000' 2500'
SCALE

◇ Access ◇ Access with Parking ◇ Boat Livery

Field work by: H. Schmude, M. Perkins, L. Sother Drawn by: J. Roth

AREA 247.14 ACRES
UNDER 3FT. 43 %
OVER 20FT. 0 %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. .69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

49

Lake Hayward, Sawyer Co.

DEPARTMENT OF NATURAL RESOURCES

Fish from Research's shocking Fall of 1986 9-28-86 Thru 11-2-86

L.M.B & We. Were picked up 7 of the 12 nights

Large-Mouth Bass	Walleye	Larger Muskies	Musky Hybrid
14.3"	6.5"	47.0 Male	10.6 78 grams
17.0	6.0	36.0 Male	10.6 80
13.4	5.2	32.7 Male	6.5 21
4.5	6.5	15.7 —	
9.5	5.0	29.3 Female	
7.7	5.0	14.5 —	
15.1	5.1	29.5 —	
4.0	5.3	15.7 —	
3.1	5.0	17.6 Male	
2.4	5.5		
18.9	6.0		
20.1	5.0		
13.9	5.4		
13.5	9.9		Small Native Muskies
15.9	5.7		
7.6	6.9		7.5
12.9	6.0		10.3 73 grams
14.2	5.4		7.7 26
10.0	6.0		10.3 82
12.2	5.8		9.0 46
3.3	17.9		8.8 42
7.1	6.0		9.2 31
3.2	18.0		9.3 53
3.6	17.4		
13.0	13.2		
8.9	5.2		
11.5	5.3		
12.0	5.8		
10.1	5.9		Brown Trout
12.4	6.0		6.0
11.8	5.7		
13.0	6.0		
12.5			
6.2			
5.4			
13.8			
9.4			
12.1			

REV. 3-71

WDNR Comments

SUMMARY FISHING RECORD
FORM 3600-63

DEPARTMENT OF NATURAL RESOURCES

COUNTY: Sawyer (58)	WATERS: Lake Hayward
SAMPLING OBJECTIVE: Field transfer to NFWFHF	NUMBER AND LOCATION OF STATIONS (HABITAT): Back bays, points.
PERIOD FISHED (DATES): 5/18-22/87	

GEAR

BOOM SHOCKER (HOURS)	TIME: _____ NIGHT _____ DAY

VISUAL HOURS	TIME OF DAY	HAUL SEINE (LENGTH)	MESH	AREA COVERED
ANGLING (HOURS)	TIME OF DAY	TRAP NET (NO. OF NET LIFTS): 20	MESH: 1/2"	DEPTH: 4'
MINNOW SEINE (NO. HAULS)	AREA COVERED	GILL NET (NO. OF FEET X NO. OF LIFTS)	MESH SIZE	DEPTH

OTHER (HOURS OR LIFTS)	CHARACTERISTICS: H_2O - 64° (prespawn)

FISHING RESULTS

SPECIES	NO.	MODAL SIZE(S)	SIZE RANGE	CATCH/UNIT
Walleye	3	--	9.0-26.5	0.15
N. Pike	14	10.0,12.5,17.0	8.0-29.6	0.70
Largemouth Bass	1	15.5	15.5	0.05
Shorthead Redhorse	9	18.0	7.0-18.9	0.45
White Sucker	3	--	16.4-20.0	0.15
Bluegill	280	5.6,6.6,7.0	4.0-8.3	14.00
Pumpkinseed	143	5.0	2.4-7.1	7.15
Black Crappie	11	8.2	6.8-10.6	0.55
Rock Bass	2	--	5.3-6.6	0.10
Y. Perch	34	7.0, 9.3	4.5-11.6	1.70

OBSERVATIONS

Bluegills just starting to move into shallows. Also 105 asst. bullheads (all 3 spp.). One walleye and 4 northern pike kept for mercury analysis. Other fish field transferred to NFWHF display ponds.

SIGNED (COMPILER)	DATE
F. B. Pratt	5-30-87

REV. 10-70

WDNR Comments

WISCONSIN
NATURAL RESOURCES

PANFISH LENGTH FREQUENCY

FORM 3600-64 REV. 3-81

COUNTY Sawyer COUNTY CODE 5 8	WATER Lake Hayward WATER CODE _ _ _ _ _	DATE 5/18/87-5/22/87	GEAR 5, ½" fyke nets

SIZE RANGE INCHES	SPECIES					SIZE RANGE INCHES	SPECIES			
	BG	BC	PS	YP	RB		BG	BC	YP	PS
1.0-1.4						7.0	10		6	
1.5-2.0						7.1	8		3	1
2.1						7.2	5		2	
2.2						7.3	6		1	
2.3						7.4	1			
2.4			1			7.5			2	
2.5						7.6	2			
2.6						7.7	1			
2.7						7.8				
2.8						7.9				
2.9						8.0	3	2	1	
3.0						8.1				
3.1						8.2		2	1	
3.2						8.3	1		1	
3.3			1			8.4				
3.4						8.5			1	
3.5						8.6				
3.6						8.7		1		
3.7			2			8.8				
3.8						8.9				
3.9						9.0		1	1	
4.0	1		2			9.1				
4.1			4			9.2		2		
4.2			3			9.3			2	
4.3	1		6			9.4				
4.4	3		12			9.5			1	
4.5	1		9	1		9.6				
4.6	1		6			9.7		1	1	
4.7			5			9.8				
4.8			13			9.9				
4.9			2			10.0			1	
5.0	6		21			10.2			1	
5.1	4		4			10.4				
5.2	2		11			10.6		1		
5.3	4		8		1	10.8				
5.4	9		8			11.0				
5.5	13		5	1		11.2				
5.6	18		2			11.4				
5.7	4		3			11.6			1	
5.8	8		2			11.8				
5.9	3		2			12.0				
6.0	29		2			12.2				
6.1	17		1	2		12.4				
6.2	19		2			12.6				
6.3	17		1			12.8				
6.4	17					13.0				
6.5	23		1			13.2				
6.6	32		1	2	1	13.4				
6.7	4			1		13.6				
6.8	5	1	1	1		13.8				
6.9	2		1			14.0+				
TOTALS	243 Sub.	1 Sub.	142	8 Sub.	2	TOTALS	280	11	34	143

57 Black bullheads - 7.9-11.1"; 18 Yellow bullheads - 7.4-10.8"; 30 Brown bullheads - 8.0-11.2"

WDNR Comments

...te of Wisconsin
...ment of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

...ES

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE 5 8	Lake Hayward WATER CODE — — — —	5/18-22/87	5½" fyke nets

SIZE RANGE INCHES	SPECIES				SIZE RANGE INCHES	SPECIES		
	WE	NP	LMB	SHRH		NP		
<3.0					27.0-27.4			
3.0- 3.4					27.5-27.9			
3.5- 3.9					28.0-28.4			
4.0- 4.4					28.5-28.9			
4.5- 4.9					29.0-29.4			
5.0- 5.4					29.5-29.9	1		
5.5- 5.9					30.0-30.4			
6.0- 6.4					30.5-30.9			
6.5- 6.9					31.0-31.4			
7.0- 7.4				1	31.5-31.9			
7.5- 7.9					32.0-32.4			
8.0- 8.4		1			32.5-32.9			
8.5- 8.9				1	33.0-33.4			
9.0- 9.4	1				33.5-33.9			
9.5- 9.9					34.0-34.4			
10.0-10.4		2			34.5-34.9			
10.5-10.9		1			35.0-35.4			
11.0-11.4				1	35.5-35.9			
11.5-11.9					36.0-36.4			
12.0-12.4		1			36.5-36.9			
12.5-12.9		2			37.0-37.4			
13.0-13.4					37.5-37.9			
13.5-13.9					38.0-38.4			
14.0-14.4					38.5-38.9			
14.5-14.9		1			39.0-39.4			
15.0-15.4		1		1	39.5-39.9			
15.5-15.9		1	1		40.0-40.9			
16.0-16.4					41.0-41.9			
16.5-16.9				1	42.0-42.9			
17.0-17.4		2			43.0-43.9			
17.5-17.9				1	44.0-44.9			
18.0-18.4	1 (Mercury sample)			2	45.0-45.9			
18.5-18.9				1	46.0-46.9			
19.0-19.4					47.0-47.9			
19.5-19.9					48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9					50.0-50.9			
21.0-21.4					51.0-51.9			
21.5-21.9					52.0-52.9			
22.0-22.4					53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9					56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9					58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9					60.0+			
26.0-26.4								
26.5-26.9	1	1						
TOTAL	3	13 Sub.	1	9	TOTAL	14		

3 WS - 20.0", 19.0", and 16.4"

WDNR Comments ...s. use floy-tagged fish

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

H_2O Temp - 66° Thundershowers
INCHES Gen. start - 62.0; Stop - 64.1

Entire shoreline.

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE 5 8	Lake Hayward WATER CODE — — — —	June 4, 1987	VVBS

SIZE RANGE — INCHES	SPECIES				SIZE RANGE — INCHES	SPECIES		
	LMB	NP	SMB	WE		NP		
<3.0					27.0-27.4			
3.0- 3.4					27.5-27.9			
3.5- 3.9					28.0-28.4			
4.0- 4.4					28.5-28.9			
4.5- 4.9					29.0-29.4			
5.0- 5.4				1	29.5-29.9			
5.5- 5.9					30.0-30.4	1		
6.0- 6.4				4	30.5-30.9			
6.5- 6.9		1		1	31.0-31.4			
7.0- 7.4	1	3			31.5-31.9			
7.5- 7.9					32.0-32.4			
8.0- 8.4		1			32.5-32.9			
8.5- 8.9		2			33.0-33.4			
9.0- 9.4		1	1		33.5-33.9			
9.5- 9.9	1				34.0-34.4		6 suckers with	
10.0-10.4			9812	1	34.5-34.9		lampreys attached.	
10.5-10.9					35.0-35.4		4 other lamprey seen.	
11.0-11.4	*9804	2			35.5-35.9			
11.5-11.9	9611	1	9606		36.0-36.4		Many suckers, YP, BG,	
12.0-12.4		1			36.5-36.9		PS, and BH.	
12.5-12.9	9609	1			37.0-37.4			
13.0-13.4	9351				37.5-37.9			
13.5-13.9	9608, 1				38.0-38.4			
14.0-14.4	9352				38.5-38.9			
14.5-14.9	9613	1	9614		39.0-39.4			
15.0-15.4	9610, 9605				39.5-39.9			
15.5-15.9					40.0-40.9			
16.0-16.4			0602	1	41.0-41.9			
16.5-16.9		1			42.0-42.9			
17.0-17.4				1	43.0-43.9		MU	
17.5-17.9					44.0-44.9		17.2 LV	
18.0-18.4					45.0-45.9			
18.5-18.9					46.0-46.9			
19.0-19.4					47.0-47.9			
19.5-19.9		1			48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9	9607	1			50.0-50.9			
21.0-21.4					51.0-51.9			
21.5-21.9					52.0-52.9			
22.0-22.4		1			53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9					56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9					58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9					60.0+			
26.0-26.4								
26.5-26.9				1				
TOTAL	13	18 Sub.	5	10	TOTAL	19	1	

9603 - void.

WDNR Comments

SUMMARY FISHING RECORD

FORM 3600-63

DEPARTMENT OF NATURAL RESOURCES

COUNTY: Sawyer	WATERS: Lake Hayward
SAMPLING OBJECTIVE: FERC & Field Transfer	NUMBER AND LOCATION OF STATIONS (HABITAT): Bartz Bay and points vic. public bathing beach
PERIOD FISHED (DATES): 5/23/89 to 5/25/89	

GEAR

BOOM SHOCKER (HOURS):

TIME: _____ NIGHT _____ DAY

VISUAL HOURS	TIME OF DAY	HAUL SEINE (LENGTH)	MESH	AREA COVERED
ANGLING (HOURS): 1.5 (Bass)*	TIME OF DAY	TRAP NET (NO. OF NET LIFTS): 15	MESH: 1/2"	DEPTH: 4'
MINNOW SEINE (NO. HAULS)	AREA COVERED	GILL NET (NO. OF FEET X NO. OF LIFTS)	MESH SIZE	DEPTH

OTHER (HOURS OR LIFTS):

CHARACTERISTICS: Water temp. 69°-70°F. Warming rapidly. Air temps. low 80's.

FISHING RESULTS

SPECIES	NO.	MODAL SIZE(S)	SIZE RANGE	CATCH/UNIT NO/LIFT
Northern Pike	24	12.0	9.5-19.5	1.6
White Sucker	1	18.0	18.0	0.1
Shorthead Redhorse	5	-	9.7-17.5	0.3
Bluegill	556	6.7	2.5-8.4	37.1
Pumpkinseed	329	5.2	3.5-7.4	21.9
Black Crappie	26	-	7.8-11.2	1.7
Rock Bass	4	5.5	5.0-5.9	0.3
Yellow Perch	101	7.0, 9.0	5.0-9.5	6.7
Largemouth Bass*	3	11.5	9.5-12.0	0/lift (2.0/hr.*)
Black Bullhead	319	10.2	4.0-11.9	21.3

OBSERVATIONS

Most of these fish were field transferred to Shue's Pond and Fame ponds. Last days sample measured for LF; first two days only counted, by spp. Lake continues to have a very nice panfish population. Crappies and perch - post-spawn. Bluegills - pre-spawn. Due to timing and location of sets this effort should be considered a good representation of panfish community, but a poor index of gamefish status.

*Bass were caught hook & line to supplement gamefish sample.

SIGNED (COMPILER)	DATE
F. Pratt	5/27/89

REV. 10-70

LF Sample

WDNR Comments

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-86

INCHES

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE 5 8	Lake Hayward WATER CODE — — — —	5/23/88 to 5/25/89	5 - 1/2" mesh fyke nets.

SIZE RANGE INCHES	SPECIES						SIZE RANGE INCHES	SPECIES		
	BG	PS	RB	BLBH	NP	YP		BC	BRBH	SHRH
<3.0	2.5						27.0-27.4	7.8	9.3	17.5
3.0- 3.4	1						27.5-27.9	10.4	9.2	9.7
3.5- 3.9		3					28.0-28.4	11.2	10.2	
4.0- 4.4		9		2			28.5-28.9		9.5	+ 3 others
4.5- 4.9	3	9		2			29.0-29.4	+ 23	9.4	
5.0- 5.4	1	13	2			3	29.5-29.9	others	9.4	
5.5- 5.9		10	2	5		3	30.0-30.4		10.0	
6.0- 6.4	10	19		5		5	30.5-30.9		10.5	
6.5- 6.9	29	10		2		5	31.0-31.4		6.4	
7.0- 7.4	30	2		7		6	31.5-31.9		9.8	
7.5- 7.9	22			3		2	32.0-32.4		9.8	
8.0- 8.4	1			6		3	32.5-32.9		9.5	
8.5- 8.9				4		1	33.0-33.4		10.6	
9.0- 9.4				6		3	33.5-33.9		9.1	
9.5- 9.9				10		1	34.0-34.4		9.8	
10.0-10.4				14	1		34.5-34.9		11.8	
10.5-10.9				6		+ 69	35.0-35.4		9.0	
11.0-11.4				3	1	others	35.5-35.9		10.5	
11.5-11.9				5	2		36.0-36.4		9.2	
12.0-12.4					2		36.5-36.9		8.1	
12.5-12.9					2		37.0-37.4		9.4	
13.0-13.4							37.5-37.9		9.5	
13.5-13.9	+ 458 others			+239	+16 others		38.0-38.4		10.2	
14.0-14.4		+254		others			38.5-38.9		10.1	
14.5-14.9		others					39.0-39.4		10.3	
15.0-15.4							39.5-39.9		10.3	
15.5-15.9							40.0-40.9		10.0	
16.0-16.4							41.0-41.9			
16.5-16.9							42.0-42.9			
17.0-17.4							43.0-43.9			
17.5-17.9							44.0-44.9	Also 3 LMB and 1 WS		
18.0-18.4							45.0-45.9			
18.5-18.9	Length frequency from last day netting.						46.0-46.9			
19.0-19.4	Two days before fish only counted prior to						47.0-47.9			
19.5-19.9	local field transfer. H_2O - 69°F.						48.0-48.9			
20.0-20.4							49.0-49.9			
20.5-20.9							50.0-50.9			
21.0-21.4							51.0-51.9			
21.5-21.9							52.0-52.9			
22.0-22.4							53.0-53.9			
22.5-22.9							54.0-54.9			
23.0-23.4							55.0-55.9			
23.5-23.9							56.0-56.9			
24.0-24.4							57.0-57.9			
24.5-24.9							58.0-58.9			
25.0-25.4							59.0-59.9			
25.5-25.9							60.0+			
26.0-26.4										
26.5-26.9										
TOTAL	556	329	4	319	24	101	TOTAL	26	27	5

WDNR Comments

FISH TRANSFERRED TO FISHING HALL OF FAME

May 23, 1989; May 24, 1989

B.G.	B.C.	P.S.	Y.P.	BLBN	N.P.	W.S.	LMB
390	22	207	57	291	12	1	3

TOTAL - 983

FISH TRANSFERRED TO SHUE'S POND IN TOWN

B.G.	P.S.	Y.P.	BLBH	B.C.	N.P.	R.B.	SHR
68	47	12	48	1	4	2	3

TOTAL - 185

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County Sawyer	**Waters** Lake Hayward MWB 2725500
Sampling Objective FERC Survey mark gamefish for P.E.S.	**Number and Location of Stations (Habitat)** Entire shoreline boomshocked, 5X Fyke net stations - see map 8-10 nets moved between 17 different sites
Period Fished (Dates) 4/05 - 4/17/91 nets 4/10, 17, 18, 21, 25/91 Boomshocker	

GEAR

Boom Shocker (Hours) 10.1 hrs; 330V AC 2 dippers - emphasis gamefish	**Time** shocker ____ **Night** nets ____ **Day**

Visual Hours	**Time of Day**	**Haul Seine (Length)**	**Mesh**	**Area Covered**
Angling (Hours)	**Time of Day**	**Trap Net (No. of Net Lifts)** 102	**Mesh** ½"	**Depth** 4'
Minnow Seine (No. Hauls)	**Area Covered**	**Gill Net (No. of Feet x No. of Lifts)**	**Mesh Size**	**Depth**
Other (Hours or Lifts)		**Characteristics** walleye/N. pike spawn and immediate post spawn $H_2$0-40F-53F		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit (no./hr)	Catch/Unit (no./lift)
northern pike	260	14.0, 18.0, 22.0, 27.5	7.0 - 33.4	(113) 11.1	(147) 1.4
Largemouth bass	130	16.5 11.0, 14.0,	5.5 - 20.4	(114) 11.2	(16) 0.2
Walleye	48	5.0, 10.4 12.5, 18.5	5.0 - 29.5	(24) 2.1	(24) 0.2
Muskellunge	24	12.0, 33.5	7.5 - 42.0	(19) 1.9	(5) 0.04
Smallmouth bass	3	13.5	13.0 - 17.5	(3) 0.3	(3) ____
Yellow perch	1329	4.6, 6.0, 7.0 8.5, 10.0	2.9 - 13.0	____	13.0
Bluegill	293	5.5, 6.1, 7.0 8.0, 9.1	3.0 - 10.8	____	2.9
Bullhead (3 spp)	2073	5.5, 7.5, 10.2	2.4 - 11.2	____	20.3
Black Crappie	43	4.4, 9.5, 10.4	4.3 - 13.2	____	0.4
Rock Bass	32	3.9, 6.0	3.4 - 6.8	____	0.3

Observations

Walleye may have run early into Namekagon River and missed by sampling effort.

Nets were set at upper end of flowage while lower 2/3 of lake was still iced in.

Slow warm-up and cool weather kept fish out of shallows and depressed catch rates,

Rev. 10-70

Signed (Compiler)	**Date**
Frank Pratt	5-15-91

WDNR Comments

especially for netting. Beautiful panfish (bluegill and perch) and considerable pre-season panfishing pressure, which was not covered by creel census. All gamefish were given a TC clip for P.E.s and exploitation monitoring in the creel census.

and May creel as recap

Mark-recapture P.E.s do date, based on last shocker run as recap., as follows:

N. Pike — m= 235 c= 25 +1 R= 4
N= ~~1469~~ 1269 (~~5.9~~ 5.1/acre; 95% C.I. (895 -- 1941)
585 ≥ 15"

LMB — m= 112 c= 18+21 = 39 R= 4
N= ~~403~~ 879; 3.5/acre (1.6/acre); 95% C.I. (~~333 -- 1370~~) ( )
752 ≥ 12"

Walleye — m= 46 c= 4 +5 R=1
N= ~~184~~ 230 (0.9/acre); 95% C.I. (~~98 -- 252~~) ( )
120 ≥ 15"

Musky — m= 18 c= 6 +2 R= 1
N= ~~63~~ 81 (0.3/acre); 95% C.I. (23 - 262)
34 ≥ 32"

(These should be revised at end of May based on May creel and any additional shocking.)

Revised above by added fish in creel known to obtain

Most of the larger panfish were field transferred to stock Shues Pond and display pond at National Freshwater Fishing Hall of Fame.

Other species sampled: 2 chestnut lamprey; 2 creek chub; 1 common shiner; 12 northern hogsucker; 4 white sucker, 10 shorthead redhorse; 2 golden redhorse.

WDNR Comments

...e of Wisconsin
...nt of Natural Resources

Bullhead/Suckers

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

...NTY COUNTY CODE 58

WATER Lake Hayward WATER CODE 2725500

DATE 4/04 - 17/91

GEAR Nets - 102 lifts

SIZE RANGE INCHES	SPECIES: Bullhead black	Bullhead yellow	Bullhead Brown	N. Hog Sucker
<3.0 (2.5)	3			
3.0- 3.4	4			
3.5- 3.9				
4.0- 4.4		2		
4.5- 4.9				
5.0- 5.4		1		
5.5- 5.9	3	1		
6.0- 6.4	3	4		
6.5- 6.9		1		
7.0- 7.4	10	17	1	
7.5- 7.9	18	12	6	
8.0- 8.4	26	13	9	2
8.5- 8.9	12	1	2	
9.0- 9.4	7	4	2	1
9.5- 9.9	7	1	1	4
10.0-10.4	3	2	6	1
10.5-10.9			3	1
11.0-11.4			2	1
11.5-11.9				1
12.0-12.4				1
12.5-12.9				
13.0-13.4	Count	Count	Count	
13.5-13.9	1600	212	61	
14.0-14.4				
14.5-14.9				
15.0-15.4				
15.5-15.9				
16.0-16.4				
16.5-16.9				
17.0-17.4				
17.5-17.9				
18.0-18.4				
18.5-18.9				
19.0-19.4				
19.5-19.9				
20.0-20.4				
20.5-20.9				
21.0-21.4				
21.5-21.9				
22.0-22.4				
22.5-22.9				
23.0-23.4				
23.5-23.9				
24.0-24.4				
24.5-24.9				
25.0-25.4				
25.5-25.9				
26.0-26.4				
26.5-26.9				
TOTAL	1696	271	93	12

SIZE RANGE INCHES	SPECIES		
27.0-27.4			
27.5-27.9			
28.0-28.4			
28.5-28.9			
29.0-29.4			
29.5-29.9			
30.0-30.4			
30.5-30.9			
31.0-31.4			
31.5-31.9			
32.0-32.4			
32.5-32.9			
33.0-33.4			
33.5-33.9			
34.0-34.4			
34.5-34.9			
35.0-35.4			
35.5-35.9			
36.0-36.4			
36.5-36.9			
37.0-37.4			
37.5-37.9			
38.0-38.4			
38.5-38.9			
39.0-39.4			
39.5-39.9			
40.0-40.9			2 creek chub
41.0-41.9			1 Common Shiner
42.0-42.9			2 Chestnut Lamprey
43.0-43.9			
44.0-44.9			
45.0-45.9			
46.0-46.9			
47.0-47.9			
48.0-48.9			
49.0-49.9			
50.0-50.9			
51.0-51.9			
52.0-52.9			
53.0-53.9			
54.0-54.9			
55.0-55.9			
56.0-56.9			
57.0-57.9			
58.0-58.9			
59.0-59.9			
60.0+			
TOTAL			

Also 4 white Suckers - 9.5, 10.0, 10.1, 13.0
10 Shorthead redhorse 2 Golden redhorse

WDNR Comments

OF WISCONSIN
OF NATURAL RESOURCES

PANFISH LENGTH FREQUENCY

FORM 3600-64 REV. 3-81

COUNTY Sawyer COUNTY CODE 58	WATER Lk. Hayward WATER CODE 2725500	DATE 4/05 - 17/91	GEAR 102 Fyke Net Lifts

SIZE RANGE INCHES	SPECIES					SIZE RANGE INCHES	SPECIES			
	Bluegill	YP	PS	RB	BC		BG	YP	PS	BC
1.0-1.4						7.0	15	10		
1.5-2.0	52 Count	922 Count				7.1	8	6	1	1
2.1						7.2	8	2		
2.2						7.3	8	2		
2.3						7.4	5	2		
2.4						7.5	16	1		
2.5						7.6	13	5		
2.6						7.7	5	1		1
2.7						7.8		1		
2.8						7.9	1	2		
2.9		1				8.0	20	2		2
3.0	1	4				8.1	2			
3.1		1				8.2	3	1		
3.2	1	1	1			8.3	2			
3.3		1				8.4	1	4		
3.4		2		1		8.5	2	5		1
3.5	1	2	1	1		8.6		1		
3.6	1	1	1	1		8.7		1		1
3.7		1				8.8		2		
3.8		2	1	1		8.9		2		
3.9		14		2		9.0	2	3		2
4.0	2	12	3	1		9.1	2			2
4.1	1	2		2		9.2	1			2
4.2	2	9				9.3	1			
4.3	2	4	1		1	9.4	1	1		1
4.4	1	3	4		2	9.5	1	1		5
4.5	2	19	1	1	2	9.6				
4.6	1	19		1	1	9.7				
4.7		5				9.8				
4.8	1	4	1			9.9		1		
4.9	1	13	1	2		10.0		4		4
5.0	3	16	3	1		10.2		1		1
5.1	1	11	1	1		10.4				4
5.2	1	16	3	1		10.6				1
5.3	2	15	2	1		10.8	1	1		
5.4	2	13	2	2		11.0				1
5.5	0	19	5	1		11.2				
5.6	7	6	2	1		11.4		1		
5.7	4	11	1			11.6		1		1
5.8	2	13	1			11.8				1
5.9	2	17	2			12.0				1
6.0	11	20	10	5	1	12.2				1
6.1	15	10	3	1		12.4		1		
6.2	5	13	3			12.6				
6.3	4	10	1			12.8		1		
6.4	13	13	4			13.0		1		
6.5	15	17	1			13.2				1
6.6	7	2	1	1		13.4				
6.7	5	4		3		13.6				
6.8	5	6		1		13.8				
6.9	1	5	1			14.0+				
TOTALS		1279 Sub	61 Sub	32 Tot	7 Sub	TOTALS	293	1329 tot.	71 tot. 62	43 Tot.

WDNR Comments

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

S

NTY: Sawyer COUNTY CODE 58 | WATER: Lake Hayward WATER CODE 2725500 | DATE: 4/05 - 4/17, 4/10,17,18,21,25 | GEAR: Fyke nets, Varivolt AC bomm shocker

SIZE RANGE INCHES	SPECIES				SIZE RANGE INCHES	SPECIES		
	N. Pike	LMB	Walleye	Musky		N. Pike	WE	Musky
<3.0					27.0-27.4	1		1
3.0- 3.4					27.5-27.9	3		
3.5- 3.9					28.0-28.4	21		
4.0- 4.4					28.5-28.9	2		
4.5- 4.9					29.0-29.4			
5.0- 5.4			2		29.5-29.9	2	1	
5.5- 5.9		1			30.0-30.4	2		1
6.0- 6.4					30.5-30.9			
6.5- 6.9					31.0-31.4	2		
7.0- 7.4	1				31.5-31.9			
7.5- 7.9	1			1 (hybrid)	32.0-32.4			2
8.0- 8.4	2				32.5-32.9			1
8.5- 8.9	2				33.0-33.4	1		1
9.0- 9.4	2	2		1	33.5-33.9			3
9.5- 9.9			1		34.0-34.4			
10.0-10.4	4	3	3		34.5-34.9			
10.5-10.9	4	1	3		35.0-35.4			1
11.0-11.4	12	8		1	35.5-35.9			1
11.5-11.9	6	3	2		36.0-36.4			
12.0-12.4	9	2		3	36.5-36.9			
12.5-12.9	13	5	4	3	37.0-37.4			
13.0-13.4	11	9	3		37.5-37.9			
13.5-13.9	4	15			38.0-38.4			
14.0-14.4	14	16	3		38.5-38.9			
14.5-14.9	10	9	1		39.0-39.4			
15.0-15.4	13	10	3		39.5-39.9			
15.5-15.9	3	6	2		40.0-40.9			
16.0-16.4	13	8			41.0-41.9			
16.5-16.9	7	9	1	1	42.0-42.9			1
17.0-17.4	6	7	2		43.0-43.9			
17.5-17.9	7	3	1	1	44.0-44.9			
18.0-18.4	19	3	2		45.0-45.9			
18.5-18.9	6	4	2		46.0-46.9			
19.0-19.4	4	2			47.0-47.9			
19.5-19.9	9	3	1		48.0-48.9			
20.0-20.4	7	1	1		49.0-49.9			
20.5-20.9	2				50.0-50.9			
21.0-21.4	3		1		51.0-51.9			
21.5-21.9	8		2		52.0-52.9			
22.0-22.4	9				53.0-53.9			
22.5-22.9	9				54.0-54.9			
23.0-23.4	4				55.0-55.9			
23.5-23.9	7				56.0-56.9			
24.0-24.4	1				57.0-57.9			
24.5-24.9	2			1	58.0-58.9			
25.0-25.4	4		1		59.0-59.9			
25.5-25.9	2		1		60.0+			
26.0-26.4	2		1					
26.5-26.9	2		2					
TOTAL	245 sub.	130	48 sub.	12 sub.	TOTAL	260 tot.	49 tot.	24 tot.

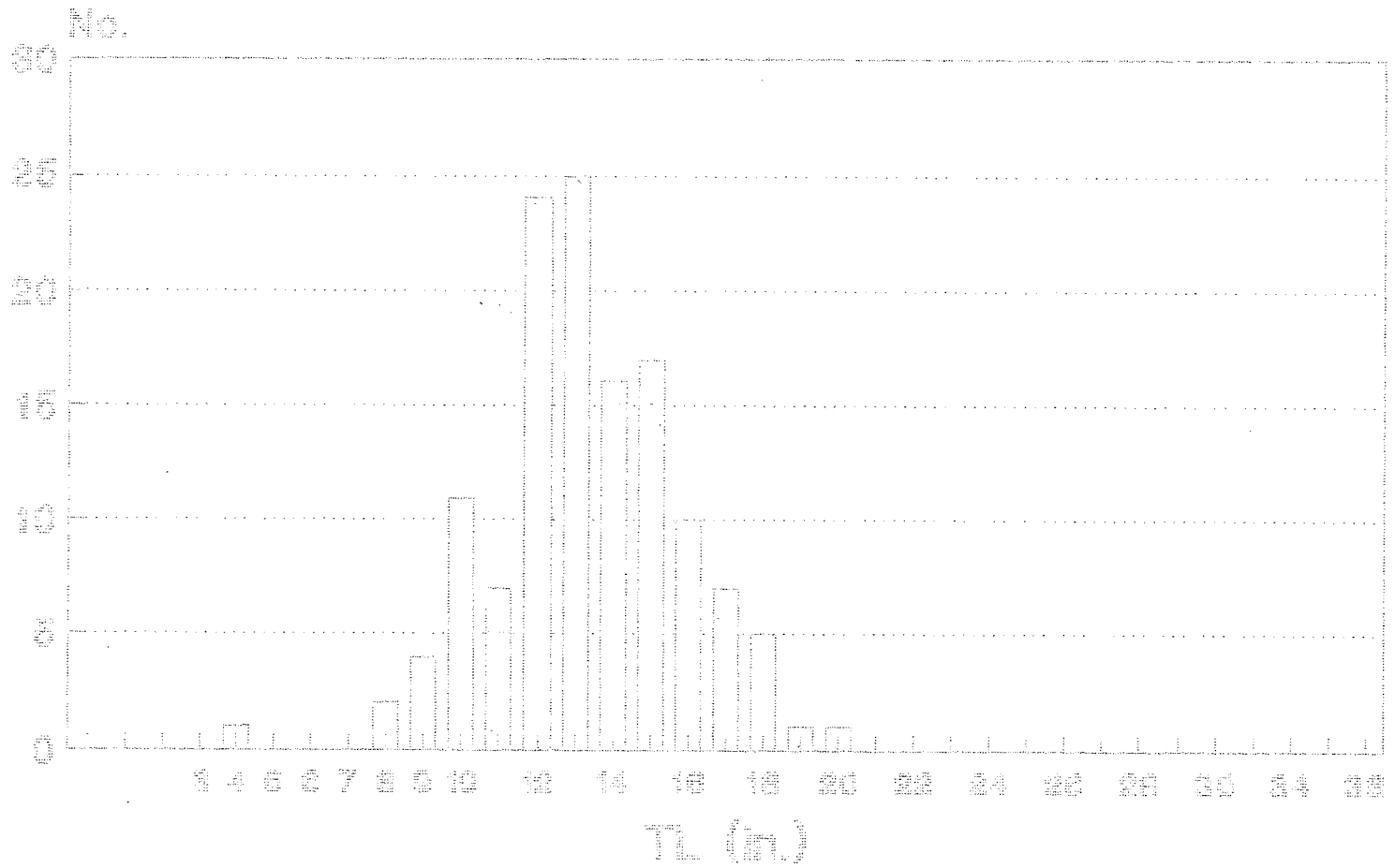
3 SMB - 13.0, 14.0, 17.5

10 Shorthead redhorse
2 golden redhorse

Length Frequency

LMB

TL = 14.1



Lk. Hayward, Spring 01

WDNR Comments

WDNR Comments

WDNR Comments

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County Sawyer County	**Waters** Lake Hayward
Sampling Objective Juvenile fishes/recruitment	**Number and Location of Stations (Habitat)** 15 stations - 19 hauls
Period Fished (Dates) 08/15 - 16/91	

GEAR

Boom Shocker (Hours)	**Time** _____ Night X _____ Day

Visual Hours	**Time of Day**	**Haul Seine (Length)** 30'	**Mesh** 3/8"	**Area Covered** 19 hauls 0.57 acres total
Angling (Hours)	**Time of Day**	**Trap Net (No. of Net Lifts)**	**Mesh**	**Depth**
Minnow Seine (No. Hauls)	**Area Covered**	**Gill Net (No. of Feet x No. of Lifts)**	**Mesh Size**	**Depth**

Other (Hours or Lifts)	**Characteristics** H_2O 72 - 74° F Seinable areas - cover rich areas not well sampled.

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit
Largemouth bass (LMB)	84	2.2	1.0 - 12.0	4.4
Northern Pike (NP)	7	6.0	5.5 - 15.5	0.4
Bluegill	598	1.7	1.0 - 6.5	31.4
Pumpkinseed	53	5.0	2.5 - 6.0	2.8
Black Crappie	76	1.7	1.5 - 2.0	4.0
Yellow perch	34	2.5, 4.0	1.5 - 7.0	1.8
Common Shiner	294	2.5	1.0 - 3.0	15.5
Bluntnose minnow	3	2.4	2.1 - 2.4	0.2
Iowa darter	3	2.2	2.1 - 2.4	0.2

Observations
Apparently strong 1991 year class of largemouth bass and bluegill.

Bass and bluegills most widely distributed, occuring in n=17 and n=14 hauls respectively; followed by common shiner at n=11.

Signed (Compiler)	**Date**

Rev. 10-70

Also - 10.5" black bullhead
2.4" hornyhead chub

WDNR Comments

Number and Location of ... 19 hauls

STATE OF WISCONSIN
DEPT OF NATURAL RESOURCES

PANFISH LENGTH FREQUENCY

FORM 3600-64 REV. 3-81

COUNTY Sawyer (COUNTY CODE __)	WATER Lake Haywood (WATER CODE _____)	DATE 8/15 - 16/91	GEAR 30' Seine

SIZE RANGE INCHES	SPECIES LMB	SPECIES NP
1.0-1.4	2	
1.5-2.0	21	
2.1		
2.2	31	
2.3		
2.4		
2.5		
2.6	14	
2.7		
2.8		
2.9		
3.0		
3.1		
3.2	7	
3.3		
3.4		
3.5		
3.6		
3.7	4	
3.8		
3.9		
4.0		
4.1		
4.2		
4.3		
4.4		
4.5		
4.6		
4.7		
4.8		
4.9		
5.0	1	
5.1		
5.2		
5.3		
5.4		
5.5	1	
5.6		2
5.7		
5.8		
5.9		
6.0	1	
6.1		2
6.2		
6.3		
6.4		
6.5		
6.6	1	1
6.7		
6.8		
6.9		
TOTALS		

SIZE RANGE INCHES	SPECIES LMB	SPECIES NP
7.0		
7.1		
7.2		
7.3		
7.4		
7.5		1
7.6		
7.7		
7.8		
7.9		
8.0		
8.1		
8.2		
8.3		
8.4		
8.5		
8.6		
8.7		
8.8		
8.9		
9.0		
9.1		
9.2		
9.3		
9.4		
9.5		
9.6		
9.7		
9.8		
9.9		
10.0		
10.2		
10.4		
10.6		
10.8		
11.0		
11.2		
11.4		
11.6		
11.8		
12.0		
12.2		
12.4		
12.6		
12.8		
13.0		
13.2		
13.4		
13.6		
13.8		
14.0+		15.5
TOTALS	84	8

WDNR Comments

WISCONSIN
NATURAL RESOURCES

PANFISH LENGTH FREQUENCY

FORM 3600-64 REV. 3-81

COUNTY CODE	WATER / WATER CODE	DATE	GEAR
Sawyer 58	Lake Hayward	8/15 - 16/91	30' Seine

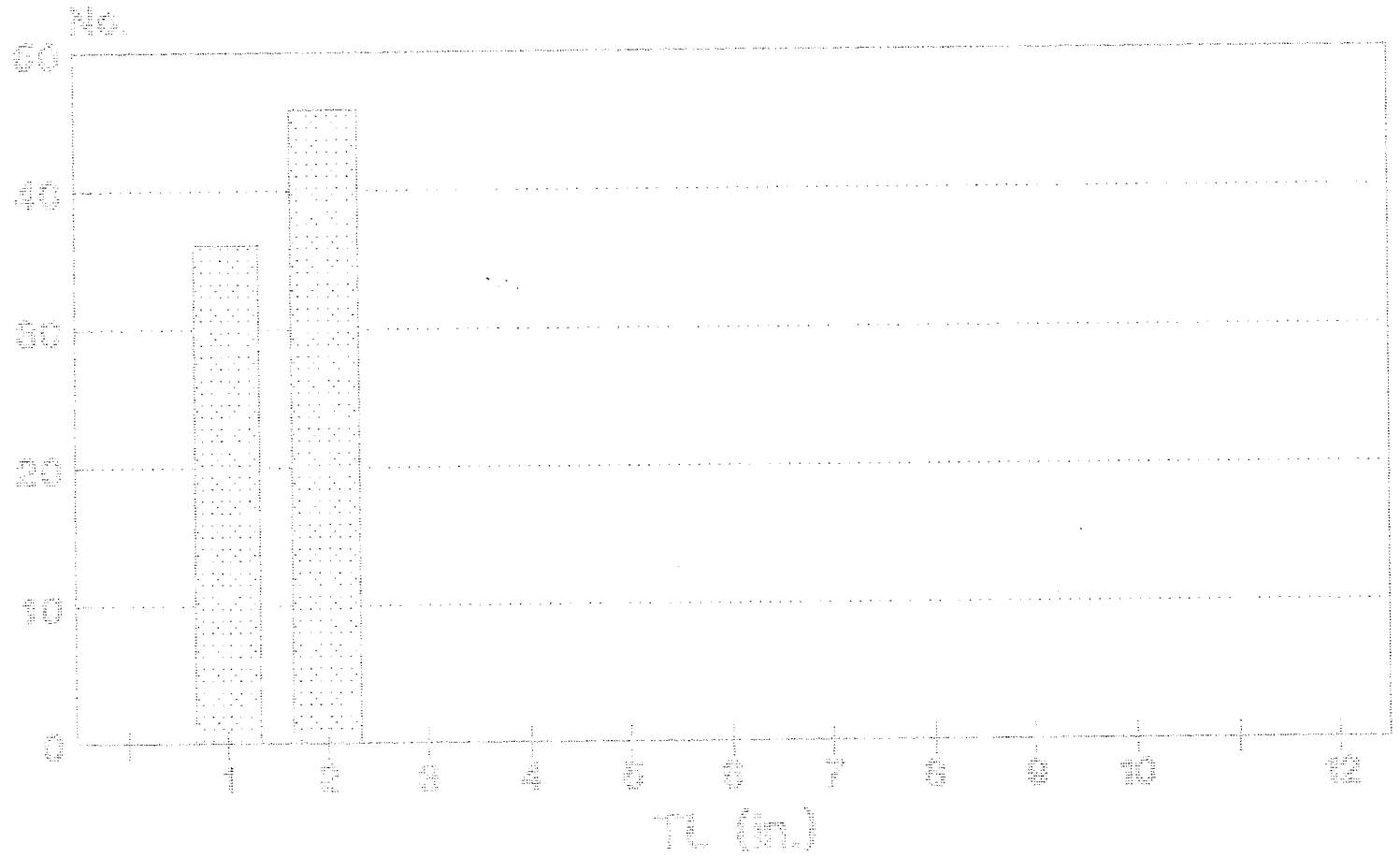
SIZE RANGE INCHES	SPECIES: Bluegill	Pumpkinseed	BC	YP	CS	SIZE RANGE INCHES	SPECIES: YP
1.0-1.4	63				10	7.0	1
1.5-2.0	158		36	5	9	7.1	
2.1						7.2	
2.2						7.3	
2.3						7.4	
2.4						7.5	
2.5	26	1		5	92	7.6	
2.6						7.7	
2.7						7.8	
2.8						7.9	
2.9						8.0	
3.0	13	5		4	20	8.1	
3.1						8.2	
3.2						8.3	
3.3						8.4	
3.4						8.5	
3.5	10	8		6		8.6	
3.6						8.7	
3.7						8.8	Non-fish present:
3.8						8.9	
3.9						9.0	~~Tadpoles - P~~
4.0	1	9		6		9.1	~~Snails - C~~
4.1						9.2	~~Bryzoan 1~~
4.2						9.3	
4.3						9.4	~~(No crayfish sampled)~~
4.4						9.5	
4.5	2	10		3		9.6	
4.6						9.7	
4.7						9.8	
4.8						9.9	
4.9						10.0	
5.0	1	11		1		10.2	
5.1						10.4	
5.2						10.6	
5.3						10.8	
5.4						11.0	
5.5	1	6		1		11.2	
5.6						11.4	
5.7						11.6	
5.8						11.8	
5.9						12.0	
6.0		3		1		12.2	
6.1						12.4	
6.2						12.6	
6.3						12.8	
6.4						13.0	
6.5						13.2	
6.6						13.4	
6.7	Ct. -322		Ct.- 40		Ct. - 163	13.6	
6.8						13.8	
6.9				1		14.0+	
TOTALS	598	53	76	33 Sub	294	TOTALS	

Bluntnose minnow - 2.1, 2.4, 2.4
Iowa darter - 2.1, 2.4, 2.2
Black bullhead - 10.5
Horneyhead chub- 2.4

WDNR Comments

WDNR Comments

Length Frequency
Black Crappie



Lake Hayward Aug. 31 (Basin)

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD

WI Department of Natural Resources

County: Sawyer	Waters: Lake Hayward
Sampling Objective: Walleye recruitment	Number/Location of Stations: Main-lake shoreline
Dates Fished: 09/23/94	Water Temperature: 61 F
Boomshocker Hours: 1.7 game (0.5 pan)	Time: 19:45
Fyke Net Days	Angling Hours

Species	Number	Modes	Size Range	C.P.E.
Walleye tot.	12	7.0,13.5	4.0-21.4	7.1
Walleye yoy	8	7.0	4.0-7.4	4.7
LMB	21	15.5,17.0	6.5-19.5	12.4
Northern pike	23	11.5, 14.0	7.5-27.9	13.5
Muskellunge	1	16.5	16.5	0.6
Bluegill	78	6.5	4.0-7.9	156.0
Black crappie	9	9.0	8.5-11.9	18.0
Yellow perch	27	5.5, 8.0	2.5-9.4	54.0
Pumpkinseed	4	5.0	4.5-7.4	8.0

Observations: Cool drizzle. Water high from recent rains. Very heavy vegetation inhibited manuverability in all the back bays and some of the main-lake areas. Suckers and yoy yellow perch abundant. Redhorse and bullheads present. Good largemouth and a nice run of panfish.

WDNR Comments

Wisconsin
of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

ES 1-7 kns 61°F (2)

COUNTY COUNTY CODE ___ ___

WATER Elc Hayward WATER CODE ___ ___ ___ ___

DATE 9-23-94

GEAR VV AC

SIZE RANGE INCHES	SPECIES YP	BG	BC	PS	SIZE RANGE INCHES	SPECIES		
<3.0	11 2.5				27.0-27.4			
3.0- 3.4					27.5-27.9			
3.5- 3.9					28.0-28.4			
4.0- 4.4	111	1			28.5-28.9			
4.5- 4.9	1			1	29.0-29.4			
5.0- 5.4	11	111		1	29.5-29.9			
5.5- 5.9	1111	1111		1	30.0-30.4			
6.0- 6.4	11	1111 1111			30.5-30.9			
6.5- 6.9		1111 1111			31.0-31.4			
7.0- 7.4	11	1111 1111		1	31.5-31.9			
7.5- 7.9	1	111			32.0-32.4			
8.0- 8.4	111				32.5-32.9			
8.5- 8.9	1		1		33.0-33.4			
9.0- 9.4	111		111		33.5-33.9			
9.5- 9.9			1		34.0-34.4			
10.0-10.4			1		34.5-34.9			
10.5-10.9					35.0-35.4			
11.0-11.4			1		35.5-35.9			
11.5-11.9			1		36.0-36.4			
12.0-12.4					36.5-36.9			
12.5-12.9					37.0-37.4			
13.0-13.4					37.5-37.9			
13.5-13.9					38.0-38.4			
14.0-14.4					38.5-38.9			
14.5-14.9					39.0-39.4			
15.0-15.4					39.5-39.9			
15.5-15.9					40.0-40.9			
16.0-16.4					41.0-41.9			
16.5-16.9					42.0-42.9			
17.0-17.4					43.0-43.9			
17.5-17.9					44.0-44.9			
18.0-18.4					45.0-45.9			
18.5-18.9					46.0-46.9			
19.0-19.4					47.0-47.9			
19.5-19.9					48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9					50.0-50.9			
21.0-21.4					51.0-51.9			
21.5-21.9					52.0-52.9			
22.0-22.4					53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9					56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9					58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9					60.0+			
26.0-26.4								
26.5-26.9								
TOTAL	27			4	TOTAL			

Y04 YP-A

WDNR Comments

...onsin
...atural Resources

A: Hay 9914 Rec Disc

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

Start - 146.7 to 148.4 End H_2O - 61°F

COUNTY	WATER	DATE	GEAR
Sawyer 58 COUNTY CODE	Lake Hayward WATER CODE — — — —	9-23-94	W A C

SIZE RANGE INCHES	SPECIES				SIZE RANGE INCHES	SPECIES		
	WE	LmB	NP	Mu		NP	Mu	WE
<3.0					27.0-27.4			
3.0- 3.4					27.5-27.9	1		
3.5- 3.9					28.0-28.4			
4.0- 4.4					28.5-28.9			
4.5- 4.9	1				29.0-29.4			
5.0- 5.4	2				29.5-29.9			
5.5- 5.9					30.0-30.4			
6.0- 6.4					30.5-30.9			
6.5- 6.9	1	1			31.0-31.4			
7.0- 7.4	3				31.5-31.9			
7.5- 7.9			1		32.0-32.4			
8.0- 8.4			1		32.5-32.9			
8.5- 8.9			1		33.0-33.4			
9.0- 9.4					33.5-33.9			
9.5- 9.9					34.0-34.4			
10.0-10.4			1		34.5-34.9			
10.5-10.9			2		35.0-35.4			
11.0-11.4	1		2		35.5-35.9			
11.5-11.9			3		36.0-36.4			
12.0-12.4		1			36.5-36.9			
12.5-12.9		2			37.0-37.4			
13.0-13.4		2			37.5-37.9			
13.5-13.9	1	1			38.0-38.4			
14.0-14.4	1	1	2		38.5-38.9			
14.5-14.9		2	1		39.0-39.4			
15.0-15.4		1			39.5-39.9			
15.5-15.9		3			40.0-40.9			
16.0-16.4		1			41.0-41.9			
16.5-16.9				1	42.0-42.9			
17.0-17.4		4			43.0-43.9			
17.5-17.9		1			44.0-44.9			
18.0-18.4					45.0-45.9			
18.5-18.9					46.0-46.9			
19.0-19.4			1		47.0-47.9			
19.5-19.9		1			48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9					50.0-50.9			
21.0-21.4	1		1		51.0-51.9			
21.5-21.9					52.0-52.9			
22.0-22.4			1		53.0-53.9			
22.5-22.9			1		54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9			1		56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9					58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9					60.0+			
26.0-26.4								
26.5-26.9								
TOTAL	12	21	23	1	TOTAL			

BH - P WS - A RH - P YOY YP - A

WDNR Comments

Waters	MWB Code	County
HAYWARD LAKE	2725500	SAWYER

Sampling Objective	Number and Locations of Stations (Habitat)
1) YOY WALLEYE CPE 2) GAMEFISH LF	PORTION OF SHORELINE = 5.0 MILES (SEE MAP)
Period Fished (Dates) 23 SEP 94	

GEAR

Boomshocker Hours: 1.7	Time: X Night	Day

Visual (Hours)	Time of Day	Haul Seine (Length)	Mesh	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet X No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)	Characteristics	Walleye Recruitment Code: C-ST Water Temperature: 61 F

FISHING RESULTS

Species	No.	Modal Sizes(s)	Size Range	Catch/Unit	
WALLEYE (AGE 0+)	8	NONE	4.5-7.4	1.6/MI	4.7/HR
WALLEYE (AGE >0+)	4	NONE	11.0-21.4	0.8/MI	2.4/HR
NORTHERN PIKE	23	10.5-11.9	7.5-27.9	4.6/MI	13.5/HR
MUSKELLUNGE	1	NONE	16.5-16.9	0.2/MI	0.6/HR
LARGEMOUTH BASS	21	NONE	6.5-19.9	4.2/MI	12.4/HR

Observations

Wisconsin Department of Natural Resources	Signed (Compiler) SDP- RMK	Da

WDNR Comments

of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET

Form 3600-186 4-92

Lake: HAYWARD MWB Code: 2725500 Date: 09/23/94 County: SAWYER Collecter: PRATT

Target Fish: YOY walleye Survey Type: recruitment Mark Given: none H_2O Temp: 61 °F Time 19:45

Adverse Conditions: _____ H_2O Conduct: _____ Station: shoreline

Volts: _____ Amps: ___ Current Type ([X] AC [ ] DC [ ] Pulsed DC) Pulse Rate: _____ Duty Cycle: _____

Gear Type: AC boomshocker Total Time: 1.7 hrs Distance Shocked: 5.0 miles

# of Dippers ([ ] 1 [X] 2) Entire Shoreline Shocked: ([ ] Y [X] N [ ] I) Dip net size: 1/4" to 3/8"

H_2O Clarity: ([X] Clear [ ] Turbid [ ] Very Turbid)

Size Range (inches)	WALLEYE	N. PIKE	MUSKY	LMB	SMB	Size Range	WALLEYE	N. PIKE	LMB
< 3.0						19.5 - 19.9			1
3.0 - 3.4						20.0 - 20.4			
3.5 - 3.9						20.5 - 20.9			
4.0 - 4.4						21.0 - 21.4	1	1	
4.5 - 4.9	1					21.5 - 21.9			
5.0 - 5.4	2					22.0 - 22.4		1	
5.5 - 5.9						22.5 - 22.9		1	
6.0 - 6.4						23.0 - 23.4			
6.5 - 6.9	1			1		23.5 - 23.9		1	
7.0 - 7.4	4					24.0 - 24.4			
7.5 - 7.9		1				24.5 - 24.9			
8.0 - 8.4		1				25.0 - 25.4			
8.5 - 8.9		1				25.5 - 25.9			
9.0 - 9.4						26.0 - 26.4			
9.5 - 9.9						26.5 - 26.9			
10.0 - 10.4		1				27.0 - 27.4			
10.5 - 10.9		3				27.5 - 27.9			
11.0 - 11.4	1	3				28.0 - 28.4			
11.5 - 11.9		4				28.5 - 28.9			
12.0 - 12.4				1		29.0 - 29.4			
12.5 - 12.9				2		29.5 - 29.9			
13.0 - 13.4				1		30.0 - 30.9			
13.5 - 13.9	1			1		31.0 - 31.9			
14.0 - 14.4	1	2		1		32.0 - 32.9			
14.5 - 14.9		1		2		33.0 - 33.9			
15.0 - 15.4				1		34.0 - 34.9			
15.5 - 15.9				4		35.0 - 35.9			
16.0 - 16.4				1		36.0 - 36.9			
16.5 - 16.9			1			37.0 - 37.9			
17.0 - 17.4				4		38.0 - 38.9			
17.5 - 17.9				1		39.0 - 39.9			
18.0 - 18.4						40.0 - 40.9			
18.5 - 18.9						41.0 - 41.9			
19.0 - 19.4		1				42.0 +			
TOTAL	12	23	1	21					

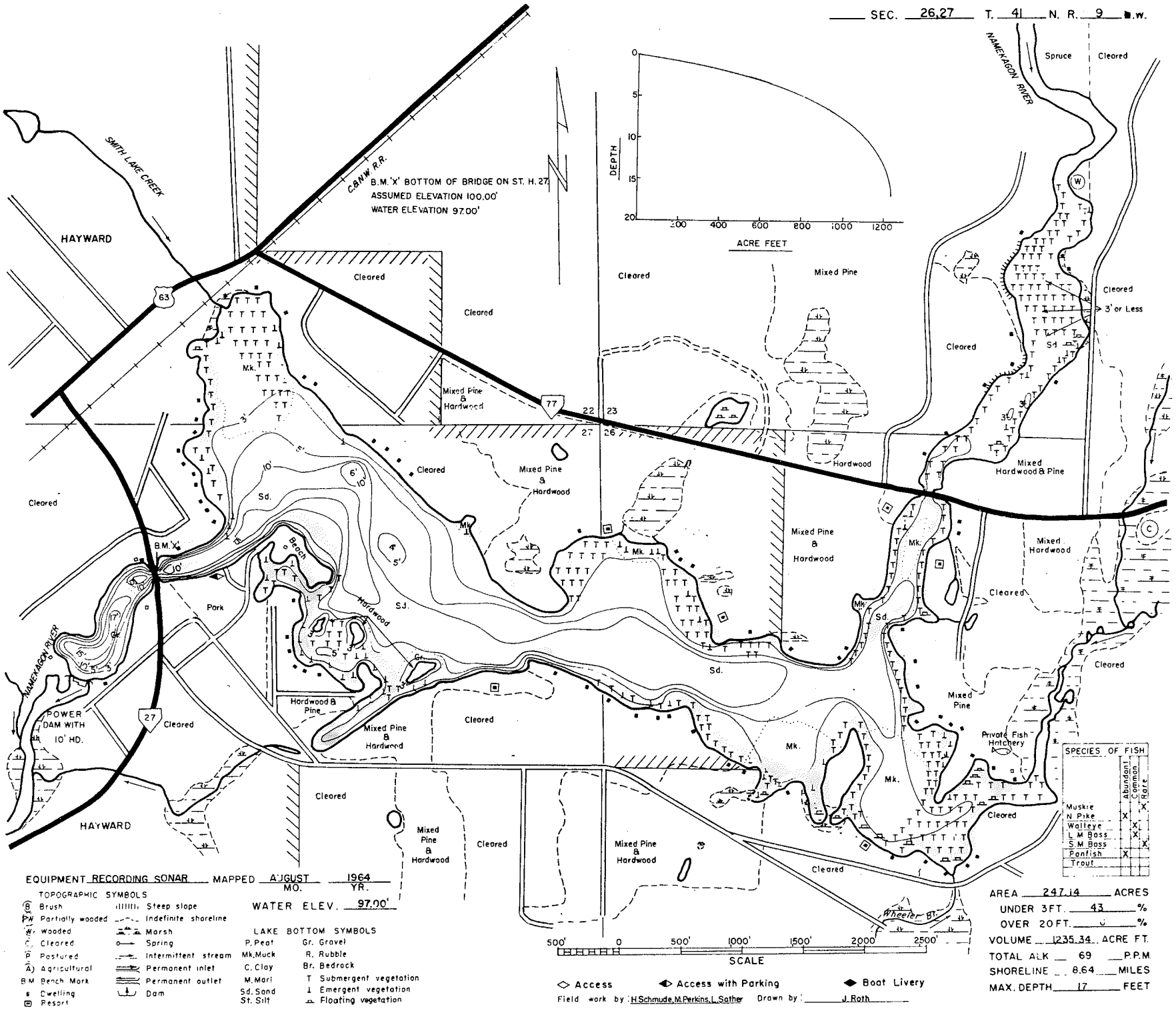
Other fish: (Can include rarely caught species and fish greater than 30 inches.)

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



SPECIES OF FISH

	Abundant	Common	X-Rare
Muskie			X
N. Pike	X		
Walleye		X	
L.M. Boss		X	
S.M. Boss			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST (MO.) 1964 (YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- PW Partially wooded
- (W) Wooded
- C Cleared
- P Pastured
- (A) Agricultural
- BM Bench Mark
- s Dwelling
- R Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- ⊥ Emergent vegetation
- Floating vegetation

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H.Schmude, M.Perkins, L.Sather Drawn by: J. Roth

AREA 247.14 ACRES
UNDER 3FT. 43 %
OVER 20FT. 0 %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD
WI Department of Natural Resources

County: Sawyer	Waters: Lake Hayward
Sampling Objective: FERC- fall juveniles	Number/Location of Stations: Entire accessible shoreline
Dates Fished: 10/25/95	Water Temperature: 40 F
Boomshocker Hours: 2.2 (2 dippers-gamefish)	Time: 7:15 PM
Fyke Net Days	Angling Hours

Species	Number	Modes	Size Range	C.P.E.
Walleye	5	11.0	6.5-11.4	2.27
Muskellunge	6	NA	8.0-51.0	2.72
LMB	6	15.4	10.5-19.5	2.72
Northern pike	102	7.0, 11.0, 15.0	6.0-30.5	46.36
WS, BG, CS	observed common			
YP, BLBH, RH,PS,MM,BC	observed present			

~6.0 miles of shoreline yoy = 0.15 after EG stocking

Observations: Looking for acclerated growth stocked walleyes- only ones sampled were in river channel just below STH "77" bridge. Couldn't access above STH "77" or below STH "27/70" bridges- so sample was centered in main basin. Also looking for juvenile esocids- yoy and yearling northern pike were found to be abundant and widely distributed. We sampled one wild yoy and one hybrid musky. Other species (especially perch, sunfish, and bass) were not particularly abundant in shallows and have probably already moved off-shore into deeper water. Weed growth still heavy but has died back enough that even the back bay areas like Bartz and Laska Bays were easilly accessible to the boomshocker. Realtively high conductivity allowed us to shock effectively at a mid-range (240 V) voltage setting, without sacrificing any obvious sampling efficiency. Young common shiners were found massed up in giant clumps, right at the dge of the drop-off, in 3-4 areas. Crew- Sande, Pratt, Sorensen. FBP 10/25/95.

WDNR Comments

State of Wisconsin
partment of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

,NCHES 40°-42° 184.5-186.7 (2.2 hrs) 2 passes

COUNTY Sawyer COUNTY CODE 52 | WATER Hayward Ck. WATER CODE ____ | DATE 10/26 | GEAR VV AC - ES (3HP)

SIZE RANGE INCHES	SPECIES NP	SMB	MU	LNE	SIZE RANGE INCHES	SPECIES NP	MU	
<3.0					27.0-27.4	2		
3.0- 3.4					27.5-27.9	1		
3.5- 3.9				6-6 mi LO	28.0-28.4			
4.0- 4.4					28.5-28.9			
4.5- 4.9					29.0-29.4			
5.0- 5.4				10?	29.5-29.9			
5.5- 5.9					30.0-30.4			
6.0- 6.4	4				30.5-30.9	1		
6.5- 6.9	4				31.0-31.4			
7.0- 7.4	6				31.5-31.9			
7.5- 7.9	3				32.0-32.4			
8.0- 8.4	3		1 (Nolik)		32.5-32.9			Obs. Served
8.5- 8.9	1			1	33.0-33.4			BG - C
9.0- 9.4	2				33.5-33.9			BC - P
9.5- 9.9	1				34.0-34.4			YP - P
10.0-10.4	4				34.5-34.9			CS - C
10.5-10.9	2	1	Hyb-1	1	35.0-35.4			RBH - P
11.0-11.4	9			11	35.5-35.9			WS - C
11.5-11.9	5				36.0-36.4			RH - P
12.0-12.4	2				36.5-36.9			MM - P
12.5-12.9	3				37.0-37.4			RS - P
13.0-13.4	4				37.5-37.9		1	
13.5-13.9	3				38.0-38.4			
14.0-14.4	2	1			38.5-38.9			
14.5-14.9	3	1			39.0-39.4			
15.0-15.4	6	1			39.5-39.9			
15.5-15.9	2	1			40.0-40.9			
16.0-16.4	3				41.0-41.9			
16.5-16.9	2				42.0-42.9			
17.0-17.4	2				43.0-43.9			
17.5-17.9					44.0-44.9			
18.0-18.4	2				45.0-45.9			
18.5-18.9	1				46.0-46.9			
19.0-19.4	1		1		47.0-47.9			
19.5-19.9	1	1			48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9	1				50.0-50.9			
21.0-21.4	1				51.0-51.9		1	
21.5-21.9			1		52.0-52.9			
22.0-22.4					53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9	1				56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9	1				58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9	3				60.0+			
26.0-26.4	1							
26.5-26.9	1							
TOTAL	98 sub	6 + mL		5 MC	TOTAL	10 NP	6 MU	

NP

WDNR Comments

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

INCHES 40°-H20 184.5-186.7 (2.2 hrs) 2 dippers

COUNTY Sawyer COUNTY CODE 52 | WATER Hayward Ck. WATER CODE ____ | DATE 10/26 | GEAR WW AC - R2 (2224)

SIZE RANGE INCHES	SPECIES				SIZE RANGE INCHES	SPECIES		
	VP	LMB	MU	WE		NP	MU	
<3.0					27.0-27.4	2		
3.0- 3.4					27.5-27.9	1		
3.5- 3.9					28.0-28.4			
4.0- 4.4					28.5-28.9			
4.5- 4.9					29.0-29.4			
5.0- 5.4					29.5-29.9			
5.5- 5.9					30.0-30.4			
6.0- 6.4	4				30.5-30.9	1		
6.5- 6.9	4			1	31.0-31.4			
7.0- 7.4	6				31.5-31.9			
7.5- 7.9	2				32.0-32.4			
8.0- 8.4	3		1 (Natik)		32.5-32.9			Observed
8.5- 8.9	1			1	33.0-33.4			BG - 2
9.0- 9.4	2				33.5-33.9			BC - P
9.5- 9.9	1				34.0-34.4			WH - P
10.0-10.4	4				34.5-34.9			CS - C
10.5-10.9	2	1	Hyb-1	1	35.0-35.4			BlBH - C
11.0-11.4	8			2	35.5-35.9			WS - C
11.5-11.9	5				36.0-36.4			RH - P
12.0-12.4	12				36.5-36.9			MM - P
12.5-12.9	5				37.0-37.4			PS - P
13.0-13.4	3				37.5-37.9		1	
13.5-13.9	3				38.0-38.4			
14.0-14.4	2	1			38.5-38.9			
14.5-14.9	3	1			39.0-39.4			
15.0-15.4	5	1			39.5-39.9			
15.5-15.9	2	1			40.0-40.9			
16.0-16.4	2				41.0-41.9			
16.5-16.9	2				42.0-42.9			
17.0-17.4	2				43.0-43.9			
17.5-17.9					44.0-44.9			
18.0-18.4	1				45.0-45.9			
18.5-18.9	1				46.0-46.9			
19.0-19.4	1		1		47.0-47.9			
19.5-19.9	1	1			48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9	1				50.0-50.9			
21.0-21.4	1				51.0-51.9		1	
21.5-21.9			1		52.0-52.9			
22.0-22.4					53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9	1				56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9	1				58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9	3				60.0+			
26.0-26.4	1							
26.5-26.9	1							
TOTAL	95 SAW	3 WE		5 WE	TOTAL	103 NP	3 MU	

WDNR Comments

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PANFISH LENGTH FREQUENCY

FORM 3600-64 REV. 3-81

INCHES

Lake Hayward 8/03/95 Lenie Mauk

COUNTY | COUNTY CODE ___ | WATER | WATER CODE _____ | DATE | GEAR

SIZE RANGE INCHES	SPECIES			
	Site 2 Pull 1			
1.0-1.4	CS	LMB		
1.5-2.0	2.1 2.1 2.2	2.0		
2.1	2.2 2.0 2.1	1.9		
2.2	2.2 2.3 2.2			
2.3	2.1 2.0 1.0			
2.4	2.1			
2.5				
2.6	Pull 2			
2.7	LMB			
2.8	2.8			
2.9				
3.0	Site 1 Pull 1			
3.1				
3.2	CS	LMB		
3.3	+6	3.0 2.5		
3.4	less than 1"	2.0 1.9 2.0		
3.5		2.5 1.7		
3.6				
3.7				
3.8				
3.9		NP		
4.0		6.0		
4.1	BG			
4.2	+2 +1 under 1"	YP		
4.3	+1 +1 +1 +1 +1 +1	1.5 1.7	2.0 1.5 1.9	
4.4	YP	2.1 2.2 1.8	1.7 1.6 2.0	
4.5	21 under 1"	1.8 1.9 1.5	1.5 1.5 2.0	
4.6		1.5 1.5 1.8	1.5 1.5 1.5	
4.7	RBD	Lunker		
4.8	2.0	BNM		
4.9		2.0 1.8 1.7		
5.0				
5.1		Pull 2		
5.2				
5.3	SH RH	YP	LMB	Crappie
5.4	10.0	2.5 7.0 6.8	2.0 6.5 2.5	2.5
5.5		6.2 7.5 6.5	2.8 5.5 1.7	
5.6	RBD	3.0 6.0 5.7	1.9 2.0 2.4	
5.7	1.5 1.5	4.5 5.8 4.1	2.1 3.1 1.6	
5.8		4.2 5.0 3.8	2.1 1.9 1.9 1.7	
5.9	JD	5.5 3.8 3.5	1.7	
6.0	1.5 1.5	4.5 4.1 3.8	BG	
6.1		3.1 3.5 3.5	+3 less than 1"	
6.2		2.6 4.1 3.2		
6.3		1.9 3.0 3.9		
6.4		3.1 4.0 3.6	1.9 2.0 2.0	
6.5		3.7 1.7 3.3	2.0 1.9 1.7	
6.6		2.1 1.7 2.0	2.0 2.0 1.9	
6.7		2.1 1.7 2.0	1.9 1.6 1.8	
6.8		1.5 1.7 1.9	1.8 2.0 1.8	
6.9		1.7 1.9 1.9	1.6 1.5 1.8	
TOTALS		1.7 4.2 1.9		

SIZE RANGE INCHES	SPECIES			
	Site 3			
7.0	NP	LMB	PS	YP
7.1	11.0	7.0	3.0 5.3	1.8 1.5
7.2	5.2	6.8	3.7	2.0 2.0
7.3	4.1	1.6 1.7		2.2 5.3
7.4	5.3	1.5		1.8 4.9
7.5	4.0			4.7 1.7
7.6	5.0			1.9 1.7
7.7				2.3 1.6
7.8				2.0 1.5
7.9			BG	1.9 2.7
8.0			+62	
8.1			less than 1"	
8.2				
8.3				+31
8.4				
8.5				
8.6				
8.7				
8.8				
8.9		CS	BG	BG
9.0		1.7 1.8	1.3 1.5	1.6
9.1		1.0 1.5 1.5	1.7	1.0
9.2		2.5 2.0 1.9		
9.3		2.0 2.0		
9.4		1.5 2.0		
9.5		2.5 1.7		
9.6		1.5 1.9		
9.7		2 1/2 3	BNM	
9.8		1.3 2.0	1.7	
9.9		1.2 2.7		
10.0		1.8 1.0		
10.2		1.9 2.0		
10.4		1.5 2.0		
10.6		1.6 1.0 1.0		
10.8		1.5 1.6		
11.0		2.1 1.0		
11.2		1.0 1.5		
11.4		2.5 2.5		
11.6		2.0 1.9		
11.8		2.0 2.3		
12.0		2.1 2.0		
12.2		2.0 2.0		
12.4		2.0 2.2		
12.6		2.1 1.7		
12.8		2.1 1.7		
13.0		+		
13.2				
13.4				
13.6				
13.8				
14.0+				
TOTALS				

WDNR Comments

PANFISH LENGTH FREQUENCY

CENTIMETERS

COUNTY

COUNTY CODE — —

WATER

WATER CODE — — — —

DATE

GEAR

SIZE RANGE CM.	SPECIES			
2.0-3.4	Sicely	CS	DVM	
3.5-5.0	YP +1	2.0 2.0	2.0	
5.2		1.9 2.1	2.2	
5.4		1.9 1.7		
5.6		1.2 2.0		
5.8		2.1 1.6		
6.0		1.2 2.1		
6.2		2.1		
6.4				
6.6				
6.8				
7.0	Sicely			
7.2				
7.4	NP	CS	PS	1
7.6	6.0 4.5	1.5 1.5 1.0	1.7	
7.8	11.0	+1 less than 1"		
8.0		1.2 1.3 2.2		
8.2		2.2 2.0 2.2		
8.4		1.5 2.0 1.5		
8.6	BC	BG 1.0 1.5		
8.8	1.5 1.2	+1 1.0 1.3		
9.0		1.4 1.0		
9.2		1.0		
9.4				
9.6				
9.8				
10.0	BG			
10.2	+1			
10.4	12 less than 1"	RDD		
10.6		1.5 2.3		
10.8		1.1		
11.0				
11.2	LMB			
11.4	2.2 2.3 2.0	YP		
11.6	2.2	5.7		
11.8		+6		
12.0				
12.2				
12.4		RB		
12.6		1.0		
12.8				
13.0				
13.2				
13.4				
13.6				
13.8				
14.0				
14.2				
14.4				
14.6				
14.8				
15.0				
15.2				
15.4				
15.6				
15.8				
TOTALS				

SIZE RANGE CM.	SPECIES				
		Sicely	6		
16.0	PS	YP	LMB	BC	
16.2	7.5	+11	1.8 2.2	2.0	
16.4	7.5		2.2	1.2	
16.6			1.6 2.2		
16.8			2.2 2.0		
17.0			2.5 1.5		
17.2			1.8 1.5		
17.4			1.7 1.7		
17.6					
17.8			NP		
18.0			4.2		
18.2					
18.4		BG			
18.6		2.1			
18.8					
19.0					
19.2					
19.4					
19.6					
19.8					
20.0		CS			
20.2		2.0 2.0			
20.4		2.0 2.1			
20.6		2.0 1.9			
20.8		2.1 2.1			
21.0		1.5 2.0			
21.2		2.0 2.0			
21.4		1.0 ~~1.8~~			
21.6		2.0 1.9			
21.8		1.8 1.7			
22.0		2.0 1.9			
22.2		1.9 1.7			
22.4		2.0 2.0			
22.6		2.0 1.7			
22.8					
23.0					
23.5					
24.0					
24.5					
25.0					
25.5		Sicely 10			
26.0	DVM	BC	CS	CC	
26.5	1.0 1.5	1.5	+10	1.0	
27.0	2.5				
27.5					
28.0					
28.5					
29.0					
29.5					
30.0					
30.5					
31.0					
31.5					
32.0					
32.5					
33.0+					
TOTALS					

WDNR Comments

SUMMARY FISHING RECORD

WI Department of Natural Resources

County: Sawyer	Waters: Lake Hayward
Sampling Objective: EG Walleye Evaluation	Number/Location of Stations: Entire shoreline between STH bridges
Dates Fished: 10/06/96	Water Temperature: 50.7 F
Boomshocker Hours: 2.1 (2 dippers)	Time: 19:00
Fyke Net Days	Angling Hours

6.0 miles
1.8/mile

Species	Number	Modes	Size Range	C.P.E.
Walleye EG yoy	11	8.5	6.0-9.5	5.2
Walleye tot	16	8.5, 14.5	6.0-17.4	7.6
Largemouth	19	12.0	8.0-16.9	9.0
Northern pike	26	10.0	5.5-33.0	12.3
Muskellunge	7	11.5	10.5-45.0	3.3
Black crappie	26	6.5	2.5-10.9	11.9
Bluegill	78	7.0	4.0-8.5	37.1
Yellow perch	29	7.0	4.5-10.9	13.8
Pumpkinseed	5	5.5	4.5-7.0	2.4

Observations: About 2600 EG walleyes were stocked here at STH "77" bridge, one week ago. Those that we sampled were mostly downstream along mid-lake shorelines. Nice bluegills- exceptional condition factor. All the centrarchids seem to be in shallows more this week than two weeks ago. One large musky netted and two others seen in vicinity of old railroad pier. Recently stocked muskies show up at 10.5-12". Common shiners were seen sporadically in very dense clouds, mostly in Bartz's Bay. White suckers and redhorse common. Un;ike two weeks ago, when maybe 10% of the large non-game fish carried chestnut lampreys- none were observed on any fish tonight. Inshore weed growth starting to die back significantly, but still very thick in Bartz's Bay and Laska Bay. We had a problem with pulsing/dimming lights which is believed to be a malfunction in the charging system. it didn't effect the actually stunning of fish but made for poorer visibility. Diane, the front-desk secretary, helped dip for the first third of the run, and I relieved her for the second third. Crew- Frank/Diane/Jack/Russ.
FBP 10/07/96

Second of two shockings - This was AFTER EG stocked. 9/18/96
was before
CPE's
1.8 vs. 0.3

WDNR Comments

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

INCHES Hours 1975 to 1996 Temp 52-.7 °F

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE 58	Lake Hayward WATER CODE ____	10/06/96	VVAC (230V)

SIZE RANGE — INCHES	SPECIES								SPECIES	
	WE	NP	MU	LMB	BG	BG	BC	YP	OTH SPP.	ER TL in "
<3.0		28 10	45 10				11-25		PS	
3.0- 3.4		33 10								
3.5- 3.9										
4.0- 4.4										
4.5- 4.9										
5.0- 5.4										
5.5- 5.9										
6.0- 6.4										
6.5- 6.9										
7.0- 7.4										
7.5- 7.9	(HEG)									
8.0- 8.4										
8.5- 8.9									5PS	
9.0- 9.4						78				
9.5- 9.9						BG total				
10.0-10.4										
10.5-10.9										
11.0-11.4								29 YP		
11.5-11.9							25 BC			CS-C
12.0-12.4										RH SPP-C
12.5-12.9										WS-C
13.0-13.4										
13.5-13.9										
14.0-14.4										
14.5-14.9										
15.0-15.4										
15.5-15.9										
16.0-16.4										
16.5-16.9										
17.0-17.4										
17.5-17.9										
18.0-18.4				19 LMB						
18.5-18.9				LMB						
19.0-19.4	16 tot WE									
19.5-19.9										
20.0-20.4										
20.5-20.9										
21.0-21.4										
21.5-21.9										
22.0-22.4										
22.5-22.9										
23.0-23.4										
23.5-23.9										
24.0-24.4										
24.5-24.9										
25.0-25.4		26 NP								
25.5-25.9										
26.0-26.4										
26.5-26.9										
TOTAL	16 tot WE	26	7	19		78BG	25 BC	29 YP	5 PS	

RH, WS, CS - common

WDNR Comments

SUMMARY FISHING RECORD

WI Department of Natural Resources

County Sawyer	Waters Lake Hayward
Sampling Objective FERC- walleye recruitment (pre-stocking)	Number/Location of Stations Entire shoreline between STH bridges
Dates Fished 09/18/96	Water Temperature 59.6 F
Boomshocker Hours 1.9 (0.5 pan) 1 dipper	Time 20:30
Fyke Net Days	Angling Hours

Species	Number	Modes	Size Range	C.P.E.
Walleye yoy	2	6.0	5.5-6.4	1.05 (0.33)
Walleye tot.	10	9.5	5.5-17.9	5.3
Largemouth	5	10.0	8.5-16.9	2.6
Northern pike	28	9.0, 15.5	5.5-28.0	14.7
Muskellunge	5	NA	23.5-45.0	2.6
Bluegill	42	5.5, 7.5	1.0-9.5	84.0
Black crappie	32	6.5, 12.0	1.5-12.4	64.0
Yellow perch	27	8.0	1.5-10.9	54.0
White sucker	72 count	NA	NA	37.9

Observations:Pre walleye stocking survey showing small amount of reproduction in 1996. Young northerns from 1995 and 1996 year classes very abundant and widely distributed. Forage minnows and adult bullheads appear to be way down. Water very murky and dingy in Laska's Bay. Bartz's Bay had fewer fish than normal too, and an even denser than usual weed growth. Large bass conspicuously absent- Have they retreated to deeper water already ? Or- has the LMB population crashed? Big muskies- several more seen but not netted. Operating speed too slow and too weedy to effectively run them down. This year the bluegills seem especially well-conditioned for their size. Strong population of young crappie coming on and just on the verge of recruiting into the spots fishery. White suckers appeared to be much more abundant than redhorse. Three of the suckers had chestnut lampreys attached. Three car-trailer units at access site when we launched - the heaviest usage that I have ever seen at this site. At least one boat was musky fishing. Also sampled 1 common shiner, 7 pumpkinseed, and 1 yellow bullhead. CPE figures are in no./hour of target effort, except for second walleye yoy CPE which is expressed as no./shoreline mile. Crew- Pratt and Warwick. FBP 12/18/96.

WDNR Comments

Fan – 0.5 hrs.
Game – entire

of Wisconsin
Dept of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

Hours 194.0 to ___.___ 19hrs 60mi Temp 52.1 °F

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE ___ ___	Lk. Hayward WATER CODE ___ ___ ___ ___	09/17/96	VVAC 230V

SIZE RANGE INCHES	SPECIES WE	NP	MU	LMB	SMB	BG	BC	SPECIES YP	OTHER SPP. TL in "
<3.0						1 1-2.0	2.0	1	
3.0- 3.4						1 2.5-11	2.5 1.5		
3.5- 3.9									
4.0- 4.4						1			
4.5- 4.9						III			
5.0- 5.4						IIII		1	
5.5- 5.9	1 method 40	1				II	II	III	
6.0- 6.4	1	1				II			
6.5- 6.9						IIII	IIII III	IIII	
7.0- 7.4						IIII	IIII	1	
7.5- 7.9						IIII II	IIII	III	
8.0- 8.4		II		1			IIII	IIII	
8.5- 8.9	1	II		1				1	
9.0- 9.4		IIII		1		1	1	II	
9.5- 9.9	III			II			1	IIII	
10.0-10.4							1		
10.5-10.9		1						1	
11.0-11.4		II							
11.5-11.9							II		
12.0-12.4	1					42			
12.5-12.9		1							
13.0-13.4		II					32		
13.5-13.9									
14.0-14.4	1	II							
14.5-14.9	1								
15.0-15.4									
15.5-15.9		II		0					
16.0-16.4		1							
16.5-16.9		1		1					
17.0-17.4		1							
17.5-17.9	1								
18.0-18.4		1							
18.5-18.9		1							
19.0-19.4									
19.5-19.9									
20.0-20.4									
20.5-20.9									
21.0-21.4									
21.5-21.9				5					
22.0-22.4									
22.5-22.9									
23.0-23.4			1						
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4		1							
25.5-25.9									
26.0-26.4									
26.5-26.9			5mu						
TOTAL	10 tot	28	27.0	5 mu		42			
		28.0	46.0 mu	42.0 mu		44.0 mu			

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Sawyer	Hayward Lake	MWBC: 2725500

Sampling Objective	Number and Locations of Stations (Habitat)	
Walleye Recruitment Survey		Source
	Miles Actually Shocked = 6.0	LM
Period Fished (Dates)	Acres = 247	LM
09/18/96	Total Miles of Shoreline = 8.6	LM
	Total Miles of Shockable Shoreline = 6.0	LM

GEAR

Boomshocker (Hours)	Time
1.9	✓ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics
Boomshocker(s): 1	Mini-boomshocker(s): 0	Walleye Recruitment Code: C-ST
Dip Netter(s): 1	Dip Netter(s): 0	

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit
Walleye (Age 0+)	2	None	5.5 - 6.4	1.05 / hour 0.33 / mile
Serns Index NA YOY / acre				
Walleye (Age 1+)	4	9.5 - 9.9	8.5 - 9.9	2.11 / hour 0.67 / mile
Walleye (Other)	4	None	12.0 - 17.9	2.11 / hour 0.67 / mile
Smallmouth Bass	0		-	0.00 / hour 0.00 / mile
Largemouth Bass	5	None	8.5 - 16.9	2.63 / hour 0.83 / mile
Muskellunge	5	None	23.0 - 45.4	2.63 / hour 0.83 / mile
Northern Pike	28	9.0 - 9.4	5.5 - 28.4	14.74 / hour 4.67 / mile

Observations

1) Tank Mortality: None

2) Weather:

3) Stocking: No walleye stocked prior to this survey; 247 muskellunge (10.8") on 09/09/96

4) Reliabilty: High

Rev. 10-70	Signed (Compiler)	Date 11/15/96

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/18/96 County: Sawyer Collector(s): Warwick, Pratt

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 60 °F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 230 Amps: Not available Current Type: [X] AC [ ] DC [ ] Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:30 Shocking End Time: Not available Generator Start Hour: 194.0 Generator End Hour: 195.9

Number of Dippers: [X] 1 [ ] 2 Entire Shoreline Shocked: [ ] Y [X] N [ ] I Dip Net Mesh Size: 1/4 inch bar H2O Clarity: Not available

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4		
3.5-3.9			17.5-17.9	1	
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4			19.0-19.4		
5.5-5.9	1		19.5-19.9		
6.0-6.4	1		20.0-20.4		
6.5-6.9			20.5-20.9		
7.0-7.4			21.0-21.4		
7.5-7.9			21.5-21.9		
8.0-8.4			22.0-22.4		
8.5-8.9	1		22.5-22.9		
9.0-9.4			23.0-23.4		
9.5-9.9	3		23.5-23.9		
10.0-10.4			24.0-24.4		
10.5-10.9			24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9			25.5-25.9		
12.0-12.4	1		26.0-26.4		
12.5-12.9			26.5-26.9		
13.0-13.4			27.0-27.4		
13.5-13.9			27.5-27.9		
14.0-14.4	1		28.0-28.4		
14.5-14.9	1		28.5-28.9		
15.0-15.4			29.0-29.4		
15.5-15.9			29.5-29.9		
16.0-16.4			30.0 +		
Totals:	10	0			

WALLEYE

WDNR Comments

Department of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/18/96 County: Sawyer Collector(s): Warwick, Pratt

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 60 °F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 230 Amps: Not available Current Type: [X] AC [ ] DC [ ] Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:30 Shocking End Time: Not available Generator Start Hour: 194.0 Generator End Hour: 195.9

Number of Dippers: [X] 1 [ ] 2 Entire Shoreline Shocked: [ ] Y [X] N [ ] I Dip Net Mesh Size: 1/4 inch bar H2O Clarity: Not available

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.0-24.4				
1.5-1.9									24.5-24.9				
2.0-2.4									25.0-25.4	1			
2.5-2.9									25.5-25.9				
3.0-3.4									26.0-26.4				
3.5-3.9									26.5-26.9				
4.0-4.4									27.0-27.4			1	
4.5-4.9									27.5-27.9				
5.0-5.4									28.0-28.4	1			
5.5-5.9	1								28.5-28.9				
6.0-6.4	1								29.0-29.4				
6.5-6.9									29.5-29.9				
7.0-7.4									30.0-30.4				
7.5-7.9									30.5-30.9				
8.0-8.4	2								31.0-31.4				
8.5-8.9	2				1				31.5-31.9				
9.0-9.4	5				1				32.0-32.4				
9.5-9.9					2				32.5-32.9				
10.0-10.4									33.0-33.4				
10.5-10.9	1								33.5-33.9				
11.0-11.4	2								34.0-34.4				
11.5-11.9									34.5-34.9				
12.0-12.4									35.0-35.4				
12.5-12.9	1								35.5-35.9				
13.0-13.4	2								36.0-36.4				
13.5-13.9									36.5-36.9				
14.0-14.4	2								37.0-37.4				
14.5-14.9									37.5-37.9				
15.0-15.4									38.0-38.4				
15.5-15.9	2								38.5-38.9				
16.0-16.4	1								40.0-40.4				
16.5-16.9	1				1				40.5-40.9				
17.0-17.4	1								41.0-41.4				
17.5-17.9									41.5-41.9				
18.0-18.4	1								42.0-42.4			1	
18.5-18.9	1								42.5-42.9				
19.0-19.4									43.0-43.4				
19.5-19.9									43.5-43.9				
20.0-20.4									44.0-44.4			1	
20.5-20.9									44.5-44.9				
21.0-21.4									45.0-45.4			1	
21.5-21.9									45.5-45.9				
22.0-22.4									46.0-46.9				
22.5-22.9									47.0-47.9				
23.0-23.4			1						48.0-48.9				
23.5-23.9									49.0-49.9				
Totals:	28	0	5	0	5	0	0	0	50.0+				

GAMEFISH

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County: Sawyer	Waters: Hayward Lake MWBC: 2725500
Sampling Objective: Walleye Recruitment Survey	Number and Locations of Stations (Habitat)
Period Fished (Dates): 10/06/96	Miles Actually Shocked = 6.0 (Source: LM) Acres = 247 (LM) Total Miles of Shoreline = 8.6 (LM) Total Miles of Shockable Shoreline = 6.0 (LM)

GEAR

Boomshocker (Hours): 2.1	Time: ✓ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts) Boomshocker(s): 1 Mini-boomshocker(s): 0 Dip Netter(s): 2 Dip Netter(s): 0	Characteristics Walleye Recruitment Code: C-ST

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit
Walleye (Age 0+)	11	None	6.0 - 6.4	0.48 / hour 1.8 ~~0.17~~ / mile
Serns Index NA YOY / acre				
Walleye (EG Age 0+ or Age 1+)	10	8.5 - 8.9	6.5 - 9.9	4.76 / hour 1.67 / mile
Walleye (Other)	5	None	12.0 - 17.4	2.38 / hour 0.83 / mile
Smallmouth Bass	0		-	0.00 / hour 0.00 / mile
Largemouth Bass	19	None	7.5 - 16.9	9.05 / hour 3.17 / mile
Muskellunge	7	None	10.5 - 45.4	3.33 / hour 1.17 / mile
Northern Pike	26	9.0 - 9.4	5.5 - 33.4	12.38 / hour 4.33 / mile

Observations

1) Tank Mortality: None

2) Weather:

3) Stocking: 2470 walleye (7.4") on 09/25/96; 247 muskellunge (10.8") on 09/09/96 not enough MOT one but 11 (elsewhere young walleye in catch. CPE = 1.8/hr/mile

4) Reliabilty: Medium

5) Comments: Extended growth Age0+ walleye and Age1+ walleye length ranges overlap; no ageing was done

Rev. 10-70	Signed (Compiler)	Date: 11/15/96

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 10/06/96 County: Sawyer Collector(s): Sande, Pratt

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 51 °F Station: Portion of Shoreline

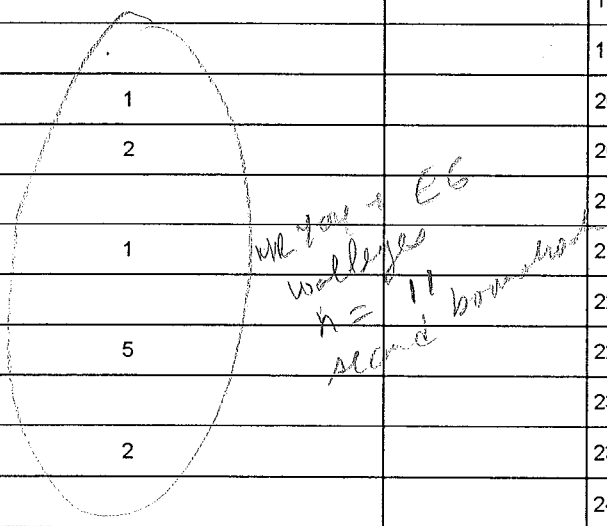
Adverse Conditions: Lights malfunctioning Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 230 Amps: Not available Current Type: [X] AC [ ] DC [ ] Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:00 Shocking End Time: Not available Generator Start Hour: 197.5 Generator End Hour: 199.6

Number of Dippers: [ ] 1 [X] 2 Entire Shoreline Shocked: [ ] Y [X] N [ ] I Dip Net Mesh Size: 1/4 inch bar H2O Clarity: Not available

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4	1	
3.5-3.9			17.5-17.9		
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4			19.0-19.4		
5.5-5.9			19.5-19.9		
6.0-6.4	1		20.0-20.4		
6.5-6.9	2		20.5-20.9		
7.0-7.4			21.0-21.4		
7.5-7.9	1		21.5-21.9		
8.0-8.4			22.0-22.4		
8.5-8.9	5		22.5-22.9		
9.0-9.4			23.0-23.4		
9.5-9.9	2		23.5-23.9		
10.0-10.4			24.0-24.4		
10.5-10.9			24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9			25.5-25.9		
12.0-12.4	1		26.0-26.4		
12.5-12.9			26.5-26.9		
13.0-13.4	1		27.0-27.4		
13.5-13.9			27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9	1		28.5-28.9		
15.0-15.4	1		29.0-29.4		
15.5-15.9			29.5-29.9		
16.0-16.4			30.0 +		
Totals:	16	0			



WALLEYE

WDNR Comments

Department of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186

8-95

Lake: Hayward MWB Code: 2725500 Date: 10/06/96 County: Sawyer Collector(s): Sande, Pratt

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 51 °F Station: Portion of Shoreline

Adverse Conditions: Lights malfunctioning Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 230 Amps: Not available Current Type: [X] AC [ ] DC [ ] Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:00 Shocking End Time: Not available Generator Start Hour: 197.5 Generator End Hour: 199.6

Number of Dippers: [ ] 1 [X] 2 Entire Shoreline Shocked: [ ] Y [X] N [ ] I Dip Net Mesh Size: 1/4 inch bar H2O Clarity: Not available

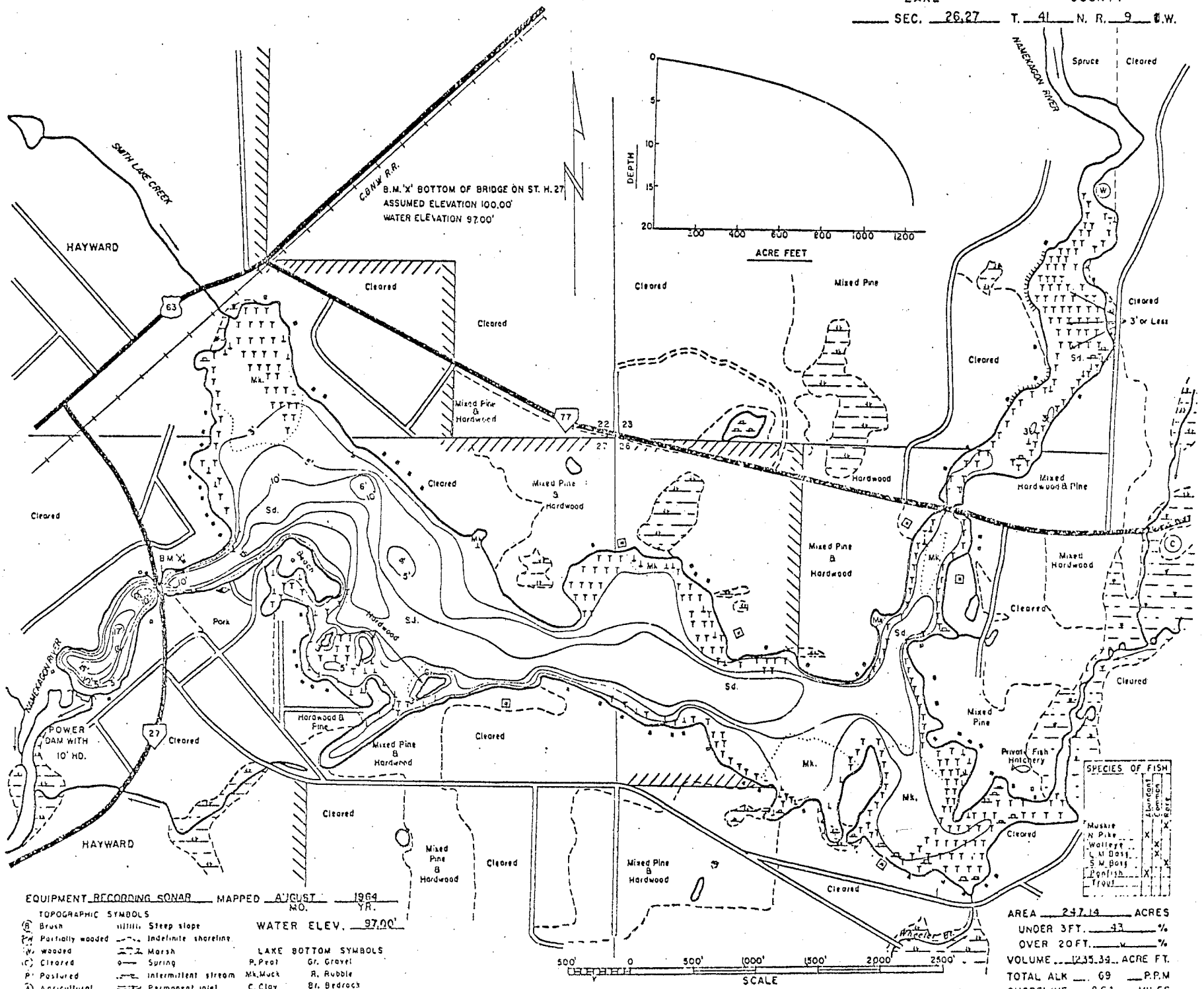
	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.0-24.4	1			
1.5-1.9									24.5-24.9				
2.0-2.4									25.0-25.4				
2.5-2.9									25.5-25.9				
3.0-3.4									26.0-26.4			1	
3.5-3.9									26.5-26.9				
4.0-4.4									27.0-27.4				
4.5-4.9									27.5-27.9				
5.0-5.4									28.0-28.4	1			
5.5-5.9	1								28.5-28.9				
6.0-6.4									29.0-29.4				
6.5-6.9									29.5-29.9				
7.0-7.4	2								30.0-30.4				
7.5-7.9	3				1				30.5-30.9				
8.0-8.4					2				31.0-31.4				
8.5-8.9					1				31.5-31.9				
9.0-9.4	4				1				32.0-32.4				
9.5-9.9	2				2				32.5-32.9				
10.0-10.4	2				1				33.0-33.4	1			
10.5-10.9	1		1		1				33.5-33.9				
11.0-11.4			1		1				34.0-34.4				
11.5-11.9	2		2		3				34.5-34.9				
12.0-12.4	1		1		2				35.0-35.4				
12.5-12.9									35.5-35.9				
13.0-13.4									36.0-36.4				
13.5-13.9	1								36.5-36.9				
14.0-14.4					1				37.0-37.4				
14.5-14.9					1				37.5-37.9				
15.0-15.4					1				38.0-38.4				
15.5-15.9									38.5-38.9				
16.0-16.4	1								40.0-40.4				
16.5-16.9					1				40.5-40.9				
17.0-17.4									41.0-41.4				
17.5-17.9									41.5-41.9				
18.0-18.4	1								42.0-42.4				
18.5-18.9									42.5-42.9				
19.0-19.4									43.0-43.4				
19.5-19.9									43.5-43.9				
20.0-20.4									44.0-44.4				
20.5-20.9	2								44.5-44.9				
21.0-21.4									45.0-45.4			1	
21.5-21.9									45.5-45.9				
22.0-22.4									46.0-46.9				
22.5-22.9									47.0-47.9				
23.0-23.4									48.0-48.9				
23.5-23.9									49.0-49.9				
Totals:	26	0	7	0	19	0	0	0	50.0+				

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- Brush
- Partially wooded
- Wooded
- Cleared
- Pastured
- Agricultural
- BM Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

SCALE 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmude, M. Perkins, L. Sather Drawn by: J. Roth

SPECIES OF FISH

	Spawning	Abundance	Growth	Utilization
Muskie				
N. Pike				
Walleye				
L. M. Bass				
S. M. Bass				
Panfish				
Trout				

AREA 247.14 ACRES

UNDER 3FT. 43 %

OVER 20FT. — %

VOLUME 1235.34 ACRE FT.

TOTAL ALK. 69 P.P.M.

SHORELINE 8.64 MILES

MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

haul	BG	BC	RB	YP	PS	BH	LMB	JD	NP	WE	WS	CS	BNM	RH	TP
1A	1	0	0	0				0	0			0			
1B	22	16	0	10				0	1	1	1	189	1	2	
2A	0	0	0	9			2	3	0		3	262			
2B	17	0	0	33			5	28	3		9	166			
3A	35	9	0	9	1		1	1	2		1	120			
3B	16	3	0	21	3	1	0	1	0						
4A	0	12	0	8	1		2		0			8	1		31
4B	0	0	0	32	2		15		0			131	1		2
5A	2	31	0	1	1		0		1			105	1		
5B	176	74	1	16			2		1	1	8	215		11	

Lake Hayward; 8/22/97 Seine hauls- juvenile fishes and recruitment. FERC..

Other species-

Species No. Station/Haul

Creek Chub- 17; stations 3-5
R darter- 1; station 1
Log perch- 3; stations 2,5
Johnny darter- 33; stations 2, 3

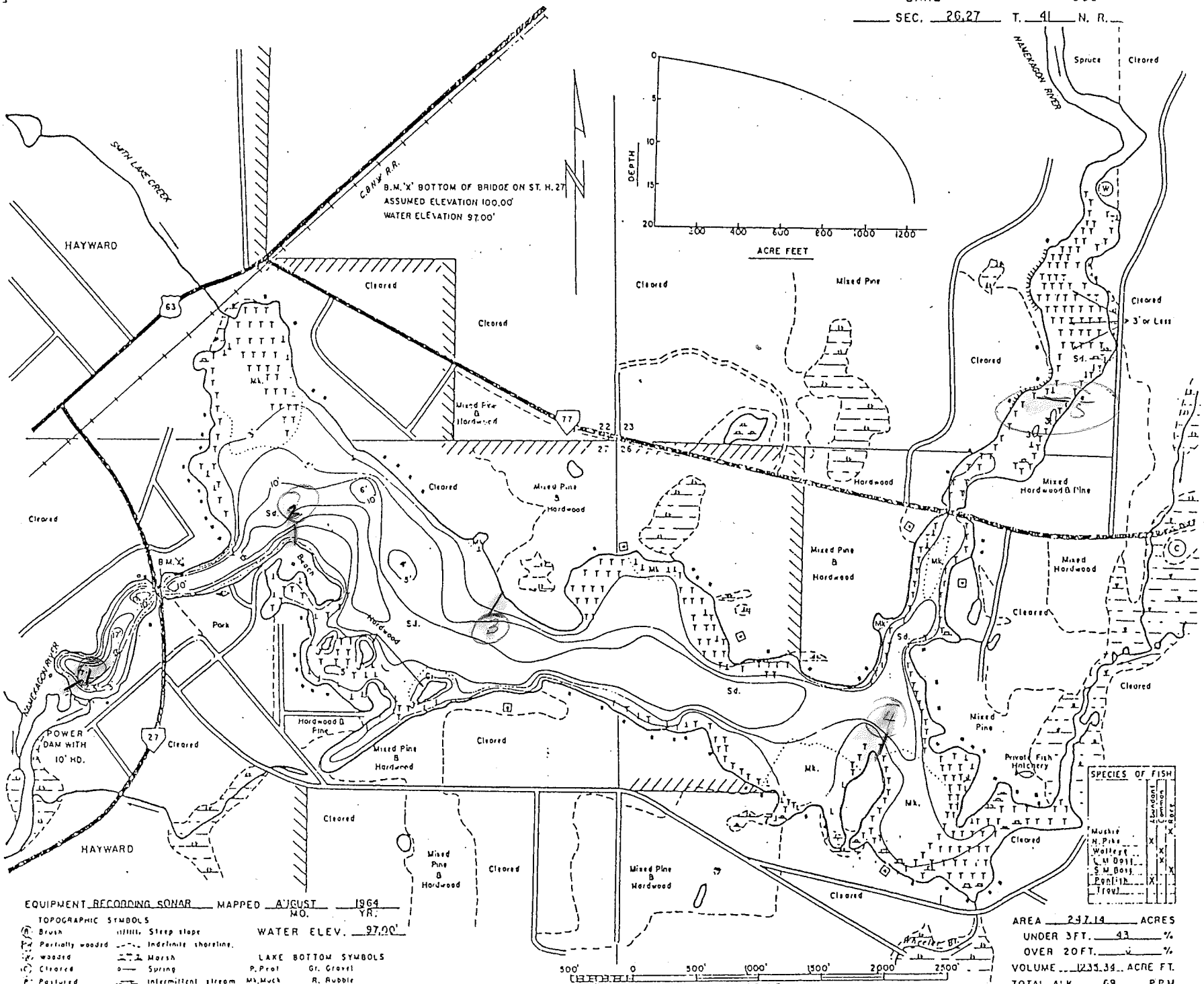
LF- measure 50 per spp.

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — CO.

SEC. 26,27 T. 41 N. R.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- Brush
- Partially wooded
- Wooded
- Cleared
- Pastured
- Agricultural
- BM Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Prot — Protozoa
- Mk. Muck — Muck
- C. Clay — Clay
- M. Marl — Marl
- Sd. Sand — Sand
- St. Silt — Silt
- Gr. Gravel — Gravel
- R. Rubble — Rubble
- Br. Bedrock — Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

SCALE: 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmidt, W. Prihoda, L. Sather Drawn by: J. Roth

SPECIES OF FISH

	abundant	common	rare
Muskie			X
N. Pike			X
Walleye	X		
L.M. Bass	X		
S.M. Bass			X
Panfish	X		
Trout			X

AREA 247.14 ACRES

UNDER 3FT. 43 %

OVER 20FT. — %

VOLUME 1235.34 ACRE FT.

TOTAL ALK. 69 P.P.M

SHORELINE 8.64 MILES

MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

Start - 211.2
End - 212.7
Temp 52.0

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

INCHES

COUNTY	WATER	DATE	GEAR
Sawyer COUNTY CODE ___ ___	Hayward N/H W shore WATER CODE ___ ___	5-19-97	VV BS 200 V / 2 A

SIZE RANGE INCHES	SPECIES					SIZE RANGE INCHES	SPECIES		
	WE-AG	WE other	NP	SMB	LMB		NP	MU	
<3.0						27.0-27.4			
3.0- 3.4						27.5-27.9			
3.5- 3.9						28.0-28.4			
4.0- 4.4						28.5-28.9			
4.5- 4.9						29.0-29.4			
5.0- 5.4						29.5-29.9			
5.5- 5.9						30.0-30.4			
6.0- 6.4						30.5-30.9			
6.5- 6.9	//					31.0-31.4			
7.0- 7.4	//					31.5-31.9			
7.5- 7.9	//					32.0-32.4			
8.0- 8.4	/				1	32.5-32.9			
8.5- 8.9						33.0-33.4			
9.0- 9.4						33.5-33.9			
9.5- 9.9	/		1			34.0-34.4			
10.0-10.4	/				1	34.5-34.9		1	
10.5-10.9					1	35.0-35.4			
11.0-11.4			1			35.5-35.9			
11.5-11.9			1			36.0-36.4			
12.0-12.4					1	36.5-36.9			
12.5-12.9			1			37.0-37.4			
13.0-13.4			1			37.5-37.9			
13.5-13.9						38.0-38.4			
14.0-14.4						38.5-38.9			
14.5-14.9						39.0-39.4			
15.0-15.4						39.5-39.9			
15.5-15.9						40.0-40.9			
16.0-16.4						41.0-41.9			
16.5-16.9		1				42.0-42.9			
17.0-17.4						43.0-43.9			
17.5-17.9			1			44.0-44.9			
18.0-18.4						45.0-45.9			
18.5-18.9			1			46.0-46.9			
19.0-19.4						47.0-47.9			
19.5-19.9						48.0-48.9			
20.0-20.4						49.0-49.9			
20.5-20.9						50.0-50.9			
21.0-21.4						51.0-51.9			
21.5-21.9			///			52.0-52.9			
22.0-22.4						53.0-53.9			
22.5-22.9						54.0-54.9			
23.0-23.4						55.0-55.9			
23.5-23.9						56.0-56.9			
24.0-24.4						57.0-57.9			
24.5-24.9						58.0-58.9			
25.0-25.4						59.0-59.9			
25.5-25.9			1			60.0+			
26.0-26.4									
26.5-26.9									
TOTAL	9 AG-WE	1 other WE	10 NP	0	4 LMB	TOTAL		1 MU	

WDNR Comments

WDNR Comments

State of Wisconsin
Department of Natural Resources

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

49.6°F cloudy, windy, cold
INCHES 1.2 hrs / 3.2 miles (E/NE)

COUNTY Sawyer COUNTY CODE 58 | WATER Lake Hayward WATER CODE ____ | DATE 05/08/97 | GEAR Boomshocker 200V – 3 Amps

SIZE RANGE INCHES	SPECIES				SIZE RANGE INCHES	SPECIES		
	Walleye-AG	Walleye-other	LMB	NP		Musky	Species	Abund.
<3.0					27.0-27.4		WS	C
3.0- 3.4					27.5-27.9		RH	P
3.5- 3.9					28.0-28.4		BG	P
4.0- 4.4					28.5-28.9		BC	C
4.5- 4.9					29.0-29.4		YP	P
5.0- 5.4					29.5-29.9			
5.5- 5.9					30.0-30.4			
6.0- 6.4					30.5-30.9			
6.5- 6.9	2				31.0-31.4	1		
7.0- 7.4	2				31.5-31.9			
7.5- 7.9	2				32.0-32.4			
8.0- 8.4	1				32.5-32.9	Only one		
8.5- 8.9	2		1		33.0-33.4	seen		
9.0- 9.4	5				33.5-33.9			
9.5- 9.9	1				34.0-34.4			
10.0-10.4	3				34.5-34.9			
10.5-10.9	2			1	35.0-35.4			
11.0-11.4					35.5-35.9			
11.5-11.9					36.0-36.4			
12.0-12.4		1	1	Several	36.5-36.9			
12.5-12.9				other larger	37.0-37.4			
13.0-13.4		1		seen but	37.5-37.9			
13.5-13.9				not netted	38.0-38.4			
14.0-14.4					38.5-38.9			
14.5-14.9					39.0-39.4			
15.0-15.4					39.5-39.9			
15.5-15.9			1		40.0-40.9			
16.0-16.4					41.0-41.9			
16.5-16.9					42.0-42.9			
17.0-17.4					43.0-43.9			
17.5-17.9					44.0-44.9			
18.0-18.4		1			45.0-45.9			
18.5-18.9					46.0-46.9			
19.0-19.4			1		47.0-47.9			
19.5-19.9					48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9					50.0-50.9			
21.0-21.4					51.0-51.9			
21.5-21.9					52.0-52.9			
22.0-22.4					53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9					56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9					58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9		1			60.0+			
26.0-26.4								
26.5-26.9								
TOTAL	20 AG-WE	4 other WE	5 LMB	1 NP	TOTAL	1 Msk		

WDNR Comments

State of Wisconsin
ment of Natural Resources

Start - 1:12 hr
End
H_2O Temp 49.6 °F

GAME FISH LENGTH FREQUENCY

FORM 3600-65 REV. 3-80

3.2 miles
S/E shore to 8TH "77"

IES

UNTY Sawyer COUNTY CODE 58

WATER LK Hayward WATER CODE

DATE 05/08/97

GEAR Boomshocker

SIZE RANGE INCHES	SPECIES				SIZE RANGE INCHES	SPECIES		
	Walleye	LMB	NP	Mu		WE	NP	Mu
<3.0					27.0-27.4			
3.0- 3.4					27.5-27.9			
3.5- 3.9					28.0-28.4			
4.0- 4.4					28.5-28.9			
4.5- 4.9					29.0-29.4			
5.0- 5.4					29.5-29.9			
5.5- 5.9					30.0-30.4		Lawn Rust Bark	
6.0- 6.4					30.5-30.9			
6.5- 6.9	//				31.0-31.4			1
7.0- 7.4	//				31.5-31.9			
7.5- 7.9	//				32.0-32.4		Target	-AG W.G.
8.0- 8.4	/ 20				32.5-32.9			
8.5- 8.9	// AG	1			33.0-33.4			
9.0- 9.4	///	1			33.5-33.9		BC - C	
9.5- 9.9	/		1		34.0-34.4		BG - P	
10.0-10.4	///				34.5-34.9		WS - C	
10.5-10.9	//				35.0-35.4		RH - R	
11.0-11.4					35.5-35.9		YP - P	
11.5-11.9					36.0-36.4			
12.0-12.4	1	1			36.5-36.9			
12.5-12.9					37.0-37.4			
13.0-13.4	1				37.5-37.9			
13.5-13.9					38.0-38.4			
14.0-14.4					38.5-38.9			
14.5-14.9					39.0-39.4			
15.0-15.4					39.5-39.9			
15.5-15.9		1			40.0-40.9			
16.0-16.4					41.0-41.9	Cold Windy Rain DIC		Lake was muddy because of wet
16.5-16.9					42.0-42.9			
17.0-17.4					43.0-43.9			
17.5-17.9					44.0-44.9			
18.0-18.4	1				45.0-45.9			
18.5-18.9					46.0-46.9			
19.0-19.4		1			47.0-47.9			
19.5-19.9					48.0-48.9			
20.0-20.4					49.0-49.9			
20.5-20.9					50.0-50.9			
21.0-21.4					51.0-51.9			
21.5-21.9					52.0-52.9			
22.0-22.4					53.0-53.9			
22.5-22.9					54.0-54.9			
23.0-23.4					55.0-55.9			
23.5-23.9					56.0-56.9			
24.0-24.4					57.0-57.9			
24.5-24.9					58.0-58.9			
25.0-25.4					59.0-59.9			
25.5-25.9	1				60.0+			
26.0-26.4	(Long)							
26.5-26.9								
TOTAL	24 tot	5 LMB	1 NP		TOTAL			1 Mu

SMB - 13.5

29/3.2 x .1 = 1.44

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.

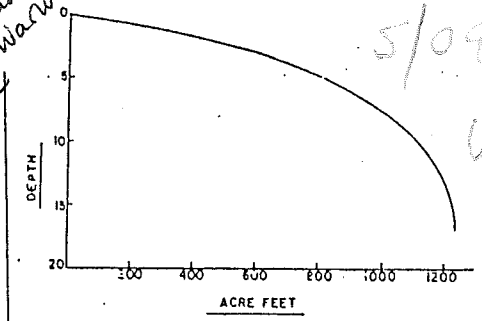
1.2 hrs.
3.2 miles

cold, warm intermittent drizzle

Pat Fanson Warwick

5/09/97

WE-116



B.M. 'X' BOTTOM OF BRIDGE ON ST. H. 27
ASSUMED ELEVATION 100.00'
WATER ELEVATION 97.00'

SOUTH LAKE CREEK

C&NW R.R.

NAMEKAGON RIVER

HAYWARD

Cleared

Mixed Pine & Hardwood

Hardwood

Mixed Hardwood & Pine

Mixed Pine & Hardwood

Mixed Pine

Mixed Hardwood

Spruce

Cleared > 3' or Less

Sd.

Mk.

Park

POWER DAM WITH 10' HD.

Private Fish Hatchery

SPECIES OF FISH

	Sunfish	Common	Bass
Muskie			
N. Pike	X		X
Walleye		X	
L.M. Bass		X	
S.M. Bass			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

Brush; Partially wooded; Wooded; Cleared; Steep slope; Indefinite shoreline; Marsh; Spring; Intermittent stream; Permanent inlet; Permanent outlet; Dam

LAKE BOTTOM SYMBOLS

P. Peat; Mk. Muck; C. Clay; M. Marl; Sd. Sand; St. Silt; Gr. Gravel; R. Rubble; Br. Bedrock; Submergent vegetation; Emergent vegetation; Floating vegetation

SCALE 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schnyder, M. Prince, L. Sather Drawn by: J. Rath

AREA 247.14 ACRES
UNDER 3FT. 43 %
OVER 20FT. — %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County: Sawyer	Waters: Hayward Lake MWBC: 2725500
Sampling Objective: Walleye Recruitment Survey	Number and Locations of Stations (Habitat)
Period Fished (Dates): 09/21/98	Miles Actually Shocked = 6.8 (Source: LM) Acres = 247 (LM) Total Miles of Shoreline = 8.6 (LM) Total Miles of Shockable Shoreline = 6.8 (LM)

GEAR

Boomshocker (Hours): 2.3		Time: ✓ Night / Day		
Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)
Boomshocker(s): 1 Mini-boomshocker(s): 0
Dip Netter(s): 2 Dip Netter(s): 0

Characteristics
Walleye Recruitment Code: C-ST

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	44	7.0-7.9	6.5 - 10.9*	19.13 / hour	6.47 / mile
Serns Index 1.51 YOY / acre					
Walleye (Age 1+)	0	None	-	0.00 / hour	0.00 / mile
Walleye (Other)	7	None	13.0 - 21.9	3.04 / hour	1.03 / mile
Smallmouth Bass	5	None	4.0 - 12.9	2.17 / hour	0.74 / mile
Largemouth Bass	18	None	2.5 - 15.4	7.83 / hour	2.65 / mile
Muskellunge	4	None	10.5 - 47.9	1.74 / hour	0.59 / mile
Northern Pike	34	9.0-10.4	6.5 - 32.4	14.78 / hour	5.00 / mile

Observations

1) Tank Mortality: None

2) Weather: Mostly Cloudy, Cold

3) Stocking: 2,470 Walleye, 8.3", 09/17/98, DNR; 247 Muskellunge, 11.7", 09/04/98, DNR

4) Reliabilty: Medium

5)Comments: *Extended growth YOY walleye stocked ~1 week before survey.

Rev. 10-70	Signed (Compiler)	Date: 12/09/98

WDNR Comments

Sheet 1 of 1

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET

GAMEFISH

Wisconsin Department of Natural Resources

Waterbody Name: Lake Hayward
MWB Code/WBIC:
Waterbody Type:
County:
Date (MM/DD/YY): 09/21/98
Station:
X Start Time: 8:20 PM
X End Time: 11:00 PM
Collectors: Pratt
Warwick
Blinkwolf

Target Fish: Juvenile Walleye
Mark(s) Given: None
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: Cloudy, cold
X Adverse Conditions:
X Water Temperature:
X Water Conductivity:
Water Level: [HI] (NORM) [LOW]
X Water Clarity:

X Generator Start Time:
X Generator End Time:
X Volts:
X Amps:
~~Pulse Rate:~~
~~Duty Cycle:~~
Current Type: (AC) [DC] [PDC]
Distance Shocked: X*
Entire Shoreline Shocked: [Y] (N) X[1]
Number of Dippers: [1] (2)
Dipnet Mesh Size: 3/8

inches	W.E.	NP	Muskellunge	Largemouth Bass	Smallmouth Bass	inches	Northern Pike	Muskellunge	W.E
<1.5						24.5-24.9			
1.5-1.9						25.0-25.4			
2.0-2.4						25.5-25.9			
2.5-2.9						26.0-26.4			
3.0-3.4						26.5-26.9			
3.5-3.9						27.0-27.4			
4.0-4.4						27.5-27.9			
4.5-4.9						28.0-28.4			
5.0-5.4						28.5-28.9			
5.5-5.9						29.0-29.4			
6.0-6.4						29.5-29.9			
6.5-6.9						30.0-30.4			
7.0-7.4						30.5-30.9			
7.5-7.9						31.0-31.4			
8.0-8.4						31.5-31.9			
8.5-8.9						32.0-32.4			
9.0-9.4						32.5-32.9			
9.5-9.9						33.0-33.4			
10.0-10.4						33.5-33.9			
10.5-10.9						34.0-34.4			
11.0-11.4						34.5-34.9			
11.5-11.9						35.0-35.4			
12.0-12.4						35.5-35.9			
12.5-12.9						36.0-36.4			
13.0-13.4						36.5-36.9			
13.5-13.9						37.0-37.4			
14.0-14.4						37.5-37.9			
14.5-14.9						38.0-38.4			
15.0-15.4						38.5-38.9			
15.5-15.9						39.0-39.4			
16.0-16.4						39.5-39.9			
16.5-16.9						40.0-40.4			
17.0-17.4						40.5-40.9			
17.5-17.9						41.0-41.4			
18.0-18.4						41.5-41.9			
18.5-18.9						42.0-42.4			
19.0-19.4						42.5-42.9			
19.5-19.9						43.0-43.4			
20.0-20.4						43.5-43.9			
20.5-20.9						44.0-44.4			
21.0-21.4						44.5-44.9			
21.5-21.9						45.0-45.4			
22.0-22.4						45.5-45.9			
22.5-22.9						46.0-46.9			
23.0-23.4						47.0-47.9			
23.5-23.9						48.0-48.9			
24.0-24.4						49.0-49.9			
TOTALS:						50.0+			

* Does not include shoreline south of STH 27 or north of STH 77 bridges - shore is

WDNR Comments

Sheet_____of_____

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET — WALLEYE — Wisconsin Department of Natural Resources

Waterbody Name: _____
MWB Code/WBIC: _____
Waterbody Type: _____
County: _____
Date (MM/DD/YY): _____
Station: _____
Start Time: _____
End Time: _____
Collectors: _____
_____

Target Fish: Juvenile Walleye
Mark(s) Given: None
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: _____
Adverse Conditions: _____
Water Temperature: _____
Water Conductivity: _____
Water Level: [HI] [NORM] [LOW]
Water Clarity: _____

Generator Start Time: _____
Generator End Time: _____
Volts: _____
Amps: _____
Pulse Rate: _____
Duty Cycle: _____
Current Type: [AC] [DC] [PDC]
Distance Shocked: _____
Entire Shoreline Shocked: [Y] [N] [I]
Number of Dippers: [1] [2]
Dipnet Mesh Size: _____

inches		inches		inches	
<3.0		7.1		11.4	
3.0		7.2		11.5	
3.1		7.3		11.6	
3.2		7.4		11.7	
3.3		7.5		11.8	
3.4		7.6		11.9	
3.5		7.7	1	12.0-12.4	1
3.6		7.8		12.5-12.9	1
3.7		7.9		13.0-13.4	1
3.8	11	8.0		13.5-13.9	
3.9		8.1		14.0-14.4	1
4.0		8.2		14.5-14.9	
4.1		8.3		15.0-15.4	
4.2	1	8.4		15.5-15.9	1
4.3		8.5		16.0-16.4	
4.4		8.6	1	16.5-16.9	
4.5		8.7		17.0-17.4	
4.6		8.8		17.5-17.9	
4.7	1	8.9	1	18.0-18.4	
4.8		9.0		18.5-18.9	
4.9		9.1		19.0-19.4	
5.0		9.2		19.5-19.9	
5.1		9.3		20.0-20.4	
5.2		9.4		20.5-20.9	
5.3	1	9.5		21.0-21.4	
5.4		9.6		21.5-21.9	
5.5		9.7		22.0-22.4	
5.6		9.8		22.5-22.9	
5.7	1	9.9		23.0-23.4	
5.8		10.0		23.5-23.9	
5.9		10.1	1	24.0-24.4	
6.0		10.2		24.5-24.9	
6.1		10.3		25.0-25.4	
6.2		10.4		25.5-25.9	
6.3		10.5		26.0-26.4	
6.4		10.6		26.5-26.9	
6.5		10.7		27.0-27.4	
6.6		10.8		27.5-27.9	
6.7		10.9	1	28.0-28.4	
6.8		11.0		28.5-28.9	
6.9		11.1		29.0-29.4	
7.0		11.2		29.5-29.9	
TOTALS:		11.3		30.0 +	

WDNR Comments

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET — GAMEFISH — Wisconsin Department of Natural Resources

Waterbody Name: Lake Hayward
MWB Code/WBIC: 272 5500
Waterbody Type: Imp.
County: Sawyer
Date (MM/DD/YY): 09/21/98
Station: Main Lake
X Start Time: 8:20 PM
X End Time: 11:00 PM
Collectors: Pratt, Warwick, Blinkwolf

Target Fish: Juvenile Walleye
Mark(s) Given: None
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: Cloudy, cold
X Adverse Conditions: Weedy
X Water Temperature: 58.1
X Water Conductivity: Mod-Hi
Water Level: [HI] (NORM) [LOW]
X Water Clarity: Clear 6-9'

X Generator Start Time: 272.0
X Generator End Time: 274.3
X Volts: 250
X Amps: 5
~~Pulse Rate:~~
~~Duty Cycle:~~
Current Type: (AC) [DC] [PDC]
Distance Shocked: 6.84 X
Entire Shoreline Shocked: [Y] (N) X [1]
Number of Dippers: [1] (2)
Dipnet Mesh Size: 3/8

6.8 PS-513 YP-10.2 1.8-2.8 WE-2 NP-1

inches	W.E.	N.P.	Muskellunge	Largemouth Bass	Smallmouth Bass
<1.5					
1.5-1.9					
2.0-2.4					
2.5-2.9					
3.0-3.4					
3.5-3.9					
4.0-4.4					
4.5-4.9					
5.0-5.4					
5.5-5.9					
6.0-6.4					
6.5-6.9	IIII 4	I			
7.0-7.4	IIII IIII III 13				
7.5-7.9	IIII IIII IIII 14				
8.0-8.4	III 3	II 1			
8.5-8.9	III 3	III 2			
9.0-9.4	II 2	IIII 5			
9.5-9.9	II 2	III 3			
10.0-10.4	II 2	IIII 5			
10.5-10.9	I 1	II 2			
11.0-11.4	1/4	II 2			
11.5-11.9	A.E.	II 2			
12.0-12.4		II 2			
12.5-12.9					
13.0-13.4	I 1	II 2			
13.5-13.9	III 4 5	I 1			
14.0-14.4	1/4	I 1			
14.5-14.9		I 1			
15.0-15.4					
15.5-15.9	II 2	I 1			
16.0-16.4					
16.5-16.9		I 1			
17.0-17.4					
17.5-17.9					
18.0-18.4					
18.5-18.9					
19.0-19.4					
19.5-19.9					
20.0-20.4					
20.5-20.9					
21.0-21.4					
21.5-21.9	I 1				
22.0-22.4					
22.5-22.9					
23.0-23.4					
23.5-23.9					
24.0-24.4		SUB			
TOTALS:	53	30	2 subtot	19	5

inches	Northern Pike	Muskellunge
24.5-24.9		
25.0-25.4		
25.5-25.9		
26.0-26.4		
26.5-26.9		
27.0-27.4		
27.5-27.9		
28.0-28.4		
28.5-28.9		
29.0-29.4		
29.5-29.9		
30.0-30.4		
30.5-30.9		
31.0-31.4		
31.5-31.9		
32.0-32.4	1	
32.5-32.9		
33.0-33.4		
33.5-33.9		
34.0-34.4		
34.5-34.9		
35.0-35.4		
35.5-35.9		
36.0-36.4		
36.5-36.9		
37.0-37.4		
37.5-37.9		
38.0-38.4		
38.5-38.9		
39.0-39.4		
39.5-39.9		
40.0-40.4		
40.5-40.9		
41.0-41.4		
41.5-41.9		1
42.0-42.4		
42.5-42.9		
43.0-43.4		
43.5-43.9		
44.0-44.4		
44.5-44.9		
45.0-45.4		
45.5-45.9		
46.0-46.9		
47.0-47.9		1
48.0-48.9	—	
49.0-49.9		
50.0+	3 subt.	4 TOT.

W.E. NP
WE-2
NP-1
YP-1
PS-2
BG-1
TOT-5

* Does not include shoreline south of STH '27' or north STH '77' bridges — inaccessible to boomshocker due to low clearance. All the mainlake shore is

GAMEFISH

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

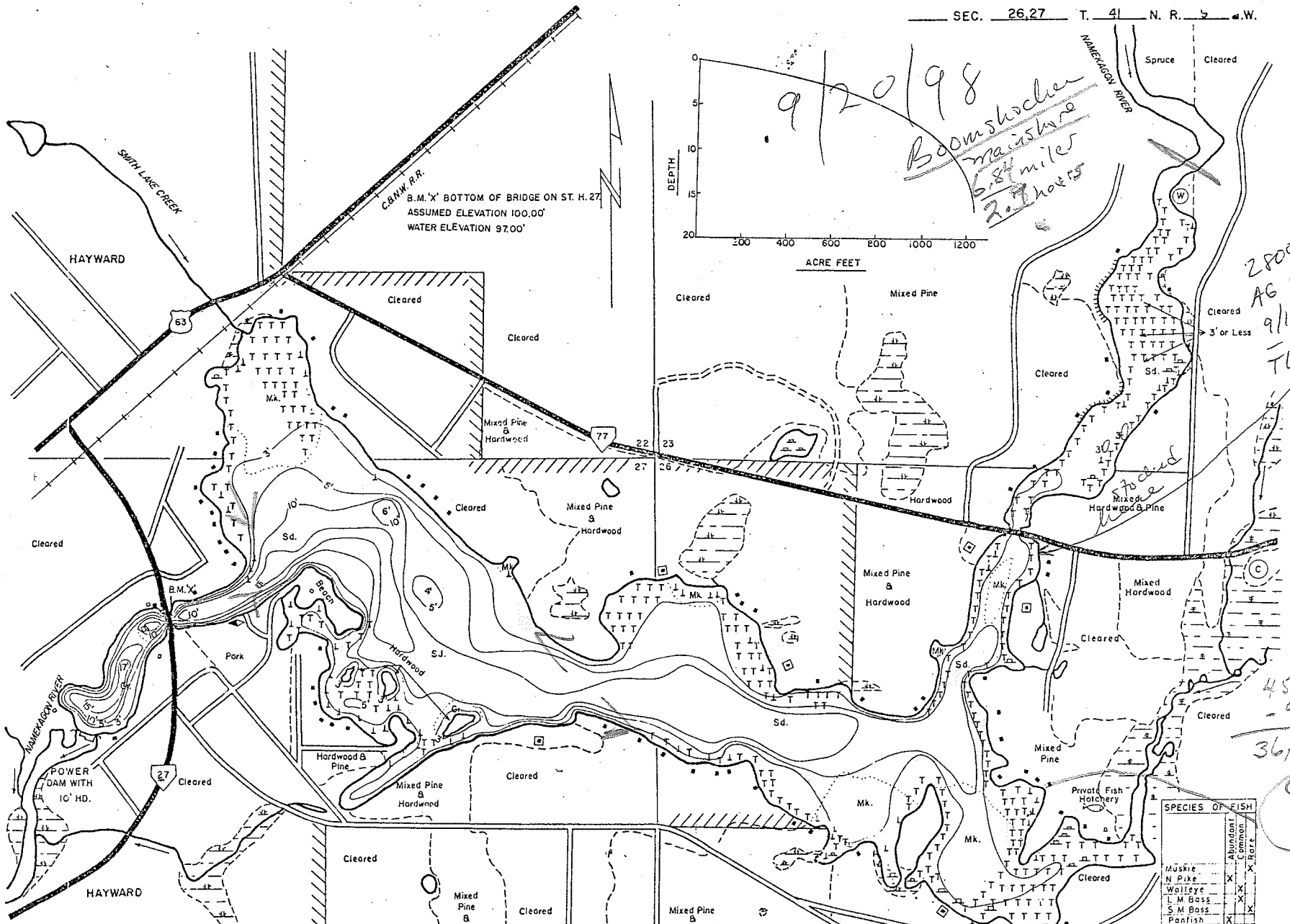
SEC. 26,27 T. 41 N. R. 5 W.

WDNR Comments

9/20/98
Boomshocker
Mainshore
6.84 miles
2.7 hours

2500 AC W.E. stocked 9/18/98
TL = 8.2"

45620' TOT
- 9500 INAS Basin
36,120' =
6.84 mi main basin



SPECIES OF FISH

	Abundant	Common	X Rare
Muskie			X
N Pike	X		
Walleye		X	
L M Bass		X	
S M Bass			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST (MO.) 1964 (YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- BM Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- Emergent vegetation
- Floating vegetation

500' 0 500' 1000' 1500' 2000' 2500'
SCALE

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H Schmude, M Perkins, L Sother Drawn by: J Rath

AREA 247.14 ACRES
UNDER 3FT. 43 %
OVER 20FT. 0 %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County: Sawyer	Waters: Hayward Lake MWBC: 2725500
Sampling Objective: Walleye Recruitment Survey	Number and Locations of Stations (Habitat)
Period Fished (Dates): 09/21/98	Miles Actually Shocked = 6.8 (Source: LM) Acres = 247 (LM) Total Miles of Shoreline = 8.6 (LM) Total Miles of Shockable Shoreline = 8.6 (LM)

GEAR

Boomshocker (Hours): 2.3	Time: ✓ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts) Boomshocker(s): 1 Mini-boomshocker(s): 0 Dip Netter(s): 2 Dip Netter(s): 0	Characteristics Walleye Recruitment Code: C-ST

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit
Walleye (Age 0+)	44	7.0-7.9	6.5 - 10.9*	19.13 / hour 6.47 / mile
Serns Index NA YOY / acre				
Walleye (Age 1+)	0	None	-	0.00 / hour 0.00 / mile
Walleye (Other)	7	None	13.0 - 21.9	3.04 / hour 1.03 / mile
Smallmouth Bass	5	None	4.0 - 12.9	2.17 / hour 0.74 / mile
Largemouth Bass	18	None	2.5 - 15.4	7.83 / hour 2.65 / mile
Muskellunge	4	None	10.5 - 47.9	1.74 / hour 0.59 / mile
Northern Pike	34	9.0-10.4	6.5 - 32.4	14.78 / hour 5.00 / mile

Observations

1) Tank Mortality: None

2) Weather: Mostly Cloudy, Cold

3) Stocking: 2,470 Walleye, 8.3", 09/17/98, DNR; 247 Muskellunge, 11.7", 09/04/98, DNR

4) Reliabilty: High

5)Comments: *Extended growth YOY walleye stocked ~1 week before survey.

Rev. 10-70	Signed (Compiler)	Date 12/03/98

WDNR Comments

ament of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/21/98 County: Sawyer Collector(s): Pratt, Warwick

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 58°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 6.8 miles

Volts: 250 Amps: 5.0 Current Type: [X] AC [ ] DC [ ] Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:20 Shocking End Time: 23:00 Generator Start Hour: 272.0 Generator End Hour: 274.3

Number of Dippers: [ ] 1 [X] 2 Entire Shoreline Shocked: [ ] Y [X] N [ ] Dip Net Mesh Size: 3/8 inch bar H2O Clarity: 6.0 feet

inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			16.5-16.9		
3.0-3.4			17.0-17.4		
3.5-3.9			17.5-17.9		
4.0-4.4			18.0-18.4		
4.5-4.9			18.5-18.9		
5.0-5.4			19.0-19.4		
5.5-5.9			19.5-19.9		
6.0-6.4			20.0-20.4		
6.5-6.9	4		20.5-20.9		
7.0-7.4	13		21.0-21.4		
7.5-7.9	14		21.5-21.9	1	
8.0-8.4	3		22.0-22.4		
8.5-8.9	3		22.5-22.9		
9.0-9.4	2		23.0-23.4		
9.5-9.9	2		23.5-23.9		
10.0-10.4	2		24.0-24.4		
10.5-10.9	1		24.5-24.9		
11.0-11.4			25.0-25.4		
11.5-11.9			25.5-25.9		
12.0-12.4			26.0-26.4		
12.5-12.9			26.5-26.9		
13.0-13.4	1		27.0-27.4		
13.5-13.9	3		27.5-27.9		
14.0-14.4			28.0-28.4		
14.5-14.9			28.5-28.9		
15.0-15.4			29.0-29.4		
15.5-15.9	2		29.5-29.9		
16.0-16.4			30.0 +		
Totals:	51	0			

WALLEYE

WDNR Comments

epartment of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/21/98 County: Sawyer Collector(s): Pratt, Warwick

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 58°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 6.8 miles

Volts: 250 Amps: 5.0 Current Type: [X] AC [ ] DC [ ] Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:20 Shocking End Time: 23:00 Generator Start Hour: 272.0 Generator End Hour: 274.3

Number of Dippers: [ ] 1 [X] 2 Entire Shoreline Shocked: [ ] Y [X] N [ ] Dip Net Mesh Size: 3/8 inch bar H2O Clarity: 6.0 feet

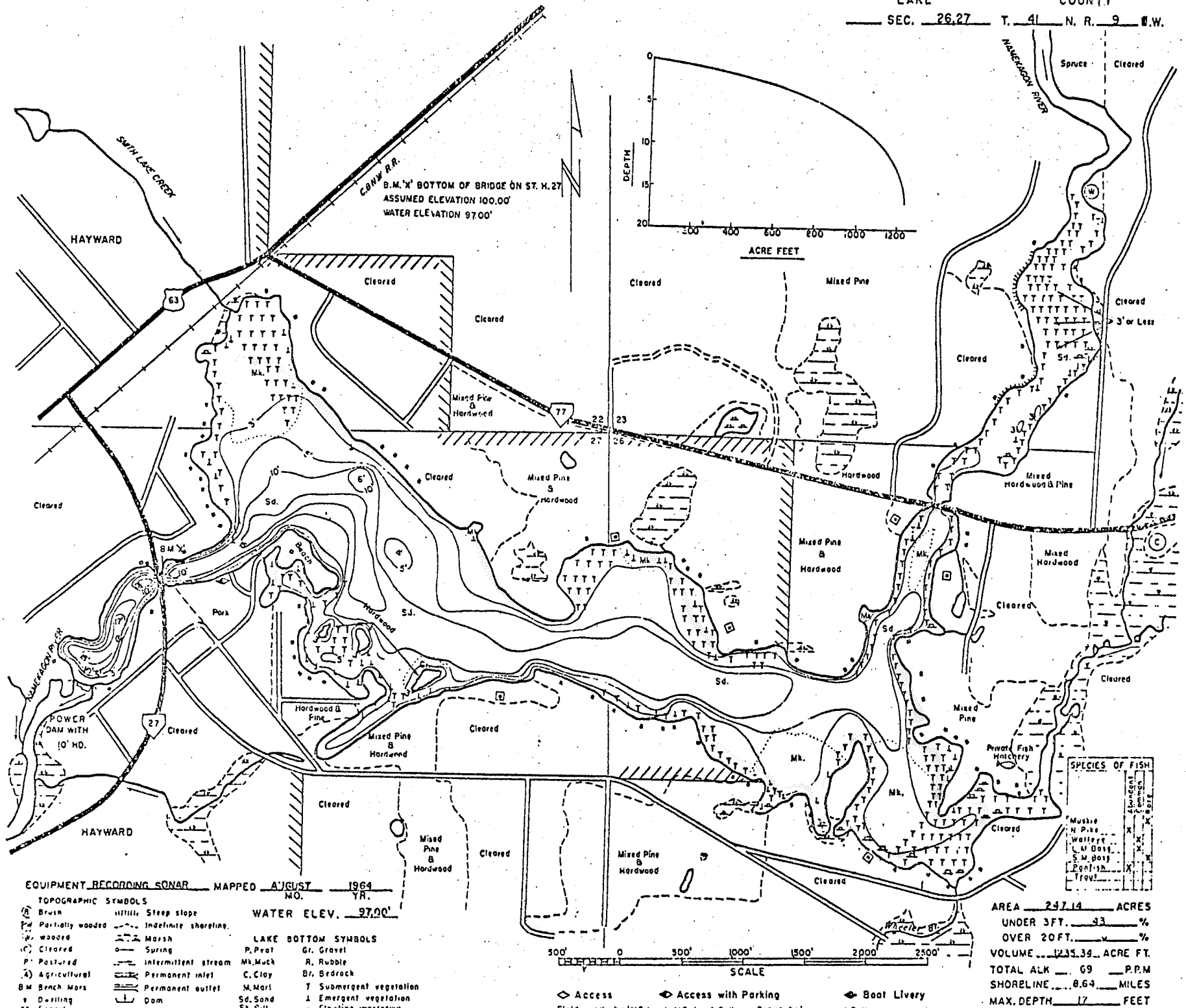
	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9				
2.5-2.9					2				26.0-26.4				
3.0-3.4					1				26.5-26.9				
3.5-3.9					1				27.0-27.4				
4.0-4.4							1		27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9				
5.5-5.9							1		29.0-29.4				
6.0-6.4									29.5-29.9				
6.5-6.9	1				1				30.0-30.4				
7.0-7.4					3		1		30.5-30.9				
7.5-7.9									31.0-31.4				
8.0-8.4	1								31.5-31.9				
8.5-8.9	2				1				32.0-32.4	1			
9.0-9.4	5								32.5-32.9				
9.5-9.9	3								33.0-33.4				
10.0-10.4	5								33.5-33.9				
10.5-10.9	2		1						34.0-34.4				
11.0-11.4	2				1				34.5-34.9				
11.5-11.9	2		1		1				35.0-35.4				
12.0-12.4	3				3				35.5-35.9				
12.5-12.9					2		2		36.0-36.4				
13.0-13.4	2								36.5-36.9				
13.5-13.9	1				1				37.0-37.4				
14.0-14.4	1								37.5-37.9				
14.5-14.9	1								38.0-38.4				
15.0-15.4					1				38.5-38.9				
15.5-15.9	1								39.0-39.4				
16.0-16.4									39.5-39.9				
16.5-16.9	1								40.0-40.4				
17.0-17.4									40.5-40.9				
17.5-17.9									41.0-41.4				
18.0-18.4									41.5-41.9			1	
18.5-18.9									42.0-42.4				
19.0-19.4									42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9									44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4									45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9			1	
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
Totals:	34	0	4	0	18	0	5	0	50.0+				

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- Pt Partially wooded
- W wooded
- (C) Cleared
- P Pastured
- (A) Agricultural
- BM Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- ⊥ Emergent vegetation
- Floating vegetation

SCALE: 500' 0 500' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H Schmude, M Perkins, L Sather Drawn by: J Roth

AREA 247.14 ACRES
UNDER 3FT. 93 %
OVER 20FT. — %
VOLUME 1235.39 ACRE FT.
TOTAL ALK 69 P.P.M
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Sawyer	Hayward	MWBC: 2725500
Sampling Objective	**Number and Locations of Stations (Habitat)**	
Walleye Recruitment Survey		Source
Period Fished (Dates)	Miles Actually Shocked = 5.4	LM
09/29/99	Acres = 247	LM
	Total Miles of Shoreline = 8.6	LM
	Total Miles of Shockable Shoreline = 8.6	LM

GEAR

Boomshocker (Hours)	Time	
2.0	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code: C-ST
Dip Netter(s): 1	Dip Netter(s):	

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	1		7.7	0.50 / hour	0.19 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	*		-	/ hour	/ mile
Walleye (Other)	14	None	9.1 - 15.4	7.00 / hour	2.59 / mile
Smallmouth Bass	0	None	-	0.00 / hour	0.00 / mile
Largemouth Bass	16	None	5.5 - 16.4	8.00 / hour	2.96 / mile
Muskellunge	2	None	18.0 - 20.9	1.00 / hour	0.37 / mile
Northern Pike	27	10.5-10.9	6.5 - 31.4	13.50 / hour	5.00 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
Yellow Perch (incidental)	Common	6.7-10.0			

) Tank Mortality: None

2) Weather: Mostly Cloudy, Cool

3) Reliabilty: Medium

) Stocking: 2470 Walleye, 6.4", 08/30/99, WDNR

Comments: *Age 1+ Walleye included with Other Walleye; no ageing available.

ev. 10-70

Signed (Compiler) Scott D. Plaster

Date 03/09/00

WDNR Comments

of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191

8-95

Hayward MWB Code: 2725500 Date: 09/29/99 County: Sawyer Collector(s): Plaster

get Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 53°F Station: Portion of Shoreline

dverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 5.4 miles

Volts: 175 Amps: 4 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:45 Shocking End Time: 22:20 Generator Start Hour: 320.7 Generator End Hour: 322.7

Number of Dippers: [X]1 [ ]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: 6 ft.

inches	Unclipped	Clipped	inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			7.2			11.5		
3.0			7.3			11.6	1	
3.1			7.4			11.7		
3.2			7.5			11.8		
3.3			7.6			11.9	1	
3.4			7.7	1		12.0-12.4	2	
3.5			7.8			12.5-12.9		
3.6			7.9			13.0-13.4		
3.7			8.0			13.5-13.9		
3.8			8.1			14.0-14.4	3	
3.9			8.2			14.5-14.9		
4.0			8.3			15.0-15.4	1	
4.1			8.4			15.5-15.9		
4.2			8.5			16.0-16.4		
4.3			8.6			16.5-16.9		
4.4			8.7			17.0-17.4		
4.5			8.8			17.5-17.9		
4.6			8.9			18.0-18.4		
4.7			9.0			18.5-18.9		
4.8			9.1	1		19.0-19.4		
4.9			9.2	1		19.5-19.9		
5.0			9.3	1		20.0-20.4		
5.1			9.4			20.5-20.9		
5.2			9.5			21.0-21.4		
5.3			9.6			21.5-21.9		
5.4			9.7			22.0-22.4		
5.5			9.8			22.5-22.9		
5.6			9.9			23.0-23.4		
5.7			10.0			23.5-23.9		
5.8			10.1			24.0-24.4		
5.9			10.2			24.5-24.9		
6.0			10.3			25.0-25.4		
6.1			10.4			25.5-25.9		
6.2			10.5	1		26.0-26.4		
6.3			10.6	2		26.5-26.9		
6.4			10.7			27.0-27.4		
6.5			10.8			27.5-27.9		
6.6			10.9			28.0-28.4		
6.7			11.0			28.5-28.9		
6.8			11.1			29.0-29.4		
6.9			11.2			29.5-29.9		
7.0			11.3			30.0 +		
7.1			11.4			**Totals:**	**15**	**0**

WALLEYE

WDNR Comments

nt of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186

8-95

Hayward MWB Code: 2725500 Date: 09/29/99 County: Sawyer Collector(s): Plaster

get Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 53°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 5.4 miles

Volts: 175 Amps: 4 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 19:45 Shocking End Time: 22:20 Generator Start Hour: 320.7 Generator End Hour: 322.7

Number of Dippers: [X]1 [ ]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: 6 ft.

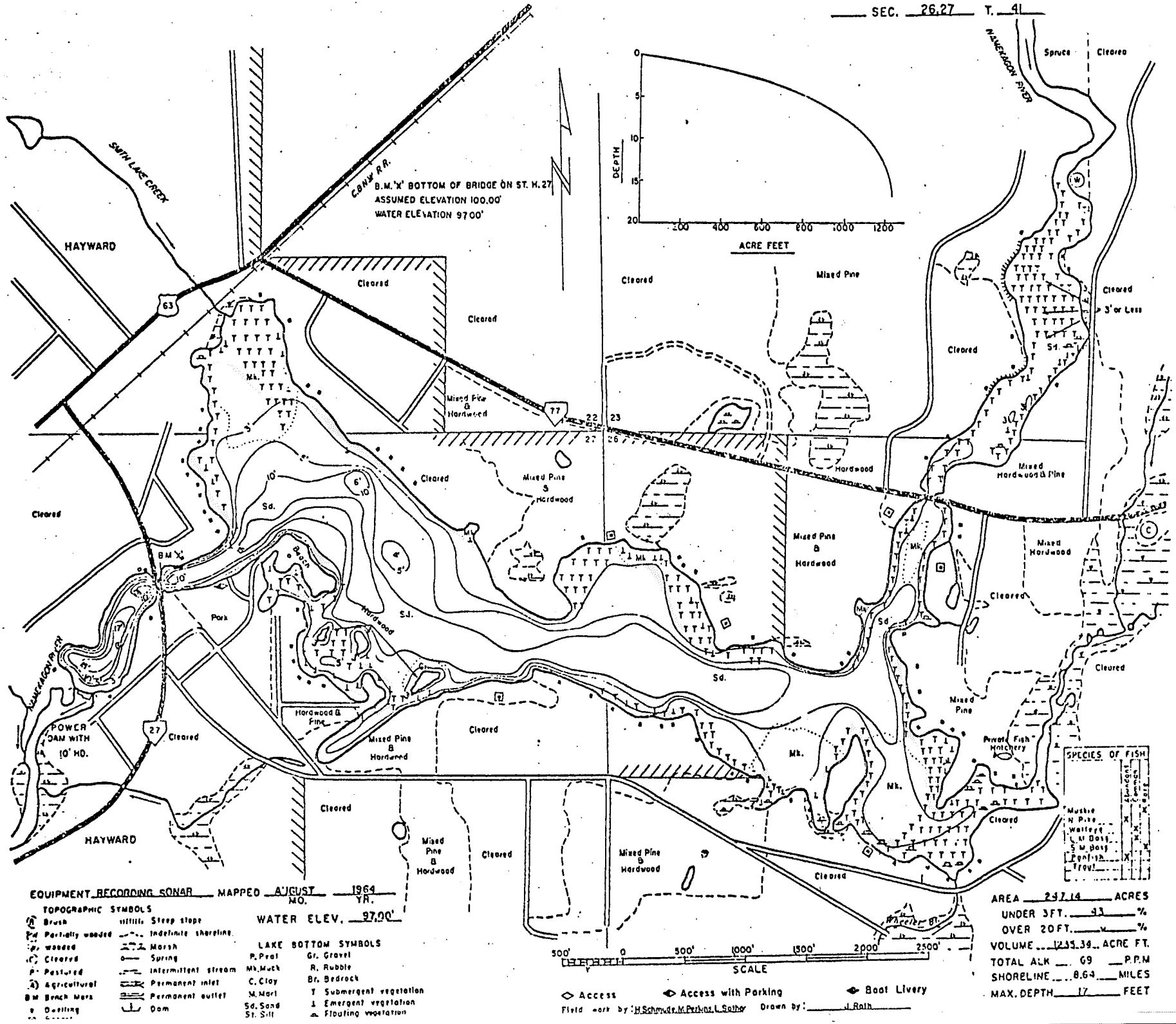
	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4									26.5-26.9				
3.5-3.9									27.0-27.4				
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9				
5.5-5.9					1				29.0-29.4				
6.0-6.4					1				29.5-29.9				
6.5-6.9	1				1				30.0-30.4	1			
7.0-7.4									30.5-30.9				
7.5-7.9	1								31.0-31.4	1			
8.0-8.4									31.5-31.9				
8.5-8.9									32.0-32.4				
9.0-9.4	1				1				32.5-32.9				
9.5-9.9					1				33.0-33.4				
10.0-10.4	1				3				33.5-33.9				
10.5-10.9	4				1				34.0-34.4				
11.0-11.4	3				1				34.5-34.9				
11.5-11.9					1				35.0-35.4				
12.0-12.4	1								35.5-35.9				
12.5-12.9	3								36.0-36.4				
13.0-13.4	1				1				36.5-36.9				
13.5-13.9	1								37.0-37.4				
14.0-14.4	1				1				37.5-37.9				
14.5-14.9	1								38.0-38.4				
15.0-15.4	1				1				38.5-38.9				
15.5-15.9									39.0-39.4				
16.0-16.4					2				39.5-39.9				
16.5-16.9									40.0-40.4				
17.0-17.4									40.5-40.9				
17.5-17.9	2								41.0-41.4				
18.0-18.4			1						41.5-41.9				
18.5-18.9									42.0-42.4				
19.0-19.4	1								42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9	1		1						44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4	1								45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
Totals:	27	0	2	0	16	0	0	0	50.0+				

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE

SEC. 26,27 T. 41



EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964
MO. YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- Brush
- Partially wooded
- Wooded
- Cleared
- Pastured
- Agricultural
- Beach Mark
- Dwelling
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmude, M. Perlyn, L. Sather Drawn by: J. Roth

AREA 247.14 ACRES
UNDER 3FT. 93 %
OVER 20FT. — %
VOLUME 1235.39 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Sawyer	Hayward	MWBC: 2725500
Sampling Objective: Walleye Recruitment Survey	Number and Locations of Stations (Habitat)	Source
Period Fished (Dates): 09/25/00	Miles Actually Shocked = 7.0	LM
	Acres = 247	LM
	Total Miles of Shoreline = 8.6	LM
	Total Miles of Shockable Shoreline = 8.6	LM

GEAR

Boomshocker (Hours)	Time	
2.5	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	**Time of Day**	**Trap Net (No. of Net Lifts)**	**Mesh Size**	**Depth**
Minnow Seine (No. of Hauls)	**Area Covered**	**Gill Net (No. of Feet x No. of Lifts)**	**Mesh Size**	**Depth**

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-NR
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	20	None	6.6 - 8.8	8.00 / hour	2.86 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	2	None	10.4	0.80 / hour	0.29 / mile
Walleye (Other)	21	None	12.0 - 26.4	8.40 / hour	3.00 / mile
Smallmouth Bass	3	None	11.0 - 16.9	1.20 / hour	0.43 / mile
Largemouth Bass	18	3.5-3.9	3.0 - 16.9	7.20 / hour	2.57 / mile
Muskellunge	8	11.5-11.9	8.5 - 13.4	3.20 / hour	1.14 / mile
Northern Pike	39	None	5.0 - 35.4	15.60 / hour	5.57 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range

1) Tank Mortality: None

2) Weather: Clear, Calm, Cold

3) Reliabilty: Medium

4) Stocking: 124 Muskellunge, 12 inches, 09/14, WDNR

2470 Walleye, 7.5 inches, 09/20, WDNR

5) Comments:

Rev. 10-70

Signed (Compiler) Scott D. Plaster

Date 12/01/00

WDNR Comments

/epartment of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/25/00 County: Sawyer Collector(s): Pratt, Tobias, Warwick

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 63°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 7.0 miles

Volts: 175 Amps: 4 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:00 Shocking End Time: 23:26 Generator Start Hour: 378.6 Generator End Hour: 381.1

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

inches	Unclipped	Clipped	inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			7.2	1		11.5		
3.0			7.3	2		11.6		
3.1			7.4			11.7		
3.2			7.5			11.8		
3.3			7.6	3		11.9		
3.4			7.7			12.0-12.4	3	
3.5			7.8	1		12.5-12.9	2	
3.6			7.9			13.0-13.4		
3.7			8.0	1		13.5-13.9	1	
3.8			8.1	2		14.0-14.4	1	
3.9			8.2	1		14.5-14.9	1	
4.0			8.3			15.0-15.4	3	
4.1			8.4			15.5-15.9	1	
4.2			8.5			16.0-16.4	1	
4.3			8.6			16.5-16.9		
4.4			8.7			17.0-17.4	2	
4.5			8.8	1		17.5-17.9		
4.6			8.9			18.0-18.4		
4.7			9.0			18.5-18.9	2	
4.8			9.1			19.0-19.4	2	
4.9			9.2			19.5-19.9		
5.0			9.3			20.0-20.4		
5.1			9.4			20.5-20.9		
5.2			9.5			21.0-21.4		
5.3			9.6			21.5-21.9		
5.4			9.7			22.0-22.4		
5.5			9.8			22.5-22.9		
5.6			9.9			23.0-23.4	1	
5.7			10.0			23.5-23.9		
5.8			10.1			24.0-24.4		
5.9			10.2			24.5-24.9		
6.0			10.3			25.0-25.4		
6.1			10.4	2		25.5-25.9		
6.2			10.5			26.0-26.4	1	
6.3			10.6			26.5-26.9		
6.4			10.7			27.0-27.4		
6.5			10.8			27.5-27.9		
6.6	1		10.9			28.0-28.4		
6.7			11.0			28.5-28.9		
6.8	1		11.1			29.0-29.4		
6.9			11.2			29.5-29.9		
7.0	3		11.3			30.0 +		
7.1	3		11.4			**Totals:**	**43**	**0**

WALLEYE

WDNR Comments

partment of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/25/00 County: Sawyer Collector(s): Pratt, Tobias, Warwick

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 63°F Station: Portion of Shoreline

Adverse Conditions: Aquatic vegetation Gear Type: Boomshocker Distance Shocked: 7.0 miles

Volts: 175 Amps: 4 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:00 Shocking End Time: 23:26 Generator Start Hour: 378.6 Generator End Hour: 381.1

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9	1			
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9	1			
2.5-2.9									26.0-26.4				
3.0-3.4					1				26.5-26.9				
3.5-3.9					3				27.0-27.4				
4.0-4.4					2				27.5-27.9	1			
4.5-4.9									28.0-28.4	1			
5.0-5.4	1								28.5-28.9				
5.5-5.9	1								29.0-29.4				
6.0-6.4									29.5-29.9				
6.5-6.9	1								30.0-30.4				
7.0-7.4	2								30.5-30.9				
7.5-7.9									31.0-31.4	1			
8.0-8.4	2				1				31.5-31.9				
8.5-8.9			1						32.0-32.4				
9.0-9.4			1		1				32.5-32.9				
9.5-9.9			1		2				33.0-33.4				
10.0-10.4	2				1				33.5-33.9				
10.5-10.9	3		1						34.0-34.4				
11.0-11.4	2				1		1		34.5-34.9				
11.5-11.9	3		3		1				35.0-35.4	1			
12.0-12.4									35.5-35.9				
12.5-12.9									36.0-36.4				
13.0-13.4	2		1		1				36.5-36.9				
13.5-13.9									37.0-37.4				
14.0-14.4					2				37.5-37.9				
14.5-14.9	1								38.0-38.4				
15.0-15.4					1		1		38.5-38.9				
15.5-15.9									39.0-39.4				
16.0-16.4									39.5-39.9				
16.5-16.9	1				1		1		40.0-40.4				
17.0-17.4	1								40.5-40.9				
17.5-17.9									41.0-41.4				
18.0-18.4									41.5-41.9				
18.5-18.9	1								42.0-42.4				
19.0-19.4	3								42.5-42.9				
19.5-19.9	1								43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9	2								44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9	1								45.0-45.4				
22.0-22.4	1								45.5-45.9				
22.5-22.9	1								46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9	1								48.0-48.9				
24.0-24.4									49.0-49.9				
Totals:	39	0	8	0	18	0	3	0	50.0+				

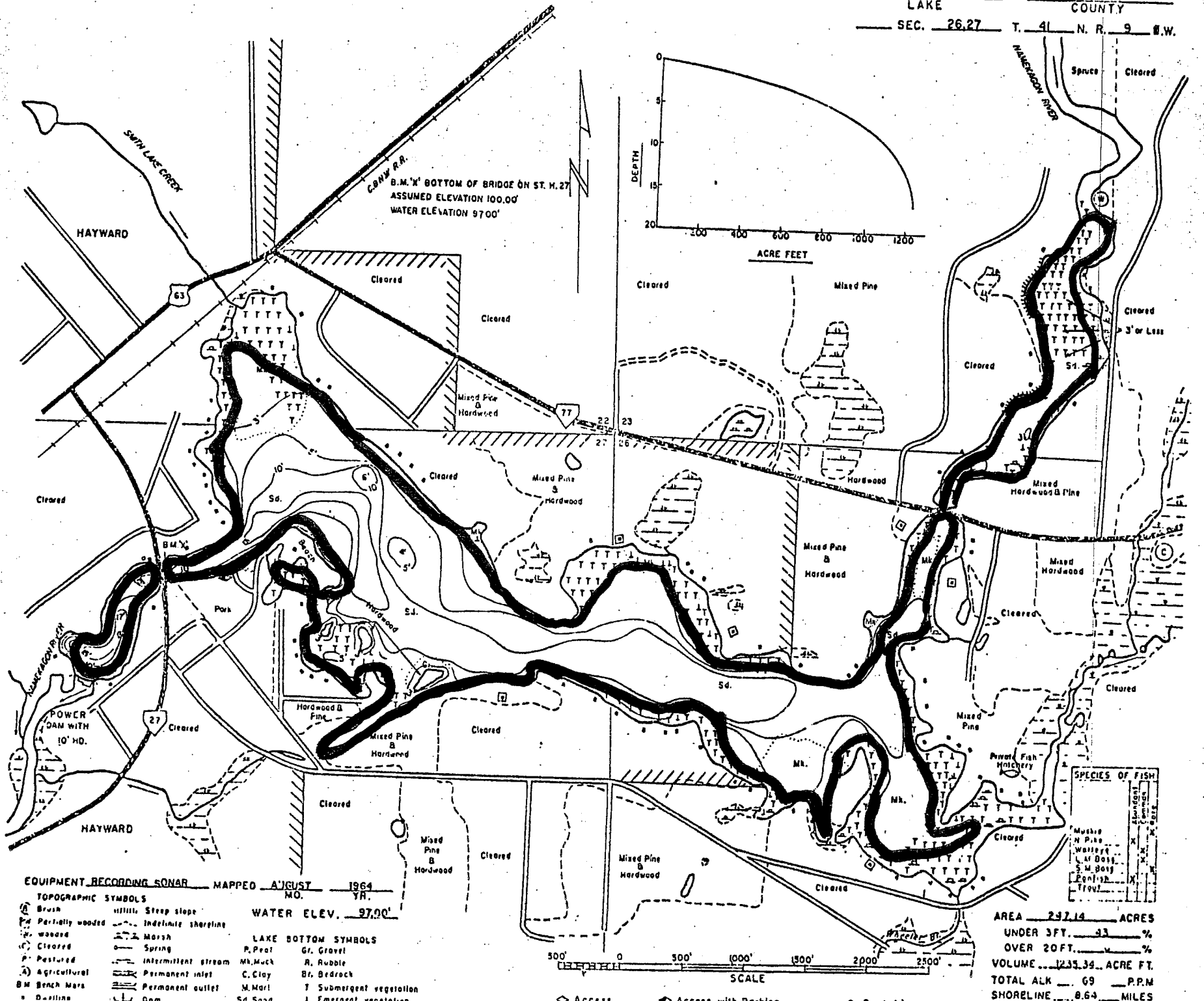
GAMEFISH

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



EQUIPMENT RECORDING SONAR — MAPPED AUGUST MO. 1964 YR.

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

Brush; Partially wooded; Wooded; Cleared; Pastured; Agricultural; BM Bench Mark; Building; Steep slope; Indefinite shoreline; Marsh; Spring; Intermittent stream; Permanent inlet; Permanent outlet; Dam

LAKE BOTTOM SYMBOLS

P. Peat; Mk. Muck; C. Clay; M. Marl; Sd. Sand; Gr. Gravel; R. Rubble; Br. Bedrock; T Submergent vegetation; ⊥ Emergent vegetation

SCALE 500' 0 300' 1000' 1500' 2000' 2500'

◇ Access ◆ Access with Parking ◆ Boat Livery

SPECIES OF FISH

Muskie; N. Pike; Walleye; L.M. Bass; S.M. Bass; Panfish; Trout

AREA 297.14 ACRES

UNDER 3 FT. 93 %

OVER 20 FT. — %

VOLUME 1235.34 ACRE FT.

TOTAL ALK. 69 P.P.M.

SHORELINE 8.64 MILES

MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

Sheet____of____

TAG

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET

WALLEYE

9/25/00

Wisconsin Department of Natural Resources

Waterbody Name: Lk Hay Wat 9
MWB Code/WBIC:
Waterbody Type:
County:
Date (MM/DD/YY):
Station:
Start Time:
End Time:
Collectors:

Target Fish: Juvenile Walleye
Mark(s) Given: None
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather:
Adverse Conditions:
Water Temperature:
Water Conductivity:
Water Level: [HI] [NORM] [LOW]
Water Clarity:

Generator Start Time:
Generator End Time:
Volts:
Amps:
Pulse Rate:
Duty Cycle:
Current Type: [AC] [DC] [PDC]
Distance Shocked:
Entire Shoreline Shocked: [Y] [N] [ ]
Number of Dippers: [1] [2]
Dipnet Mesh Size:

WE - Tags 2

inches	Unclipped	Clipped	inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0	TAG	TL	7.5			12.2		
3.0			7.6			12.3		
3.1	05501	26.0	7.7			12.4		
3.2	05505	23.1	7.8	Large Green Flys		12.5		
3.3	05506	19.0	7.9			12.6		
3.4	05507	18.5	8.0			12.7		
3.5	05508	14.5	8.1			12.8		
3.6	05509	15.0	8.2			12.9		
3.7	05510	17.0	8.3			13.0		
3.8	05996	13.5	8.4			13.1		
3.9	05995	15.9	8.5			13.2		
4.0	05994	16.0	8.6			13.3		
4.1	05993	14.2	8.7			13.4		
4.2	05992	19.3	8.8			13.5-13.9		
4.3	05991	15.0	8.9			14.0-14.4		
4.4	05990	17.0	9.0			14.5-14.9		
4.5	05989	15.0	9.1			15.0-15.4		
4.6			9.2			15.5-15.9		
4.7			9.3			16.0-16.4		
4.8			9.4			16.5-16.9		
4.9			9.5			17.0-17.4		
5.0			9.6			17.5-17.9		
5.1			9.7			18.0-18.4		
5.2			9.8			18.5-18.9		
5.3			9.9			19.0-19.4		
5.4			10.0			19.5-19.9		
5.5			10.1			20.0-20.4		
5.6			10.2			20.5-20.9		
5.7			10.3			21.0-21.4		
5.8			10.4			21.5-21.9		
5.9			10.5			22.0-22.4		
6.0			10.6			22.5-22.9		
6.1			10.7			23.0-23.4		
6.2			10.8			23.5-23.9		
6.3			10.9			24.0-24.4		
6.4			11.0			24.5-24.9		
6.5			11.1			25.0-25.4		
6.6			11.2			25.5-25.9		
6.7			11.3			26.0-26.4		
6.8			11.4			26.5-26.9		
6.9			11.5			27.0-27.4		
7.0			11.6			27.5-27.9		
7.1			11.7			28.0-28.4		
7.2			11.8			28.5-28.9		
7.3			11.9			29.0-29.4		
7.4			12.0			29.5-29.9		
TOTALS:			12.1			30.0+		

WDNR Comments

Sheet ___ of ___

2.5 hrs.

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET — GAMEFISH — Wisconsin Department of Natural Resources

Waterbody Name: Lake Hayward
WBIC: 2725500
Waterbody Type: DNR
County: Sawyer
Date (MM/DD/YY): 09/25/2000
Station: All
Start Time: 20:00
End Time: 23:26
Collectors: Pratt, Tobias, Warwick

Target Fish: Juvenile Walleye
Mark(s) Given: ~~Adipose~~ Fin Clip
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: Clear, Calm, Cold
Adverse Conditions: Heavy weed growth
Water Temperature: ___ °F
Water Conductivity: Mod
Water Level: [HI] (NORM) [LOW]
Water Clarity: Mod.

Generator Start Time: 378.6
Generator End Time: 381.1
Volts: 175
Amps: 4.0
~~Pulse Rate~~:
~~Duty Cycle~~:
Current Type: (AC) ~~DC~~ ~~PDC~~
Distance Shocked: 6.6 mi
Entire Shoreline Shocked: (Y) [N] [I]
Number of Dippers: [1] (2)
Dipnet Mesh Size: 3/16

inches	Northern Pike Unclipped	Northern Pike Clipped	Muskellunge Unclipped	Muskellunge Clipped	Largemouth Bass Unclipped	Largemouth Bass Clipped	Smallmouth Bass Unclipped	Smallmouth Bass Clipped	inches	Northern Pike Unclipped	Northern Pike Clipped	Muskellunge Unclipped	Muskellunge Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4									26.5-26.9				
3.5-3.9									27.0-27.4				
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4									28.5-28.9				
5.5-5.9									29.0-29.4				
6.0-6.4									29.5-29.9				
6.5-6.9									30.0-30.4				
7.0-7.4									30.5-30.9				
7.5-7.9									31.0-31.4				
8.0-8.4									31.5-31.9				
8.5-8.9									32.0-32.4				
9.0-9.4									32.5-32.9				
9.5-9.9									33.0-33.4				
10.0-10.4									33.5-33.9				
10.5-10.9									34.0-34.4				
11.0-11.4									34.5-34.9				
11.5-11.9									35.0-35.4				
12.0-12.4									35.5-35.9				
12.5-12.9									36.0-36.4				
13.0-13.4									36.5-36.9				
13.5-13.9									37.0-37.4				
14.0-14.4									37.5-37.9				
14.5-14.9									38.0-38.4				
15.0-15.4									38.5-38.9				
15.5-15.9									39.0-39.4				
16.0-16.4									39.5-39.9				
16.5-16.9									40.0-40.4				
17.0-17.4									40.5-40.9				
17.5-17.9									41.0-41.4				
18.0-18.4									41.5-41.9				
18.5-18.9									42.0-42.4				
19.0-19.4									42.5-42.9				
19.5-19.9									43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9									44.0-44.4				
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4									45.5-45.9				
22.5-22.9									46.0-46.9				
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4									49.0-49.9				
TOTALS			8 Mu				3 SmB		50.0+				

39 NP

WDNR Comments

Sheet ____ of ____

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET 9/28/10 **WALLEYE**

Wisconsin Department of Natural Resources

Waterbody Name: Hayward
MWB Code/WBIC: ____
Waterbody Type: Flowage
County: ____
Date (MM/DD/YY): ____
Station: ____
Start Time: ____
End Time: ____
Collectors: ____

Target Fish: ____
Mark(s) Given: None
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: ____
Adverse Conditions: ____
Water Temperature: ____
Water Conductivity: ____
Water Level: [HI] [NORM] [LOW]
Water Clarity: ____

Generator Start Time: ____
Generator End Time: ____
Volts: ____
Amps: ____
Pulse Rate: ____
Duty Cycle: ____
Current Type: [AC] [DC] [PDC]
Distance Shocked: ____
Entire Shoreline Shocked: [Y] [N] [ ]
Number of Dippers: [1] [2]
Dipnet Mesh Size: ____

GREEN TAG

inches	TAG #	LENGTH	inches		inches	
<3.0	TAG #	LENGTH	7.5		12.2	
3.0			7.6	* Recap 5596	12.3	
3.1	5988	15.2	7.7	" 5595 13.5	12.4	
3.2	5987	19.5	7.8		12.5	
3.3	5986	14.3	7.9	2 Recaps	12.6	
3.4	5985	12.3	8.0		12.7	
3.5	5984	14.1	8.1		12.8	
3.6	5983	15.4	8.2		12.9	
3.7	5982	13.8	8.3		13.0	
3.8	5981	16.2	8.4		13.1	
3.9	5980	14.3	8.5		13.2	
4.0	3979	12.7	8.6		13.3	
4.1			8.7		13.4	
4.2			8.8		13.5-13.9	
4.3	10 new		8.9		14.0-14.4	
4.4			9.0		14.5-14.9	
4.5	tags		9.1		15.0-15.4	
4.6			9.2		15.5-15.9	
4.7			9.3		16.0-16.4	
4.8			9.4		16.5-16.9	
4.9			9.5		17.0-17.4	
5.0			9.6		17.5-17.9	
5.1			9.7		18.0-18.4	
5.2			9.8		18.5-18.9	
5.3			9.9		19.0-19.4	
5.4			10.0		19.5-19.9	
5.5			10.1		20.0-20.4	
5.6			10.2		20.5-20.9	
5.7			10.3		21.0-21.4	
5.8			10.4		21.5-21.9	
5.9			10.5		22.0-22.4	
6.0			10.6		22.5-22.9	
6.1			10.7		23.0-23.4	
6.2			10.8		23.5-23.9	
6.3			10.9		24.0-24.4	
6.4			11.0		24.5-24.9	
6.5			11.1		25.0-25.4	
6.6			11.2		25.5-25.9	
6.7			11.3		26.0-26.4	
6.8			11.4		26.5-26.9	
6.9			11.5		27.0-27.4	
7.0			11.6		27.5-27.9	
7.1			11.7		28.0-28.4	
7.2			11.8		28.5-28.9	
7.3			11.9		29.0-29.4	
7.4			12.0		29.5-29.9	
TOTALS:			12.1		30.0+	

WDNR Comments

Sheet 1 of 1

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET — **WALLEYE** — Wisconsin Department of Natural Resources

Waterbody Name: Howard
MWB Code/WBIC: 2072500
Waterbody Type: Impoundment
County: Sawyer
Date (MM/DD/YY): 9/29/2000
Station: NW - Pontoon
Start Time: 20:00
End Time: 23:00
Collectors: Pratt, Tobias, Stowell (Elk Guy)

Target Fish: Juvenile Walleye
Mark(s) Given: ~~None~~ Floy
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: Clear, Cool
Adverse Conditions: None
Water Temperature: 50°F
Water Conductivity: Mod
Water Level: [HI] [NORM] [LOW]
Water Clarity: Clear

Generator Start Time: 384.9
Generator End Time: 387.1
Volts: 150
Amps: 4
~~Pulse Rate~~:
~~Duty Cycle~~:
Current Type: [AC] ~~[DC]~~ [PDC]
Distance Shocked: 4.5
Entire Shoreline Shocked: [Y] [N] [ ]
Number of Dippers: [1] [2]
Dipnet Mesh Size: 3/16

Whole shoreline between bridges

inches		inches		inches	
<3.0		7.5		12.2	
3.0		7.6	1	12.3	1
3.1		7.7	stocked	12.4	
3.2		7.8	1 17 Feb	12.5	
3.3		7.9	1 yoy	12.6	
3.4		8.0		12.7	
3.5		8.1		12.8	
3.6		8.2	1	12.9	
3.7		8.3		13.0	
3.8		8.4	1	13.1	
3.9		8.5	1	13.2	
4.0		8.6	1	13.3	
4.1		8.7		13.4	
4.2		8.8		13.5-13.9	1
4.3		8.9		14.0-14.4	11
4.4		9.0	1	14.5-14.9	
4.5		9.1		15.0-15.4	111
4.6		9.2		15.5-15.9	
4.7		9.3		16.0-16.4	
4.8		9.4		16.5-16.9	
4.9		9.5	1	17.0-17.4	
5.0		9.6		17.5-17.9	
5.1		9.7		18.0-18.4	
5.2		9.8		18.5-18.9	
5.3		9.9		19.0-19.4	
5.4		10.0	1	19.5-19.9	1
5.5		10.1		20.0-20.4	
5.6		10.2	21	20.5-20.9	
5.7		10.3		21.0-21.4	
5.8		10.4		21.5-21.9	
5.9	1	10.5		22.0-22.4	
6.0		10.6		22.5-22.9	
6.1		10.7		23.0-23.4	
6.2		10.8		23.5-23.9	
6.3	11	10.9	1	24.0-24.4	
6.4		11.0		24.5-24.9	
6.5		11.1		25.0-25.4	
6.6	1	11.2	1	25.5-25.9	
6.7	1	11.3		26.0-26.4	
6.8		11.4		26.5-26.9	
6.9		11.5		27.0-27.4	
7.0		11.6		27.5-27.9	
7.1	1	11.7		28.0-28.4	
7.2	1	11.8		28.5-28.9	
7.3		11.9		29.0-29.4	
7.4	1111	12.0		29.5-29.9	
TOTALS:		12.1		30.0+	

WALLEYE

31 WE 40

WDNR Comments

Sheet 2 of 2

FALL GAMEFISH ELECTROFISHING DATA COLLECTION SHEET

GAMEFISH

Wisconsin Department of Natural Resources

Waterbody Name: Hayward
MWB Code/WBIC: 27B 5500
Waterbody Type: Impoundment
County: County
Date (MM/DD/YY): 09/27/2000
Station:
Start Time: 22:00
End Time: ~2136
Collectors: Part of at

Target Fish: Juvenile Walleye
Mark(s) Given: None
Survey Type: CPE (Fall Shoreline)
Gear Type: Boomshocker
Weather: Clear
Adverse Conditions: Wind
Water Temperature: 57 °F
Water Conductivity: Med
Water Level: [HI] (NORM) [LOW]
Water Clarity: Clear

Generator Start Time: 384.9
Generator End Time: 387.1
Volts: 150
Amps: 9
Pulse Rate:
Duty Cycle:
Current Type: (AC) [DC] [PDC]
Distance Shocked: 4.5
Entire Shoreline Shocked: [Y] (N) [1]
Number of Dippers: [1] (2)
Dipnet Mesh Size: 3/8"

→ Main basin between bridges

inches	Northern Pike	Muskellunge	Largemouth Bass	Smallmouth Bass	inches	Northern Pike	Muskellunge
<1.5					24.5-24.9		
1.5-1.9					25.0-25.4		
2.0-2.4					25.5-25.9		
2.5-2.9					26.0-26.4		
3.0-3.4					26.5-26.9		
3.5-3.9					27.0-27.4		
4.0-4.4					27.5-27.9		
4.5-4.9					28.0-28.4		
5.0-5.4	1				28.5-28.9		
5.5-5.9					29.0-29.4		
6.0-6.4					29.5-29.9		
6.5-6.9					30.0-30.4		
7.0-7.4	1				30.5-30.9		
7.5-7.9			11		31.0-31.4		
8.0-8.4	1		1		31.5-31.9		
8.5-8.9				1	32.0-32.4		
9.0-9.4		1	111	1	32.5-32.9		
9.5-9.9			11		33.0-33.4		
10.0-10.4	1		1		33.5-33.9		
10.5-10.9	1	1	110		34.0-34.4		
11.0-11.4	11		11		34.5-34.9		
11.5-11.9	1		1111		35.0-35.4		
12.0-12.4	1		111		35.5-35.9		
12.5-12.9	11	11			36.0-36.4		
13.0-13.4			11		36.5-36.9		
13.5-13.9	1		11		37.0-37.4		
14.0-14.4			1		37.5-37.9		
14.5-14.9	11				38.0-38.4		
15.0-15.4				1	38.5-38.9		
15.5-15.9	11		11		39.0-39.4		
16.0-16.4			1		39.5-39.9		
16.5-16.9					40.0-40.4		
17.0-17.4	1				40.5-40.9		
17.5-17.9			111		41.0-41.4		
18.0-18.4	1				41.5-41.9		
18.5-18.9					42.0-42.4		
19.0-19.4	1				42.5-42.9		
19.5-19.9			1		43.0-43.4		
20.0-20.4					43.5-43.9		
20.5-20.9					44.0-44.4		1
21.0-21.4					44.5-44.9		
21.5-21.9					45.0-45.4		
22.0-22.4	1				45.5-45.9		
22.5-22.9					46.0-46.9		1
23.0-23.4					47.0-47.9		
23.5-23.9					48.0-48.9		
24.0-24.4		1			49.0-49.9		
TOTALS	20 NP	5 Musky	37 LMB	2 SMB	50.0+		1 MU

GAMEFISH

Muskies saw 1 - 45
1 - 55?

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Sawyer	Hayward	MWBC: 2725500

Sampling Objective	Number and Locations of Stations (Habitat)	Source
Walleye Recruitment Survey	Miles Actually Shocked = 5.4	LM
Period Fished (Dates)	Acres = 247	LM
09/29/00	Total Miles of Shoreline = 8.6	LM
	Total Miles of Shockable Shoreline = 8.6	LM

GEAR

Boomshocker (Hours)	Time	
2.2	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-NR
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	18	7.4	6.3 - 9.0	8.18 / hour	3.33 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	5	None	9.5 - 11.2	2.27 / hour	0.93 / mile
Walleye (Other)	8	15.0-15.4	12.0 - 19.9	3.64 / hour	1.48 / mile
Smallmouth Bass	2	None	8.5 - 15.4	0.91 / hour	0.37 / mile
Largemouth Bass	36	11.5-11.9	7.5 - 19.9	16.36 / hour	6.67 / mile
Muskellunge	7	None	9.0 - 46.4	3.18 / hour	1.30 / mile
Northern Pike	20	None	5.0 - 22.4	9.09 / hour	3.70 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range

1) Tank Mortality: None 2) Weather: Clear, Cool 3) Reliabilty: High

4) Stocking: 124 Muskellunge, 12 inches, 09/14, WDNR 2470 Walleye, 7.5 inches, 09/20, WDNR

5) Comments:

Rev. 10-70

Signed (Compiler) Scott D. Plaster Date 12/01/00

WDNR Comments

partment of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600A-191 8-95

Lake: Hayward MWB Code: 2725500 Date: 09/29/00 County: Sawyer Collector(s): Pratt, Tobias, Stowell

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 55°F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 5.4 miles

Volts: 150 Amps: 4 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:00 Shocking End Time: 23:00 Generator Start Hour: 384.9 Generator End Hour: 387.1

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

inches	Unclipped	Clipped	inches	Unclipped	Clipped	inches	Unclipped	Clipped
<3.0			7.2	1		11.5		
3.0			7.3			11.6		
3.1			7.4	4		11.7		
3.2			7.5			11.8		
3.3			7.6	1		11.9		
3.4			7.7			12.0-12.4	1	
3.5			7.8	1		12.5-12.9		
3.6			7.9	1		13.0-13.4		
3.7			8.0			13.5-13.9	1	
3.8			8.1			14.0-14.4	2	
3.9			8.2	1		14.5-14.9		
4.0			8.3			15.0-15.4	3	
4.1			8.4	1		15.5-15.9		
4.2			8.5	1		16.0-16.4		
4.3			8.6	1		16.5-16.9		
4.4			8.7			17.0-17.4		
4.5			8.8			17.5-17.9		
4.6			8.9			18.0-18.4		
4.7			9.0	1		18.5-18.9		
4.8			9.1			19.0-19.4		
4.9			9.2			19.5-19.9	1	
5.0			9.3			20.0-20.4		
5.1			9.4			20.5-20.9		
5.2			9.5	1		21.0-21.4		
5.3			9.6			21.5-21.9		
5.4			9.7			22.0-22.4		
5.5			9.8			22.5-22.9		
5.6			9.9			23.0-23.4		
5.7			10.0	1		23.5-23.9		
5.8			10.1			24.0-24.4		
5.9			10.2	1		24.5-24.9		
6.0			10.3			25.0-25.4		
6.1			10.4			25.5-25.9		
6.2			10.5			26.0-26.4		
6.3	2		10.6			26.5-26.9		
6.4			10.7			27.0-27.4		
6.5			10.8			27.5-27.9		
6.6	1		10.9	1		28.0-28.4		
6.7	1		11.0			28.5-28.9		
6.8			11.1			29.0-29.4		
6.9			11.2	1		29.5-29.9		
7.0			11.3			30.0 +		
7.1	1		11.4			**Totals:**	**31**	**0**

WALLEYE

WDNR Comments

artment of Natural Resources

GAMEFISH ELECTROFISHING DATA COLLECTION SHEET (FALL)

Form 3600F-186 8-95

ake: Hayward MWB Code: 2725500 Date: 09/29/00 County: Sawyer Collector(s): Pratt, Tobias, Stowell

Target Fish: Juvenile Walleye Survey Type: CPE Mark Given: None H20 Temperature: 55°F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 5.4 miles

Volts: 150 Amps: 4 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 20:00 Shocking End Time: 23:00 Generator Start Hour: 384.9 Generator End Hour: 387.1

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

	Northern Pike		Muskellunge		Largemouth Bass		Smallmouth Bass			Northern Pike		Muskellunge	
inches	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	Unclipped	Clipped	inches	Unclipped	Clipped	Unclipped	Clipped
<1.5									24.5-24.9				
1.5-1.9									25.0-25.4				
2.0-2.4									25.5-25.9				
2.5-2.9									26.0-26.4				
3.0-3.4									26.5-26.9				
3.5-3.9									27.0-27.4				
4.0-4.4									27.5-27.9				
4.5-4.9									28.0-28.4				
5.0-5.4	1								28.5-28.9				
5.5-5.9									29.0-29.4				
6.0-6.4									29.5-29.9				
6.5-6.9									30.0-30.4				
7.0-7.4	1								30.5-30.9				
7.5-7.9					2				31.0-31.4				
8.0-8.4	1				1				31.5-31.9				
8.5-8.9							1		32.0-32.4				
9.0-9.4			1		3				32.5-32.9				
9.5-9.9					2				33.0-33.4				
10.0-10.4	1				1				33.5-33.9				
10.5-10.9	1		1		3				34.0-34.4				
11.0-11.4	2				2				34.5-34.9				
11.5-11.9	1				7				35.0-35.4				
12.0-12.4	1				3				35.5-35.9				
12.5-12.9	2		2						36.0-36.4				
13.0-13.4					2				36.5-36.9				
13.5-13.9	1				2				37.0-37.4				
14.0-14.4					1				37.5-37.9				
14.5-14.9	2								38.0-38.4				
15.0-15.4							1		38.5-38.9				
15.5-15.9	2				2				39.0-39.4				
16.0-16.4					1				39.5-39.9				
16.5-16.9									40.0-40.4				
17.0-17.4	1								40.5-40.9				
17.5-17.9					3				41.0-41.4				
18.0-18.4	1								41.5-41.9				
18.5-18.9									42.0-42.4				
19.0-19.4	1								42.5-42.9				
19.5-19.9					1				43.0-43.4				
20.0-20.4									43.5-43.9				
20.5-20.9									44.0-44.4			1	
21.0-21.4									44.5-44.9				
21.5-21.9									45.0-45.4				
22.0-22.4	1								45.5-45.9				
22.5-22.9									46.0-46.9			1	
23.0-23.4									47.0-47.9				
23.5-23.9									48.0-48.9				
24.0-24.4			1						49.0-49.9				
Totals:	20	0	7	0	36	0	2	0	50.0+				

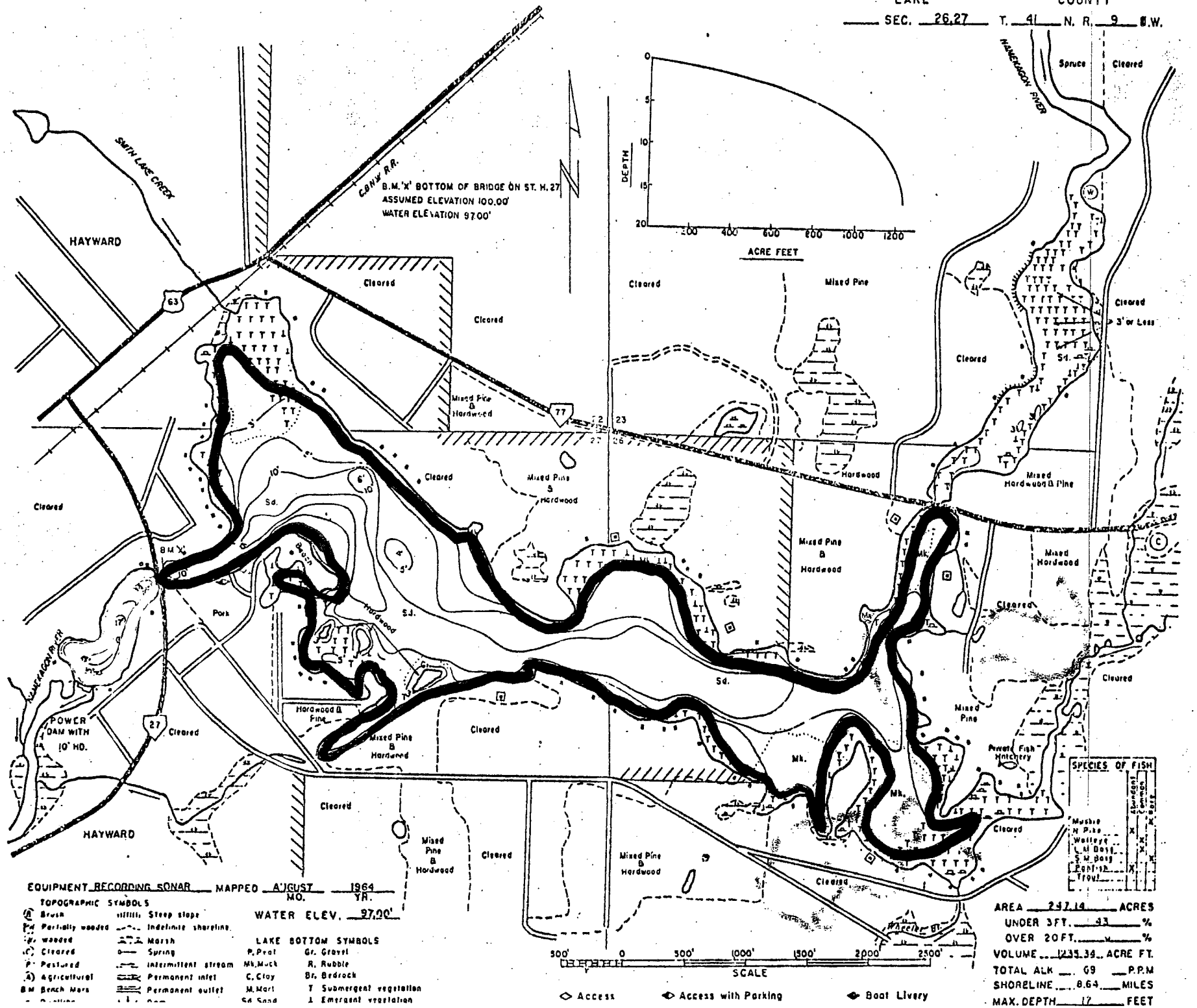
GAMEFISH

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.



WDNR Comments

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 4-92

272 5500

Lake Hayward MWB Code: 1 Date: 04/04/2000 County: Sawyer Collector: Pat Warwick Weimert

Target Fish: Walleye Survey Type: FERC W.E. Evel. Marking Mark Given: HLY Floy H_2O Temp: 4 °F Time 20:00

Adverse Conditions: Cold, Poor Access H_2O Conduct: 44 Station: Below STH 177

Volts: 230 Amps: _____ Current Type: (AC)/DC/Pulsed ~~DC) Pulse Rate:~~ _____ ~~Duty Cycle:~~ _____

Gear Type: Boom shocker Start Time: 338.3 End Time: 340.5 Distance Shocked: _____ miles

# of Dippers: (1)(2) Entire Shoreline Shocked: (Y)N/I) Dip net mesh size: 4' H_2O Clarity: (Clear/Turbid/Very Turbid)

* Except for above STH 77

Walleye — Tossins

Inches	Male	Female	Unkwn	Imm.			Floy	Sex	TL
4.4 - 4.4									
4.5 - 4.9				(2)					
5.0 - 5.4				IIII R	3 + 1R				
5.5 - 5.9				II (2)	2 + 0R				
6.0 - 6.4				III (3) R	3 + 1R				
6.5 - 6.9				III (3) R	3 + 1R				
7.0 - 7.9				IIII RR	5 + 2R				
7.5 - 7.9				IIII RR	7 + 2R				
8.0 - 8.4				IIII RR	7 + 2R				
8.5 - 8.9				IIII	6 + 0R				
9.0 - 9.4				I R	1 + 1R				
9.5 - 9.9				IIII	4		Mu	46.0	
10.0-10.4				II	2				
10.5-10.9				II RRR	2 + 3R		SMB	20.1	
11.0-11.4				III RRR	3 + 3R		SMB	14.0	
11.5-11.9				III	3		LMB	15.4	
12.0-12.4				IIII	5		SMB	13.5	
12.5-12.9				II	2		SMB	15.0	
13.0-13.4							LMB	15.3	
13.5-13.9			1		61 + 16 Recaps		SMB	13.2	
14.0-14.4			1						
14.5-14.9					77 C		BC	P	
15.0-15.4							BG	P	
15.5-15.9					Immature		NP	P	
16.0-16.4		II					YP	A	
16.5-16.9	I						WS	C	
17.0-17.4							RH	P	
17.5-17.9		R							
18.0-18.4							NP	C	
18.5-18.9							Mu	P	
19.0-19.4							NHS	P	
19.5-19.9		II					Lamprey	P	
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4	Male	Female							
24.5-24.9	1	4+1R	Unknown sex 3						
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9									

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

WDNR Comments

Department of Natural Resources

~~S~~ 3553
E 3580

→ Recap 2

STATION FISH SAMPLING SUMMARY
Form 3600-57

STREAM		INVESTIGATOR	
Lake Hayward - FERC Evaluation		Pratt, Wonwick, Weinert	

Area Sampled:	LENGTH	WIDTH	AREA (ACRES)	STATION NO.	NO. PER ACRE	DATE
						4-08-2000

SIZE RANGE	SPECIES: Walleye Unmarked	Recap	Sm B	L Bass	N.P	MU
1			8.0	9.5	31.0	18.0
1.0 - 1.4			8.5	13.0		
1.5 - 1.9				11.5		
2.0 - 2.4				14.0		
2.5 - 2.9				7.5		
3.0 - 3.4				16.0		
3.5 - 3.9				14.0		
4.0 - 4.4				9.0		
4.5 - 4.9				10.0		
5.0 - 5.4				14.5		
5.5 - 5.9				16.5		
6.0 - 6.4	IIII			17.0		
6.5 - 6.9	IIII	II		11.0		
7.0 - 7.4				10.5		
7.5 - 7.9	~~IIII~~					
8.0 - 8.4						
8.5 - 8.9						
9.0 - 9.4	II	II				
9.5 - 9.9	II					
10.0 - 10.4	II	I				
10.5 - 10.9	II		Hy.m.W			
11.0 - 11.4	~~IIII~~ II		9.5			
11.5 - 11.9	II	I				
12.0 - 12.4	I					
12.5 - 12.9						
13.0 - 13.4					BG - A	Spawning
13.5 - 13.9					RL - C	Post-spawn
14.0 - 14.4	I				PS - C	Spawn
14.5 - 14.9	I					
15.0 - 15.4					YP - P	
15.5 - 15.9					RH - P	
16.0 - 16.4					WS - C	
16.5 - 16.9					BrBh - R	
17.0 - 17.4						
17.5 - 17.9						
18.0 - 18.4						
18.5 - 18.9		6 Recaps			H_2O - 66°F	
19.0 - 19.4						
19.5 - 19.9						
20.0 - 20.4						
20.5 - 20.9						
21.0 - 21.4						
21.5 - 21.9						
22.0 - 22.4						
22.5 - 22.9						
23.0 - 23.4						
23.5 - 23.9						
24.0 - 24.4						
24.5 - 24.9						
25 + (give actual size)						
TOTAL	31 U					

Rev. 3-75

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)

Form 3600-187 4-92

John Hayward Muskie 2000 April

Lake _____ MWB Code: _____ Date: ____ / ____ / ____ County: _____ Collector: _____

Target Fish: _____ Survey Type: _____ Mark Given: _____ H_2O Temp: _____ Time _____ : _____

Adverse Conditions: _____ H_2O Conduct: _____ Station: _____

Volts: _____ Amps: _____ Current Type (AC/DC/Pulsed DC) Pulse Rate: _____ Duty Cycle: _____

Gear Type: _____ Start Time: _____ End Time: _____ Distance Shocked: _____

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: _____ H_2O Clarilty: (Clear/Turbid/Very Turbid)

Inches	Male	Female	Unknown	Dying					
4.4 - 4.4									
4.5 - 4.9									
5.0 - 5.4									
5.5 - 5.9									
6.0 - 6.4									
6.5 - 6.9									
7.0 - 7.9									
7.5 - 7.9									
8.0 - 8.4									
8.5 - 8.9									
9.0 - 9.4									
9.5 - 9.9									
10.0-10.4									
10.5-10.9									
11.0-11.4									
11.5-11.9									
12.0-12.4									
12.5-12.9									
13.0-13.4									
13.5-13.9									
14.0-14.4									
14.5-14.9									
15.0-15.4									
15.5-15.9									
16.0-16.4									
16.5-16.9									
17.0-17.4									
17.5-17.9									
18.0-18.4									
18.5-18.9									
19.0-19.4									
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9									

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

WDNR Comments

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)

Form 3600-187 4-92

Lake Hayward MWB Code: _____ Date: 04/03/2000 County: Sawyer Collector: Path/Warwick

Target Fish: Walleye Survey Type: FERC Eval. Mark Given: Hip Fin Clip H_2O Temp: 4 Time _____ : _____

Adverse Conditions: Snow, rain, cold, low water H_2O Conduct: _____ Station: Airport Rd → STH 77

Volts: _____ Amps: _____ Current Type (AC/DC/Pulsed DC) Pulse Rate: _____ Duty Cycle: _____

Gear Type: DC Mini shock Start Time: _____ End Time: _____ Distance Shocked: (map)

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: 3/8 H_2O Clarity: (Clear/Turbid/Very Turbid) light Br stain 4'

← Walleye →

Inches	Male	Female	Unknown						
4.4 - 4.4									
4.5 - 4.9									
5.0 - 5.4									
5.5 - 5.9									
6.0 - 6.4									
6.5 - 6.9									
7.0 - 7.9									
7.5 - 7.9									
8.0 - 8.4									
8.5 - 8.9									
9.0 - 9.4									
9.5 - 9.9									
10.0-10.4									
10.5-10.9									
11.0-11.4									
11.5-11.9									
12.0-12.4									
12.5-12.9									
13.0-13.4									
13.5-13.9									
14.0-14.4	1								
14.5-14.9	111								
15.0-15.4									
15.5-15.9	1								
16.0-16.4									
16.5-16.9		1							
17.0-17.4	1	111							
17.5-17.9									
18.0-18.4									
18.5-18.9									
19.0-19.4									
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9		1							
22.0-22.4									
22.5-22.9									
23.0-23.4		1							
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4		1							
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9									

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

WDNR Comments

Marking (Recap 1?) 1

Department of Natural Resources

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 4-92

Trath

Lake Hayward MWB Code: 2725500 Date: 04 / 13 / 00 County: Sawyer Collector: Warwick

Target Fish: WE mature Survey Type: Marking Mark Given: HLV/+ Flow H_2O Temp: _____ Time 08 : 00 PM

Adverse Conditions: _____ H_2O Conduct: _____ Station: STH 77' area + Dam basin area (whole lake emphasis)

Volts: 230 Amps: 4.0 Current Type (AC/~~DC~~/~~Pulsed DC~~) ~~Pulse Rate~~: 2.5 hrs. Duty Cycle: _____

Gear Type: V AC BS Start Time: 344.8 End Time: 347.3 Distance Shocked: _____

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: 3/8" H_2O Clarity: (Clear/Turbid/Very Turbid)

↳ above STH 77' not accessible

Walleye — Recaps

Inches	Male	Female	Unkwn / Imm.	N.P	M	R	U	I
4.4 - 4.4				35.0				
4.5 - 4.9				31.0				
5.0 - 5.4								
5.5 - 5.9				MU				
6.0 - 6.4			ID 2	37.5				
6.5 - 6.9			HH 1 6	46.0			1	
7.0 - 7.9			1 1					
7.5 - 7.9			11 2					
8.0 - 8.4			HH 5					
8.5 - 8.9			11 2					
9.0 - 9.4			11 2					
9.5 - 9.9			1111 4	LMB				
10.0-10.4			1111 4	15.0				
10.5-10.9			HH 5	14.0			R	
11.0-11.4			111 3	12.5			R	
11.5-11.9				16.5			R	
12.0-12.4	1		1 1	10.0				
12.5-12.9	1	1		16.5				
13.0-13.4			1 1	10.5				
13.5-13.9	1							
14.0-14.4		1						
14.5-14.9								
15.0-15.4	11							
15.5-15.9				YP C				
16.0-16.4	1 1	1			1	4 Recaps		
16.5-16.9								
17.0-17.4				WS C				
17.5-17.9								
18.0-18.4		1						
18.5-18.9				RH C				
19.0-19.4								
19.5-19.9								
20.0-20.4				BG-P				
20.5-20-9				BC-C				
21.0-21.4		4 1 1						
21.5-21.9								
22.0-22.4								
22.5-22.9								
23.0-23.4								
23.5-23.9								
24.0-24.4								
24.5-24.9								
25.0-25.4								
25.5-25.9								
26.0-26.4								
26.5-26.9								
27.0-27.4								
27.5-27.9								
28.0-28.4								
28.5-28.9								
29.0-29.4	7	4	38					
29.5-29.9								

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

TC = Immature

4 Recaps

WDNR Comments

Department of Natural Resources

Marking Run (HLP = Adult walleye)

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 4-92

Lake Hayward MWB Code: 2725500 Date: 03/28/2000 County: Sawyer Collector: Pratt/Warwick

Target Fish: WE Survey Type: Walleye FERC eval. Mark Given: Floy/HLP H_2O Temp: 42 Time 7:40

Adverse Conditions: Cold! H_2O Conduct: Good Station: Inlet, outlet, Cindahola

Volts: 200 Amps: 4.0 Current Type (AC/DC/Pulsed DC) ~~Pulse Rate:~~ ~~Duty Cycle:~~

Gear Type: AC BS Start Time: 336.7 End Time: 338.3 1.6 hrs. Distance Shocked: 2.4 mi.

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: 4/1 H_2O Clarity: (Clear/Turbid/Very Turbid)

Jumping around looking for concentrations to mark / net

Inches	Walleye Male	F	Unkwn		MU	SMB	NP	YP	BG
4.4 - 4.4							P	Spawn	P
4.5 - 4.9									
5.0 - 5.4									
5.5 - 5.9			2						
6.0 - 6.4			8						
6.5 - 6.9			8						
7.0 - 7.9			10	63 yoy					
7.5 - 7.9			13						
8.0 - 8.4			10						
8.5 - 8.9			3						
9.0 - 9.4			1						
9.5 - 9.9			1						
10.0-10.4	Marked HLP Clip		5						
10.5-10.9			11						
11.0-11.4			5						
11.5-11.9			7						
12.0-12.4	1		2						
12.5-12.9	1		1						
13.0-13.4	1		1						
13.5-13.9									
14.0-14.4	1				1				
14.5-14.9	1								
15.0-15.4					34.5 M	1			
15.5-15.9	1								
16.0-16.4	1								
16.5-16.9									
17.0-17.4	1				3 others seen				
17.5-17.9		1							
18.0-18.4							ISMB	seen	
18.5-18.9							WS -	P	
19.0-19.4							RH -	none seen	
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9	8 males	2 females	see back						

Other fish: (Can include rarely caught species and fish greater than 30 inches.) Inlet + Outlet ... MU ... SMB + NP

WDNR Comments

Department of Natural Resources

Markins Run (TC - juv. HLP - Adult Walleye)

LAKE ELECTROFISHING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-187 4-92

2725500

Lake Hayward MWB Code: _____ Date: 03/28/2000 County: Sawyer Collector: Pratt/Warwick

Target Fish: WE Survey Type: Walleye FERC eval. Mark Given: Floy HLP H$_2$O Temp: 42 Time 7:40

Adverse Conditions: Cold! H$_2$O Conduct: Good Station: Inlet, outlet, Lindholm

Volts: 200 Amps: 4.0 Current Type (AC/DC/Pulsed DC) ~~Pulse Rate:~~ ~~Duty Cycle:~~

Gear Type: AC BS Start Time: 336.7 End Time: 338.3 1.6 hrs. Distance Shocked: 2.4 mi

# of Dippers: (1/2) Entire Shoreline Shocked: (Y/N/I) Dip net mesh size: 4' H$_2$O Clarity: (Clear/Turbid/Very Turbid)

Jumping around looking for concentrations to mark / net

Inches	Walleye Male	F	Unknown		MU	LMB	NP	YP	BG
4.4 - 4.4							P	Spawning	P
4.5 - 4.9									
5.0 - 5.4									
5.5 - 5.9			2						
6.0 - 6.4			8						
6.5 - 6.9			8						
7.0 - 7.9			10	63 yoy					
7.5 - 7.9			13						
8.0 - 8.4			10						
8.5 - 8.9			3						
9.0 - 9.4			1	Recd					
9.5 - 9.9			1						
10.0-10.4	Marked HLP Clip		5						
10.5-10.9			11						
11.0-11.4			5						
11.5-11.9			7						
12.0-12.4	1		2						
12.5-12.9	1		1						
13.0-13.4	1		1						
13.5-13.9									
14.0-14.4	1				1				
14.5-14.9	1								
15.0-15.4					34.5 M	1			
15.5-15.9	1					1			
16.0-16.4	1								
16.5-16.9									
17.0-17.4	1				3 others seen				
17.5-17.9		11							
18.0-18.4							ISMB	seen	
18.5-18.9							WS -	P	
19.0-19.4							RH -	none seen	
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9	8 males	2 females	88 juv.						

Other fish: (Can include rarely caught species and fish greater than 30 inches.) Inlet & Outlet areas most effort & fish juveniles above dam, adults upstream near STH 77

WDNR Comments

Department of Natural Resources

NETTING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)
Form 3600-188 4-92

Lake Hayward MWB Code: _____ Date: 04/03/2000 County: Sawyer Collector: Pratt/Warwick

Target Fish: Walleye Survey Type: FERC Eval. Mark Given: HLP+/or Pink Floy H_2O Temp: _____ Time _____ : _____

Adverse Conditions: Snow, cold, current Station: Airport Rd - 77

Net Type: 4' Fyke Length/Frame: 4' Bar Mesh: 1 1/2"

Color: 3 Black 1 White Mesh Type: 1/2" Wh - Knotted Black - Woven Net Nights: 1

— Walleye —

Inches	Male	FEMALE	Unkwn							
4.4 - 4.4						N.P 6.5	Y.P 10.1	L.M.D 16.6	D.C 10.1
4.5 - 4.9									9.4
5.0 - 5.4							6.3		9.2
5.5 - 5.9							5.1		10.0
6.0 - 6.4									~~10.0~~
6.5 - 6.9									9.3
7.0 - 7.9									
7.5 - 7.9									
8.0 - 8.4									
8.5 - 8.9									
9.0 - 9.4									
9.5 - 9.9									
10.0-10.4									
10.5-10.9									
11.0-11.4								T.P 3.2	R.B 2.7
11.5-11.9	13.4 - 144								
12.0-12.4	14.3 143	15.0 148							
12.5-12.9									
13.0-13.4	12.5 142								
13.5-13.9									
14.0-14.4									
14.5-14.9									
15.0-15.4									
15.5-15.9									
16.0-16.4									
16.5-16.9									
17.0-17.4									
17.5-17.9									
18.0-18.4									
18.5-18.9									
19.0-19.4									
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9									

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

WDNR Comments

Department of Natural Resources

Marking Run – Net (4 fykes)

NETTING DATA COLLECTION SHEET (4.0 in. - 29.9 in.)

Form 3600-188 4-92

272500

Lake Hayward MWB Code: _____ Date: 04 / 01 / 2000 County: Sawyer Collector: Pratt

Target Fish: WE Survey Type: WE PE Mark Given: HLP Fin H_2O Temp: _____ Time _____ : _____

Adverse Conditions: strong current, poor access Station: upstream Hwy 77

Net Type: Fyke Length/Frame: 4' Bar Mesh: 1/2"

Color: 3-Bl 1-Wh Mesh Type: 1 Knot (W) 3 Woven (Black) Net Nights: 1

Walleye

Inches	Male	Female	Unknown			UP 19.0			
4.4 - 4.4									
4.5 - 4.9									
5.0 - 5.4									
5.5 - 5.9									
6.0 - 6.4									
6.5 - 6.9									
7.0 - 7.9									
7.5 - 7.9									
8.0 - 8.4									
8.5 - 8.9									
9.0 - 9.4									
9.5 - 9.9									
10.0-10.4									
10.5-10.9									
11.0-11.4									
11.5-11.9									
12.0-12.4									
12.5-12.9									
13.0-13.4									
13.5-13.9									
14.0-14.4									
14.5-14.9									
15.0-15.4									
15.5-15.9		1							
16.0-16.4	1								
16.5-16.9									
17.0-17.4									
17.5-17.9									
18.0-18.4									
18.5-18.9									
19.0-19.4									
19.5-19.9									
20.0-20.4									
20.5-20-9									
21.0-21.4									
21.5-21.9									
22.0-22.4									
22.5-22.9									
23.0-23.4									
23.5-23.9									
24.0-24.4									
24.5-24.9									
25.0-25.4									
25.5-25.9									
26.0-26.4									
26.5-26.9									
27.0-27.4									
27.5-27.9									
28.0-28.4									
28.5-28.9									
29.0-29.4									
29.5-29.9									

Other fish: (Can include rarely caught species and fish greater than 30 inches.)

Boomshocker fall 2000

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

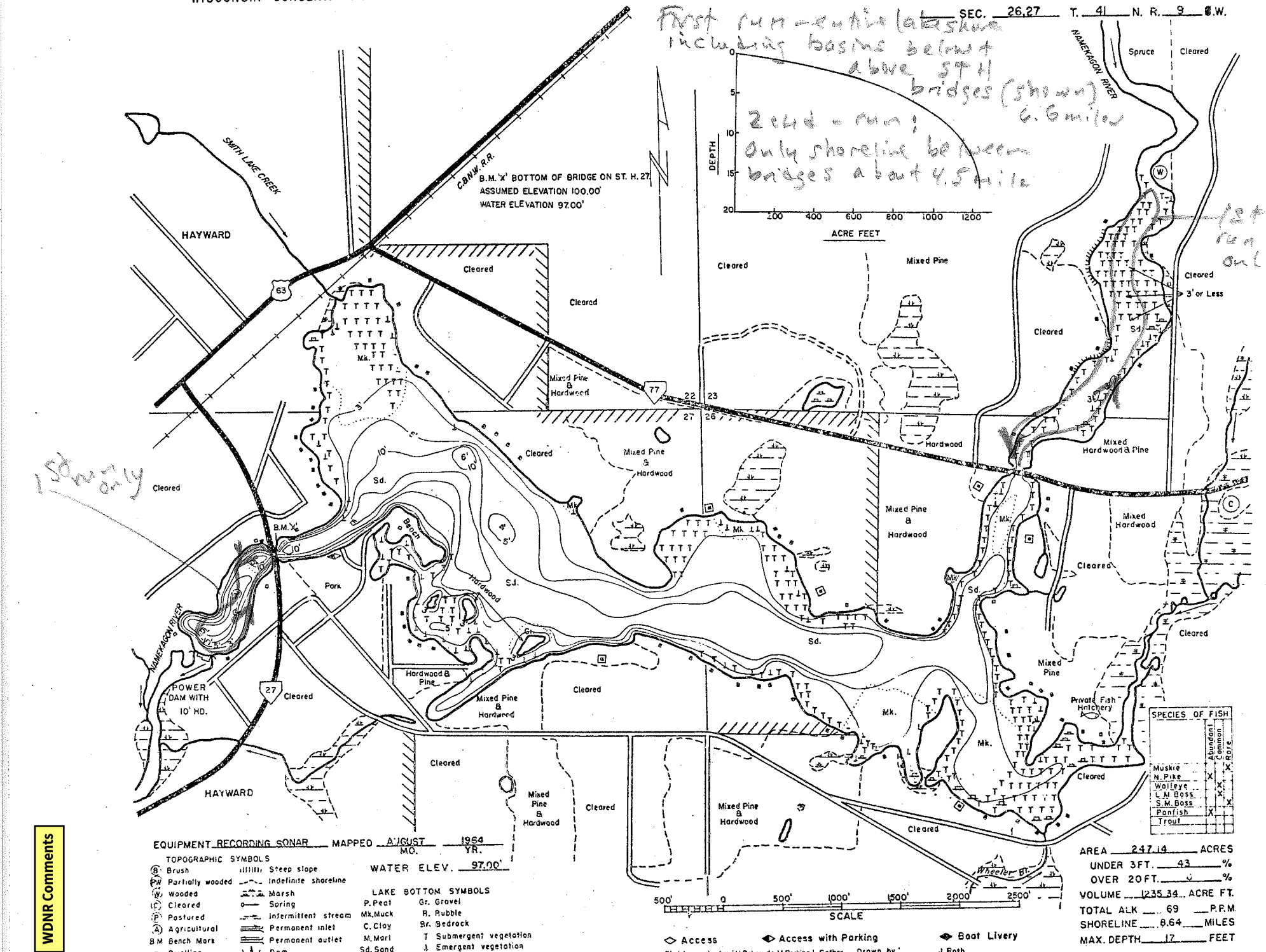
HAYWARD FLOWAGE LAKE — SAWYER COUNTY

SEC. 26,27 T. 41 N. R. 9 W.

First run - entire lake shore including basins below and above ST 41 bridges (shown) 6.6 miles

2nd - run; only shoreline between bridges about 4.5 mile

1st run only



SPECIES OF FISH

	Abundant	Common	Rare
Muskie			
N. Pike		X	
Walleye		X	
L.M. Boss		X	
S.M. Boss			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST 1964 (MO. / YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- BM Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Submergent vegetation
- Emergent vegetation
- Floating vegetation

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schmude, M. Perkins, L. Sather Drawn by: J. Roth

AREA 247.14 ACRES
UNDER 3FT. 43 %
OVER 20FT. 0 %
VOLUME 1235.34 ACRE FT.
TOTAL ALK. 69 P.P.M.
SHORELINE 8.64 MILES
MAX. DEPTH 17 FEET

WDNR Comments

WDNR Comments

SUMMARY SHEET
FORM 3500-8

DEPARTMENT OF NATURAL RESOURCES

Name of Dam Hayward Dam File No. 57.4 County Sawyer

Location SW 1/4 NW 1/4 Section 27 T 41 N, R 9 W

Stream Namekagon River Name of Lake Held by Dam Hayward

Present Owner: Lake Superior District Power Company

Existing Benchmarks:

Benchmark 226-A - destroyed

Benchmark 226-C - can't find

Benchmark 226-D is a 2-inch square cut in the top of the concrete retaining wall at the left of the tailwater and 5 inches from the southwest corner of the power house. Elevation = 508.76 feet.

Benchmark 226-E is a bronze cap in a concrete post, 97 feet east of dam, 10 feet north of power pole and 54 feet west of center line of First Street on east bank of lake.

Benchmark 226-F is a chiseled square on east abutment of dam 1 foot upstream from stoplog.

Rev. 8-70

WDNR Comments

Summary Sheet

Name of Dam Hayward Dam File No. 57.4 County Sawyer

Location SW ¼ NW ¼ Section 27 T 41 N, R 9 W

Stream Namekagon River Name of Lake Held by Dam Hayward Lake

Present Owner Lake Superior District Power Company - Ashland, Wis.

Existing Bench Marks

Benchmark 226A - a bronze tablet marked Railroad Commission of Wisconsin set in top of 6½ foot concrete post on east side of north-south street and on north side of east-west street on east bank of Namekagon River at dam. Benchmark is 20.5 feet west of northwest corner of house on north side of east-west street and 80.4 feet north of northwest corner of house on side of east-west street. Elevation = 517.04 feet.

destroyed

Benchmark 226C - a square chisel cut in upstream end of east abutment of spillway. Elevation = 513.09 feet.

Can't Find

Benchmark 226D - a 2-inch square cut in the top of the concrete retaining wall at the left of the tailwater and 5 inches from the southwest corner of the power house. Elevation = 508.76 feet.

WDNR Comments

WATER LEVEL DATA
Form 3500-27

Department of Natural Resources

Hayward Pond Sawyer Co 57.04
Lake or Stream

SW¼ NW¼ Sec 27 T41N R9W
Location

Date	Taken by	Field Book No.	Lake Level or Gage Reading	Remarks
7/14/19	J. Harris	842	511.24	Shut Down At 3PM to repair wheel
5/20/27	G. Steinmetz	770	511.89	
7/17/33	W. Muegge	869	512.08	
9/23/39	W Muegge	893	511.94	
7/31/46	P. Finsland	903	512.21	
6/18/65	T. Windau	975	512.09	
4/19/74	T Ginder	1032	512.15	gage at headwall read 512.14
6-21-89	Rydberg		85.65	BM 1067-A ELEV=100.00

8-73

WDNR Comments

57.4

AUTHORIZATION - LAWS 1883 CH 11

WP-119 - PERMIT TO RECONSTRUCT DAM ISSUED.

MAX. POND ELEV. = 512.55 EL. (LOCAL DATUM)

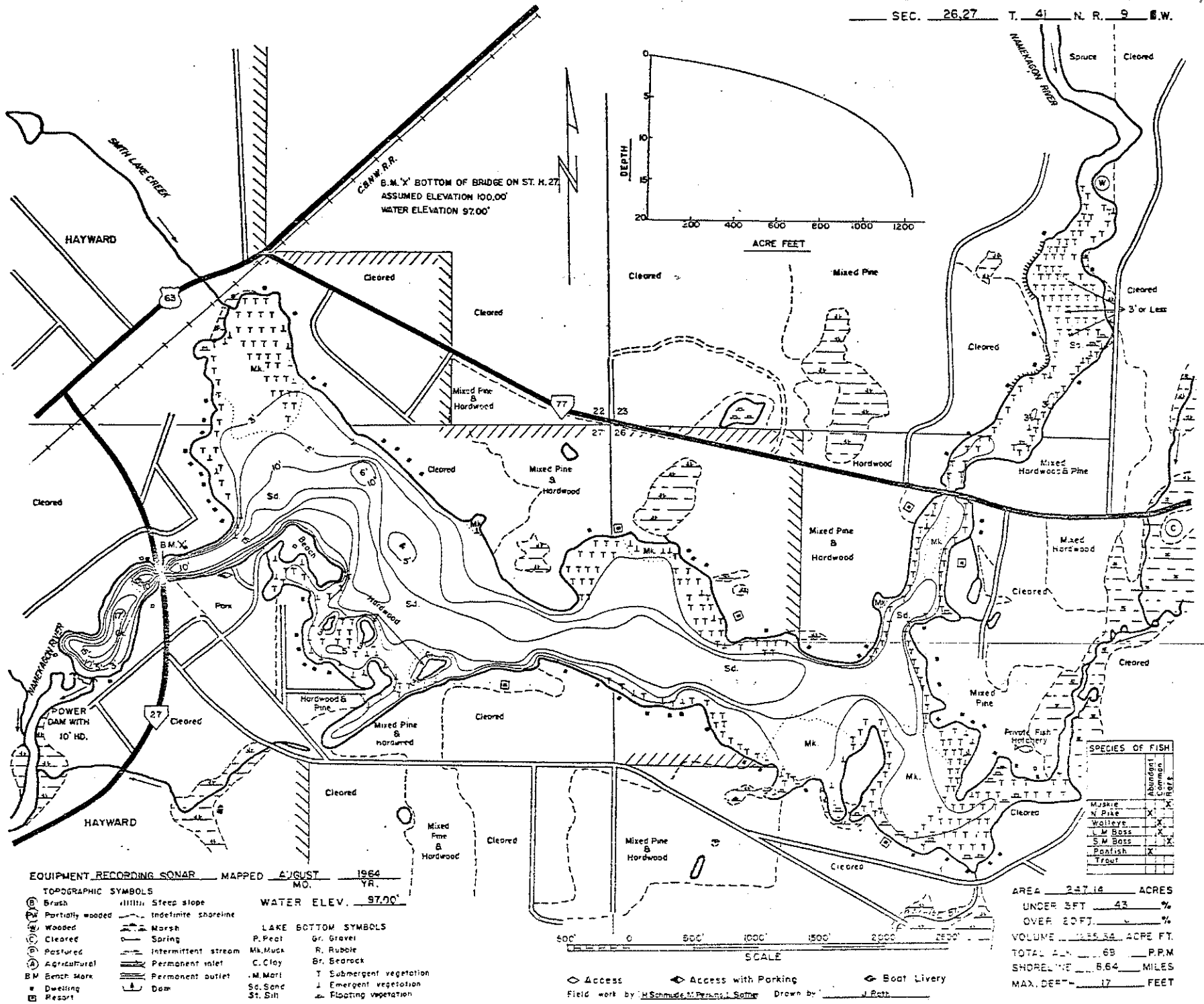
WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HAYWARD FLOWAGE LAKE — SAWYER COUNTY — 57.4

SEC. 26,27 T. 41 N. R. 9 E.W.

WDNR Comments



SPECIES OF FISH

	Abundant	Common	Rare
Muskie			X
N. Pike	X		
Walleye		X	
L.M. Bass		X	
S.M. Bass			X
Panfish	X		
Trout			

EQUIPMENT RECORDING SONAR MAPPED AUGUST (MO.) 1964 (YR.)

WATER ELEV. 97.00'

TOPOGRAPHIC SYMBOLS

- Brush
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- Wooded
- Cleared
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- BM Bench Mark
- Dwelling
- Resort
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- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- Emergent vegetation
- Floating vegetation

500' 0 500' 1000' 1500' 2000' 2500'

SCALE

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by H. Schmude, M. Perino, J. Sather Drawn by J. Roth

AREA 247.14 ACRES

UNDER 3FT 43 %

OVER 20FT. — %

VOLUME 1255.34 ACRE FT.

TOTAL ALK. 68 P.P.M.

SHORELINE 8.64 MILES

MAX. DEPTH 17 FEET

WDNR Comments

57.4

Form WP1

Sheet 1

Report by C.O. Walker

Engineering Department
Railroad Commission of Wisconsin

Date Apr 24 1914

WATER-POWER DEVELOPMENT INVESTIGATION St Croix DRAINAGE BASIN

IDENTIFICATION

Name of stream on which power is located Namekagon River

County Sawyer Town Town of Hayward

SW¼ NW¼ Sec. 27 T. 41 N R. 9W

Distance to Hayward Wis (nearest P.O.) ¼ Miles

Name of next tributary stream above Hayward Creek

" " " " " below Spring creek

Local name of dam Hayward Dam

Name of mill or power station Willow River Lumber Co

Name of owner Willow River Lumber Co Address Hayward Wis

Name of operator Willow River Lumber Co Address " "

HISTORICAL

Name of original grantee Anthony J Hayward

Date of original franchise or permit Feby 28 - 1883

Date and conditions of renewal none.

Duration of original grant In Limit (right reserved to repeal or alter)

Where recorded Laws 1883 Chapter 11

Purpose of grant: (a) Protection of navigation
(b) Log driving
(Note-strike out purposes not obtaining) (c) Power purposes
(d) Mill purposes
(e) For Manufacturing and other purposes

~~Your dam~~ was first constructed about 1885

Type of original dam (a) Concrete
(b) Timber + piers
(c) ~~Earthen~~

ENGINEERING DEPT.
Received 5/4/14
Referred to: 7183

WDNR Comments

Form WP1 Sheet 2

Re Haywards Dam on Manitowish at or near Haywards

DESCRIPTIVE (GENERAL):

Has dam been rebuilt Yes When 1906 - 1908 - 1918 rebuilt.

Type of present dam (a) ~~Concrete~~ Concrete over stone & timber Crib
(b) Timber
(c) ~~Earthen~~

Present purpose of dam Mill (Saw) & log driving - Power

If formerly used for other purposes give details with dates

Bents East dam built about 30 yrs ago for log driving

It went out 1904 or 05

General topographic and geological conditions at site Soil sandy with glacial stone country in vicinity low and flat

Character of stream banks Sandy

Character of stream bottom Sand & gravel

CONSTRUCTIVE FEATURES:

Note: If plans are available, arrange to have a copy prepared for the commission's files, otherwise make detailed sketches of dam, gates, and all other constructive features on blank sheets provided for the purpose, giving dimensions, etc., including typical cross-sections.

Dam: Type Timber crib Dam. Concrete Gravity,

Foundations: (a) Piles Kind Soft Wood Amount Unknown
(b) ~~Grillage~~ Kind Amount
(c) ~~Stone Masonry~~ Kind Amount
(d) ~~Concrete~~ Kind Amount

Depth below natural river bed Estimate 10 - 20'

Character of river bed Sand & gravel

Do foundations go to rock or impervious stratum No

Anchorage of dam or retaining walls to stream banks (describe)

cribs run well into banks

WDNR Comments

Form WP1 Sheet 3

Re Haywards Dam on Namekagan at or near Haywards

CONSTRUCTIVE FEATURES: Continued

Materials in dam proper Timber cribs Rock fillers Plank apron [Concrete stone + timber] + Some concrete.

Materials in walls cribs sum wall and bank Stone + sand fillers

Methods used in construction Timber crib Rock + sand fillers drained water off thru old flume.

General condition of masonry and concrete None [except Flume wall] [Concrete good]

General condition of timber construction In dam - good

See page (describe) Timber cribs from sluice way to mill and under Mill one very poor. Mill rests on old stream bed.

Height of stream banks at juncton with dam or wall construction 5'-0" above crest of Dam ? about level with fill

Provision for resisting ice pressure Piling + Beams

Provision aganist scouring below dam Piling + sheeting Concrete apron.

Protection for gates aganist clogging by floating debris Wooden trash rack iron trash rack

Booms: Kind Log Anchorage Pile

Gates: Number 4 head gates. 1 Tainter gate Depth 5 x 8' deep. 8' wide

Width 10' Depth 12'

Operating mechansim Hand grumbler ok

General condition of gates Fair

Description of approach to gates Four bay sluice

Fishways: Kind none Size

Locks: Kind none Size

WDNR Comments

Form WP1 Sheet 4

Re Hayward Dam on Namekagon at or near Hayward

CONSTRUCTIVE FEATURES: Continued

Log chutes: Kind none Size

Ice chutes: Kind none Size

Spillways: Length 148'-6" 110'

Distance from top of spillway to low point in retaining walls or embankment 5'-0"

Flashboards: Height 3' in place now Provision for 4' Kind 2" plank

Pond or Forebay: Kind of banks Sandy - gravel

Condition of banks Good

Maximum depth Said to be 30'

Approximate area low water ?

" " normal ?

" " high water ?

Capacity in cubic feet

Extent of back water Estimate 2 miles

with auxiliary water

Method of Supplying water to wheels:

~~Canal~~:	Length		Dimensions		Material	
Flume:	"	150'	"	(5'-9" back x 6'-2" inside)	"	2" plank
~~Pipe~~:	"		"		"	

Power House

OPERATIVE FEATURES:

Purpose of operation at present Saw Mill & Elec Power for Hayward

Total operating head, forebay to tail race without flashboards:

(a) Low water 12'-6" (b) Ordinary water 12'-6" (c) High water 12'-6"

about 12'-6" from east of Dam to Tail waters Flash board raises Head water 3' = 15'-6" said to be always plenty water available

Operating capacity of canal, flume or pipe line in sec. feet:

(a) Low water (b) Ordinary water (c) High water

WDNR Comments

Form WPI

Sheet 4

Re_____ Dam on _____ at or near _____

CONSTRUCTIVE FEATURES: Continued

Log chutes: Kind _____ Size _____

Ice chutes: Kind _____ Size _____

Spillways: Length _____

Distance from top of spillway to low point in retaining walls or embankment _____

Flashboards: Height Two wheels in power house

Pond or Reservoir: Kind of banks Trump. 60"

Condition of banks One inked

Maximum depth _____

Approximate area low water _____

" " normal _____

" " high water _____

Capacity in cubic feet _____

Extent of back water _____

Method of Supplying water to wheels:

Canal:	Length		Dimensions		Material
Flume:	"		"		"
Pipes	"		"		"

OPERATIVE FEATURES:

Purpose of operation at present _____

Total operating head, forebay to tail race without flashboards:

(a) Low water _____ (b) Ordinary water _____ (c) High water _____

Operating capacity of canal, flume or pipe line in sec. feet:

(a) Low water _____ (b) Ordinary water _____ (c) High water _____

WDNR Comments

Form WP1 Sheet 5

Re Hayward Dam on Namekagan at or near Hayward

OPERATIVE FEATURES: Continued

Water wheels: Give for each wheel the following: (1) Kind; (2) Type; (3) Maker; (4) Size - inches; (5) Number of runners; (6) Usual gate opening - inches; (7) Kind of gate; (8) Rated power at usual gate and head; (9) Kind of draft tube; (10) Date installed; (11) General Condition.

1 water wheel in service about 150 H.P.
72" dia. 23" deep old style Horizontal
1 wheel on above out of service
(This company have let contract to instal about 400 H.P. capacity of wheels - generators - power house etc. to be erected on opposite side of river from mill) The old wheel now in place is in poor condition and taken out little of the time of low

Water wheel governors: State the following; (1) Kind; Type; (3) Maker; (4) Date installed; (5) General condition.

None
1. woodward governor - 1914

Generators; Give for each unit (1) Make; (2) Type; (3) KV-A. capacity; (4) R.P.M. (5) Phase; (6) Voltage; (7) Amperes; (8) Belted or direct connected; (9) Date installed; (10) General condition.

1 Westinghouse A.C. 10 KW bolt EOM 2200 A
1 Phase about 720 W connected with line shaft

1 G.E. a/c 9½ K.W. 125 V. 975 R.P.M. shaft connected installed 1914

WDNR Comments

Form WP1 Sheet 6

Re Hayward Dam on Name Lacqua at or near Hayward Wis

OPERATIVE FEATURES: Continued

Transmission lines:

From Dam To Hayward Circuit Miles 1/4
Phase 3Φ Voltage 2300 Wire _____ Poles 30'

From _____ To _____ Circuit Miles _____
Phase _____ Voltage _____ Wire _____ Poles _____

From _____ To _____ Circuit Miles _____
Phase _____ Voltage _____ Wire _____ Poles _____

Auxiliary steam plant: Location _____

Owner Wilson Manufacturing Co Address Hayward Wis

Equipment 1 Corliss Eng 900 H P Batch (Allis)

Planing Mills 1 Rockaway Eng 40 gen 120 K W & 91 F 222 ou Amp
2 phase 3 phase 720 (See back of page)

Percentage of running time that power is used City use power every day

Average number of days per year that plant operates 365

Hours of operation: From _____ To _____
Saw mill only lt. Hours per day 10-12 Days per week 6
Hours per day dark Days

Are date openings recorded? No

Are turbine performances recorded? No

Are switchboard readings recorded? No

Secure sample of station log sheet None

WATER RECORDS:

Kind of gages None How often read _____

Maximum reading None Time _____

Minimum reading None Time _____

Records of stream flow (get sample) None

What portion of fow of stream is plant entitled to Entire

For what portion of year is water supply adequate Water always adequate for the 1 — 150 H P turbine

WDNR Comments

Steam and Hydro in Glenwood, Wis.

Allis Eng about 400 H.P

4 8" strokes — 24" bore

13 rounds Eng 16" x 24 simple

belt connects to north generators

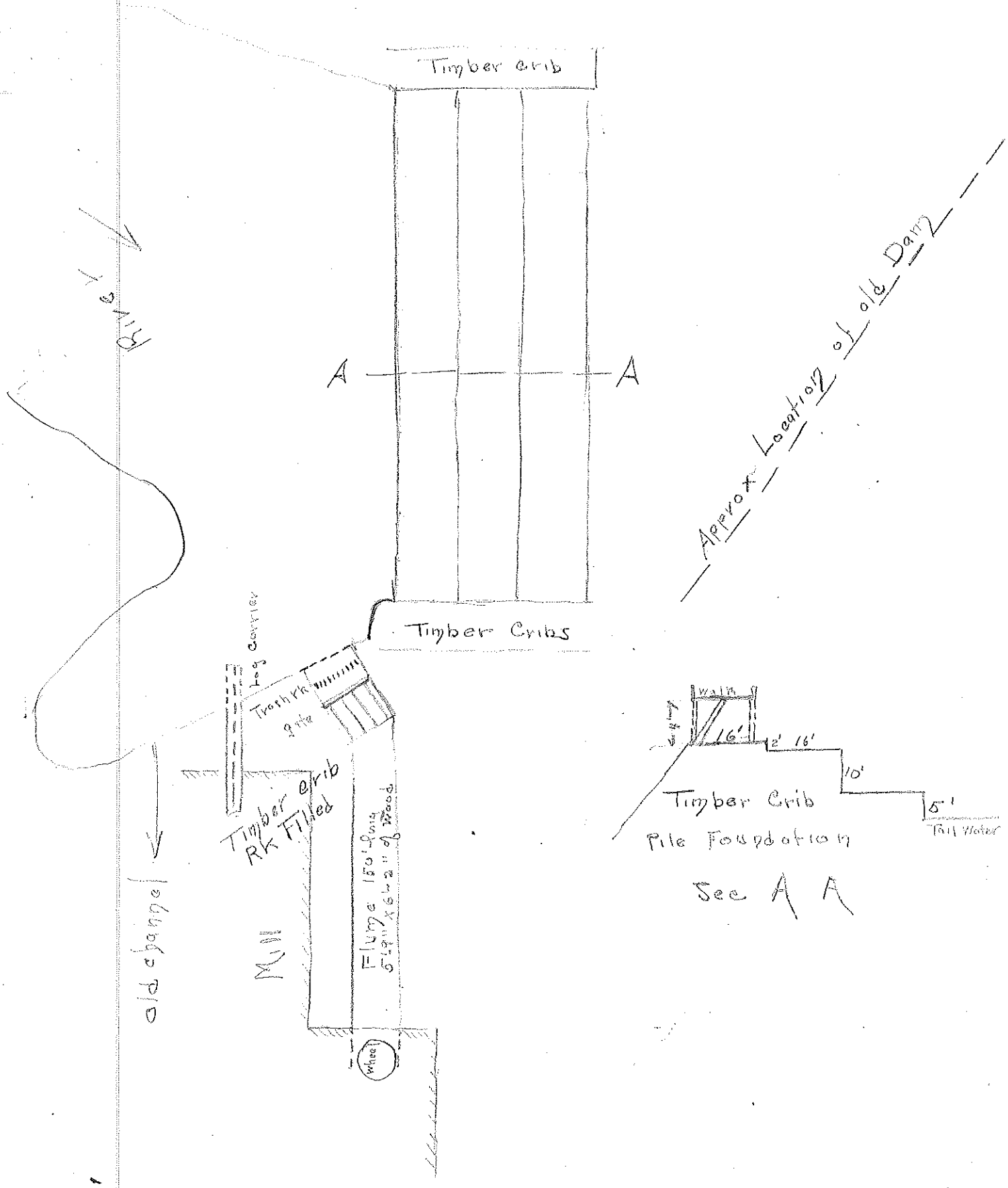
WDNR Comments

Form WP1

Insert

Re Hayward Dam on Namekagon at or near Hayward

Sketch of



WDNR Comments

One Page

Memorandum

BENCH MARKS - HAYWARD DAM 57.4
OWNED BY WILLOW RIVER LUMBER
COMPANY.
(FIELD BOOK #842)

Submitted by John W. Harris,
July 16, 1919

Bench marks were set under authority granted by Chapter 31.02 of the Wisconsin Statutes.

Dam is located on the Namakagon River in the City of Hayward.

Bench marks were set and levels taken July 14, 1919.

Bench Mark #226A is a bronze tablet marked Railroad Commission of Wisconsin set in top of 6 1/2 foot concrete post flush with gravel surface of ground on the east side of north and south street and on the north side of east and west street on the east bank of Namakagon River at dam. Bench mark is 20.5' W. of N.W. corner of house on north side of east and west street and 80.4' N. of N.W. corner of house on side of east and west street. Elevation = 516.04.

Bench Mark #226B is a square notch cut on east flume wall between spillway and flume 8.1' upstream from wheel house. Elevation = 512.53'.

Bench Mark #226C is a square notch cut in upstream end of east abutment of spillway. Elevation = 513.09'.

The following elevations are referred to the datum of bench marks 226, A, B & C.

Points Taken	Elevation
East end spillway wall gate section	513.04
East end foot bridge	514.79
Top of flashboards east gate (All boards in place)	513.24
Average of (Top of flashboard 9 gates)	511.68
Average elevation top of center piers (9)	512.76
Average elevation gate sill, spillway gates	508.57
East flume wall gate section	512.52
Average headgate sill (4 gates)	504.41
West flume wall	512.63
South flume wall auxillary flume gate section	512.78
North flume wall auxillary flume gate section	512.88
West end foot bridge	513.40
Dike between the two flumes	512.95
Pond level (3 P.M. shut down to repair wheel)	511.24
Tailwater wheels not running	495.04
Apron (Center) Top	498.77

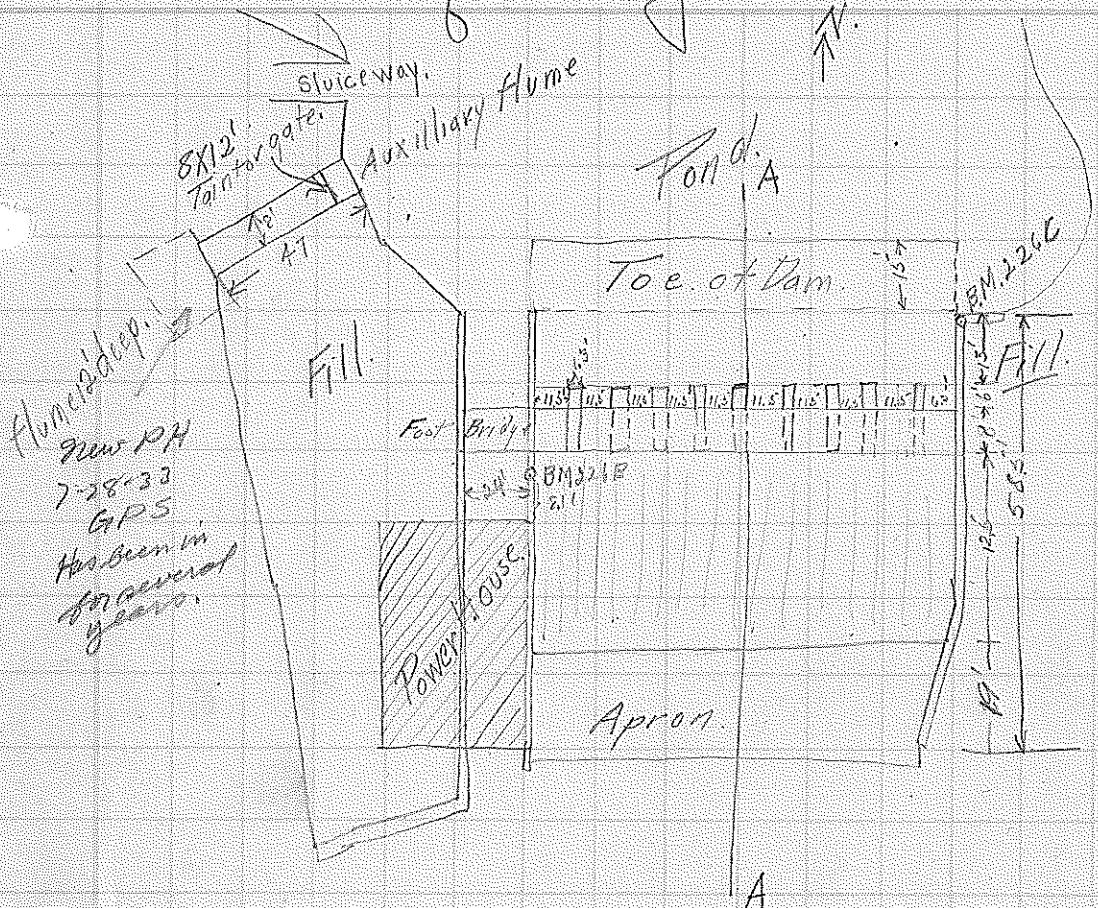
WDNR Comments

STATE OF WISCONSIN
DEPARTMENT OF ENGINEERING
RAILROAD AND UTILITIES DIVISION

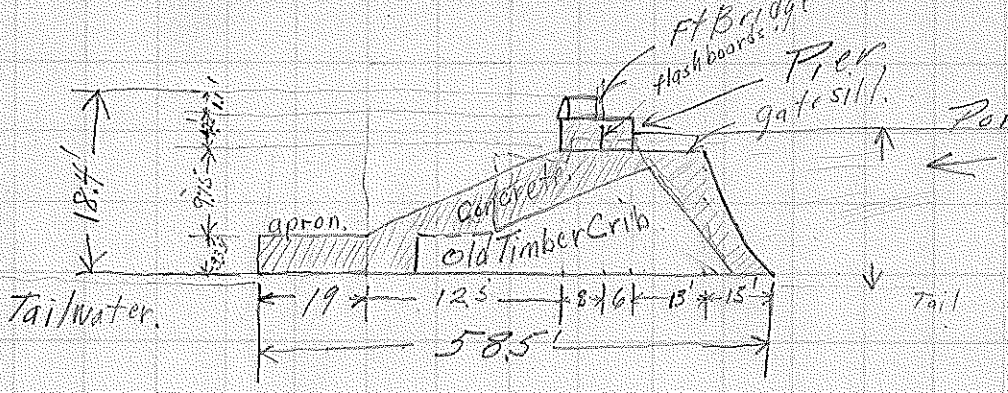
FORM 499

Date July 16 1919 No.
Made by J. J. M. H.
Checked by J

Refers to Sketch of New Kaywaard Dam.



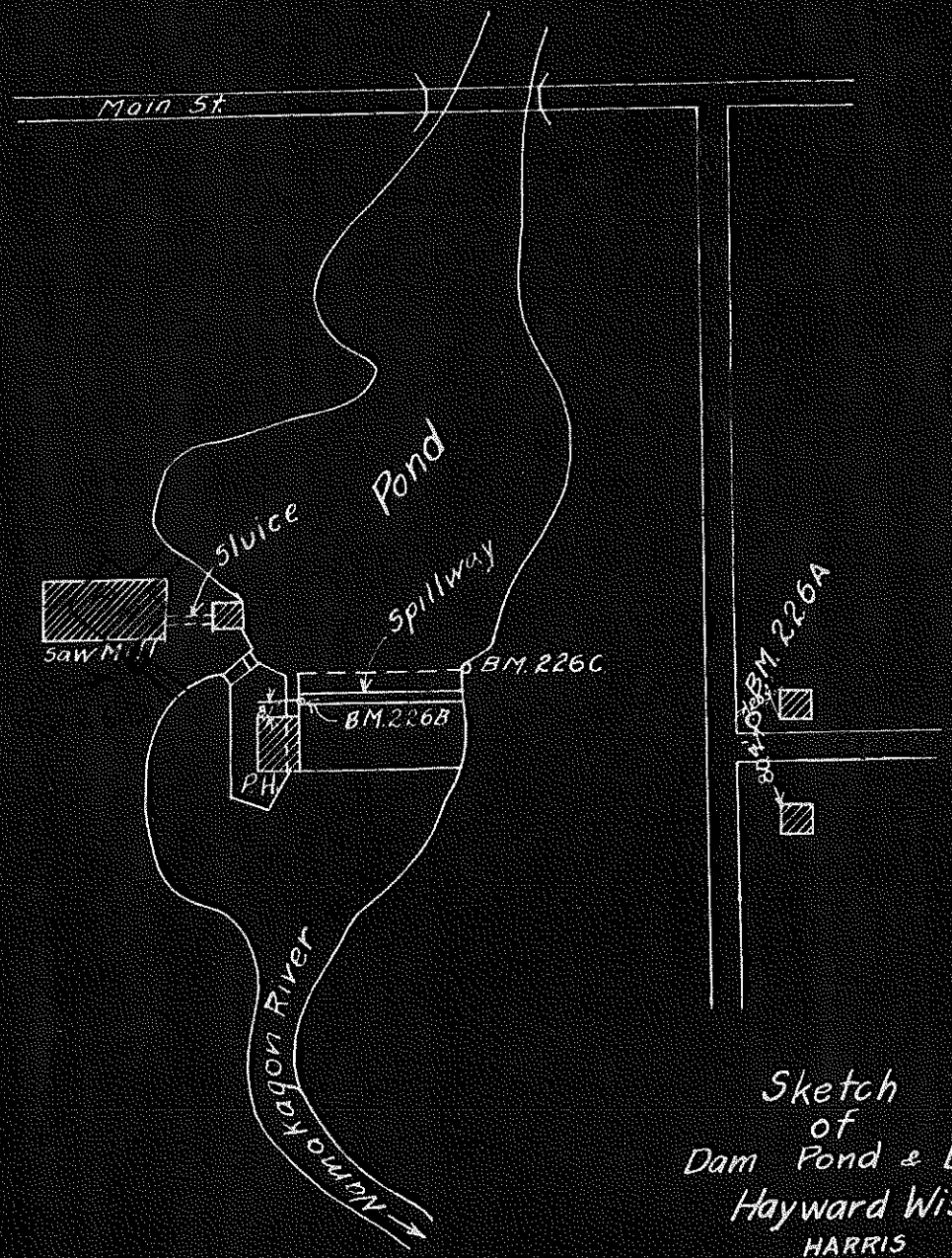
Sec thru A-A according to Mr. Rectors Description.



Probably piles under a large portion of old timber crib.

Dam file 574

WDNR Comments



Sketch
of
Dam Pond & BM's.
Hayward Wis.
HARRIS
1919

WDNR Comments

gently fix the proper elevation at which the new dam shall be built.

After completing the work at Chetek we desire you to make a special investigation of the Hayward Dam at Hayward, Wisconsin. I established a temporary bench mark at this dam on June 20, 1919, the location of which is as follows: elevation of up-stream S.W. abutment at up-stream end, square chiseled in top of concrete, elevation 513.09. Bench marks should be set at this dam using the above bench mark for your datum. The elevation of the head race wall at which elevation the owner of the dam wishes to secure permission to hold the pond level was also taken and found to be 512.22. This concrete wall is between the main spillway section and the intake to the wheels. The top of the wall was taken about 6 feet up-stream from the wheel house. While at this dam new sketches of the dam should be made and the report corrected because the dam was remodled in 1918.

In these two special investigationsit is desired that as soon as the work is completed you prepare the bench mark memoranda and write us the results of your investigation.

Yours very truly,

CAH/a

WDNR Comments

RAILROAD COMMISSION OF WISCONSIN

MADISON

IN REPLY PLEASE REFER TO FILE NO. 855--CAH April 10, 1924

ADDRESS ALL COMMUNICATIONS TO THE COMMISSION

TO OWNERS OF DAMS:

Will you kindly check the following information regarding the water power owned by you. If this information is not correct, make the necessary changes on this sheet and return it to us as promptly as possible in the enclosed stamped envelope.

Local Name of Dam Hayward

Owner Hayward Electric Light & Power Company

Address Hayward

Location of Dam Sec.27, T.41 N., R.9 W.

Use of Dam

Wheel Installation:

Number	Kind	Make	Size	Rated Capacity h.p. (total)
2	Vertical turbine	Trump	48"	300 total
1	Turbine	Br	48"	250 ~

This information is desired in connection with the administration of the Water Power Law.

Yours very truly,

RAILROAD COMMISSION OF WISCONSIN

C. M. Larson

Engineer

574

Enc. 1

WDNR Comments

Supplementary Memorandum — One page

57.4

HAYWARD DAM OWNED BY THE LAKE SUPERIOR DISTRICT POWER COMPANY FIELD BOOK 770.

Submitted by Geo. P. Steinmetz, May 28, 1927.

Following correspondence carried on with the Wise Land Company of Hayward concerning the height of the above dam, the writer made an inspection and took levels on the same on May 20, 1927.

The normal headwater authorized by this commission in the above dam is elevation 512.55' when referred to the datum of bench mark 225A, 226B, and 226C described in earlier memos.

Points Taken	Elevation
Bench mark 226 C	513.09'
Headwater above dam	511.34
Top of flashboards (1- 7" board was removed for the entire length of the spillway)	511.34
Top of flashboards when all in place, approx.	511.92

From the above elevations it can be seen that the maximum elevation of the flashboards is approximately 6" below the height authorized by this commission.

WDNR Comments

Supplementary Memorandum — One Page 57.4

HAYWARD DAM
OWNED BY SUPERIOR DISTRICT
POWER COMPANY
(FIELD BOOK #869)

Submitted by W.A. Muegge
July 17, 1933

Bench marks were checked and elevations taken on July 11, 1933.

It was found that, in checking over the notes of Harris, 1919 field book, an error of one foot, which would make the elevation of 226-A 517.04 ft. instead of 516.04 ft. was made. The present survey shows Bench Mark 226-A to be 517.15 ft. when referred to datum of Bench Mark 226-C.

The following elevations are referred to datum of Bench Marks 226-A and 226-C:

Pond level	512.08 ft.
Highwater mark, observed	512.28
Tailwater, wheel running	495.13
Water below dam	495.24
Crest of left section of spillway 6.2 ft. long	508.70
Flash " " " " "	512.58
Crest 2nd " " " 11.5 ft. long	508.68
Flash " " " "	512.63
Crest of 3rd " " " 11.5 " "	508.48
Flash of 3rd " " " " " "	512.40
Crest of 4th " " " " " "	508.53
Flash of 4th " " " " " "	512.35
Crest of 5th " " " " " "	508.50
Flash of 5th " " " " " "	512.39
Crest of 6th " " " " " "	508.49
Flash of 6th " " " " " "	512.46
Crest of 7th " " " " " "	508.55
Flash of 7th " " " " " "	512.42
Crest of 8th " " " " " "	508.52
Flash of 8th " " " " " "	512.53
Crest of 9th " " " " " "	508.41
Flash of 9th " " " " " "	512.57
Crest of Right " " " " " "	508.31
Flash of Right " " " " " "	512.57
Upstream wall at right of spillway	512.61

517

WDNR Comments

Memorandum One Page

BENCH MARK 226A
HAYWARD DAM, SAWYER COUNTY

Submitted by G.P. Steinmetz,
July 19, 1933.

The decision of this Commission granting authority to raise and enlarge the above dam, decided September 17, 1919, (23-W.R.C.R. page 647) gives the elevation of bench mark 226A as 516.04 feet. Upon resurveying this dam in 1933 Mr. Muegge found an error in the original field notes. When this error is corrected, the original elevation of bench mark 226A is found to be 517.04 feet and the order of this Commission should be corrected accordingly.

- - - -

Adolph Schram - Ranger

WDNR Comments

ENGINEERING DEPARTMENT
PUBLIC SERVICE COMMISSION OF WISCONSIN

File 574
Inspected by BPJ
Date 7-28-33
Stream Mamekagon River
Address Ashland, Wis.

Name of Dam [illegible]
Owner Lake Superior Distr. Power Co

Condition of Structure:

Concrete: Spillway & gate piers good; ft. end of PH shelf is 8" at toe of bldg. Rest of shelf is 12" thick. Rear wall of bldg. is 8" at top & 12" at bottom. Cone walls of new P.H. spalled badly, most of loss at base. Many cracks in walls of PH about 2' above shelf. Reinforcing in 5 of 6 places. Many cracks in PH shelf 2' out with fine cracks across. Cafferata undermined.

Steel: ~~Masonry~~

Timber: Left bays of bridge rotten. Center & east gate timbers loose. Bays at end of PH good.

Earth dykes: Good

Flood gates: Left bays PH

Flood gate hoists: Hand.

Flood capacity:

Seepage: Loss of ft under downstream edge of retaining wall at N end PH.

Scouring below dam: Deep little. Large boulders

Flood capacity:

Repairs since 1930:

Bench Marks:

Gages: 1 FW 13" to 15" below piers. Staff 2' below piers

Headwater:
Normal Flow: Max. Normal Min.
Flood Flow: Date Max.

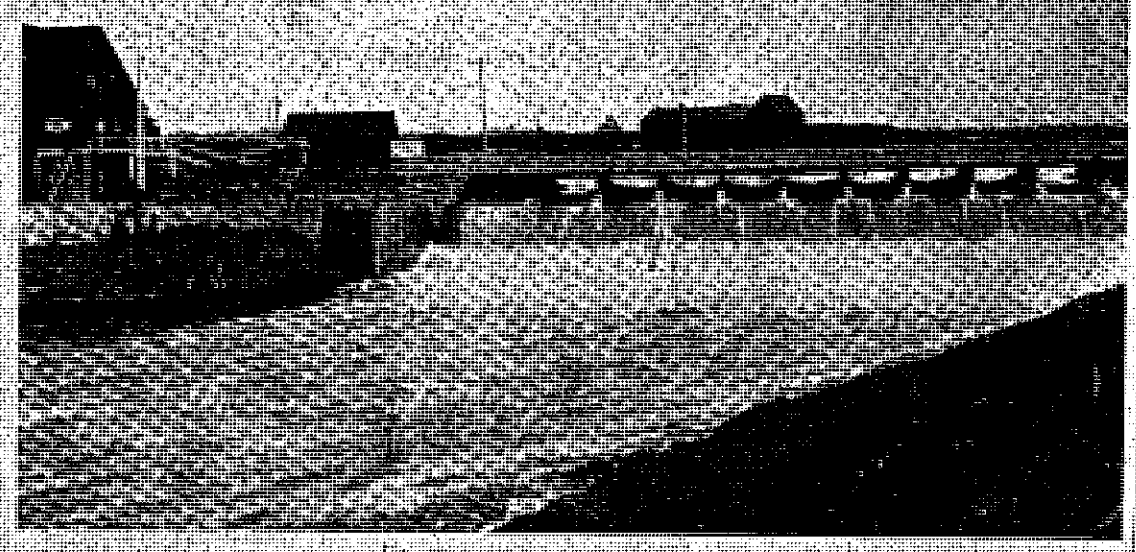
Remarks: New PH needs shoulder repaired. Left bays PH should be checked for cracks. Head race near PH restricted.

WDNR Comments

504

SAWYER COUNTY RECORD AND HAYWARD REPUBLICAN — HAYWARD, Sawyer County, WISCONSIN 54843

MILLDAM AT HAYWARD, circa



THE DATE OF this week's "Old Time Photo" is unknown, but shows the old mill dam in Hayward.

WDNR Comments

Memorandum

HAYWARD DAM
OWNED BY LAKE SUPERIOR DISTRICT POWER CO.
FIELD BOOK #893

Submitted by W.A. Muegge
February 2, 1940

Bench marks were checked and elevations taken on September 23, 1939.

The following elevations are referred to datum of bench marks 226-A and 226-C.

Pond level	511.94 ft.
High water mark observed	512.19
Tailwater, wheel running	495.24
Water below dam	495.24
Sill of gates - left end	508.44
Sill of gates - center	508.34
Sill of gates - right end	508.19
Top of left gate 6.0 ft. wide-all others 11.5 ft. wide	511.88
Top of 2d gate	511.77
Top of 3d "	512.20
Top of 4th "	512.13
Top of 5th "	511.80
Top of 6th "	511.94
Top of 7th "	512.14
Top of 8th "	512.09
Top of 9th "	511.88
Top of right gate	509.79
Platform over flume	513.32
Dike at left of power house	513.09
Dike at left of wasteway	514.14

- - -

WDNR Comments

AL SERVICE COMMISSION OF WIS SIN
ENGINEERING DEPARTMENT
INSPECTION OF DAM

File No. 57.4
Date 9/23/39
Inspected by W.A. Huegge.

Name of dam Hayward Stream Namakagon.

Owner of dam Lake Superior Dist. Pr. Co. Address Ashland.

Present purpose of dam Hydro Elec. Normal pondage _____ Acres

Type of dam gate & Spillway section.

Has dam been rebuilt or repaired? (Dates?) Probably only minor repairs.

Condition of structure

Concrete Spalled about 1.0' deep reinforcing exposed at bottom of downstream side of ~~left~~ wall of dam at apron edge. Also downstream wall.

Masonry

Timber good.

Flood Capacity

I. Gates

Number	Type	Width	Top Elevation	Sill Elevation
1	Stop Log	6.0 ft.	~~Flash~~ 511.88 ft.	508.~~84~~ ft.
9	"	11.5 "	Varies "	Av 508.32 "
		"	"	"

II. Spillways

Number	Length	Crest elevation	Flash elevation
None	ft.	ft.	ft.
	"	"	"
	"	"	"

III. Fishways None

IV. Available freeboard to elevation Slyke. 513.09 ft.

Operating Head

Head water elevation observed 511.99 ft. Tailwater elevation 495.24 ft.
Highwater mark observed 512.19 ft.
Headwater elevation _____ ft. Operator
Maximum _____ ft. Minimum _____ ft. Normal _____ ft.
Maximum load plant can pull-normal head ?
What is condition of tailrace? Good
Maximum known flood:
Elevation _____ ft. No gates open _____ Date _____
Remarks:
Seepage through slyke at right wall of old powerhouse. about 10 C.F.S.

WDNR Comments

Kind of Gages: None.

Headwater reading _____ ft. Tailwater reading _____ ft.

Dykes: Condition, freeboard, length etc.? Good except for seepage.

Canals: Condition, length etc.? None.

Operating features

I. Generators

Number	Make	Type	K.V.A.	K.W.	Volts	Amps. per phase	Speed

II. Exciters

III. Governors

Number	Make	Type	Size

IV. Water Wheels

Number	Make	Type	Size	Horsepower

Remarks and sketches: _____

WDNR Comments

Memorandum 57.4

HAYWARD DAM
OWNED BY LAKE SUPERIOR DISTRICT POWER COMPANY
FIELD BOOK NO. 903

Submitted by P. O. Finsland
July 31, 1946

Bench marks were checked, bench mark 226D was established, and elevations were taken on July 31, 1946.

Bench mark 226D is described as a 2-inch square cut in the top of the concrete retaining wall at the left of the tailwater and 5 inches from the southwest corner of the new power house.

The following elevations are referred to datum of bench mark 226A:

Bench mark 226C	512.92
Bench mark 226D	508.76
Pond level	512.21
High watermark observed	512.51
High water per dist. mgr. 3" over old concrete flume wall	512.67
Tailwater, wheel running	495.36
Water below gates	495.85
Sill of right stop log gate 11.2' (clear) wide	508.03
" " 2nd " " " 11.2'	508.10
" " 3rd " " " 11.3'	508.21
" " 4th " " " 11.3'	508.30
" " 5th " " " 11.1'	508.27
" " 6th " " " 11.3'	508.26
" " 7th " " " 11.2'	508.35
" " 8th " " " 11.2'	508.26
" " 9th " " " 11.2'	508.41
" " left " " " 6.2' wide	508.47
Top of right stop log gate	512.33
" " 2nd " " "	511.68
" " 3rd " " "	512.31
" " 4th " " "	511.97
" " 5th " " "	511.82
" " 6th " " "	512.22
" " 7th " " "	512.03
" " 8th " " "	512.10
" " 9th " " "	512.26
" " left " " "	512.30
Top of old concrete flume wall at right of spillway	512.42

WDNR Comments

Bench mark 226

57.4

Top of concrete wall between right & 2nd gates (over gates)	512.38
" " " " " 2nd & 3rd " " "	512.42
" " " " " 3rd & 4th " " "	512.46
" " " " " 4th & 5th " " "	512.45
" " " " " 5th & 6th " " "	512.50
" " " " " 6th & 7th " " "	512.60
" " " " " 7th & 8th " " "	512.61
" " " " " 8th & 9th " " "	512.65
" " " " " 9th & left " (dated 1918)	512.76
Top of left abutment (over gates)	512.86
Top of concrete platform over flume now in use	513.30
Top of concrete curb over trash rack	513.57

- - -

WDNR Comments

INTERVIEWED:
District Manager
R. H. Suess
Main office - Ashland, Wisconsin

PUBLIC SERVICE COMMISSION OF WISCONSIN
ENGINEERING DEPARTMENT
INSPECTION OF DAM

File No. 57.9
Date July 31, 1946
Inspected by P.C. Finsland

Name of dam Hayward Dam Stream Namekagon River

Owner of dam Lake Superior Dist. Power Co Address HAYWARD Ashland

Present purpose of dam Hydro-elec Normal pondage _____ Acres

Type of dam Concrete, gravity

Has dam been rebuilt or repaired? (Dates?) Not since last report

Condition of structure

Concrete abutments above waste way - poor
Sills of waste way, wing walls - good
Junction of concrete at right of waste way and old P.H. - poor
~~Masonry~~

Timber stop logs - good

Flood Capacity

I. Gates

Number	Type	Width	Top Elevation	Sill Elevation
1	Stop log	6.7 ft.	ft.	508.47 ft.
9	" "	(CLEAR) 11.2 "	LOW 511.68 "	LEFT END 508.41 "
		"	HIGH 512.33 "	RIGHT END 508.03 "

II. Spillways

Number	Length	Crest Elevation	Flash Elevation
NONE	ft.	ft.	ft.

III. Fishways NONE

IV. Available freeboard to elevation L. ABUT 512.86 ft.

Operating Head

Head water elevation observed 512.21 ft. Tailwater elevation 495.36 ft.
Highwater mark observed 512.51 ft.
Headwater elevation _____ ft. Operator
Maximum _____ ft. Minimum _____ ft. Normal _____ ft.
Maximum load plant can pull-normal head 480 about 170 K.W.
What is condition of tailrace? good
Maximum known flood:
Elevation 512.67 ft. No gates open _____ Date _____
Remarks: _____

WDNR Comments

57.4

Name of Dam HAYWARD

Date FEBRUARY 8, 1954

INSTALLED EQUIPMENT

Water Wheels			Connected To Generators		
Unit	Size	Horse Power	Kva Rating	Kw Rating	Mechanical Equipment
1		280	210	168	None

WDNR Comments

Memorandum 57.4

HAYWARD DAM
OWNED BY LAKE SUPERIOR DISTRICT POWER COMPANY
FIELD BOOK #975, p. 12

Submitted by T. D. Windau
June 22, 1965

The following survey was taken on June 18, 1965. The survey was referred to the datum of BM 226D which has an elevation = 508.76 feet.

Water level (gage read 512.0)	512.09 feet
Tailwater	495.26 feet
Top of right abutment	512.39 feet
Top of 2nd abutment	512.23 feet
Top of 3rd abutment	512.03 feet
Top of 4th abutment	512.37 feet
Top of 5th abutment	512.36 feet
Top of 6th abutment	512.43 feet
Top of 7th abutment	512.53 feet
Top of 8th abutment	512.53 feet
Top of 9th abutment	512.57 feet
Top of 10th abutment	512.70 feet
Top of left abutment	512.80 feet
Top of right spillway	512.09 feet
Top of 2nd spillway	511.68 feet
Top of 3rd spillway	511.79 feet
Top of 4th spillway	511.42 feet
Top of 5th spillway	512.30 feet
Top of 6th spillway	512.40 feet
Top of 7th spillway	512.53 feet
Top of 8th spillway	512.33 feet
Top of 9th spillway	512.05 feet
Top of left spillway	512.20 feet
Right sill	507.87 feet
2nd sill	507.91 feet
3rd sill	508.09 feet
4th sill	508.21 feet
5th sill	508.14 feet
6th sill	508.18 feet
7th sill	508.27 feet
8th sill	508.16 feet
9th sill	508.31 feet
Left sill	508.38 feet

WDNR Comments

Memorandum

57.4

HAYWARD DAM
OWNED BY LAKE SUPERIOR DISTRICT POWER CO.
FIELD BOOK #983

Submitted by R. Bubolz
August 15, 1966

On August 2, 1966, Benchmark 226-A was located along the edge of South First Street.

RB/jp

WDNR Comments

DEPARTMENT OF NATURAL RESOURCES

Hayward

Location: SW ¼ NW ¼ of Sec. 27, T. 41 N., R. 9 W.
Sawyer County

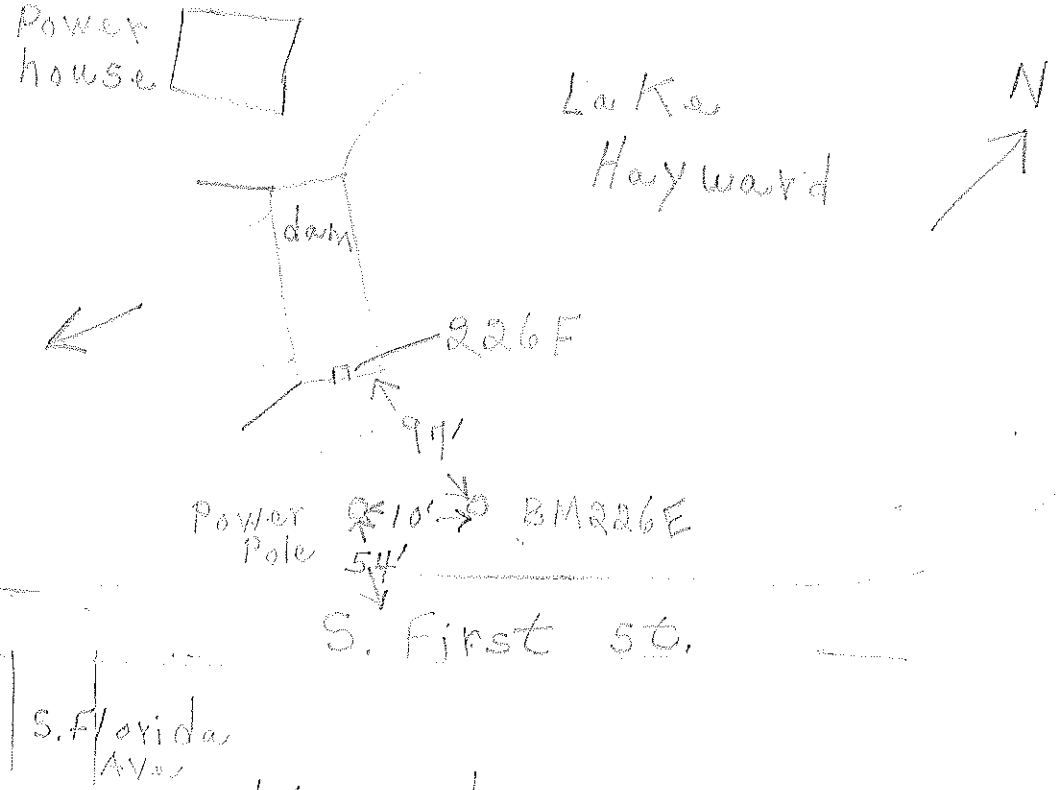
Benchmark No. 226E + F Elevation E-F

Set by: R.M.T., D.R.S.

Vertical Datum:

Date of survey: Aug. 19, 1970

Location Sketch:



Description of Benchmarks: BM 226E is a bronze cap in a concrete post, 99' E of dam, 10' N of power pole, ±54' W of ℄ of First St. on E. bank of lake.

BM 226F is a chiseled sq. on E abutment of dam, left upstream from stoplog.

WDNR Comments

State of Wisconsin
Department of Natural Resources

DAM INSPECTION REPORT
Form 3500-59
Rev. 5-81

1. Dam Name: Hayward Dam
2. Stream: Namekagon River
3. County: Sawyer
4. Inspection Date: 10-21-81
5. State Inspection Party: Ron O'Keefe
6. Other Persons Present: Mike Popko
7. Dam Owner: Lake Superior District Power
8. Address: Ashland, Wi.
9. Contact: Mike Popko
10. Telephone Number:
11. Field File Number: 54.4
12. Field Book Number:
13. Benchmarks Located:

14. Water Level: (Specify datum) Headwater: Gage: Tailwater: Gage:

15. How many photos taken: 2 (Prints) or slides:

16. Estimated Federal Dam **Hazard Rating (High, Significant, Low):**

CONDITION OF DAM

I. EMBANKMENTS

a. Seepage

none

b. Slope Stability

good

c. Surface Erosion

none

d. Animal Burrows

~~Yes~~ none

e. Embankment-Structure Junctions (at retaining walls, natural ground, etc.)

good

WDNR Comments

f. Slope Protection

some riprap

g. Vegetation

a tree at right in of spillway should be taken out

h. Repairs Since Last Inspection

piers and spillway repaired last summer

II. SPILLWAY(S)

a. Surface Condition

good

b. Cracking

good

c. Horizontal and Vertical Alignment

good

d. Exposed Reinforcement

none

e. Seepage

none

f. Joints

good

g. Repairs Since Last Inspection

spillway repaired last summer

III. GATES

a. Steel, Timber, None

WDNR Comments

b. Gate Seals

good

c. Gate Pins

good

d. Gate Hoist and Chains

good

e. Repairs Since Last Inspection

none

IV. MISCELLANEOUS

a. Debris

none

b. Walkway and Railing

good

c. Paint

good

d. Downstream Apron

new last summer

e. Stilling Basin - Scour, Undercutting

none

f. Foundation Seepage

none

g. Downstream Channel - Scour

none

h. Other Observations

WDNR Comments

V. BOATING SAFETY

a. Warning devices and signs:

signs

b. Portage signs and facilities:

signs

VI. HYDROPOWER USE

a. Last date used for power: Continuous

b. Current installed capacity: 195 KW

c. Average power output during inspection: 195 KW

VII. RECOMMENDED MAINTENANCE ACTION:

Ronald E O Kife 10-21-81

Date Signed Inspected By:

WDNR Comments

mcg

WI DNR

Jeff Scheier
Park falls

OPERATION REPORT

Federal Energy Regulatory commission
Chicago Regional Office

For the period September 11, 1996 to August 19, 1998

Licensee Northern States Power Company Project No. 2417

Project Name Hayward NATDAM No. WI00795

Location Namekagon River (waterway) Sawyer County WI State

License Issued September 1, 1995 Expires December 31, 2025

Type Minor

Date of last amendment None

Inspected by Kevin S. Richards/Adam S. Pawelek Date August 19, 1998

Parts Inspected All visible parts of the facility were inspected

Weather Cloudy, 60 degrees F.

Accompanied by Mr. Tom Ricci of Northern States Power Company

Summary

An operation inspection of the Hayward Hydroelectric Project, FERC No. 2417, was performed by Mr. Kevin Richards on August 19, 1998. All visible portions of the project water-retaining structures were inspected and found to be in satisfactory condition. No dam safety deficiencies were found that require immediate remediation. A small depression in the soil was noted behind the sheet pile near the intake, which we understand is already scheduled for repair. Minor deterioration of concrete in pier No. 6 and leaking cracks on the rollway should be monitored. The project is being operated and maintained in a safe manner.

No public safety deficiencies were found with the exception of a faded warning sign, on the downstream side of the powerhouse, which the licensee indicated would be immediately replaced.

Submitted: November 12, 1998

Kevin S. Richards

Kevin S. Richards, P.E.

WDNR Comments

A. Safety of the Project

Attached are 11 photographs that show the features and condition of the project at the time of the inspection. The approximate location and orientation of the camera for each photograph are shown on the attached exhibit. Project data is on the attached Pertinent Data Sheet.

1. Dams, Dikes and Appurtenant Structures

Spillway - Access to the spillway is fenced, a project sign is posted at the main entrance (Photograph *1*). The concrete spillway has 10 wooden stoplog bays (Photograph *2*). The concrete surfaces of the spillway ogee and downstream apron could not be observed due to water flowing over the apron (Photographs *3*, *4*, *5*, *6*). The upstream concrete and sheet piling retaining walls appeared to be in generally satisfactory condition (Photograph 7). The operator deck and the piers that support the stoplogs on top of the spillway appear to be in good condition (Photograph *8*). The downstream right training wall appeared to be in generally satisfactory condition, with some cracks and efflorescence noted on the wall. Some minor leakage was observed in the left retaining wall near a 3 inch gap between the surface of the spillway and left retaining wall. The leakage was under slight artesian pressure (Photograph *5*). A similar leak was observed along a construction joint in the center of the spillway (Photograph *4*). The cracks and spalling are not serious enough to require repair at this time. Pier No. 6 has reinforcing steel exposed and should be carefully monitored for any further deterioration. Minor leakage was observed exiting between stoplogs in gate bay No. 7.

Powerhouse - The powerhouse superstructure, intake structure and head gate appeared to be in satisfactory condition, with the exception of a large crack in the back of the powerhouse (Photographs *9*, *10* and *11*). The downstream wall of the powerhouse substructure and the left downstream retaining wall contain cracks, spalling and efflorescence. No action is required at this time other than closely monitoring the larger cracks for signs of offset or leakage. It appeared that the spalled area of concrete has not increased sufficiently during this report period to warrant any repair at this time. No leakage was observed.

Embankments - The middle earth embankment, located between the spillway and powerhouse, appears to be generally in good condition (Photograph 7). Weeds had been cleared from the middle and right embankments. The right embankment is in good condition. No soft spots or wet areas were observed. The licensee indicated two piezometers were removed from the right earth embankment.

WDNR Comments

2. Instrumentation. There is a headwater elevation recording chart which was functioning at the time of the inspection. Piezometers Nos. 1 and 2 were buried 8 years ago. Piezometric levels in Nos. 3 and 4 were consistent with water levels of the past four years. They were at 13.6 and 13.5 feet below surface, respectively. A slug test was reportedly performed on the piezometers two weeks prior to this inspection which indicated the piezometers are functioning properly. No additional instrumentation is required at this time.

3. Hazard Potential Classification. During the inspection, no changes in the downstream conditions were reported by the licensee's representative or observed from the dam by the inspector. There are no permanent structures immediately downstream. The licensee confirmed by letter dated December 23, 1997 that there were no upstream or downstream conditions which would endanger life, health, or property as a result of an emergency at the project. Therefore, the current low hazard potential rating should remain in effect.

4. Consultant's Safety Inspection Report. A consultant's safety inspection report is not required for this project.

5. Licensee's Inspection Program. There is no formal program of inspection. The spillway operator visits the project daily to check water levels and the operation of the gates. Also, the operator visually inspects the project structures once a week. The project is also inspected by Mr. Mark Fort, supervisor of project operations, every three months. Mr. Dick Rudolph, the Hydro Administrator, also inspects the project every six months. Records of the condition of the structures are kept in the licensee's Hayward office.

B. Operation and Maintenance

There were no maintenance items requested following our 1996 operation inspection.

1. Dams, Dikes and Appurtenant Structures. The drainage system on the right embankment, consisting of five, four-inch corrugated plastic pipes connected to a head pipe near the concrete retaining wall, appeared to be working satisfactorily. Approximately 1 g.p.m. was observed exiting the pipe at the downstream slope near the powerhouse wall (Photograph *10*). A new headwater monitor was reportedly installed. The licensee indicated repairs were scheduled to correct minor erosion behind the sheet pile on the center embankment. Holes will be backfilled with gravel and soil.

WDNR Comments

2. Spillway Gates and Standby Power. The spillway gate operation criteria does not apply to this stoplog spillway. There are stoplog slots in the retaining walls of the intake structure for stopping the flow. Also, a vertical steel head gate is available for emergency closure of the powerhouse intake, however a boom truck would need to be brought in to lower the slide gates. The licensee indicated they are not cindering the gates, and that the minor leakage observed was due to this fact.

3. Power Plants. There is only one generating unit in the powerhouse, which has 200 kW capacity. At the time of inspection, the unit was in operation and generating 175 kW. There were no unscheduled shutdowns or suspensions of operation during the reporting period, and no modifications to the powerhouse.

4. Reservoir. The reservoir rim in the proximity of the dam was inspected and appeared to be free of excessive debris. No signs of shoreline instability or erosion were noted.

5. Records. The operational history, piezometer readings, daily water level readings and generation records are kept at the project site. Also, Exhibit F drawings are kept in the powerhouse.

6. Emergency Action Plan. This project was exempted from filing an emergency action plan by the Regional Director on July 15, 1982. A remote alarm system has been installed to notify the licensee's Eau Claire office in the event of a high water condition. If the plant trips, the dispatcher in Eau Claire receives the alarm and pages the plant operator, who will then proceed to the project site to inspect the condition or he will call the Hayward office to investigate the problem. Based on the conversation with the licensees representative, it appears that the present arrangement is satisfactory for this project. Emergency numbers and current notification procedures were posted.

C. Environmental, Public Use and Safety

1. Public Safety Plan. By letter dated April 27, 1992, the licensee submitted a Public Safety Plan for the project. Provisions for public safety at this project include:

a. Fencing of the project structures to restrict public access.

b. Warning signs on the upstream side of the spillway and on the downstream sides of the spillway and powerhouse had recently been installed.

WDNR Comments

c. Signs warning of thin ice on the upstream face of the spillway and powerhouse intake structure.

d. A boat-restraining barrier upstream of the dam and powerhouse intake. The boat barrier was in-place during the inspection (Photograph *1*). There are reflective warning signs on the barrier, and the barrier is kept in place all year round. During the winter season, the licensee places "THIN ICE" warning signs on the floats of the barrier.

e. A canoe portage is located on the right shoreline of the reservoir a short distance upstream of the restraining barrier. A sign directs canoeists to the canoe portage.

f. A recreational facility sign is posted on the left shoreline at the left end of the spillway (Photograph *1*).

At the time of inspection, the warning sign at the downstream side of the powerhouse was faded. The licensee indicated they would immediately replace the sign. Public safety provisions are adequate at this time.

No recreational activity was observed during the inspection. The public safety aspects of the project appeared to be adequate. There are existing overhead power lines crossing the reservoir of the project. The power lines are high enough and do not present a danger to the public.

2. Need for Action. None apparent at this time.

3. Environmental and Public Use Inspection. The last environmental and public use inspection was performed by Mrs. Patricia A. Grant, Environmental Protection Specialist, on July 16, 1997. The there were no deficiencies noted requiring remediation. Her report is on file in the Chicago Regional Office. Review of the headwater chart recordings indicated the reservoir was operated in a band between 1187.4 to 1187.2 in July, with high water of 1187.6 in June. There was approximately 14 cfs minimum flow at the time of the inspection. The licensee reported that they were still working on the streamflow gage plan. The WDNR will be directing placement of boulders in the stream for the Sturgeon, the work was planned but had not been completed at the time of the inspection.

D. Matters of Commission Interest

1. Additions, Betterments, Leases, Retirements, or Needed Extensions. None.

WDNR Comments

2. Requiring Commission Action. Nothing to report.

3. Project Compliance. Based on a file review and field inspections, the licensee appears to have been in compliance with all compliance requirements in the license during this report period.

E. Findings and Follow-up Actions

No dam safety deficiencies were found that require immediate remediation. A small depression in the soil was noted behind the sheet pile near the intake which we understand is already scheduled for repair. Minor deterioration of concrete in pier No. 6 and leaking cracks on the rollway should be monitored. The project is being operated and maintained in a safe manner.

No public safety deficiencies were found with the exception of a faded warning sign on the downstream side of the powerhouse. The licensee indicated the sign would be immediately replaced. There were no other public safety deficiencies that would require immediate action. The public safety aspects of the project appeared to be adequate.

Attachments:

1. Pertinent Data Sheet
2. Set of 11 Photographs
3. Exhibit 1

Original and one copy to DIR, D2SI, OHL/RIMS
Richards, K.S./mcl (m:\ksr\wpdocs\2417\2417.op)

WDNR Comments

PERTINENT DATASHEET

Date Run: 9/21/98

----------Chicago Regional Office ... D2SI ... FERC ----------

GENERAL DATA

Dam Number: 02417-01-01
Project Name: HAYWARD
Project Owner: NORTHERN STATES POWER CO (WI
Reservoir Name: HAYWARD
Dam Name: HAYWARD
State,County: WI SAWYER
USGS Quad: HAYWARD 7.5'

LATITUDE(deg/min/sec): 46 0 24
LONGITUDE(deg/min/sec): 91 29 6

River: NAMEKAGON
Rivermile: 45
Drainage Area (sq/mi): 192
Seismic Zone: 1
DS Hazard: L
Dam Height (ft): 20
Hydraulic Height(ft):
Completion Date: 1925
DS City : HAYWARD
Distance (mi): 0

Hydrologic Data

PMF (cfs): 51,580
Flood of Record (cfs): 2,150
Date Flood of Record: 1/1/41
Average Flow (cfs): 175
Minimum Flow Required (Y/N): Y
Minimum flow (cfs): 8

Part 12 Requirements

CSIR REQUIREMENT (Y/N): N

CSIR REPORT HISTORY

Round	Due	Received

Reservoir Data

Normal Surface Area (acres):: 240
Pool Elevation Max (msl): 1,187.50
Normal (msl): 1,187.40
Minimum (msl): 1,187.00
Normal Storage (acre-ft): 1,100
Maximum Storage (acre-ft): 1,900

EAP Status: EXT
Latest EAP/Eap Mod:

PRB Required (Y/N): Y

	Mo	Day
Date In :	1	1
Date Out	12	31

Project Works

Type of Dam:	ER	TC
Authorised Gen. Capacity (Kw):	168	
Number of Generating Units:	1	
Number of Gates:	10	
Number of Powerhouses:	1	
Number of Penstocks:	0	
Number of Canals:	0	
Number of Tunnels:	0	

Inspection History

NAME:	STAT	DATE:	TYPE:
RICHARDS	ACT	8/17/98	OP
GRANT	ACT	7/16/97	EPUI
MALHOTRA	ACT	9/10/96	OP
MALHOTRA	ACT	9/19/94	OP
DIDOS	ACT	9/24/92	OP
KLINKENBERG	ACT	6/13/90	EPUI

Project Notes

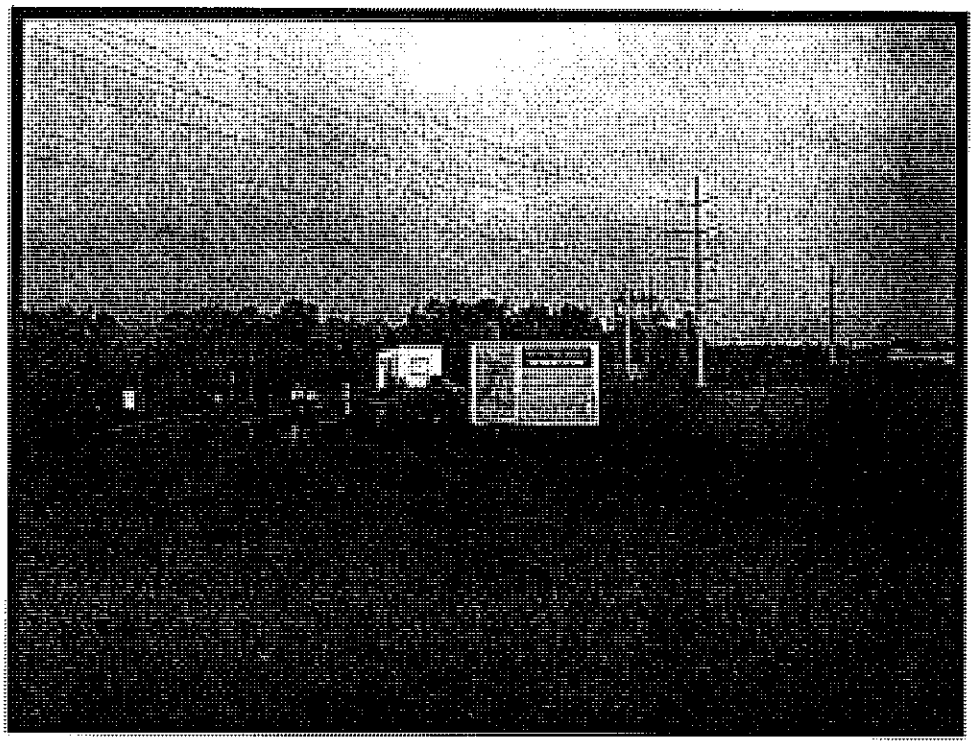
Dam & Spillway: A rock-filled timber crib dam about 300' (91m) long x 20' (6m) high with a concrete spillway 122' (37m) long which is divided into nine bays 12' (4m) wide and 4' (1m) deep and one bay 6' (2m) wide and 45' (14m) deep all closed with flashboards. Remaining portion of dam is earthfill section integral with the powerhouse. Note: Article 402 requires run-of-river operation. Article 402 also stipulates a target pool elevation of 1187.4, with fluctuations allowed between 1187.5 and 1187.0.

Conduit: None.

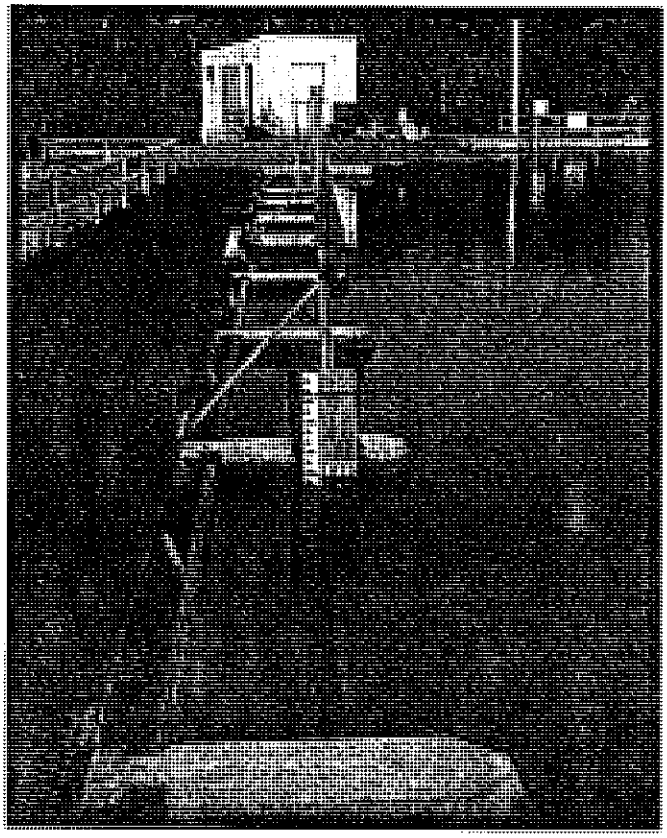
Powerhouse: Brick powerhouse contains a generator of 168 kW capacity at .8 pf and turbine rated at 280 hp (209kW) at 180 rpm.

Substation & Transmission Line(s): None.

WDNR Comments

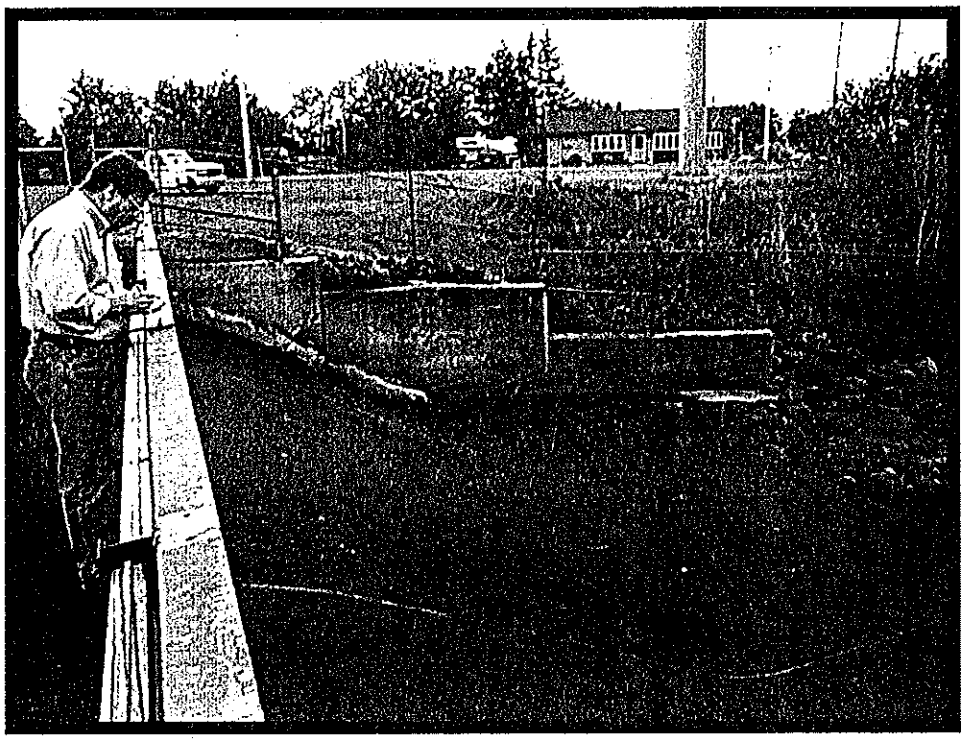


Photograph 1- Project sign, with boat barriers in background.

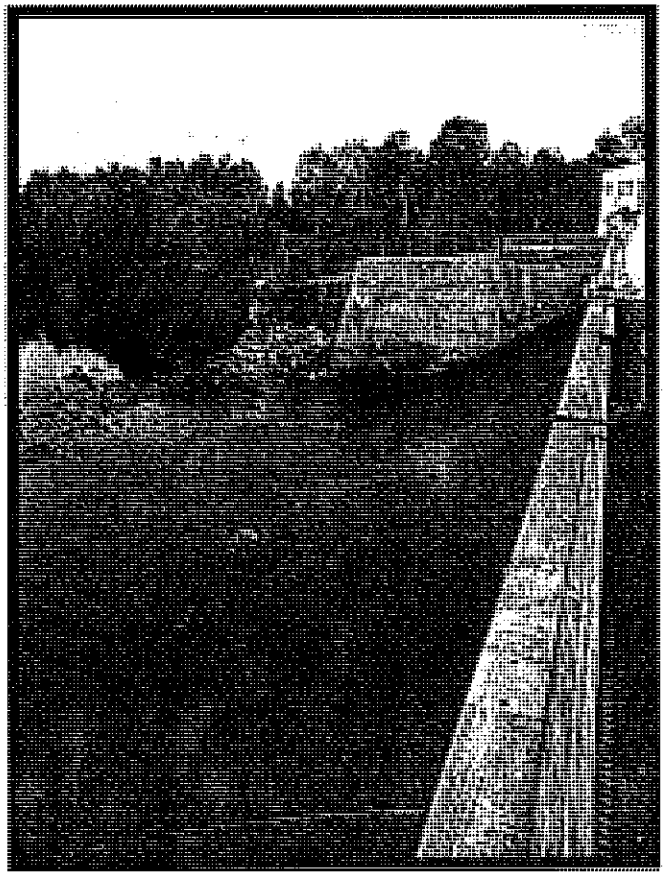


Photograph 2- Piers in good condition.

WDNR Comments

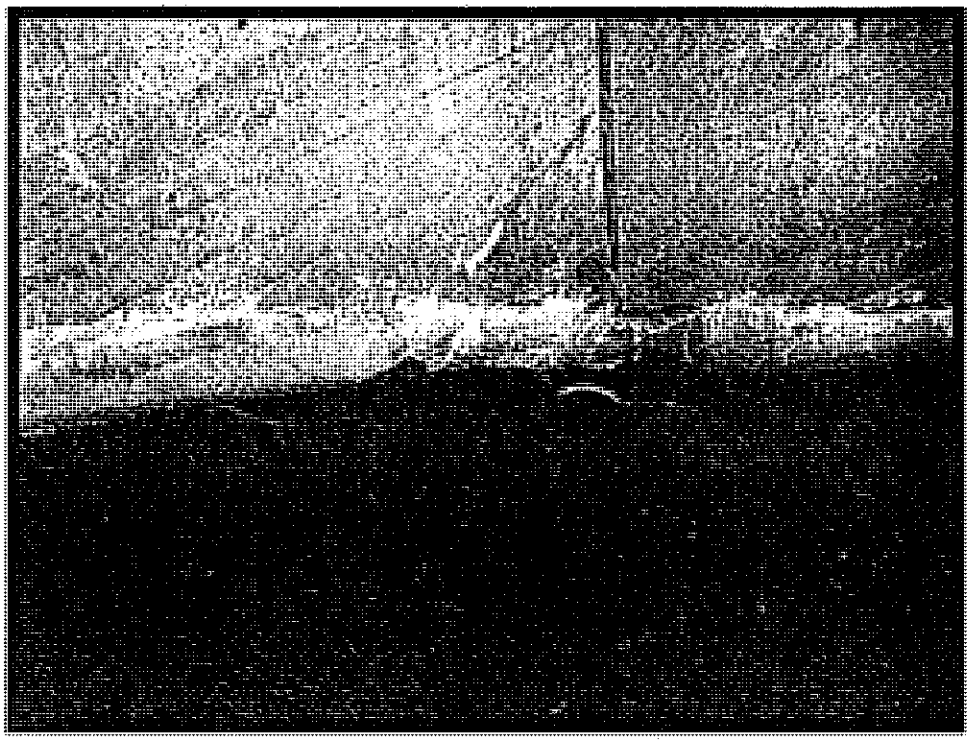


Photograph 3- Spillway and left retaining wall in fair condition, note riprap at end of left retaining wall.



Photograph 4- Leak through spillway surface, minor cracking in right retaining wall.

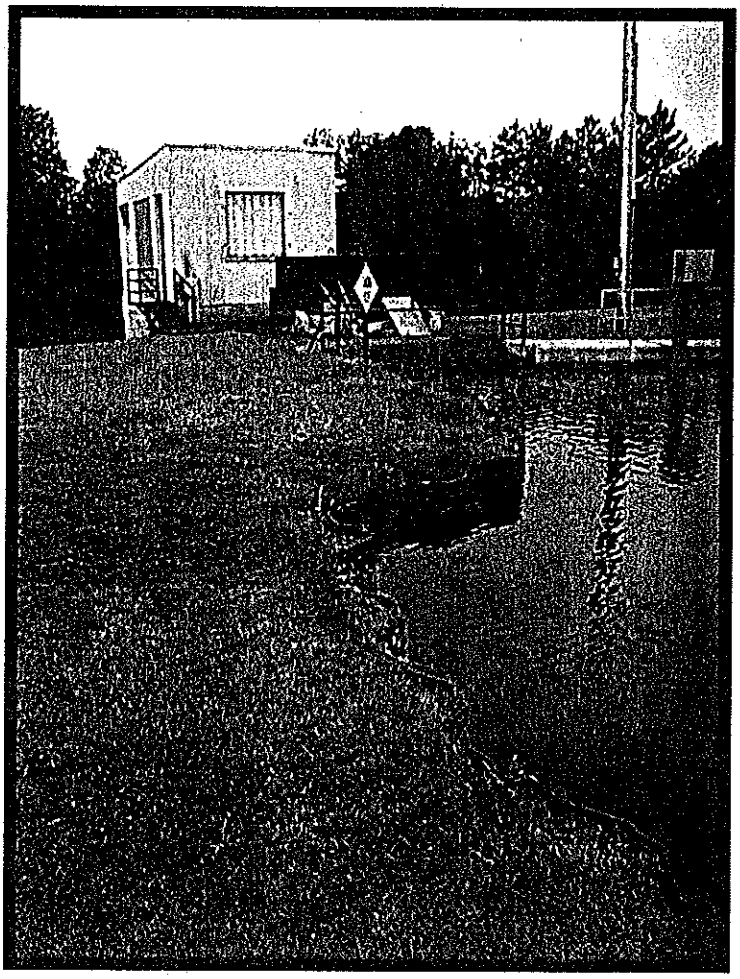
WDNR Comments



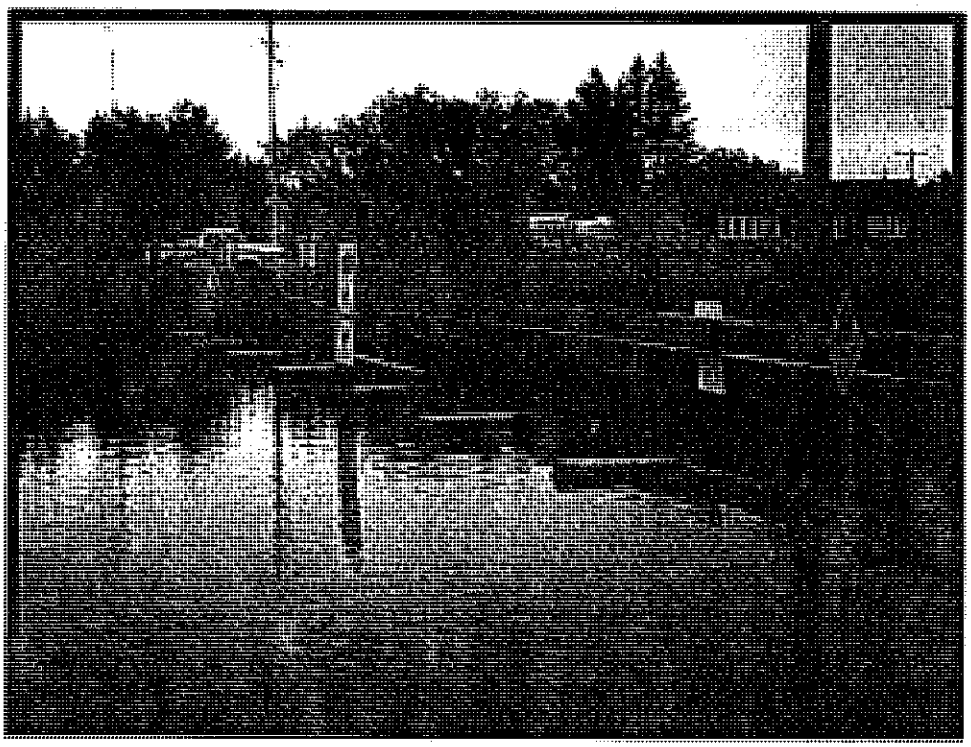
Photograph 5- Leak through spillway surface.

Photograph 6- Downstream area looks stable. WDNR have not installed Sturgeon boulders yet.

WDNR Comments

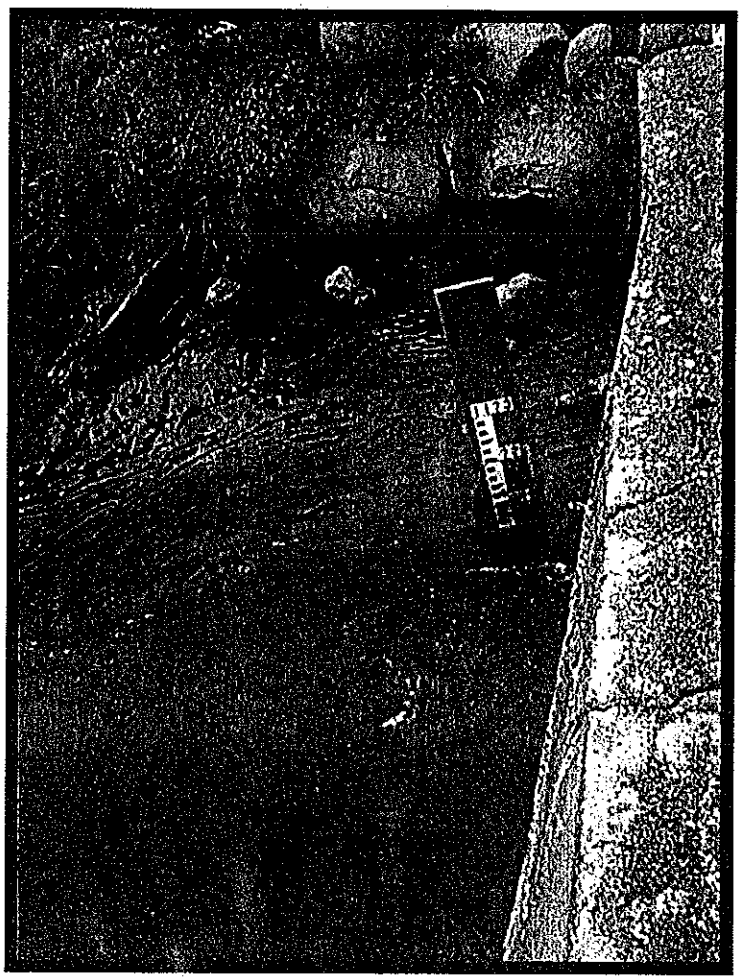


Photograph 7- Intake, left embankment and sheet pile.



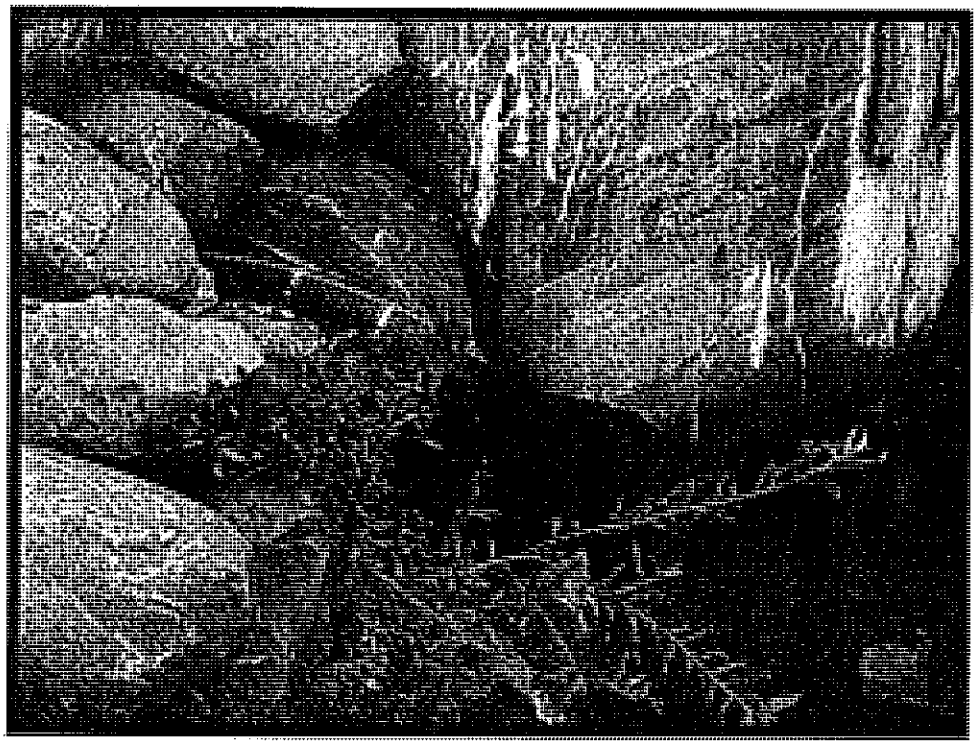
Photograph 8- Warning signs, operator deck and piers in good condition.

WDNR Comments

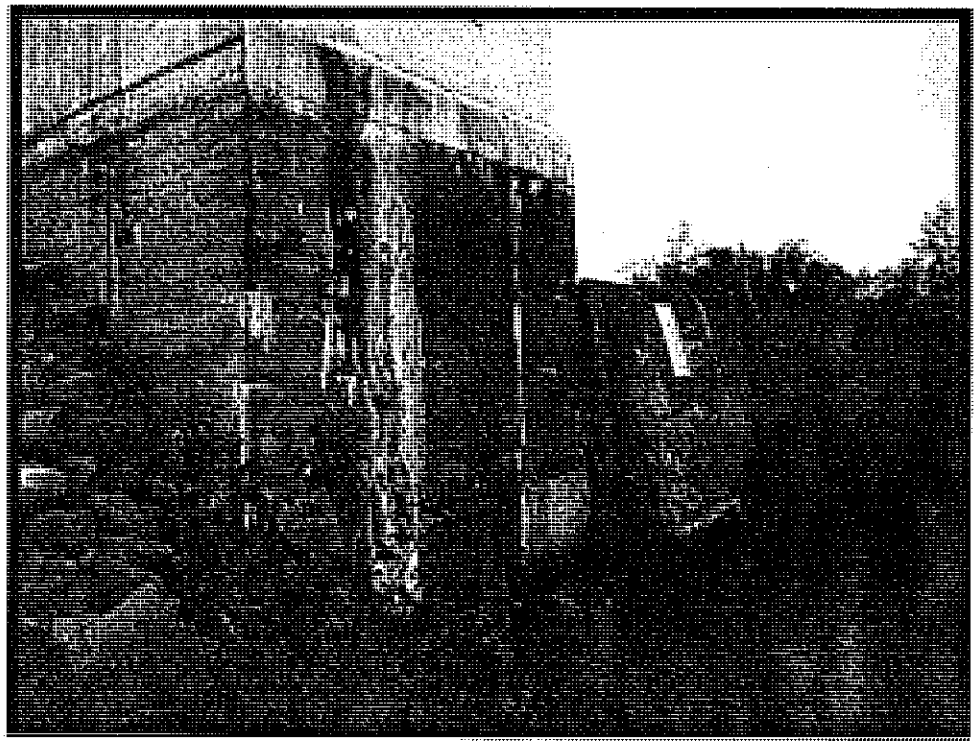


Photograph 9- Tailrace area and downstream staff gage. Note minor cracks in concrete.

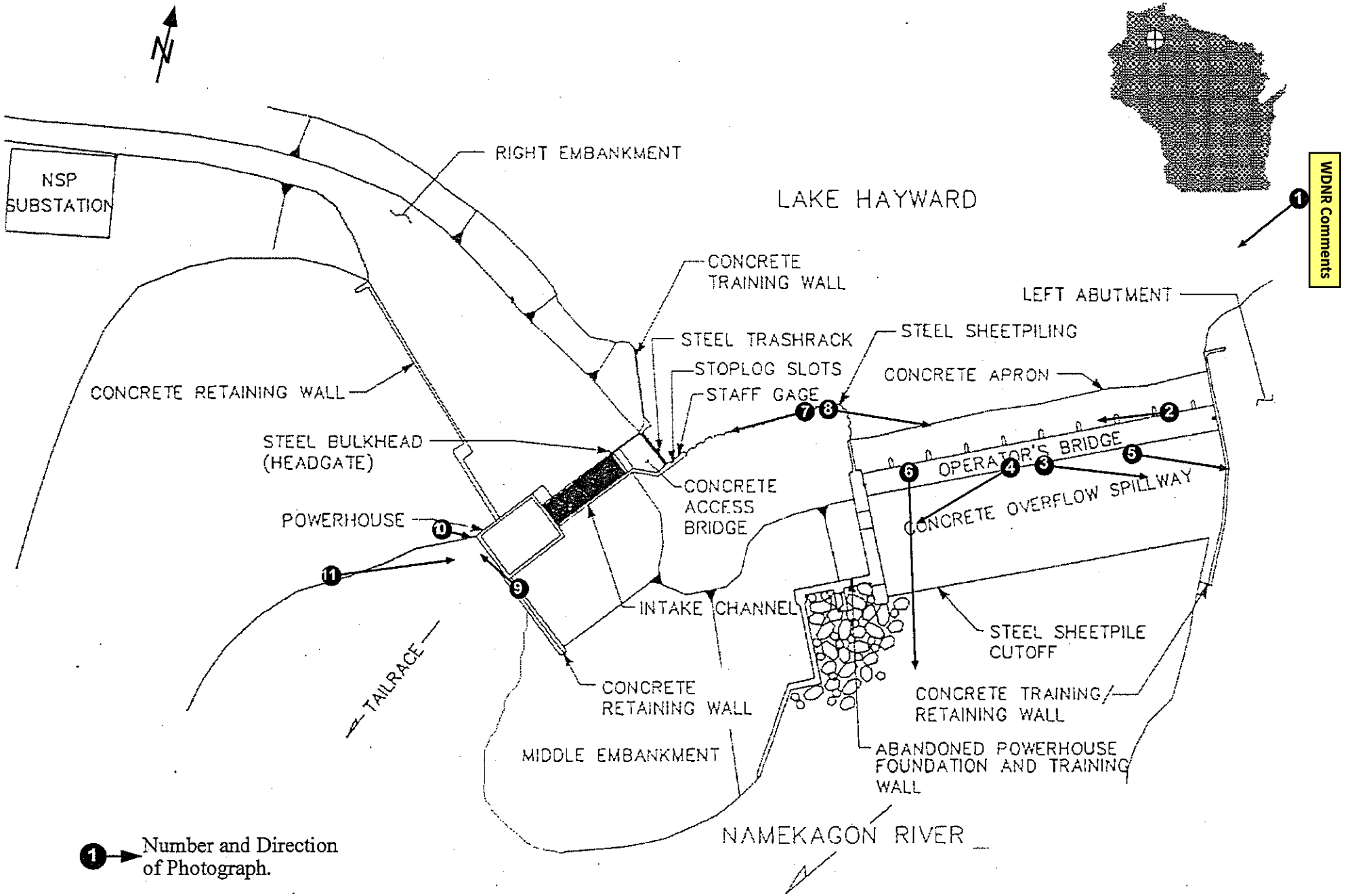
WDNR Comments



Photograph 10- Drain for right embankment flowing at approximately 1 g.p.m.. Note large crack in concrete (also visible in Photograph 11).



Photograph 11- Tailrace area and back of powerhouse. Note faded sign and large crack in concrete.



Note: Photo 11 was taken from the left bank of the river downstream of the dam.

DATE:	TITLE:	
112296	Hayward - Plan View of Project Structure Construction Inspection	**Exhibit 1** **Project No. 2417** CRO • D2SI • FERC

WDNR Comments

Summary Sheet

Name of Dam Trego Dam File No. 65.12 County Washburn

Location NW ¼ SW ¼ Section 17 T 40 N, R 12 W

Stream Namekagon River Name of Lake Held by Dam Trego Lake

Present Owner Northern States Power Company

Existing Bench Marks

BM 633-A - a bronze tablet marked Railroad Commission of Wisconsin set on the upstream portion of the right wingwall of the dam several feet upstream from the walk over the tainter gates. The elevation of this wingwall is shown on the plans as being 105.0 feet. 8-17-27

BM 633-B - a square cut in top of upper retaining wall at left of tailrace. Benchmark is in center of gateway leading to tailrace. Elevation when referred to benchmark 633-A is 90.06 feet. 8-17-27

BM 633-C - a bronze tablet marked Public Service Commission of Wisconsin set in concrete post, 55.5 feet NW of power pole, 21.8 feet north of 8-inch Jack Pine, 21.4 feet north of 4-inch Jack Pine, 155 feet NW of NW corner of fence around transformers. Elevation = 107.60 feet. 7-16-65

WDNR Comments

WATER LEVEL DATA

Lake or Stream Teego Dam

Location Sec 17 T40N R12W, Washburn Co.

Date	Taken By	Field Book #	Lake Level Or Gage Reading	Observed High	Remarks
8/17/27	W.A. Muesse	817	92.79	93.79	
7/16/65	W. Murray	974	99.95		Stge - 99.90
9/7/34	W.A. Muesse	inspection form	98.80	99.00	
9/12/36	W.A. Muesse	"	99.14		Stge - 99' 1¾"
10/8/37	"	"	99.02		Stge - 99.05
8/22/45	"	"			Stge - 99' 8"
7/21/49	"	"			Stge - 100.07
8/16/51	"	"			Stge - 100.' ¼"
9/9/53	"	"			Stge - 90.9
7/9/54	"	"			Stge - 100.1
8/25/55	"	"			Stge - 99.7
7/30/57	"	"			Stge - 99.75
11/6/59	W.S.	"			Stge - 99.11
11/24/64	R.J. Knutter	"			Stge - 99-11½
7/16/65	W. Murray	974	99.95		Stge - 99.90
10/30/65	AKB	inspection form			Stge - 99' 10"
10/24/64	R.J. Knutter	"			Stge - 99.9

63.12

WATER LEVEL DATA

WDNR Comments

Lake or Stream Trego Dam

Location Sec 17 T40N R12W, Washburn Co.

Date	Taken By	Field Book #	Lake Level Or Gage Reading	Observed High	Remarks
6/68	M.A. Richay	994	100.04	100.41	
7/17/69	MAR	Inspection form			Gage - 100.0
9/22/70	DRL	"			Gage - 99' 9 5/8"
11/5/71	J. Paddock	"			Gage - 99.8
10/10/72	WAL	"			Gage - 100.0
9/10/73	A. Mekkelb	"			Gage - 99.9

WDNR Comments

Memorandum

One page
65.12

NAMEKAGON DAM
OWNED BY PEOPLES WISCONSIN HYDRO-ELECTRIC CO.

Submitted by G.P. Steinmetz,
May 28, 1927.

On May 21, 1927, the writer made an inspection of the above dam which is now completed. The headwater was being carried at the elevation of the tainter gate sills or approximately a 20' head.

Several of the riparian owners above have refused to settle for the flowage rights and these lands are now in the process of condemnation. After the necessary flowage lands are acquired by the company it will be necessary to clear these lands before the water may be raised to the full head granted by the permit by this commission.

Bench marks were set under authority granted by Chapter 31.02 of the Wisconsin Statutes.

Bench mark 633A is a bronze tablet marked Railroad Commission of Wisconsin set on the upstream portion of the right wing wall of the dam several feet upstream from the walk over the tainter gates. The elevation of this wing wall is shown on the plans as being 105.0'.

The normal headwater elevation granted by the permit is 97.00' and the normal tailwater elevation is shown on the plans as 69.00'. The top of the tainter gates is shown as 101.00'. Top of walk over tainter gates 107.00'.

WDNR Comments

Memorandum — One page

BENCH MARKS 633A and 633B — 65.12
TREGO DAM (NAMEKAGON)
OWNED BY PEOPLES WISCONSIN HYDRO-
ELECTRIC CORPORATION
(FIELD BOOK 817)

Submitted by W.A. Muegge,
August 17, 1927.

The dam is located on the Namakagon River in Sec. 17, T. 40 N., R. 12 W., in Washburn County, Wisconsin.

The distance to Trego is about 6-1/2 miles on old S.T.H. 11.

Bench marks were set in accordance with authority granted by Chapter 31.02 of the Wisconsin Statutes, and elevations taken at various points of dam on August 17, 1927.

Bench Mark 633A is a bronze tablet marked Railroad Commission, State of Wisconsin, set in top of upstream end of right dam abutment. Elevation when referred to elevation of top of abutment (105.00) is 105.02 feet.

Bench Mark 633B is a square cut in top of upper retaining wall at left of tailrace. Bench mark is in center of gateway leading to tailrace. Elevation when referred to bench mark 633A is 90.06 feet.

The operator, John Whitmer, states that they have been keeping the water at about its present level, that the highest they have had it is a foot above present headwater, which checks with strong highwater mark.

The following elevations are referred to datum of Bench Marks 633A and B.

Points Taken	Elevations
Headwater	92.79
Highwater mark	93.79
Tailwater - full load	69.68
Top of concrete over gates - right end	106.98
" " " " " - left "	107.03
Top of right gate	101.16
" " center "	101.13
" " left "	101.14
Top of concrete over trash racks	100.92

WDNR Comments

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: January 14, 1991

FILE REF:

TO: Bill Clark

FROM: Larry Damman LD

SUBJECT: Trego Fish Survey

I don't have a lot to add or question on the NSP report. The report is what they found. We did do a fall shocker survey which tends to support some of their findings that:

1. There has been a shift in relative abundance among the species since the 1983 survey. Smallmouth and walleye became more abundant while largemouth became less dominant but still significant to the fishery. Relative increases in abundance of perch and crappie and a decline in bluegill may also be true. However, probably not to the extent indicated. They were too early in the year to get a picture of the bluegill population.

2. Some natural walleye recruitment is occurring. We found a few natural walleye young of the year, although its not certain if this represents reproduction from resident fish or immigrants from upstream areas.

The NSP survey does not address the important issue of entrainment and turbine mortality. Because of the short retention time, significant entrainment is a virtual certainty. It appears that the walleye population is most affected since year classes are weak despite excellent upstream spawning conditions and good habitat within the Flowage. I strongly suspect that walleye fry simply drift down from the spawning grounds and right through the Flowage in the first few days of life. There is no way to prevent losses of fry in such a case. Fingerling stocking appears to contribute to the population and may be necessary to sustain a fishable population.

One very interesting observation on stocked musky fingerling resulted from the fall DNR survey. Musky had been stocked one month prior at the town access near the midpoint of the Flowage. Twenty-nine of these fish were recaptured and many more were observed indicating good initial survival. However, all captures and observations were down stream of the stocking point. Future musky and walleye stockings will be made at Trego Park above the Flowage. This should maximize dispersal to suitable habitat before entrainment can occur.

Based on facility design, I suspect turbine mortality may be low and NSP's tailwater survey at least suggests that entrained fish contribute to downstream fishery. However, we have no hard data here to address entrainment or turbine mortality so additional studies on site or at comparable sites are likely to be required.

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Washburn	Trego	MWBC: 2712000
Sampling Objective: Baseline Monitoring	Number and Locations of Stations (Habitat)	Source
Period Fished (Dates): 10/07/03	Miles Actually Shocked = 4.0	LM
	Acres = 451	LM
	Total Miles of Shoreline = 16.9	LM
	Total Miles of Shockable Shoreline = 16.9	LM

GEAR

Boomshocker (Hours)	Time
1.9	√ Night Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code: C-ST
Dip Netter(s): 2	Dip Netter(s):	

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	7	None	5.6 - 7.6	3.68 / hour	1.75 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	7	None	9.2 - 10.9	3.68 / hour	1.75 / mile
Walleye (Other)	19	12.0-12.4	11.7 - 19.4	10.00 / hour	4.75 / mile
Smallmouth Bass	38	3.5-3.9, 16.5-16.9	3.0 - 19.4	20.00 / hour	9.50 / mile
Largemouth Bass	9	None	3.5 - 13.9	4.74 / hour	2.25 / mile
Muskellunge	1	None	16.5 - 16.9	0.53 / hour	0.25 / mile
Northern Pike	33	9.0-9.4	7.5 - 22.4	17.37 / hour	8.25 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range
Bluegill	Common	1.0-7.5	River Redhorse	Present	12.2-23.9
Pumpkinseed	Present	5.4	Shorthead Redhorse	Present	7.2-12.6
Black Crappie	Present	2.4-9.5	Silver Redhorse	Present	13.6-22.1
Yellow Perch	Present	7.9-9.0	Golden Shiner	Present	
Rock Bass	Present	3.6-7.1	Common Shiner	Present	
White Sucker	Present	12.2	Spottail Shiner	Present	
Golden Redhorse	Common	7.3-18.5	Chestnut Lamprey	Present	8.3

1) Tank Mortality: None 2) Weather: Clear, calm 3) Reliabilty: Medium

4) Stocking: 22,548 Walleye, 1.6 inches, 06/26/03, DNR 1150 Lake Sturgeon, 3.2 inches, 08/05/03, DNR 133 Lake Sturgeon, 10.9, 08/05/03, DNR
760 Lake Sturgeon, 6.5 inches, 09/30/03, DNR

5) Comments:

Rev. 10-70

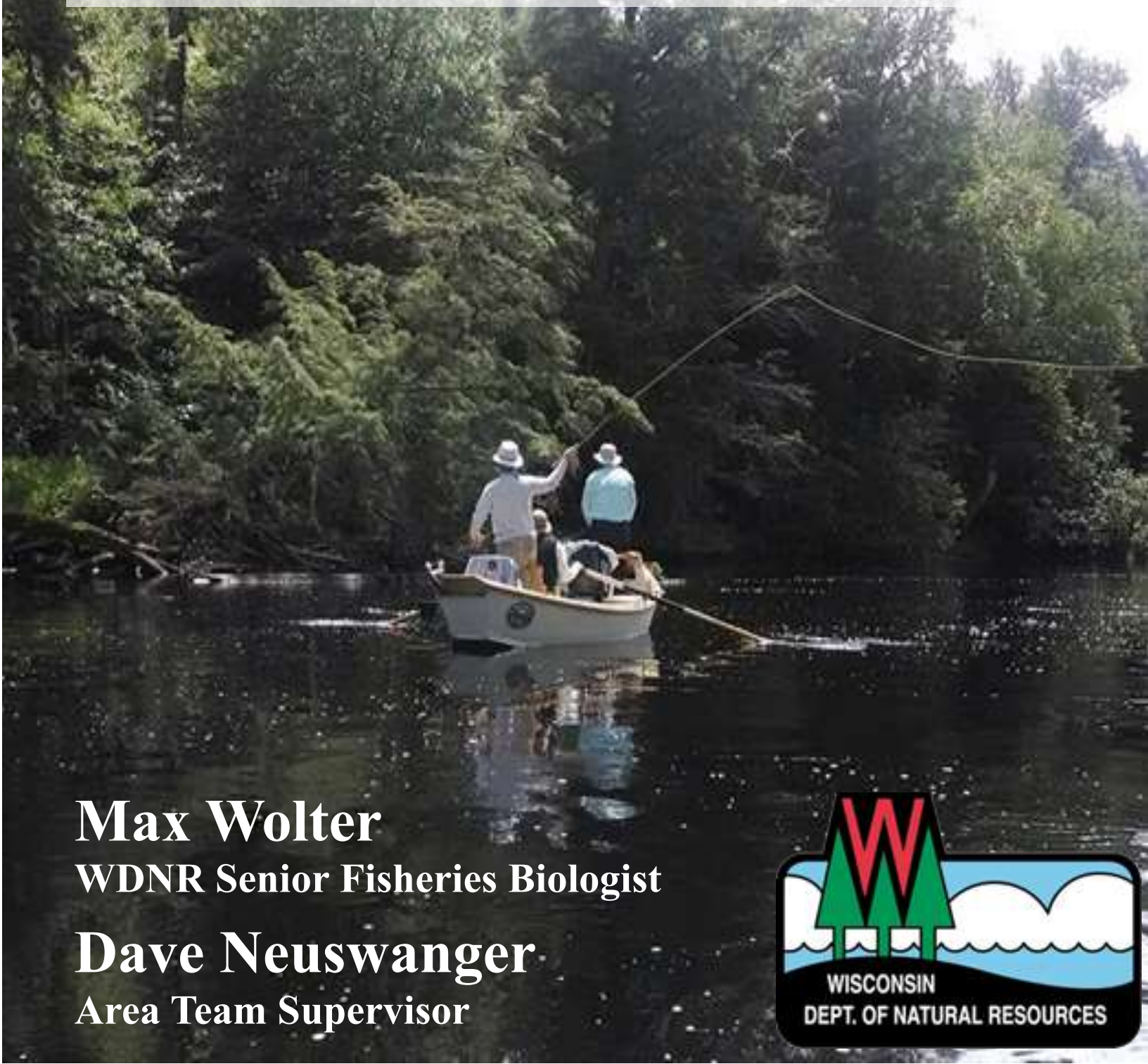
Signed (Compiler) Scott D. Plaster Date 12/04/03

WDNR Comments

Smallmouth Bass and Muskellunge Fisheries in Northwestern Wisconsin Rivers:

A Guide to the Future Project

5-year report



Max Wolter
WDNR Senior Fisheries Biologist

Dave Neuswanger
Area Team Supervisor

WISCONSIN
DEPT. OF NATURAL RESOURCES

WDNR Comments

Foreword and Acknowledgments

The "Guide to the Future" project was initiated in 2012 to meet a data collection need for sportfish populations in some of the most popular rivers in northwest Wisconsin. Five years of partnership between the Wisconsin DNR and the Hayward Fly Fishing Company has generated 1,487 records of guided angler trips. The data from these guided trips has allowed for comparisons of catch rate for smallmouth bass, muskellunge, and other species among rivers, times of year, different river conditions, and more. Collection of this large volume of data would not be possible without the excellent participation of each of the individual guides working for the Hayward Fly Fishing Company including Wendy Williamson, Larry Mann, Stu Neville, Erik Huber, Brett Nelson, and Cory Andraschko. Rarely does science get to be as fun as this project has been.

Max Wolter



Table of Contents

WDNR Comments

Summary of Major Findings

- Angler skill accounts for a significant amount of variation in catch rates for both smallmouth bass and muskellunge. Accounting for skill with a correction factor allows for more meaningful comparisons of catch rate, particularly when sample size is limiting.
- Smallmouth bass catch rate (relative abundance) and size structure varied among rivers. Rivers with high catch rate demonstrated smaller size of fish caught, and vice versa.
- Muskellunge catch rate varied among rivers, but size differences among rivers were generally less pronounced. The Namekagon River emerged as a better river for catching larger muskellunge (>40”) than the Chippewa or Flambeau.
- Catch rates for smallmouth bass and muskellunge appeared relatively stable from one year to the next. Smallmouth catch rates were positively related to water temperature and were highest during peak summer (July). Muskellunge catch rates appeared higher in early summer and fall compared to mid-summer, though the relationship was not statistically significant.
- Spatial trends in catch rates for both species within rivers did not demonstrate consistent increases or decreases from upstream to downstream reaches.
- The amount of discharge on a river (cubic feet per second) generally had a negative impact on both smallmouth bass and muskellunge catch rates, though the relationship was typically not statistically significant.
- Catch rates for smallmouth bass were significantly higher under flat water conditions compared to rising water. There was an indication of a similar trend for muskellunge but it was not statistically significant.
- Northern pike catch rates were significantly higher on the Namekagon compared to the Flambeau with the Chippewa being intermediate. Incidental catch of other species like walleye and largemouth bass were rare.

WDNR Comments

Project Objectives and General Methods

Due to a variety of factors including current, water clarity, structural complexity, and access, river fish populations are often not easily (or representatively) sampled by traditional fisheries methods such as netting or electrofishing. On an experimental and voluntary basis from 2012 to 2016, the Wisconsin Department of Natural Resources (WDNR) enlisted a group of river fishing guides who completed hundreds of fishing trips on these rivers annually with their clients while targeting smallmouth bass and muskellunge using fly fishing gear. Records of the effort and catch from these fishing trips can provide important information on relative abundance and size structure of river populations of smallmouth bass and muskellunge in a manner that is efficient to the monitoring agency (WDNR) and informative to the guides, their clients, and other anglers.

WDNR personnel and guides met and developed the following protocol for data collection. For each trip, the guide recorded the catch for each client (typically two people) separately. There was no set schedule or locations that guides were asked to follow with their fishing activities. However, as a result of the use of logical access points, fishing trips were assigned to "reaches" within each river with set start and end points. Each captured fish was recorded on a labeled 12-key mechanical counter corresponding to the angler that caught the fish. Four sizes categories of smallmouth bass (7-11, 11-14, 14-17, and >17 inches) and muskellunge (20-30, 30-40, 40-50, and >50 inches) were recorded. Guides also recorded catches, but not sizes, of northern pike, walleye, and largemouth bass. "Encounters" with muskellunge were recorded whenever a fish followed but did not strike, struck and missed, or was lost after hooking but before landing.

Each guide recorded daily water temperature (degrees F), which was measured in a shaded portion of the river near noon. Guides also recorded "mitigating conditions" (inclement weather, challenging water level, off-color water, etc.) that they judged may have negatively impacted fishing success. Data on river discharge (cubic feet per second) was obtained for each day from nearby USGS or hydropower dam gauges. Short-term variation in discharge was calculated and expressed as the most recent 3-day change in discharge (noon discharge three days prior minus noon discharge on day of fishing). Based on this calculation, river conditions on each day of fishing were classified as either falling (≥15% *decrease* in discharge over 3-day period), stable (<15% change in discharge over 3 day period), or rising (≥15% *increase* in discharge over 3-day period).

Data were entered into an Excel database and analyzed using R software. Trips when guides noted "mitigating conditions", as described above, were excluded from all analyses unless specified otherwise. Similarly, only trips where at least four hours of targeted effort for a species were used for analyses of that species. A non-parametric Kruskal-Wallis test was used to make statistical comparisons of catch rates across classes of data (i.e. different rivers, months) because of non-normal shape of the catch rate data. When significant differences were found between classes, multiple comparison analysis was made using a Dunn Test with a Holm modification of the Bonferroni adjustment. Comparisons between catch rate and river discharge or temperature were made using standard linear regression. Results of statistical tests were considered significant at P values less than 0.05.

WDNR Comments

Study Area

There was no set schedule or locations that guides were asked to follow with their fishing activities. However, as a result of the use of logical access points, fishing trips were assigned to "reaches" within each river with set start and end points. In this report these are labeled with the river name (or abbreviation) and a number corresponding to the relative downstream location of the reach within that river (e.g., Chippewa 4 is downstream from Chippewa 3). To protect the proprietary information of these guides, the specific start and end points of each reach are not presented in this report. Individual reaches were rarely fished on sequential days. Three rivers were primarily fish by the guides– the Flambeau (Figure 1, Price and Sawyer counties), Chippewa (Sawyer and Rusk counties), and Namekagon (Sawyer, Washburn, and Burnett counties). However, data was also collected on the West Fork of the Chippewa River (Sawyer County) and the St. Croix River (Burnett County). Because of smaller sample size, these two rivers are not included in all analyses.

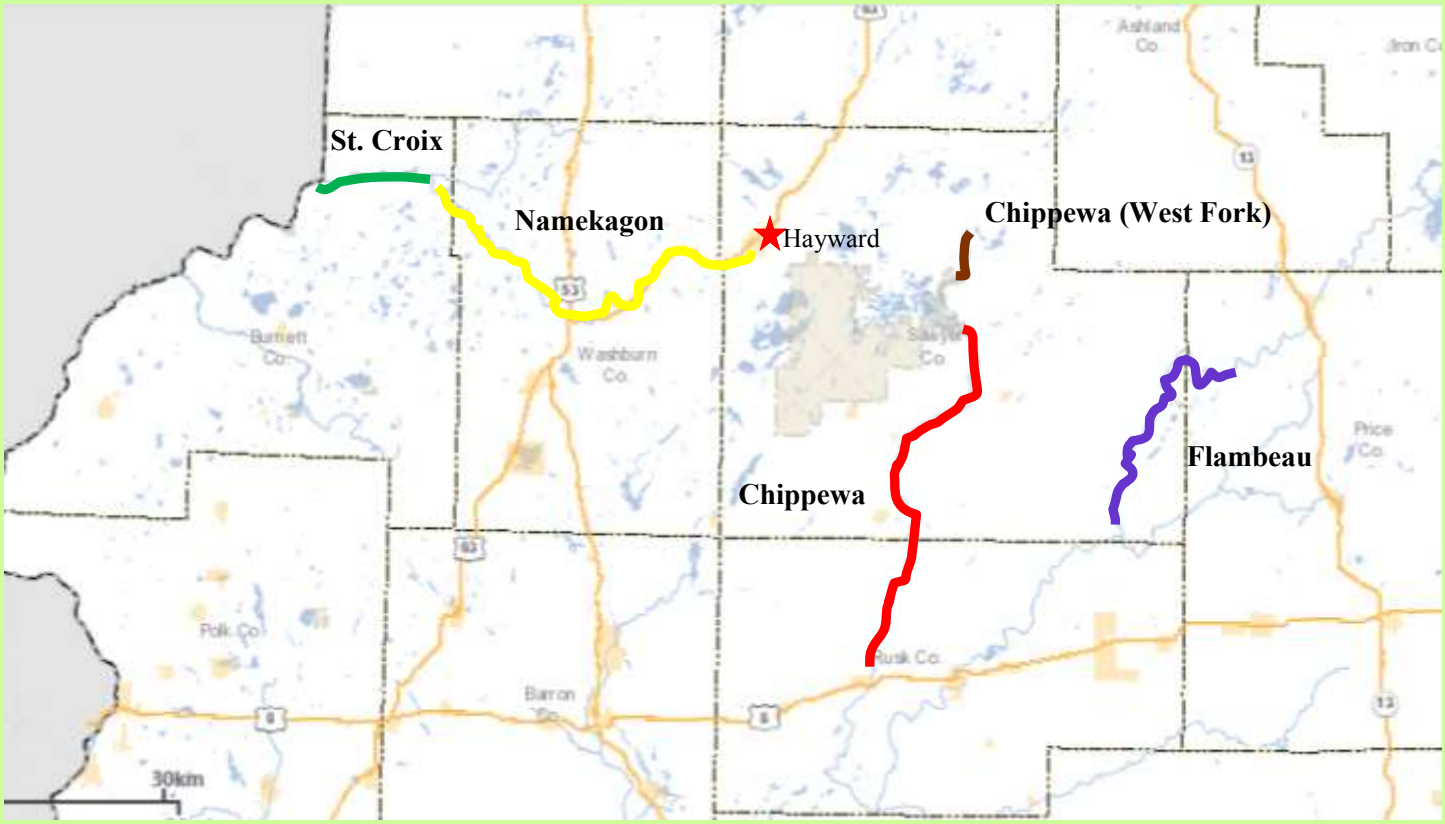


Figure 1. The sections of rivers fished by guides in the "Guide to the Future" fisheries data collection program. Each river is broken into multiple reaches that are fished for single-day float trips. Hayward, the home base for the guides, is denoted with a star.

WDNR Comments

Description of Angling Effort and Skill

Fishing effort for guides varied considerably among rivers, with the Namekagon River receiving the most total trips and hours of targeted effort for each species (Table 1). Most guided trips took place between June and October. October had the most overall trips (353) followed by July (278) and August (224). Trips in the summer (May-August) were more likely to target smallmouth bass while trips in the fall (September-November) are more likely to target muskellunge.

Table 1. Total number of angler trips and hours spent targeting muskellunge (musky) and smallmouth bass between 2012 and 2016 as a part of the Guide to the Future project.

River	Total trips	Hours targeting musky	Hours targeting smallmouth bass
Chippewa	315	1,035	1,194
Chippewa (West Fork)	70	161	295
Flambeau	155	677	493
Namekagon	851	2,086	3,987
St. Croix	94	481	189

It was known at the onset of this project that anglers fishing with guides would have wide variation in their skill, which would likely affect catch rate data. To account for this, we asked guides to discreetly assign a skill level rating to each client. Assignment of a skill level rating was done early in the trip and was based on casting ability and prior experience so rating would not be influenced by the day's catch. The three rating categories were inexperienced/beginner, average, or expert.

As expected, catch rates for both muskellunge and smallmouth (Figure 2) differed by angler skill level. To prevent this known source of variation from influencing other comparisons, we developed a correction factor to standardize catch rates. Multipliers were applied to catch rates in each skill level (Table 2).

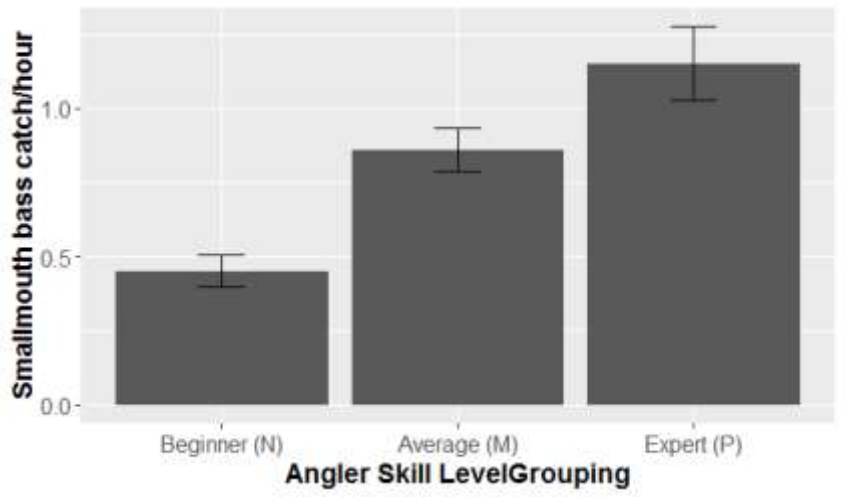


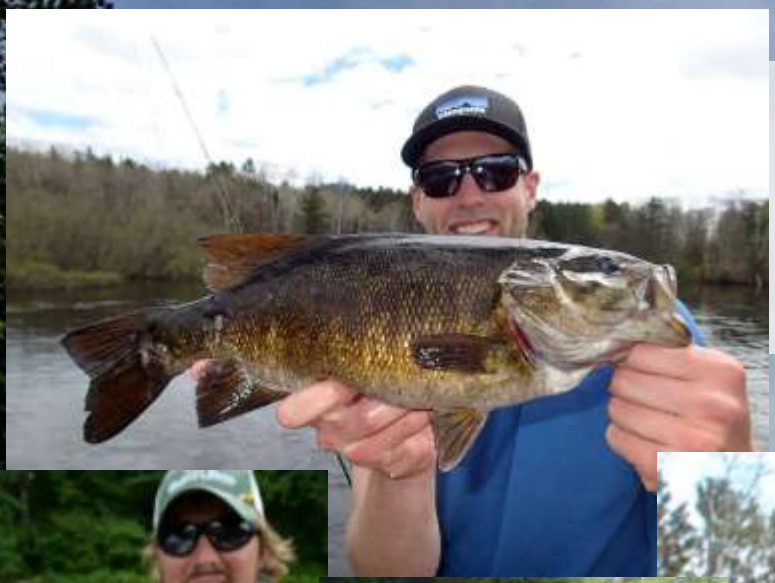
Figure 2. Catch rates (number of fish per hour of targeted angling effort) for smallmouth bass by anglers of different skill levels, shown with no correction factor applied. Error bars represent 95% confidence intervals. Skill levels were assigned by guides to account for the expected variation in catch due to individual anglers' fishing experience. Differences between the three skill levels were used to develop a correction factor to account for this variation when making other comparisons (i.e. catch rate among rivers).

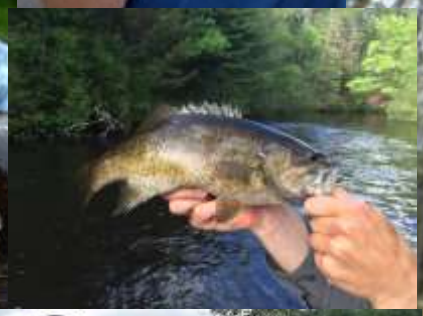
Table 2. Correction factors applied to smallmouth bass and muskellunge catch rates.

	Beginner	Average	Expert
Smallmouth Bass	2.0	1.0	0.75
Muskellunge	1.5	1.0	0.5

WDNR Comments

SMALLMOUTH BASS ABUNDANCE AND SIZE





WDNR Comments

Smallmouth Bass Relative Abundance and Size

Smallmouth bass are well-suited for life in shallow rocky riverine habitats and as a result they are one of the most abundant sportfish in many northern Wisconsin rivers. Smallmouth bass are a popular target for anglers fishing either from shore or on float trips, yet little is known about the relative abundance of smallmouth in one river compared to the next or how size distribution compares among rivers. Data collected by guides demonstrated significantly different catch rates for smallmouth bass among five northwestern Wisconsin Rivers (Figure 3). Differences in catch rate are assumed to reflect differences in abundance.

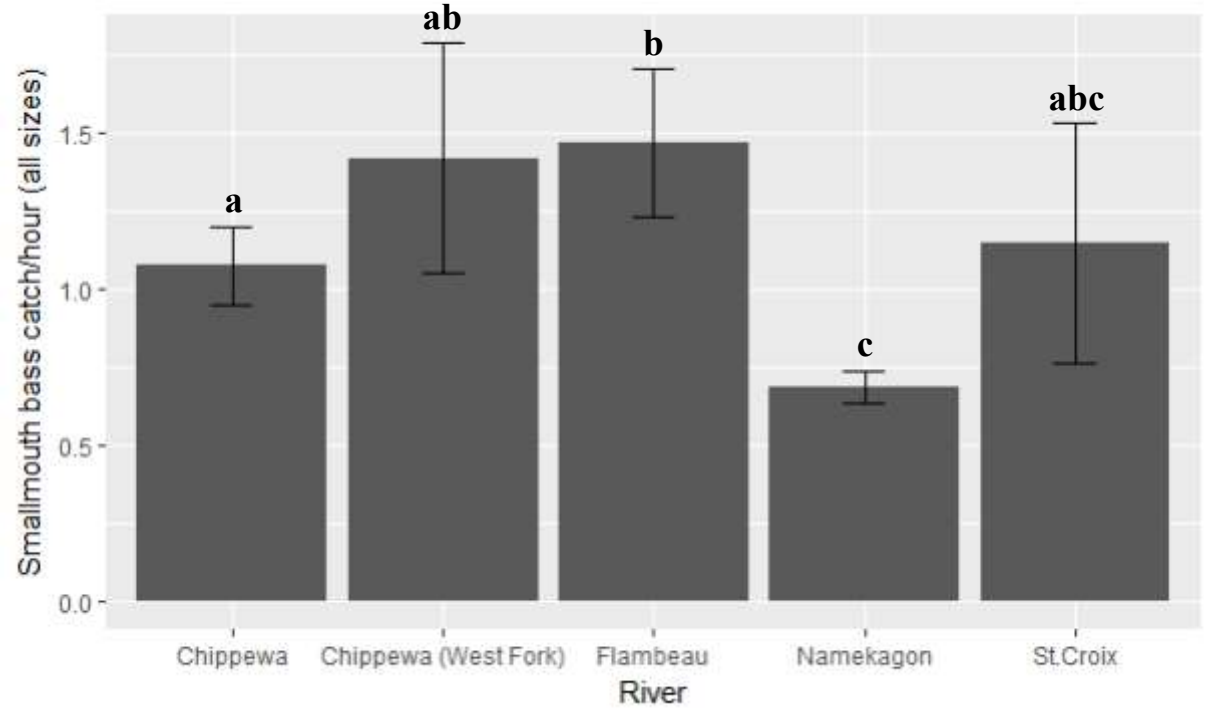


Figure 3. Skill level corrected catch rates (number of fish per hour of targeted angling effort) for smallmouth bass by river from 2012-2016. Error bars represent 95% confidence intervals. Statistically different groupings are denoted with letters.

Variation in overall catch rate of smallmouth bass among rivers is driven by variation within specific size classes. Comparing just the three rivers with the largest volume of data, the catch rates for smaller smallmouth bass was significantly higher on the Flambeau River than on the Chippewa or Namekagon (Table 3). However, catch rate for larger smallmouth bass (>17 inches) was significantly higher on the Namekagon River than the Chippewa or Flambeau. These three rivers offer differing fishing experiences. The Flambeau would be considered more of an action destination, with high overall catch rates but smaller fish, while the Namekagon is clearly more of a trophy opportunity with lower catch rates but higher catch of large smallmouth.

Table 3. Skill level corrected catch rates (number of fish per hour of targeted angling effort) of smallmouth bass by size class for three northwestern Wisconsin Rivers from 2012-2016. Statistically different groupings are denoted with letters.

Size Class	Chippewa	Flambeau	Namekagon
7-11 inches	0.38 (±0.07)[b]	0.70 (±0.16)[a]	0.10 (±0.02)[c]
11-14 inches	0.39 (±0.06)[a]	0.44 (±0.09)[a]	0.20 (0.02)[b]
14-17 inches	0.24 (±0.05)	0.30 (±0.08)	0.27 (±0.03)
>17 inches	0.07 (±0.02)[b]	0.03 (±0.02)[b]	0.11 (±0.02)[a]
All sizes	1.07 (±0.12)[b]	1.47 (±0.24)[a]	0.69 (±0.05)[c]

WDNR Comments

Smallmouth Bass Size Structure

Based on reported data from guides, size structure of smallmouth bass varied considerably among rivers. Catch in the Flambeau River was dominated by smaller bass, while catch in the Namekagon was predominantly larger fish, the Chippewa River catch was intermediate with the three smaller size classes represented fairly evenly in the catch (Figure 4). In the Flambeau, only 22% of smallmouth caught were over 14 inches, while on the Chippewa 33% were over 14 inches, and on the Namekagon 56% were over 14 inches. Interestingly, all three rivers have the same fishing regulations. It is not clear why the apparent difference in size structure among rivers exists. It appears, based on catch rate, that density of smallmouth bass is higher in the Flambeau River which may lead to slower, density-dependent growth. It is possible that prey availability differs among these three rivers independent of smallmouth bass density. Mortality may also play a role in structuring these smallmouth bass populations. If mortality of adult smallmouth bass is higher on one river compared to another it may result in differing size structure. Mortality could be due to environmental conditions, including overwintering habitat, or angler harvest, though harvest is believed to be minimal on all three rivers. A growth rate and age structure analysis would be beneficial to better understanding dynamics of these populations.

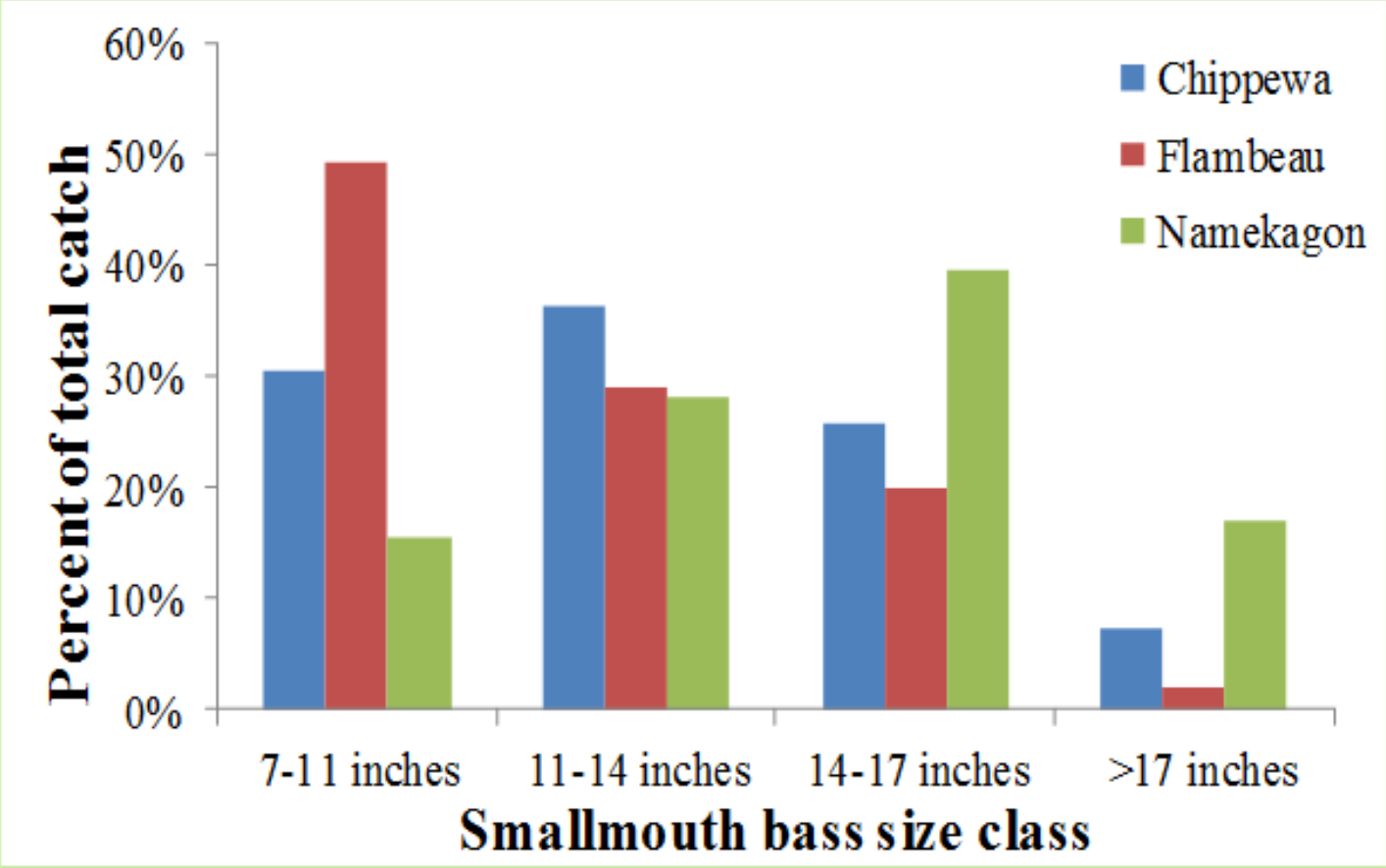


Figure 4. Smallmouth bass catch by size category for three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016.

WDNR Comments

MUSKELLUNGE ABUNDANCE AND SIZE

WDNR Comments

Muskellunge Relative Abundance and Size

Interpreting muskellunge catch rate data was made more difficult by the high degree of variation that inevitably exists when dealing with a species that occurs in low abundance and is challenging to catch. However, five seasons of data collection have provided enough data to start making statistical comparisons of muskellunge catch. Data collected by guides demonstrated significantly different catch rates for muskellunge among five northwestern Wisconsin Rivers (Figure 5). Differences in catch rate are assumed to reflect differences in abundance.

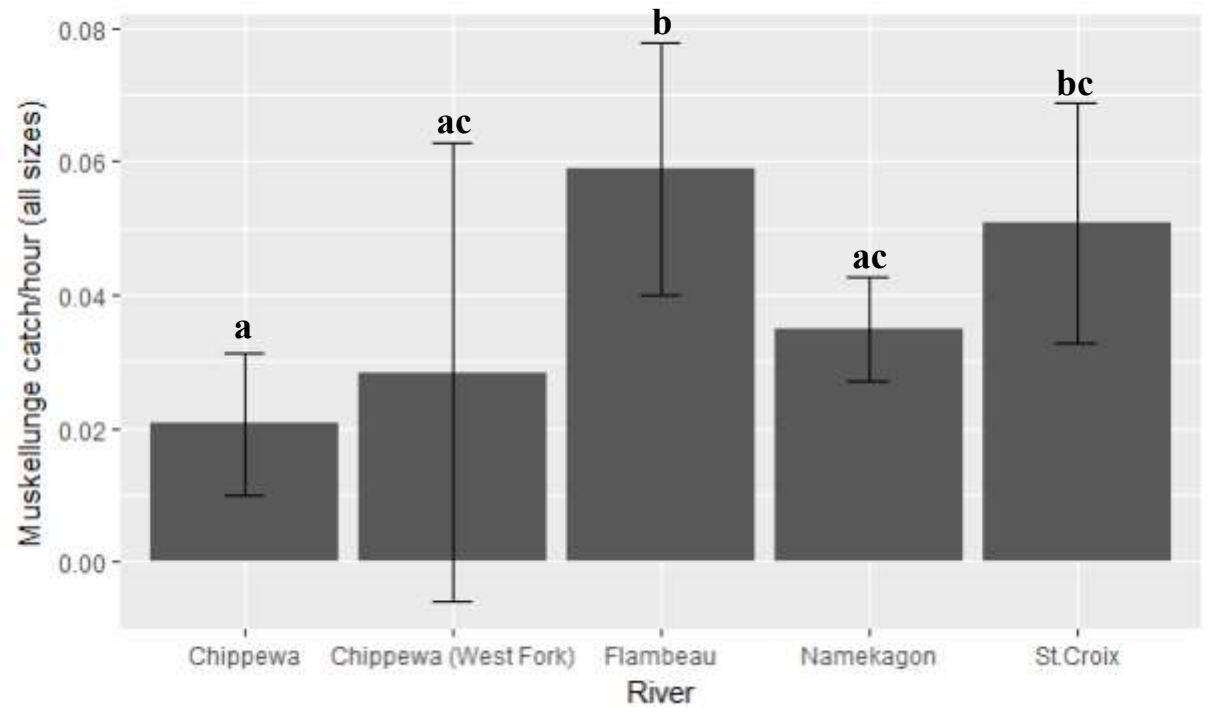


Figure 5. Skill level corrected catch rates (number of fish per hour of targeted angling effort) for muskellunge by river from 2012-2016. Error bars represent 95% confidence intervals. Statistically different groupings are denoted with letters.

Variation in overall catch rate of muskellunge among rivers was driven by variation within specific size classes. Comparing just the three rivers with the largest volume of data, the catch rates for smaller muskellunge (20-30 inches and 30-40 inches) were significantly higher on the Flambeau River than on the Chippewa or Namekagon (Table 4). However, catch rate for larger muskellunge (>40 inches) was significantly higher on the Namekagon River than the Chippewa or Flambeau. Catching a musky is rare under any circumstances, but the average catch rate of muskellunge by guided anglers as a part of this project (17.1 hours of fishing per musky) compare favorably to catch rates for anglers on lakes (~33 hours of angling per musky).

Table 4. Skill level corrected catch rates (number of fish per hour of targeted angling effort) of muskellunge by size class for three northwestern Wisconsin Rivers from 2012-2016. Statistically different groupings are denoted with letters.

Size Class	Chippewa	Flambeau	Namekagon
20-30 inches	0.008 (±0.006)^{b}	0.033 (±0.017)^{a}	0.013 (±0.005)^{b}
30-40 inches	0.011 (±0.008)^{b}	0.024 (±0.011)^{a}	0.013 (±0.005)^{b}
40-50 inches	0.002 (±0.003)^{b}	0.003 (±0.003)^{ab}	0.009 (±0.004)^{a}
>50 inches	0.000	0.000	0.001 (±0.001)
All sizes	0.021 (±0.011)^{b}	0.059 (±0.019)^{a}	0.035 (±0.008)^{b}

WDNR Comments

Muskellunge Size Structure

Based on reported data from guides, size structure of muskellunge varied slightly among rivers. Catch in all three rives is dominated by fish in the 20-40 inch range (Figure 6). The Namekagon River has demonstrated the best size potential evidenced by a larger percentage of the catch being over 40 inches and producing the only 50 inch muskellunge recorded by guides and their clients during the span of this project.

The relative infrequency of muskellunge over 40 inches being caught by guided anglers on these rivers is of interest. Many of the rivers fished as a part of this project are connected to impoundments which generally have larger fish than what was being caught in the rivers. The discrepancy in size structure between impoundments and rivers may be due to gear selectivity where fly fishing disproportionately targets the smaller sized muskellunge. But it may also be a result of habitat selection by larger fish, slower growth of fish inhabiting rivers, higher mortality of adult muskellunge in rivers, or other factors. More exploration into these trends is warranted.

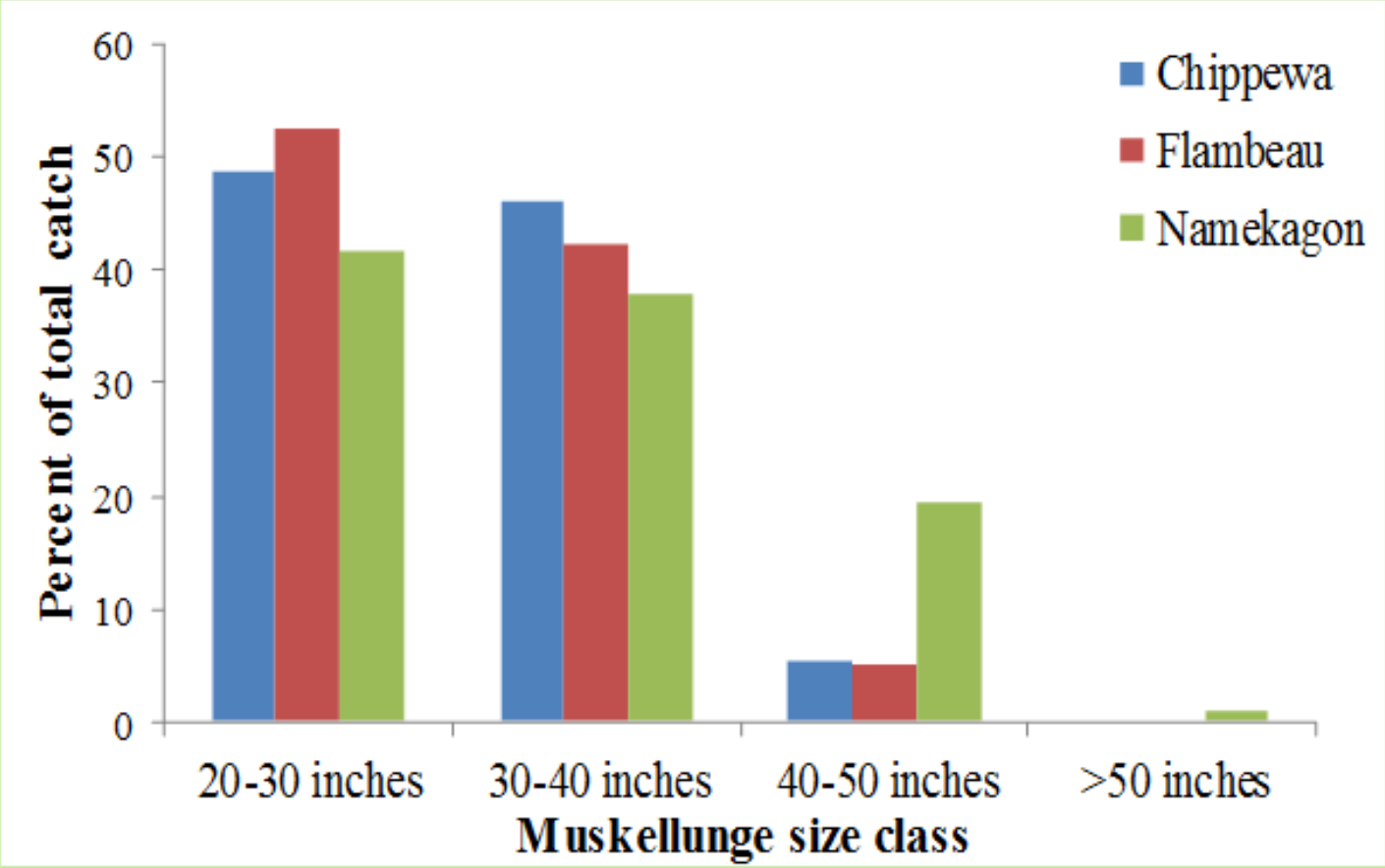


Figure 6. Muskellunge catch by size category for three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016.

WDNR Comments

TEMPORAL TRENDS IN CATCH RATES

WDNR Comments

Catch By Year

Clear trends in catch rate by year within individual rivers were not always evident for either species. Catch rate for smallmouth bass on the Namekagon has been remarkably consistent across time. Catch rate for smallmouth bass on the Flambeau River demonstrated the greatest oscillation (Figure 7). Year-to-year data for muskellunge catch rate on the St. Croix and West Fork Chippewa rivers was limiting and therefor those rivers were excluded from that analysis. Other rivers demonstrated relatively consistent catch rates for muskellunge, with some evidence of declining catch rate for the Chippewa River. Once again, catch rate data for muskellunge was marked by a high degree of variability.

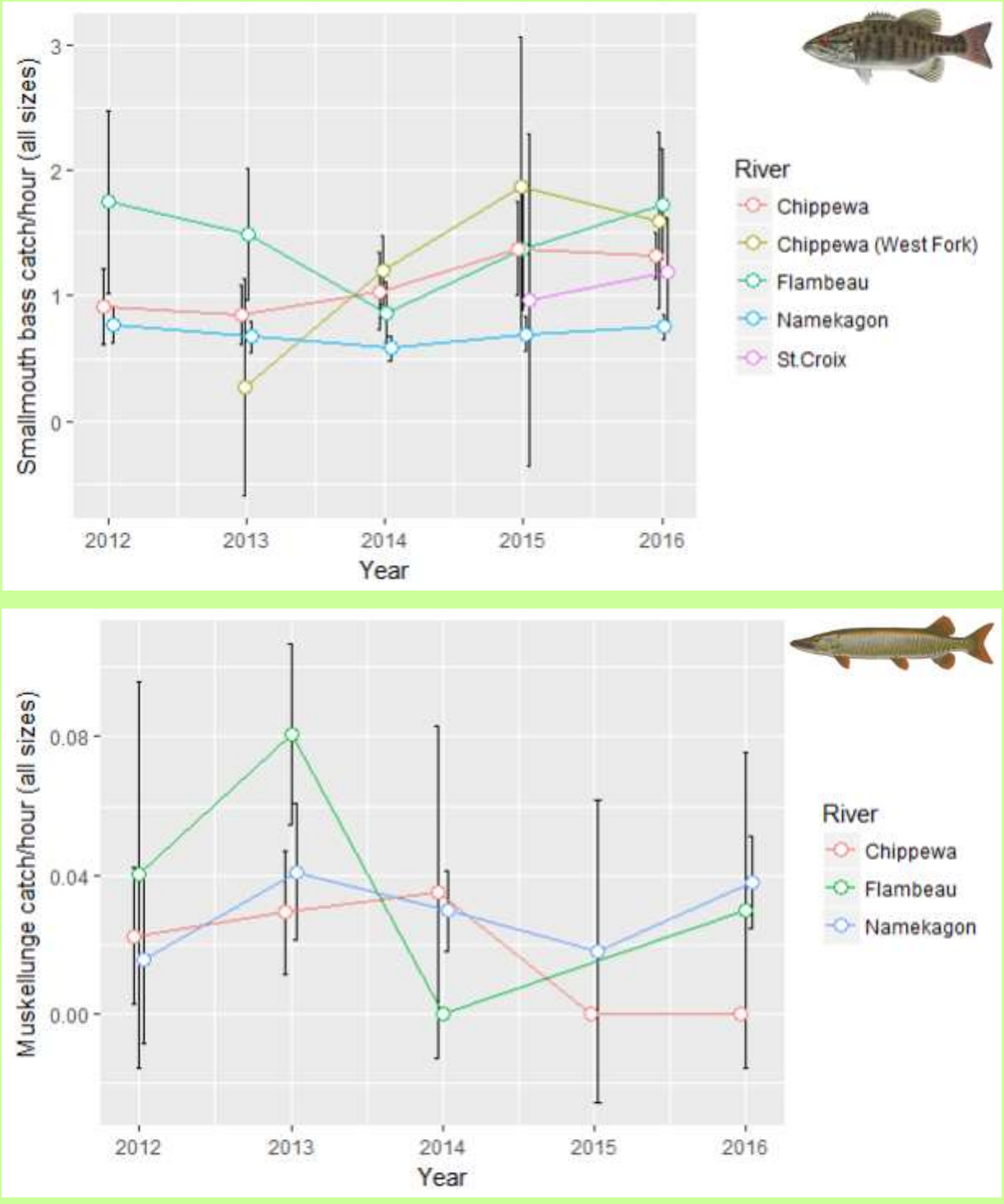


Figure 7. Smallmouth bass (top panel) and muskellunge (bottom panel) skill level corrected catch rates in three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals.

WDNR Comments

Catch By Month

Catch rates by month showed interesting patterns for both smallmouth bass and muskellunge, though differences were not always statistically significant. For smallmouth, catch rate was higher in July than in the cooler months of June and September (Figure 8). Guides have anecdotally reported poor success targeting smallmouth in these rivers after September, and as a result very little smallmouth bass data exists for those months. Catch rates for muskellunge showed an inverse pattern to smallmouth, with generally higher catch in cooler months (early summer and fall), though there were not statistically significant differences among months. It should be noted that muskellunge catch data from summer months is more limited since guides are typically targeting smallmouth bass at that time. Trips targeting muskellunge in December have been rare, but successful.

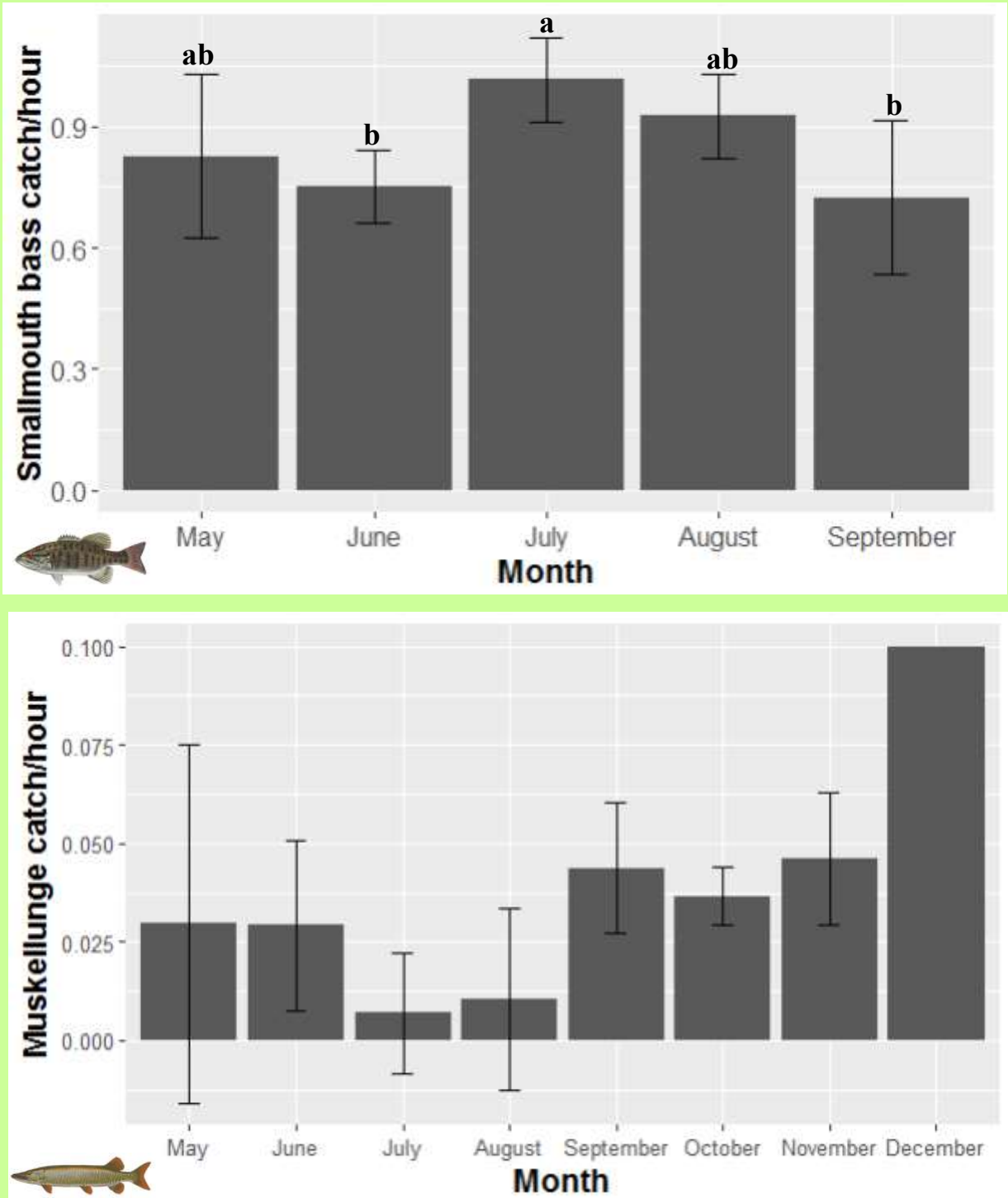
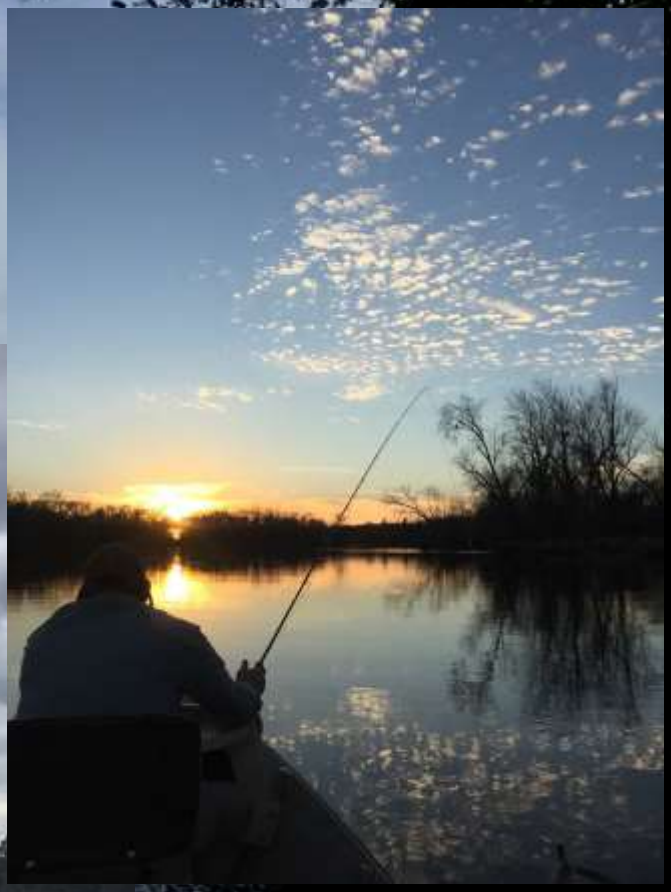


Figure 8. Smallmouth bass (top panel) and muskellunge (bottom panel) skill level corrected catch rates by month in three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings.

WDNR Comments

SPATIAL TRENDS IN CATCH RATES



WDNR Comments

Smallmouth Bass Catch By River Reach

Smallmouth bass catch rate across different reaches within the same river did not reveal many consistent patterns (Figure 9). For example, there was no evidence that smallmouth bass catch rate consistently increased or decreased from upstream reaches to downstream reaches. Catch rates on the Chippewa River were significantly lower at Chip3 compared to Chip1 and Chip5, but no other trends were present. Catch rates on the Flambeau and Namekagon were statistically similar across all reaches. Given that few differences in catch rate were observed, one can conclude that smallmouth bass fishing quality is generally similar along the entire stretch of each river fished by guides as a part of this project. It also indicates that there are few major habitat issues (dams, impaired discharge, etc.) that limit smallmouth bass populations in particular reaches.

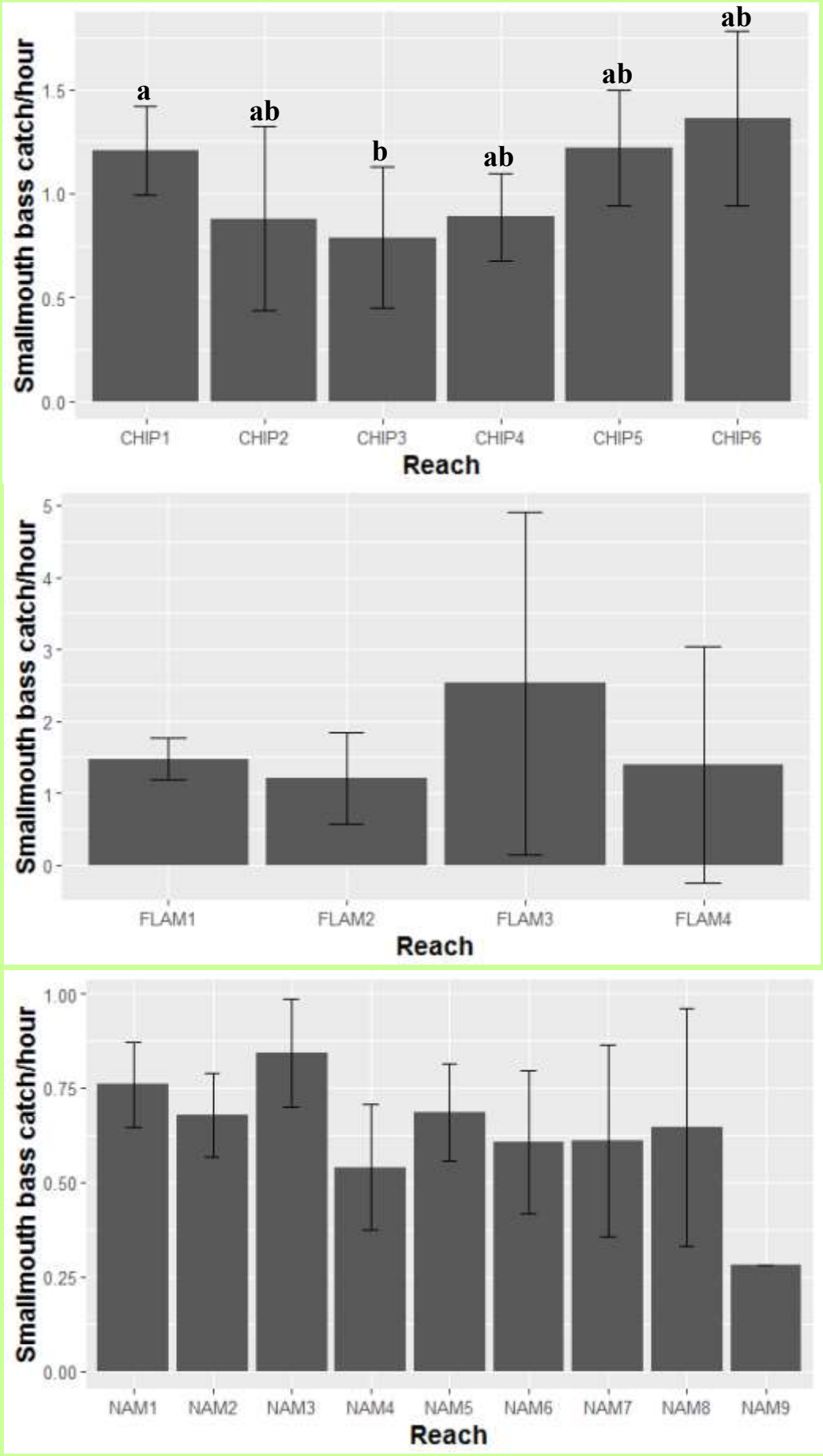


Figure 9. Smallmouth bass skill level corrected catch rates by reach in three rivers (top=Chippewa, middle=Flambeau, bottom=Namekagon) in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings. Reaches are arranged from upstream to downstream (i.e. CHIP1 is upstream of CHIP2 and so on).

WDNR Comments

Muskellunge Catch By River Reach

Muskellunge catch rate by river reach similarly did not reveal statistically significant patterns (Figure 10). However, several notable trends are present. Almost no muskellunge are caught on the Namekagon River upstream from Namekagon4. Muskellunge are known to inhabit these upper reaches and it is not clear why this pattern exists

As with other analyses in this report, the comparison of muskellunge catch by river reach was limited by high variation (see wide error bars in Figure 10) and was exacerbated by low sample size for some reaches. Perhaps the inclusion of more data from future years of fishing will allow for better comparisons of muskellunge catch within rivers.

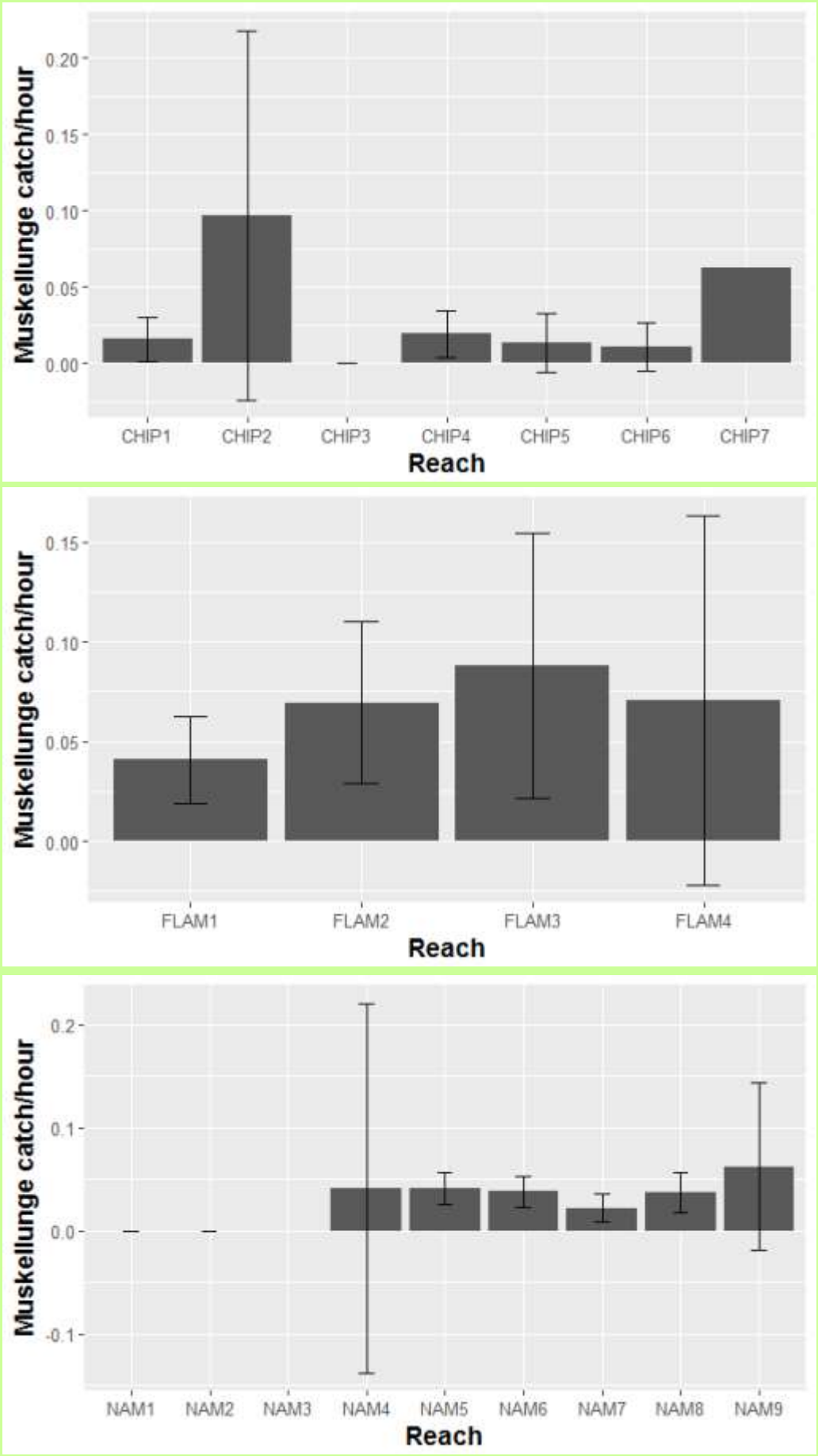
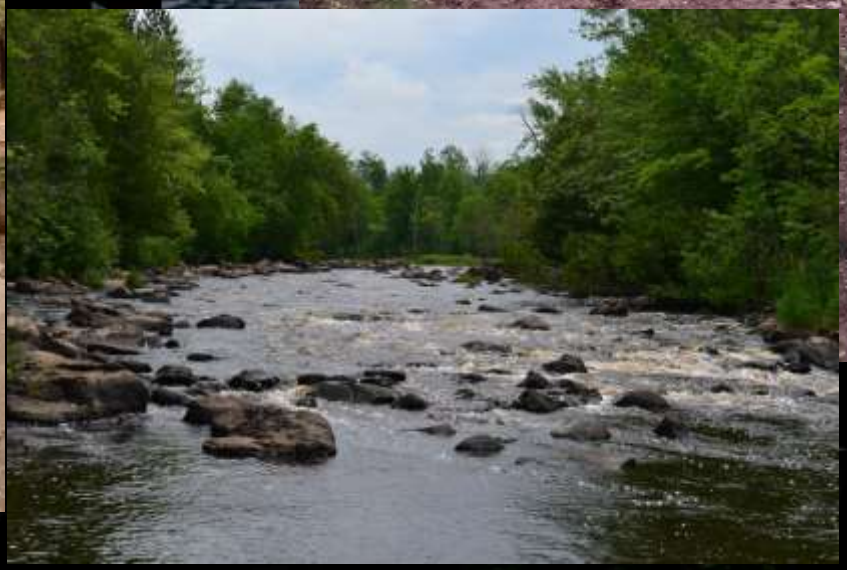


Figure 10. Muskellunge skill level corrected catch rates by reach in three rivers (top=Chippewa, middle=Flambeau, bottom=Namekagon) in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings. Reaches are arranged from upstream to downstream (i.e. CHIP1 is upstream of CHIP2 and so on).

WDNR Comments

INFLUENCE OF ENVIRONMENTAL CONDITIONS ON CATCH RATES



WDNR Comments

Catch Rates and River Discharge

The guides who participated in this project consider river discharge to have a considerable impact on fishing success. We conducted a regression analysis to compare catch rates for smallmouth bass and muskellunge with discharge. This analysis included days with mitigating conditions to capture fishing under extreme discharge. A separate model was constructed for each species x river combination. Generally speaking, catch rates for both smallmouth bass and muskellunge demonstrated a negative trend with increasing discharge. However, in all but one case (smallmouth bass in the Flambeau River) the trend was not statistically significant (Figure 11). Future data collection may allow us to better describe this relationship. Similarly, more data may allow for exploration of quadratic or nonlinear relationships, which may effectively allow for determination of "ideal" discharge conditions for catching each species.

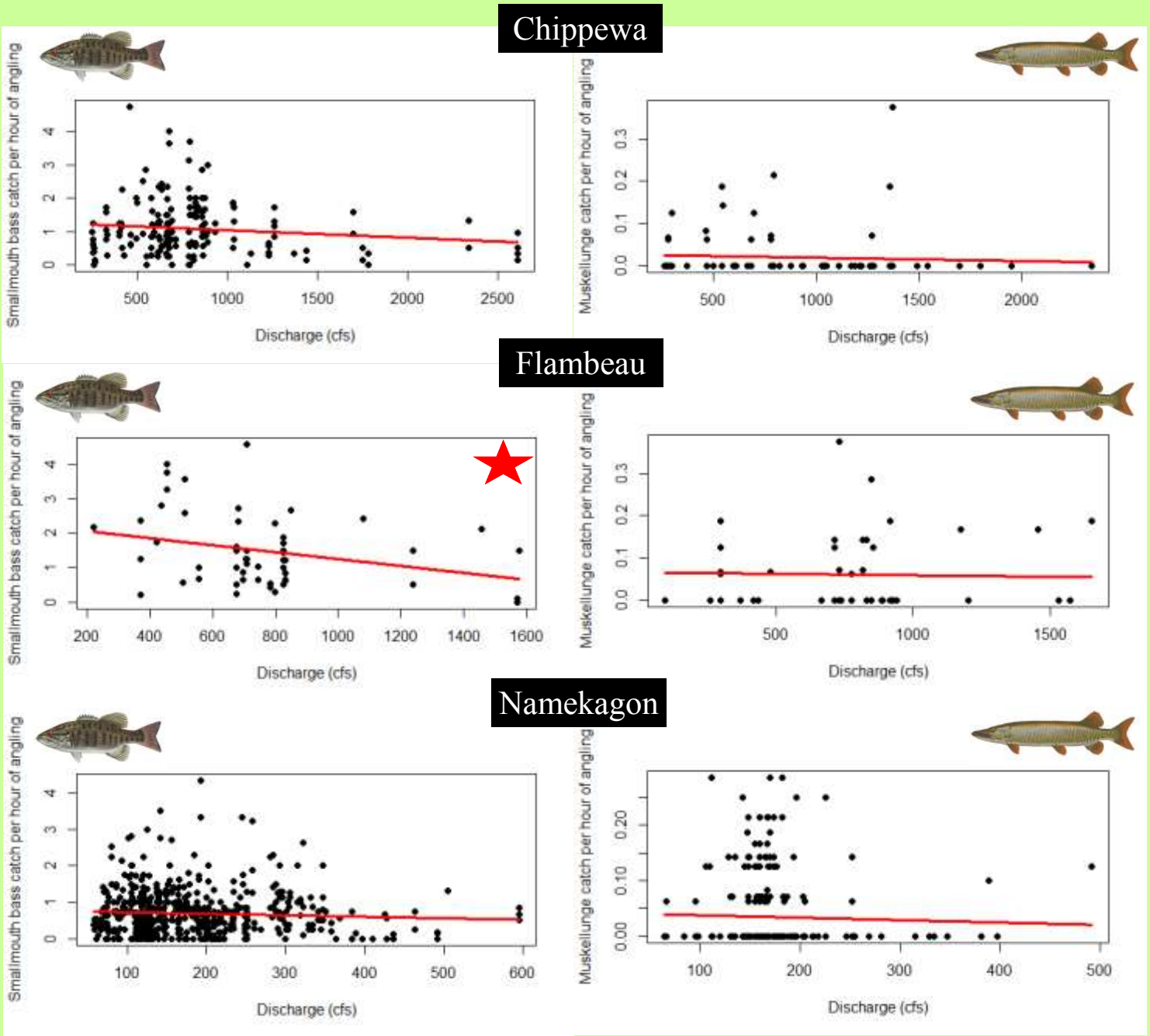


Figure 11. Comparison of skill level corrected catch rates for smallmouth bass (left column) and muskellunge (right columns) with river discharge (cubic feet per second) on the day of fishing for guided anglers on three northwestern Wisconsin rivers from 2012-2016. A red star in a panel demotes a statistically significant relationship (P<0.05).

WDNR Comments

Catch Rates and River Level Changes

Changing river conditions prior to a day of fishing is also considered to be an important factor determining fishing success. We compared catch rates for smallmouth bass and muskellunge from all rivers under three different conditions: falling water level (>15% drop in discharge over 3 days), flat water level (<15% change in discharge over 3 days), and rising water level (>15% increase in discharge over 3 days). Catch rates for smallmouth were significantly higher under flat water conditions compared to rising water (Figure 12). A similar pattern appears to be present for muskellunge, though it was not statistically significant.

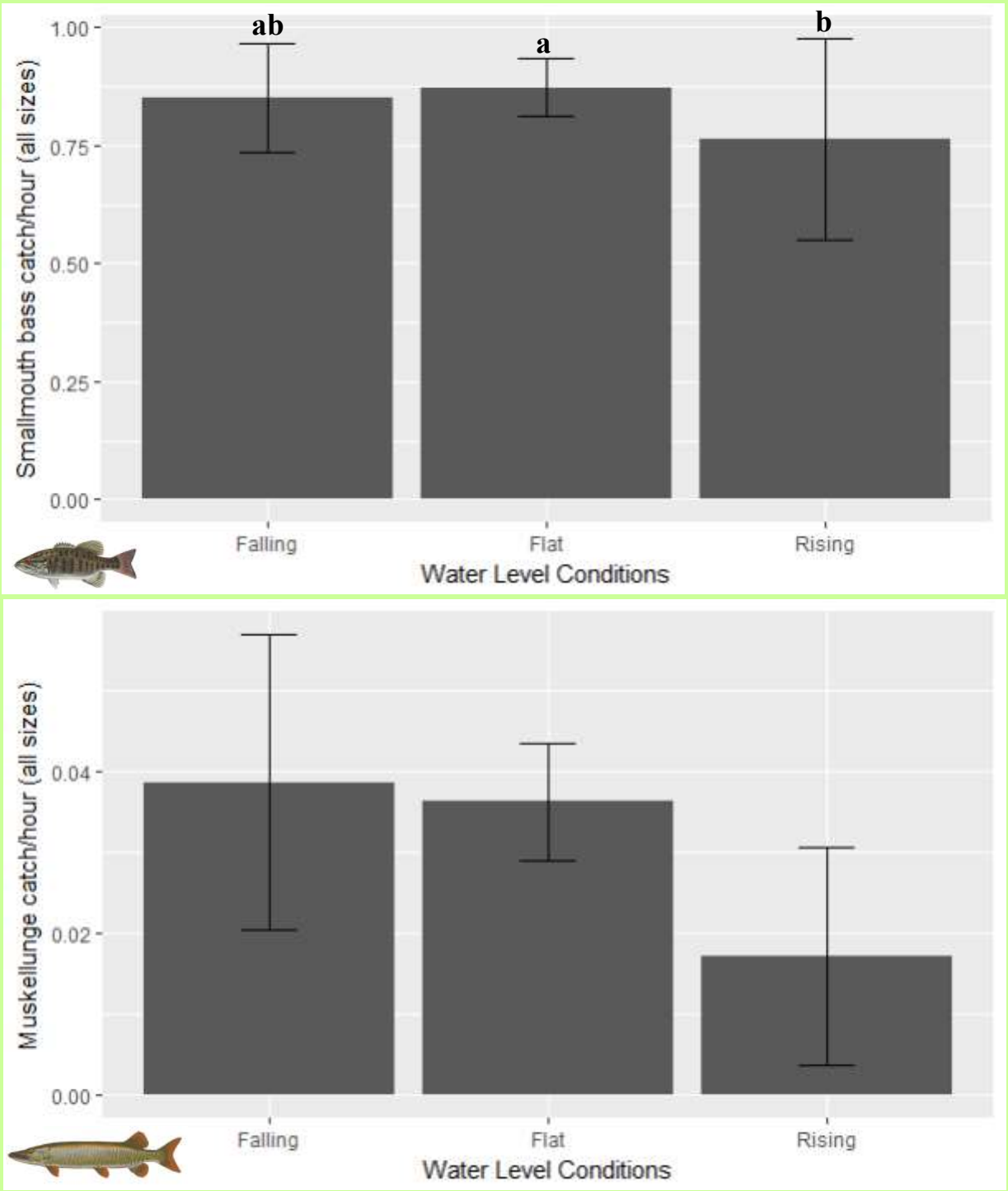


Figure 12. Skill level corrected catch rates of smallmouth bass (top panel) and muskellunge (bottom panel) under three different river conditions. Data was collected by in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals. Letters represent statistically significant groupings.

WDNR Comments

Catch Rates and Water Temperature

Water temperature is an important factor determining many aspects of fish behavior. Guides participating in this project collect daily water temperature data on-site at noon in a shaded area. We compared catch rates for smallmouth bass and muskellunge with water temperature across all rivers (Figure 13). Smallmouth bass demonstrated a significant positive relationship between water temperature and catch rate. This result matches the observed higher catch rates in peak summer months. There was no statistically significant trend between muskellunge catch rate and temperature, but there was an indication of higher catch between 50-70F.

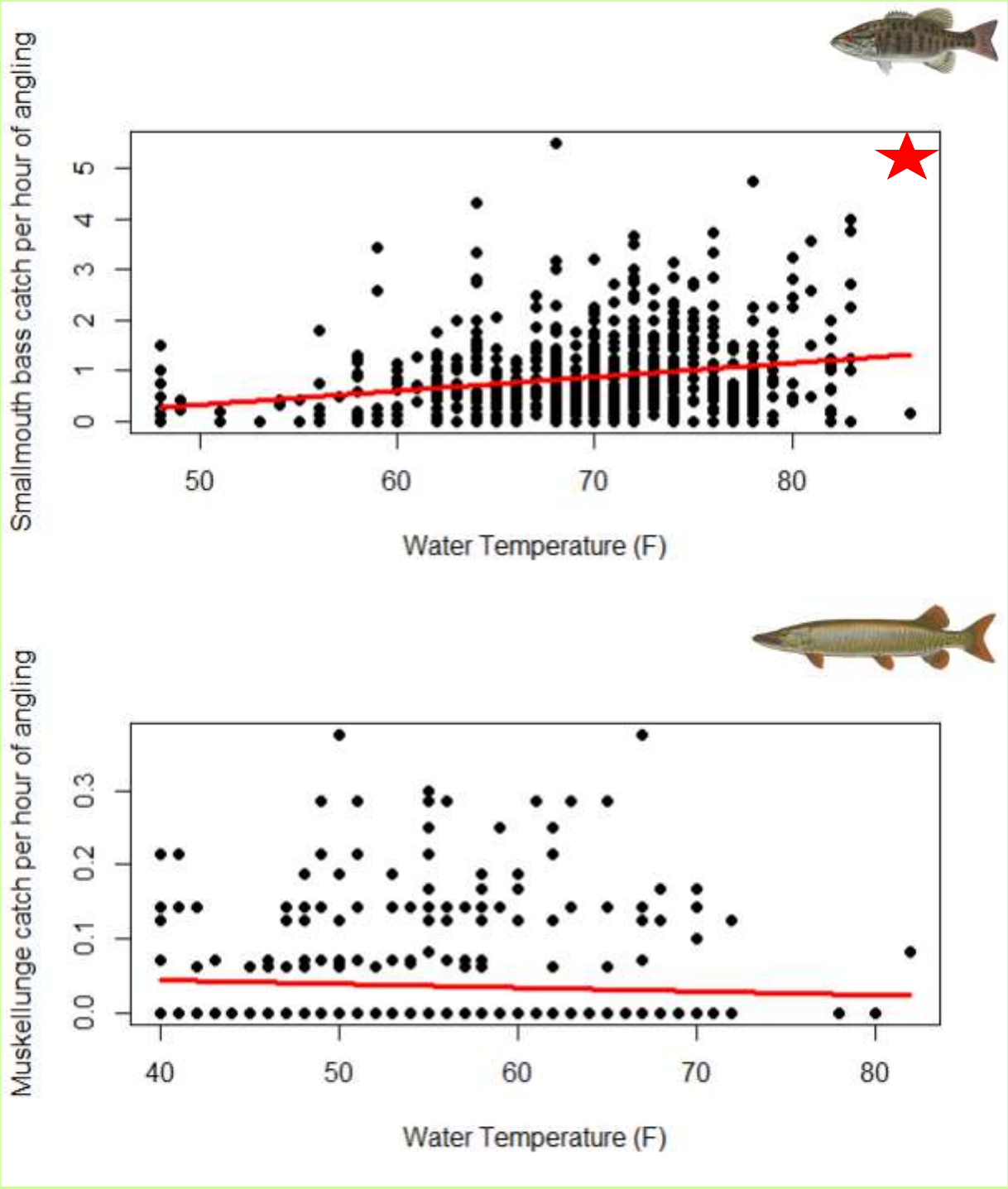


Figure 13. Comparison of skill level corrected catch rates for smallmouth bass (top panel) and muskellunge (bottom panel) with water temperature on the day of fishing for guided anglers on three northwestern Wisconsin rivers from 2012-2016. A red star in a panel demotes a statistically significant relationship (P<0.05).

WDNR Comments

CATCH RATES FOR OTHER SPECIES

WDNR Comments

Catch Rate of Northern Pike and Other Species

While smallmouth bass and muskellunge were the target species for all trips included in this project, other predator species were caught incidentally. Guides recorded all incidental catch which provided at least a limited amount of information on northern pike, walleye, and largemouth bass populations. Catch rates for northern pike were significantly higher on the Namekagon River in comparison to the Flambeau River, with the Chippewa River being intermediate (Figure 14). Overall, incidental catch rate of northern pike was similar to that of targeted catch rate for muskellunge. Northern pike density appears to be relatively low in these rivers in comparison to lakes in the area. Incidental catch of walleye and largemouth bass was rare. Only 22 walleye were caught in 1,486 angler days of fishing. Walleye are believed to be more common in these rivers than the low catch would indicate. As a result, we believe that fly fishing guide data may not be a representative way to sample walleye populations in rivers. Only 34 largemouth bass were captured incidentally as a part of this project. Based on their similarities to smallmouth bass we feel more confident that the low catch of largemouth bass is, in fact, representative of the populations in these rivers. Largemouth bass likely occur at a very low density in these fast, rocky rivers. Largemouth bass are generally considered to be better suited for lake environments.

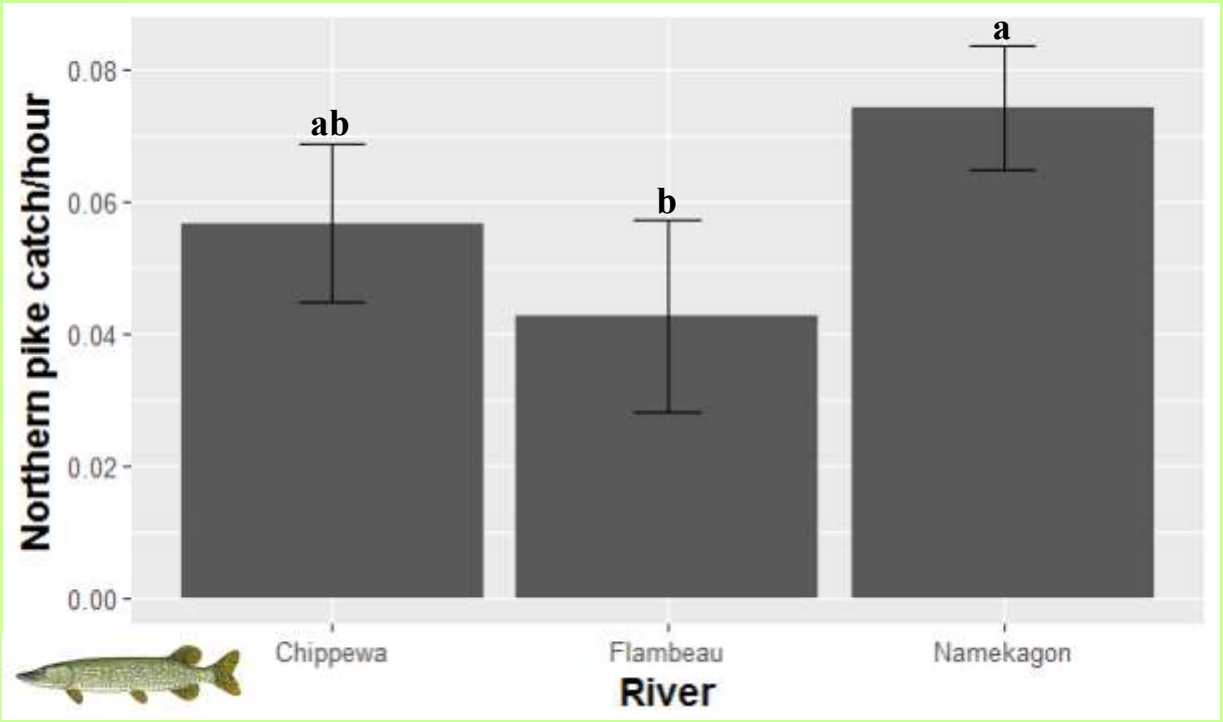


Figure 14. Northern pike incidental catch rates (number per hour of total angling) in three rivers in northwestern Wisconsin fished by guides and their clients from 2012-2016. Error bars represent 95% confidence intervals.

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Washburn	Trego	MWBC: 2712000

Sampling Objective	Number and Locations of Stations (Habitat)	
Walleye Recruitment Survey		Source
	Miles Actually Shocked = 6.0	LM
Period Fished (Dates)	Acres = 451	LM
09/20/11	Total Miles of Shoreline = 16.9	LM
	Total Miles of Shockable Shoreline = 16.9	LM

GEAR

Boomshocker (Hours)	Time	
2.6	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	**Time of Day**	**Trap Net (No. of Net Lifts)**	**Mesh Size**	**Depth**
Minnow Seine (No. of Hauls)	**Area Covered**	**Gill Net (No. of Feet x No. of Lifts)**	**Mesh Size**	**Depth**

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-ST
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	0		-	0.00 / hour	0.00 / mile
Serns Index NA YOY / acre					
Walleye (Age 1+)	7	None	7.8 - 10.7	2.69 / hour	1.17 / mile
Walleye (Other)	17	14.0-14.4	11.8 - 20.4	6.54 / hour	2.83 / mile
Smallmouth Bass	25	15.5 - 15.9	8.0 - 19.9	9.62 / hour	4.17 / mile
Largemouth Bass	8	13.0 - 13.4	9.0 - 14.9	3.08 / hour	1.33 / mile
Muskellunge	0		-	0.00 / hour	0.00 / mile
Northern Pike	35	12.0 - 12.4	8.0 - 24.9	13.46 / hour	5.83 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range

1) Tank Mortality: None

2) Weather: Clear, Wind, Warm

3) Reliabilty: Medium

4) Stocking: 16132 Walleye, 1.6 inches, 06/24/11, DNR

478 Lake Sturgeon, 7.5 inches, 10/19/11, DNR

5) Comments:

Rev. 10-70

Signed (Compiler) Michael Keniry

Date 12/06/11

WDNR Comments

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL) Department of Natural Resources
Form 3600A-191 8-95

Lake: Trego MWB Code: 2712000 Date: 09/20/11 County: Washburn Collector(s): Bass, Wendel, Rood

Target Fish: Gamefish Survey Type: CPE Mark Given: None Water Temperature: 58°F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 110 Amps: 4.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 1951 Shocking End Time: 2240 Generator Start Hour: 118.9 Generator End Hour: 121.5

Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

Walleye < 12.0"			
Inches	Number	Inches	Number
<3.0		**7.5**	
3.0		**7.6**	
3.1		**7.7**	
3.2		**7.8**	1
3.3		**7.9**	
3.4		**8.0**	
3.5		**8.1**	
3.6		**8.2**	1
3.7		**8.3**	
3.8		**8.4**	1
3.9		**8.5**	
4.0		**8.6**	
4.1		**8.7**	1
4.2		**8.8**	1
4.3		**8.9**	
4.4		**9.0**	
4.5		**9.1**	
4.6		**9.2**	
4.7		**9.3**	
4.8		**9.4**	
4.9		**9.5**	1
5.0		**9.6**	
5.1		**9.7**	
5.2		**9.8**	
5.3		**9.9**	
5.4		**10.0**	
5.5		**10.1**	
5.6		**10.2**	
5.7		**10.3**	
5.8		**10.4**	
5.9		**10.5**	
6.0		**10.6**	
6.1		**10.7**	1
6.2		**10.8**	
6.3		**10.9**	
6.4		**11.0**	
6.5		**11.1**	
6.6		**11.2**	
6.7		**11.3**	
6.8		**11.4**	
6.9		**11.5**	
7.0		**11.6**	
7.1		**11.7**	
7.2		**11.8**	1
7.3		**11.9**	
7.4		**Total:**	8

Inches	Walleye	Northern Pike	Muskellunge	Largemouth Bass	Smallmouth Bass	Inches	Walleye	Northern Pike	Muskellunge
<1.5						**24.5-24.9**		1	
1.5-1.9						**25.0-25.4**			
2.0-2.4						**25.5-25.9**			
2.5-2.9						**26.0-26.4**			
3.0-3.4						**26.5-26.9**			
3.5-3.9						**27.0-27.4**			
4.0-4.4						**27.5-27.9**			
4.5-4.9						**28.0-28.4**			
5.0-5.4						**28.5-28.9**			
5.5-5.9						**29.0-29.4**			
6.0-6.4						**29.5-29.9**			
6.5-6.9						**30.0-30.4**			
7.0-7.4						**30.5-30.9**			
7.5-7.9						**31.0-31.4**			
8.0-8.4		1			3	**31.5-31.9**			
8.5-8.9						**32.0-32.4**			
9.0-9.4				1		**32.5-32.9**			
9.5-9.9		1				**33.0-33.4**			
10.0-10.4					1	**33.5-33.9**			
10.5-10.9				1		**34.0-34.4**			
11.0-11.4		1		1		**34.5-34.9**			
11.5-11.9		1				**35.0-35.4**			
12.0-12.4	1	5			1	**35.5-35.9**			
12.5-12.9	1	1		1	2	**36.0-36.4**			
13.0-13.4	1	2		2		**36.5-36.9**			
13.5-13.9	1	1			1	**37.0-37.4**			
14.0-14.4	3	2		1	1	**37.5-37.9**			
14.5-14.9		3		1	2	**38.0-38.4**			
15.0-15.4		3			3	**38.5-38.9**			
15.5-15.9	1	1			5	**39.0-39.4**			
16.0-16.4	1				2	**39.5-39.9**			
16.5-16.9	1	1				**40.0-40.4**			
17.0-17.4	1					**40.5-40.9**			
17.5-17.9	2					**41.0-41.4**			
18.0-18.4	1	1				**41.5-41.9**			
18.5-18.9		1			2	**42.0-42.4**			
19.0-19.4	1	1			1	**42.5-42.9**			
19.5-19.9		2			1	**43.0-43.4**			
20.0-20.4	1					**43.5-43.9**			
20.5-20.9		2				**44.0-44.4**			
21.0-21.4		1				**44.5-44.9**			
21.5-21.9		2				**45.0-45.4**			
22.0-22.4		1				**45.5-45.9**			
22.5-22.9						**46.0-46.9**			
23.0-23.4						**47.0-47.9**			
23.5-23.9						**48.0-48.9**			
24.0-24.4						**49.0-49.9**			
Totals:	16	35	0	8	25	**50.0+**			

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

WDNR Comments

TREGO LAKE — WASHBURN COUNTY

SEC. 17, 20 T. 40 N. R. 12 E.W.

Sheet 1 of 4

Tamarack Bog

PW

A

N

Mixed Hardwood & Pine

Mixed Hardwood & Pine

Mixed Hardwood & Pine

Mixed Hardwood & Pine

Mixed Hardwood & Pine

Mk.

Mk.

Mk.

Sd.

Sd.

Sd.

Sd.

Sd.

5.3 Acres

1.1 Acres

.45 Acres

.18 Acres

.6 Acres

C

A

A

C

A

B.M.

Namekagon Ri.

Dam 29' Head

Power Dam

B.M. 'X' P.S.C. at power house - staffgage

Assumed elev. 100.00

Water elev. 99.75

K

17 18 19 20

Sheet 1 Sheet 2

EQUIPMENT RECORDING SONAR MAPPED JUNE (MO.) 1966 (YR.)

WATER ELEV. 99.75

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- ⊥ Emergent vegetation
- Floating vegetation
- Stumps & Snags

400' 0' 400' 800' 1200' 1600' 2000'

SCALE

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by C. Busch, G. Winter, L. Sather Drawn by: C. Holt

SPECIES OF FISH	Abundant	Common	Rare
Muskie			X
N. Pike			X
Walleye		X	
L.M. Bass			X
S.M. Bass			X
Panfish	X		
Trout			
Sturgeon			X

AREA 460.2 ACRES 451.1 WITHOUT IS.

UNDER 3FT. 6.15 %

OVER 20FT. 14.0 %

VOLUME 4770.6 ACRE FT.

TOTAL ALK. 73 P.P.M.

SHORELINE 16.9 MILES

MAX. DEPTH 36 FEET

WISCONSIN CONSERVATION DEPARTMENT

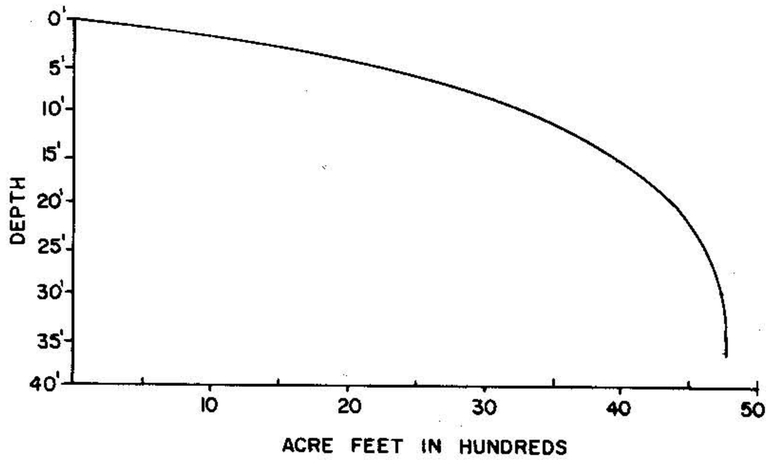
LAKE SURVEY MAP

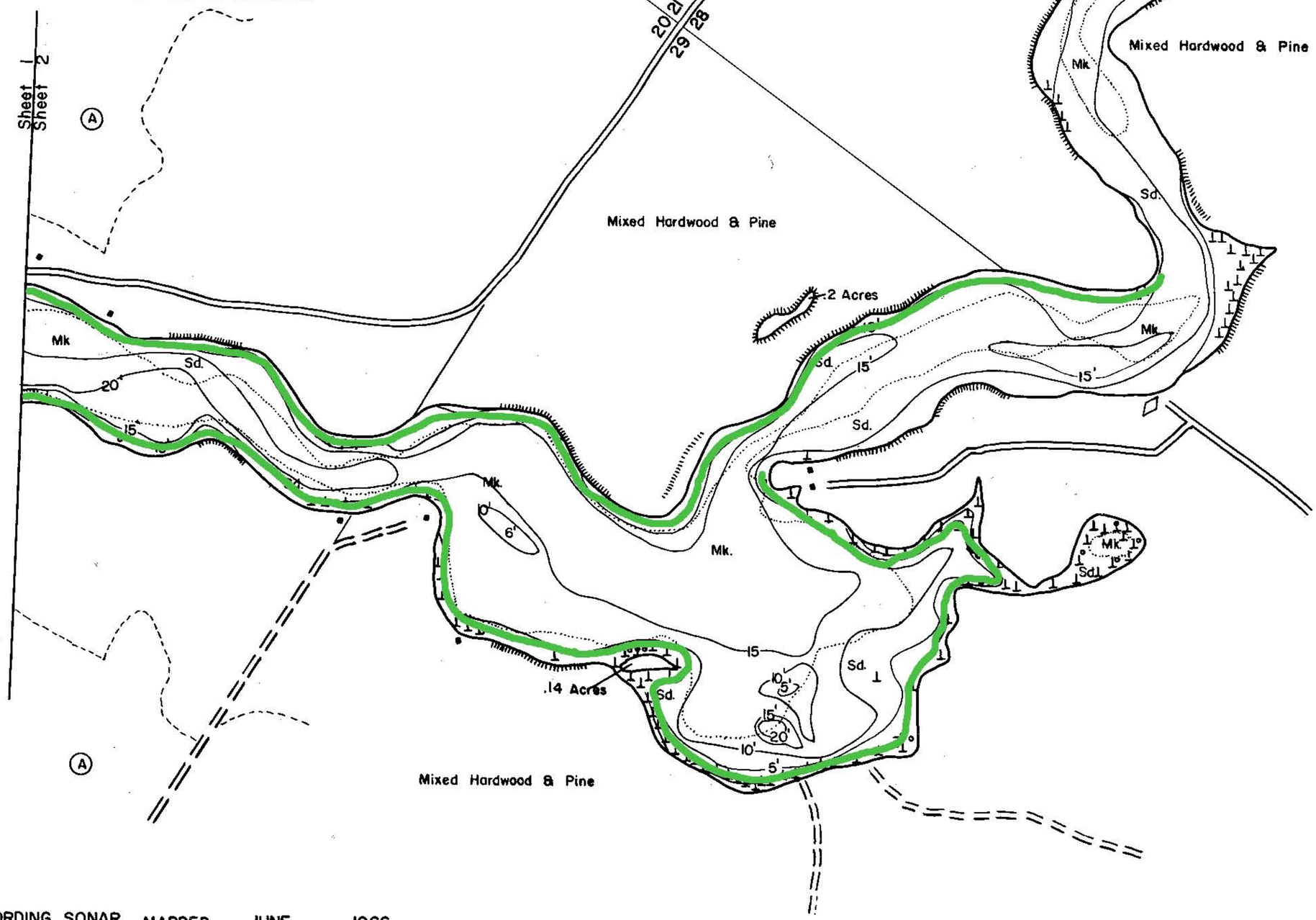
TREGO LAKE — WASHBURN COUNTY

SEC. 20,28,29 T. 40 N. R. 12 E.W.

Sheet 2 of 4

WDNR Comments





SPECIES OF FISH	Abundant	Common	Rare
Muskie			X
N. Pike			X
Walleye		X	
L.M. Bass			X
S.M. Bass			X
Panfish	X		
Trout			
Sturgeon			X

EQUIPMENT RECORDING SONAR MAPPED JUNE (MO.) 1966 (YR.)

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- Dwelling
- Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

WATER ELEV. 99.75

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- T Submergent vegetation
- ⊥ Emergent vegetation
- Floating vegetation
- Stumps & Snags

400' 0' 400' 800' 1200' 1600' 2000'

SCALE

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by C.Busch, G.Winter, L.Sather Drawn by: C.Holt

AREA 460.2 ACRES

451.1 WITHOUT IS.

UNDER 3FT. 6.15 %

OVER 20FT. 14.0 %

VOLUME 4770.6 ACRE FT.

TOTAL ALK. 73 P.P.M.

SHORELINE 16.9 MILES

MAX. DEPTH 36 FEET

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Washburn	Trego	MWBC: 2712000

Sampling Objective	Number and Locations of Stations (Habitat)		
Walleye Recruitment Survey			Source
	Miles Actually Shocked =	6.0	GPS
Period Fished (Dates)	Acres =	451	LM
09/14/16	Total Miles of Shoreline =	16.9	LM
	Total Miles of Shockable Shoreline =	16.9	LM

GEAR

Boomshocker (Hours)	Time	
2.5	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	**Time of Day**	**Trap Net (No. of Net Lifts)**	**Mesh Size**	**Depth**
Minnow Seine (No. of Hauls)	**Area Covered**	**Gill Net (No. of Feet x No. of Lifts)**	**Mesh Size**	**Depth**

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-ST
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	0			0.00 / hour	0.00 / mile
Serns modified NA YOY / acre					
Walleye (Age 1+)	16	8.0 - 8.4, 10.0 - 10.4	7.5 - 11.4	6.40 / hour	2.67 / mile
Walleye (Other)	14	None	13.0 - 19.4	5.60 / hour	2.33 / mile
Smallmouth Bass	30	None	5.5 - 19.9	12.00 / hour	5.00 / mile
Largemouth Bass	10	None	4.0 - 16.9	4.00 / hour	1.67 / mile
Muskellunge	1	None	12.5 - 12.9	0.40 / hour	0.17 / mile
Northern Pike	20	None	11.0 - 26.4	8.00 / hour	3.33 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range

1) Tank Mortality: None 2) Weather: NA 3) Reliability: Medium

4) Stocking: 142 Muskellunge, 12.0 inches, 09/14/16, DNR

5) Comments:

Rev. 10-70

Signed (Compiler) Gene Hatzenbeler Date 12/02/16

WDNR Comments

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL) Department of Natural Resources
Form 3600A-191 8-95

Lake: Trego MWB Code: 2712000 Date: 09/14/16 County: Washburn Collector(s): Bass, Roberts, Gorne

Target Fish: All Gamefish Survey Type: CPE Mark Given: None Water Temperature: 62°F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 160 Amps: 4.5 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 2000 Shocking End Time: 2253 Generator Start Hour: 306.1 Generator End Hour: 308.6

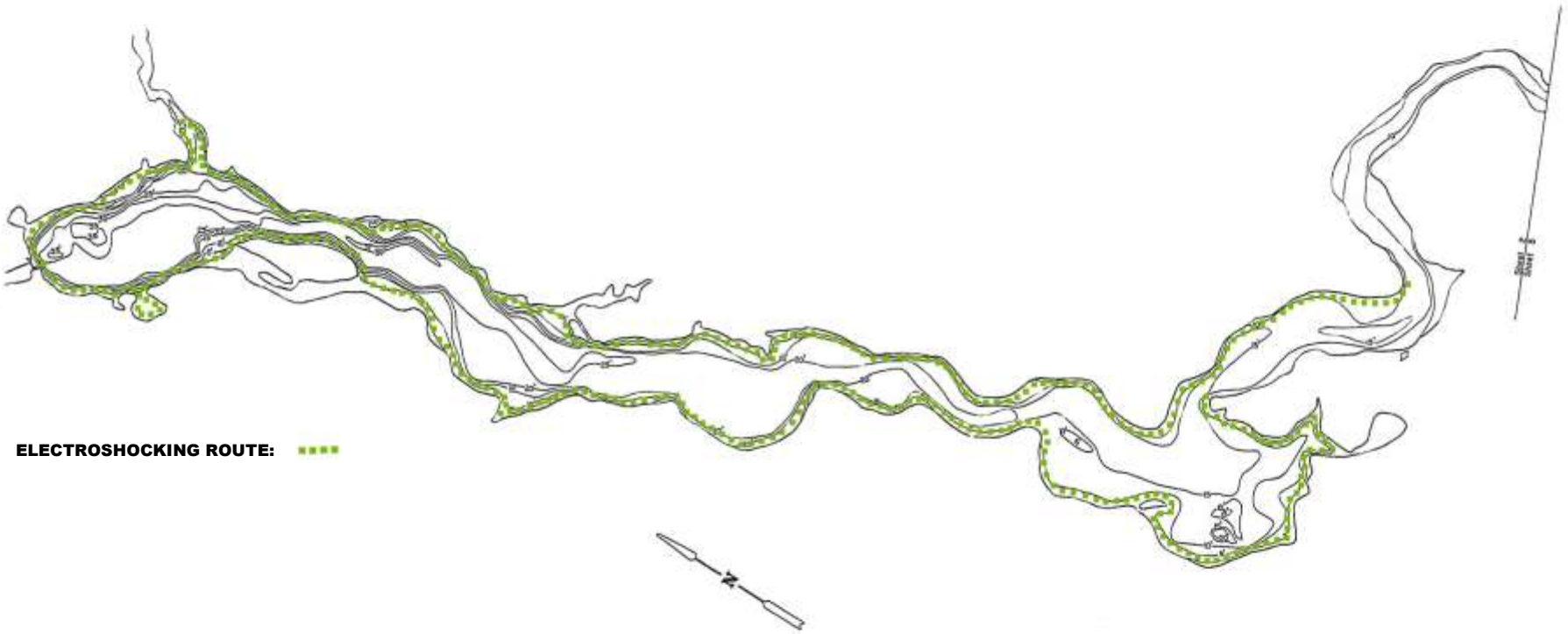
Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

Inches	Walleye	Northern Pike	Muskellunge	Largemouth Bass	Smallmouth Bass	Inches	Walleye	Northern Pike	Muskellunge
<1.5						**24.5-24.9**			
1.5-1.9						**25.0-25.4**		1	
2.0-2.4						**25.5-25.9**			
2.5-2.9						**26.0-26.4**		1	
3.0-3.4						**26.5-26.9**			
3.5-3.9						**27.0-27.4**			
4.0-4.4				1		**27.5-27.9**			
4.5-4.9						**28.0-28.4**			
5.0-5.4						**28.5-28.9**			
5.5-5.9					1	**29.0-29.4**			
6.0-6.4				1		**29.5-29.9**			
6.5-6.9						**30.0-30.4**			
7.0-7.4				1		**30.5-30.9**			
7.5-7.9	1			2		**31.0-31.4**			
8.0-8.4	4			1		**31.5-31.9**			
8.5-8.9	2					**32.0-32.4**			
9.0-9.4	1				1	**32.5-32.9**			
9.5-9.9	1				4	**33.0-33.4**			
10.0-10.4	4			1	1	**33.5-33.9**			
10.5-10.9	2					**34.0-34.4**			
11.0-11.4	1	1				**34.5-34.9**			
11.5-11.9		2			1	**35.0-35.4**			
12.0-12.4		2				**35.5-35.9**			
12.5-12.9		1	1		1	**36.0-36.4**			
13.0-13.4	1	1			1	**36.5-36.9**			
13.5-13.9		1		1	1	**37.0-37.4**			
14.0-14.4	1				1	**37.5-37.9**			
14.5-14.9	1	1			1	**38.0-38.4**			
15.0-15.4	2	2				**38.5-38.9**			
15.5-15.9	1	1		1	4	**39.0-39.4**			
16.0-16.4	1	1			1	**39.5-39.9**			
16.5-16.9	1	1		1	2	**40.0-40.4**			
17.0-17.4	2	1			2	**40.5-40.9**			
17.5-17.9	2				4	**41.0-41.4**			
18.0-18.4					2	**41.5-41.9**			
18.5-18.9	1				1	**42.0-42.4**			
19.0-19.4	1	1				**42.5-42.9**			
19.5-19.9					1	**43.0-43.4**			
20.0-20.4						**43.5-43.9**			
20.5-20.9						**44.0-44.4**			
21.0-21.4						**44.5-44.9**			
21.5-21.9						**45.0-45.4**			
22.0-22.4						**45.5-45.9**			
22.5-22.9		1				**46.0-46.9**			
23.0-23.4		1				**47.0-47.9**			
23.5-23.9						**48.0-48.9**			
24.0-24.4						**49.0-49.9**			
Totals:	30	20	1	10	30	**50.0+**			

WDNR Comments

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

TREGO LAKE
WASHBURN COUNTY
WBIC: 2712000



ELECTROSHOCKING ROUTE:

WDNR Comments

SUMMARY FISHING RECORD
Form 3600-63

Department of Natural Resources

County	Waters	
Washburn	Trego	MWBC: 2712000

Sampling Objective	Number and Locations of Stations (Habitat)		
Walleye Recruitment Survey			Source
	Miles Actually Shocked =	6.0	GPS
Period Fished (Dates)	Acres =	451	LM
09/19/19	Total Miles of Shoreline =	16.9	LM
	Total Miles of Shockable Shoreline =	16.9	LM

GEAR

Boomshocker (Hours)	Time	
2.5	√ Night	Day

Visual Hours	Time of Day	Haul Seine (Length)	Mesh Size	Area Covered
Angling (Hours)	Time of Day	Trap Net (No. of Net Lifts)	Mesh Size	Depth
Minnow Seine (No. of Hauls)	Area Covered	Gill Net (No. of Feet x No. of Lifts)	Mesh Size	Depth

Other (Hours or Lifts)		Characteristics	
Boomshocker(s): 1	Mini-boomshocker(s):	Walleye Recruitment Code:	C-ST
Dip Netter(s): 2	Dip Netter(s):		

FISHING RESULTS

Species	No.	Modal Size(s)	Size Range	Catch/Unit	
Walleye (Age 0+)	11	None	4.3 - 6.0	4.40 / hour	1.83 / mile
Serns modified NA YOY / acre					
Walleye (Age 1+)	19	7.7	7.3 - 9.4	7.60 / hour	3.17 / mile
Walleye (Other)	16	13.5 - 13.9, 15.5 - 15.9	10.7 - 20.4	6.40 / hour	2.67 / mile
Smallmouth Bass	31	15.5 - 15.9, 17.0 - 17.4	9.0 - 19.4	12.40 / hour	5.17 / mile
Largemouth Bass	8	None	2.5 - 19.4	3.20 / hour	1.33 / mile
Muskellunge	1	None	24.5 - 24.9	0.40 / hour	0.17 / mile
Northern Pike	12	None	6.0 - 25.4	4.80 / hour	2.00 / mile

OBSERVATIONS

Other Species	Abundance	Size Range	Other Species	Abundance	Size Range

1) Tank Mortality: None 2) Weather: NA 3) Reliability: Medium

4) Stocking: 383 Lake Sturgeon, 9.0 inches, 10/24/19, DNR

5) Comments:

Rev. 09-16

Signed (Compiler) Gene Hatzenbeler Date 11/26/19

WDNR Comments

LAKE ELECTROFISHING DATA COLLECTION SHEET (FALL) Department of Natural Resources
Form 3600A-191 8-95

Lake: Trego MWB Code: 2712000 Date: 09/19/19 County: Washburn Collector(s): Bass, Roberts, Gorne

Target Fish: All Gamefish Survey Type: CPE Mark Given: None Water Temperature: 68°F Station: Portion of Shoreline

Adverse Conditions: None Gear Type: Boomshocker Distance Shocked: 6.0 miles

Volts: 150 Amps: 4.0 Current Type: [X]AC [ ]DC [ ]Pulsed DC Pulse Rate: None Duty Cycle: None

Shocking Start Time: 1951 Shocking End Time: 2245 Generator Start Hour: 407.6 Generator End Hour: 410.1

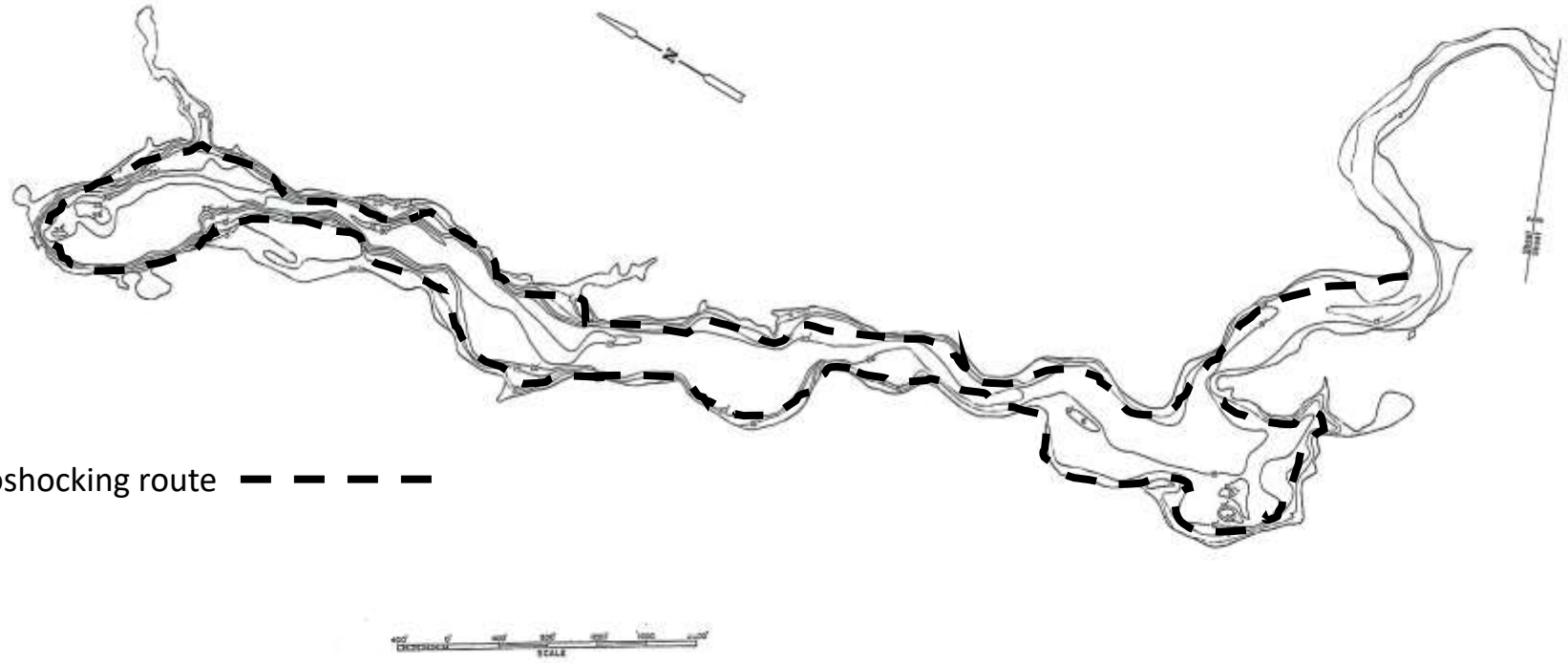
Number of Dippers: [ ]1 [X]2 Entire Shoreline Shocked: [ ]Y [X]N [ ]I Dipnet Mesh Size: 3/8 inch bar H20 Clarity: NA

Walleye < 12.0"			
Inches	Number	Inches	Number
<3.0		**7.5**	
3.0		**7.6**	
3.1		**7.7**	4
3.2		**7.8**	
3.3		**7.9**	1
3.4		**8.0**	1
3.5		**8.1**	1
3.6		**8.2**	1
3.7		**8.3**	
3.8		**8.4**	1
3.9		**8.5**	
4.0		**8.6**	1
4.1		**8.7**	2
4.2		**8.8**	1
4.3	1	**8.9**	
4.4		**9.0**	
4.5		**9.1**	1
4.6		**9.2**	1
4.7	1	**9.3**	
4.8	2	**9.4**	1
4.9	1	**9.5**	
5.0	2	**9.6**	
5.1		**9.7**	
5.2	1	**9.8**	
5.3		**9.9**	
5.4		**10.0**	
5.5		**10.1**	
5.6		**10.2**	
5.7	1	**10.3**	
5.8	1	**10.4**	
5.9		**10.5**	
6.0	1	**10.6**	
6.1		**10.7**	1
6.2		**10.8**	
6.3		**10.9**	
6.4		**11.0**	
6.5		**11.1**	1
6.6		**11.2**	
6.7		**11.3**	
6.8		**11.4**	
6.9		**11.5**	
7.0		**11.6**	
7.1		**11.7**	1
7.2		**11.8**	
7.3	1	**11.9**	
7.4	2	**Total:**	33

Inches	Walleye	Northern Pike	Muskellunge	Largemouth Bass	Smallmouth Bass	Inches	Walleye	Northern Pike	Muskellunge
<1.5						**24.5-24.9**			1
1.5-1.9						**25.0-25.4**		1	
2.0-2.4						**25.5-25.9**			
2.5-2.9				2		**26.0-26.4**			
3.0-3.4				1		**26.5-26.9**			
3.5-3.9				1		**27.0-27.4**			
4.0-4.4				2		**27.5-27.9**			
4.5-4.9						**28.0-28.4**			
5.0-5.4						**28.5-28.9**			
5.5-5.9						**29.0-29.4**			
6.0-6.4		1				**29.5-29.9**			
6.5-6.9						**30.0-30.4**			
7.0-7.4		2				**30.5-30.9**			
7.5-7.9		2				**31.0-31.4**			
8.0-8.4		1		1		**31.5-31.9**			
8.5-8.9						**32.0-32.4**			
9.0-9.4					1	**32.5-32.9**			
9.5-9.9						**33.0-33.4**			
10.0-10.4					2	**33.5-33.9**			
10.5-10.9					1	**34.0-34.4**			
11.0-11.4						**34.5-34.9**			
11.5-11.9						**35.0-35.4**			
12.0-12.4	1				2	**35.5-35.9**			
12.5-12.9	1	1			2	**36.0-36.4**			
13.0-13.4	1				2	**36.5-36.9**			
13.5-13.9	3	1			2	**37.0-37.4**			
14.0-14.4	1				1	**37.5-37.9**			
14.5-14.9					2	**38.0-38.4**			
15.0-15.4					1	**38.5-38.9**			
15.5-15.9	3				4	**39.0-39.4**			
16.0-16.4	1				3	**39.5-39.9**			
16.5-16.9					1	**40.0-40.4**			
17.0-17.4					4	**40.5-40.9**			
17.5-17.9					1	**41.0-41.4**			
18.0-18.4	1				1	**41.5-41.9**			
18.5-18.9						**42.0-42.4**			
19.0-19.4				1	1	**42.5-42.9**			
19.5-19.9						**43.0-43.4**			
20.0-20.4	1					**43.5-43.9**			
20.5-20.9		1				**44.0-44.4**			
21.0-21.4		1				**44.5-44.9**			
21.5-21.9		1				**45.0-45.4**			
22.0-22.4						**45.5-45.9**			
22.5-22.9						**46.0-46.9**			
23.0-23.4						**47.0-47.9**			
23.5-23.9						**48.0-48.9**			
24.0-24.4						**49.0-49.9**			
Totals:	13	12	1	8	31	**50.0+**			

WDNR Comments

Trego Lake
Washburn County
WBIC 2712000
Wisconsin DNR



Electroshocking route

WDNR Comments

Darrin Johnson

From: Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Sent: Monday, August 10, 2020 10:25 AM
To: Darrin Johnson
Cc: Shawn Puzen
Subject: WDNR Trego and Hayward Mussel and Wildlife Information Submission for PAD

Hi Darrin,

Please see WDNR program staff comments below, regarding mussel and wildlife information for Hayward and Trego Hydro Projects.

Wildlife Comments (Hayward)

Future study requests may relate to the following species: Blanding's Turtle, Mink Frog, Wood Turtle
Bald Eagle – there has long been a territory on Lake Hayward, with 2 nests by the Lumberjack Bowl, and a newer nest just north of Hwy 77

Wildlife Comments (Trego):

"Although I do not know exactly what water control actions would be taken, I don't have any general concerns. Of course pesticide or other waste put into the water would cause negative impact to a host of wildlife species. Runoff of chemicals and erosion, would have negative impacts to wildlife and public use of the waterway. I have no specific data to included. DNR does not own land so we do not have any wildlife or fishery area management plans for this area of land. The only survey conducted in this area was the bear snare survey (which showed we have plenty of bears). The only concerns I can think of are otter and other furbearers, if water was not managed similar to what it is now. Water management should not affect them unless the area is drained. Turtles, frogs and others would be negatively affected if water levels were drawn down after Oct 1."

Mussel Data from Namekagon River and Mussel data from Statewide Mussel Atlas (Trego)

WDNR Comments

No maps or reports specific to this location are available.
List of mussels from past surveys provided.
The occurrence of specific species is habitat dependent, river substrate dependent.
No federally or state threatened/endangered or special concern mussel species are known to occur in the impounded sections of the reservoir, however listed species may occur downstream from the dam or further upstream from the impounded reaches of the reservoir .

WDNR Comments

Washburn County - Namekagon River Native Mussels

Common Name - Scientific name (Last observed date) Status

Black Sandshell - Ligumia recta (2016)
Creeper - Strophitus undulatus (2016)
Cylindrical Papershell – Anodontoides ferussacianus (2016)
Deertoe - Truncilla truncata (2016)
Elktoe - Alasmidonta marginata (2016) State Special Concern
Fatmucket - Lampsilis siliquoidea (2016)
Fluted-shell - Lasmigona costata (2016)
Fragile Papershell - Leptodea fragilis (1995)
Giant Floater - Pyganodon grandis (1995)
Hickorynut - Obovaria olivaria (1988)
Mapleleaf - Quadrula quadrula (2016) State Special Concern
Mucket - Actinonaias ligamentina (2016)
Paper Pondshell – Utterbackia imbecilis (2016)
Pimpleback - Quadrula pustulosa (2016)
Pink Heelsplitter - Potamilus alatus (2016)
Plain Pocketbook - Lampsilis cardium (2016)
Purple Wartyback - Cyclonaias tuberculata (1995) State Endangered
Round Pigtoe - Pleurobema sintoxia (2016)
Salamander Mussel - Simpsonaias ambigua (1988) State Threatened
Spike - Elliptio dilatata (2016)
Threeridge - Amblema plicata (2016)
Wabash Pigtoe - Fusconaia flava (2016)

Have a good week,

Macaulay Haller
Wisconsin Department of Natural Resources
Macaulay.Haller@wisconsin.gov

WDNR Comments

Darrin Johnson

From: Haller, Macaulay G - DNR <macaulay.haller@wisconsin.gov>
Sent: Monday, August 17, 2020 8:05 AM
To: Darrin Johnson
Cc: Shawn Puzen
Subject: RE: WDNR Trego and Hayward Information Submission for PAD

Hi Darrin,

Here is the list of Native Mussels Species for Sawyer County for the Namekagon River, provided by WDNR program staff.

Black Sandshell - Ligumia recta (1987)
Creek Heelsplitter - Lasmigona compressa (1995)
Creeper - Strophitus undulatus (1995)
Cylindrical Papershell - Anodontoides ferussacianus (1987)
Elktoe - Alasmidonta marginata (1987) State Special Concern
Fatmucket - Lampsilis siliquoidea (1995)
Fluted-shell - Lasmigona costata (1995)
Giant Floater - Pyganodon grandis (1987)
Mucket - Actinonaias ligamentina (1987)
Plain Pocketbook - Lampsilis cardium (1987)
Round Pigtoe - Pleurobema sintoxia (1995)
Spike - Elliptio dilatata (1987)
Wabash Pigtoe - Fusconaia flava (1995)

Have a good week,
Macaulay

From: Haller, Macaulay G - DNR
Sent: Tuesday, August 11, 2020 11:08 AM
To: 'Darrin Johnson' <Darrin.Johnson@meadhunt.com>
Cc: 'Shawn Puzen' <Shawn.Puzen@meadhunt.com>
Subject: RE: WDNR Trego and Hayward Information Submission for PAD

Hi Darrin,

Please see below WDNR comments on water resources and recreation for Trego and Hayward Hydro Projects.

Water Resources (Trego)

There is a SWIMS station at the upper end of the project boundary 10022021 that has some WQ data and a fish survey that looks like it was a wadeable survey and there may be a non-wadeable survey there as well. The station survey probably went US and outside the project boundary. There is a station DS of the project at CTH K (10037360) with a large river macroinvert sample from 2012. If it's a large river, there likely are not any wadeable fish surveys nearby but looks like there are large river fish surveys associated with SWIMS 10011080. Again these are outside the project boundary but may provide useful information about DS resources.

Recreation, Land Use (Hayward)

WDNR Comments

Hayward Lake has a boat ramp 0.3 miles upstream from the dam, just east of the Highway 27 crossing. Hayward Lake also has a recreational fishing pier approximately ½ mile upstream from the dam. These may be upgraded in the future to enhance recreation opportunities, but if/when is not clear from the county recreational plan.

Hayward Lake is an ASNRI Outstanding and Exceptional Stream designation. Below the dam is a PNW Musky water. The ASNRI designation also points to the Wild and Scenic River status for the Namekagon River, that is protected by federal law.

Recreation, Land Use (Trego)

Trego Lake, on the Namekagon River has designated ASRNI status as an Outstanding and Exceptional area. It also has Wild Rice present and retains the designation for that reason as well. Tribal consultation will be necessary to determine any changes to this waterbody and how it might impact wild rice.

Recreation: Just downstream from the Trego dam is a canoe landing popular with non-motorized watercraft that use the riverway. This area being national scenic riverway, this reach is managed for paddlers and camping where several primitive water-only access campsites are available. Trego Lake has two boat ramps for motorized boats, and a canoe/kayak launch on the east side of Trego. This area is extremely popular with non-motorized boats and tubes, with a large rental business on the east side of Trego.

Thank you,

Macaulay Haller
Wisconsin Department of Natural Resources
Macaulay.Haller@wisconsin.gov

From: Haller, Macaulay G - DNR
Sent: Monday, August 10, 2020 10:25 AM
To: Darrin Johnson <Darrin.Johnson@meadhunt.com>
Cc: Shawn Puzen <Shawn.Puzen@meadhunt.com>
Subject: WDNR Trego and Hayward Mussel and Wildlife Information Submission for PAD

Hi Darrin,

Please see WDNR program staff comments below, regarding mussel and wildlife information for Hayward and Trego Hydro Projects.

Wildlife Comments (Hayward)

Future study requests may relate to the following species: Blanding's Turtle, Mink Frog, Wood Turtle
Bald Eagle – there has long been a territory on Lake Hayward, with 2 nests by the Lumberjack Bowl, and a newer nest just north of Hwy 77

Wildlife Comments (Trego):

"Although I do not know exactly what water control actions would be taken, I don't have any general concerns. Of course pesticide or other waste put into the water would cause negative impact to a host of wildlife species. Runoff of chemicals and erosion, would have negative impacts to wildlife and public use of the waterway. I have no specific data to included. DNR does not own land so we do not have any wildlife or fishery area management plans for this area of land. The only survey conducted in this area was the bear snare survey (which showed we have plenty of bears). The only concerns I can think of are otter and other furbearers, if water was not managed similar to what it is now. Water

management should not affect them unless the area is drained. Turtles, frogs and others would be negatively affected if water levels were drawn down after Oct 1."

Mussel Data from Namekagon River and Mussel data from Statewide Mussel Atlas (Trego)

WDNR Comments

No maps or reports specific to this location are available.
List of mussels from past surveys provided.
The occurrence of specific species is habitat dependent, river substrate dependent.
No federally or state threatened/endangered or special concern mussel species are known to occur in the impounded sections of the reservoir, however listed species may occur downstream from the dam or further upstream from the impounded reaches of the reservoir .

WDNR Comments

Washburn County - Namekagon River Native Mussels

Common Name - Scientific name (Last observed date) Status

Black Sandshell - Ligumia recta (2016)
Creeper - Strophitus undulatus (2016)
Cylindrical Papershell – Anodontoides ferussacianus (2016)
Deertoe - Truncilla truncata (2016)
Elktoe - Alasmidonta marginata (2016) State Special Concern
Fatmucket - Lampsilis siliquoidea (2016)
Fluted-shell - Lasmigona costata (2016)
Fragile Papershell - Leptodea fragilis (1995)
Giant Floater - Pyganodon grandis (1995)
Hickorynut - Obovaria olivaria (1988)
Mapleleaf - Quadrula quadrula (2016) State Special Concern
Mucket - Actinonaias ligamentina (2016)
Paper Pondshell – Utterbackia imbecilis (2016)
Pimpleback - Quadrula pustulosa (2016)
Pink Heelsplitter - Potamilus alatus (2016)
Plain Pocketbook - Lampsilis cardium (2016)
Purple Wartyback - Cyclonaias tuberculata (1995) State Endangered
Round Pigtoe - Pleurobema sintoxia (2016)
Salamander Mussel - Simpsonaias ambigua (1988) State Threatened
Spike - Elliptio dilatata (2016)
Threeridge - Amblema plicata (2016)
Wabash Pigtoe - Fusconaia flava (2016)

Have a good week,

Macaulay Haller
Wisconsin Department of Natural Resources
Macaulay.Haller@wisconsin.gov