

Program Goals & Strategies for Fisheries Management and Fisheries Research

Program Scope and Output Measures: We annually deploy 252 positions and over \$25 million to manage fisheries in Wisconsin's 15,000 lakes, 84,500 miles of streams and rivers, 2 Great Lakes, and a portion of the Mississippi River. During the next 6 years, we expect the number of licensed anglers to fluctuate between 1.3 and 1.4-million. These anglers annually fish 22 million days in Wisconsin and generate \$2.3 billion of economic activity, 26,200 private sector jobs, and \$90 million in state sales and incomes taxes. Wisconsin anglers catch nearly 70 million fish each year, taking home about 20 million. More than 97% of Fisheries funding comes from fishing license sales and the federal Sport Fish Restoration Grant (SFR). Our work plans and expenditures will be guided by this "Fish, Wildlife and Habitat Management Plan" between 2007 and 2013.

WISCONSIN STATE STATUTES & ADMINISTRATIVE CODES FISHERIES MANAGEMENT

Complete access to the Wisconsin State Statutes that provide the authorities and responsibilities of the Fisheries Management program may be found at:

<http://www.legis.state.wi.us/rsb/Statues..html>

Complete access to the Wisconsin Administrative Code may be found at:

<http://www.legis.state.wi.us/rsb/code/nr/nr1.html>

Statute and Administrative Code responsibilities for Fisheries Management are referenced among the plan's goals and objectives with this icon.



Information of particular interest to anglers is identified by this icon.



Technical fisheries information and objectives are referenced with this icon.



Biological objectives for the structure of fish populations are found by this icon.



NR 1.01 – MANAGEMENT OF FISHERIES AND AQUATIC RESOURCES

1. Statutory Responsibilities – Scientific management emphasizing protection, development and use of all desirable aquatic species.
2. Goal – Provide optimum use and enjoyment of aquatic resources. A healthy and diverse environment is essential to meet this goal and shall be promoted through management programs.
3. Aquatic resources - includes both nongame and game species of fish, other aquatic animals and their habitats.
4. Management programs shall be “integrated” - close working relationship among functions of the department, other governmental agencies, federally recognized Indian tribes, and the public. The department will keep interested parties informed of policies, plans and management. To anticipate change and meet future demand, the department shall engage in long-range planning of management programs.
5. Financing - user fees, particularly license fees and excise taxes. Although user fees collected for a specific purpose are targeted at that purpose, they provide significant indirect benefits for a wide range of wildlife and users.
6. ...Fish management programs will vigorously uphold the Public Trust Doctrine, that citizens have a right to use in common the waters of the state and these waters shall be maintained free of pollution.
7. With access to Wisconsin's lakes and streams a prerequisite for their use by the public, the acquisition and development of public access to waters should be accelerated, particularly in the more populous areas of the state.
8. Wild and wilderness lakes and streams are a special and limited resource providing unique settings for enjoyment of fishing and other outdoor activities. Additional efforts are required to designate lakes and streams for this status. Special management methods that increase fishing quality shall be encouraged on these waters. Such methods may include trophy fishing, regulated harvest, special seasons, and controlled entry.
9. Sport fishing shall be managed in such a way that all have an equal opportunity to safely enjoy the aquatic resources, regulated to the extent that:
 - (a) Fish and other aquatic resources are protected and enhanced;
 - (b) Fishing effort does not exceed the capabilities of the resource to sustain desirable, quality fish populations;
 - (c) The social, ecological and economic values associated with all recreational fishing, competitive and non-competitive, are recognized;
 - (d) A sense of responsibility for the resource is inherent in all who participate and enjoy fishing;
 - (e) User conflicts are minimized; and
 - (f) Aesthetic and cultural values associated with fishing are held in trust for future generations.

GOAL: Outdoor Recreation --

“To enhance and restore outstanding fisheries in Wisconsin’s waters.”

A. FISHERIES ASSESSMENTS, SURVEYS, & RESEARCH**Inland Lakes and Streams:**

Fisheries managers need adequate information to set attainable management objectives, evaluate attainment of those objectives, and make recommendations on required fishing regulations, stocking quotas, and habitat restoration and improvements.

We recognize that fish populations naturally vary from year to year. Our fishery management surveys measure these natural fluctuations in various ways to detect fish populations that are below what they should be when compared to similar lakes and streams. In these cases we may, with public support, recommend habitat improvement, different fishing regulations, or a change in stocking to restore the population.



All management decisions (stocking, habitat, fishing regulations) are based on a population’s status relative to the objectives set below. The population objectives expressed in this plan are based on accepted scientific principles applied to a statistical analysis of 3,955 lake surveys; 5,023 wadable stream surveys; 903 river surveys conducted during the past 6 year planning period and entered into the statewide data base. All surveys are conducted with a standard protocol to assess the status of fish populations and measure the impact of our management actions relative to the objectives. This provides a basis from which we learn and adapt management of the state’s waters.

**Fishery Assessment Objectives:**

1. With the standard Tier 1 sampling protocol, complete the surveys assigned to each fisheries team to assess all Wisconsin sport fisheries on these rotation schedules except where otherwise specified in sampling protocols for specific waters and fisheries:

Rivers: 5 years
Streams: 12 years
Lakes: 12 years

2. Complete data entry for all surveys into the statewide data base by the end of 4th quarter of each fiscal year.

Tier 1 findings will be augmented with more detailed Tier 2 surveys of specific fish populations and waters to identify sources of problems and evaluate management efforts. Specific Tier 2

**“NR 1.02 (3)
SURVEYS AND RESEARCH.**

Programs shall be based on sound surveys and research. The department shall survey lakes and streams to obtain information needed to develop and implement management programs. Research shall be conducted to evaluate and resolve problems that have been defined.”

objectives and survey protocols are established each biennium and selected through work planning.

(Additional information may be found at: <http://dnr.wi.gov/org/water/fhp/fish/species/index.html>.)

Fisheries Research Activities in Support of Statewide Fisheries Management

Fisheries Research will continue to develop statewide methodology used to classify lakes. This work is relevant to goal-setting for every species of interest. Effective lake classification groups lakes based on limnology and lake morphometry, allowing assessment of the fishery in relation to predictable limitations imposed by natural features of the lake. Lakes classification can be an effective tool for assigning appropriate regulations for the type of lake. Thus, regulations can be standardized by having a set of options, yet flexible because the choice of a particular option is related to lake class. This type of framework is efficient because it allows biologically relevant generalization while recognizing important differences among lakes.

Fisheries Research will complete the Wisconsin Fisheries Potential Model. This GIS based modeling approach will develop quantitative, predictive models of fish occurrence and abundance in flowing waters that will improve stream classification, monitoring and evaluation, and environmental protection/restoration, and help direct fisheries management activities in over 50,000 miles of flowing waters in Wisconsin.

Fisheries Research will provide research and scientific support on the impacts of dams on riverine fishes and preparing to evaluate the benefits of improved flow regimes and fish passage in selected rivers

Fisheries Research will continue research quantifying the large-scale effects of watershed and riparian agricultural and urban land-uses on stream health and fish communities in streams and lakes

Major Species Programs:

Walleye Program:

(Additional information may be found at:

<http://dnr.wi.gov/org/water/fhp/fish/species/WI%20Walleye%20Mgmt%20Plan.pdf>)



Wisconsin's primary walleye fishery on lakes > 100 acres consists of approximately 480 lakes sustained by natural reproduction and approximately 330 lakes where the stocking of walleye fry and fingerlings provides most of the angling opportunities. Objectives in walleye management for 2007-2013 include completing evaluations of our current regulations, ensuring that 65% of the adult walleye survive to spawn each year, and creating a balanced walleye population with a healthy size structure.



Objectives:

1. There are 3 or more adult walleye per acre and total harvest is less than 35% of the adult population to protect spawning adults on 683 lakes with natural reproduction.

2. 25% of all adult walleye over 10" are 15" or larger in northern lakes
3. 50% of all adult walleye over 10" are 15" or larger in the southern lakes where growing season is longer.
4. 25% of all walleye over 10" are 18" or larger on stocked lakes.
5. All walleye lakes > 100 acres with public access walleye lakes are surveyed at least once every 12 years.
6. By 2010, complete the evaluation of the impact of these 3 fishing regulations:
 - a. 14-18" protected slot
 - b. 1 walleye over 14" (analysis completed; May 2007)
 - c. 3 walleye over 18"

Fisheries Research Activities in Support of Walleye Program Objectives

Fisheries Research will continue a long-term study on the effects of exploitation rates on northern walleye populations will provide information about sustainable walleye exploitation rates. This will allow managers to more effectively implement the walleye management plan and assist managers in developing and refining regulations.

Fisheries Research will develop a study to evaluate the role(s) of population dynamics (e.g. recruitment) and genetics has on recruitment status and viability of Wisconsin walleye populations. The specific objectives will include: 1) determination of the spatial distribution of walleye genetic diversity in naturally recruiting walleye populations; 2) evaluation of the relationship between effective population size to recruitment patterns in recruiting Wisconsin walleye populations contrasted with traditional population dynamic model predictions; 3) correlation of walleye habitat availability and quality with recruitment status, genetic diversity, and effective number of breeders; 4) determine specific objective measures to delineate the various recruitment categories used to discriminate Wisconsin walleye populations; 5) investigate the potential role of genetic diversity and/or effective population size plays in the overall productivity of walleye populations.

Muskie:

(Additional information may be found at: <http://dnr.wi.gov/org/water/fhp/fish/pubs/muskiedoc.pdf>)



Muskellunge are found in lakes of all sizes and in slower water of large rivers, generally occupying areas with abundant submerged aquatic plants. The heart of the range is north central Wisconsin, although they are found in many other locations throughout the state; nearly 90% of muskellunge waters occur in the Northern Region. Muskellunge are the largest predatory game fish found in Wisconsin. They are sleek, powerful predators, known to feed on virtually every fish species, as well as aquatic birds and mammals. Their large size and predatory nature mean that muskellunge are usually present at low densities, with most waters generally containing less than 1 adult per acre and so are managed with a bag limit of 1 per day and high size limits. Long hours are often required to catch a muskellunge; however, most avid anglers are more than willing to invest the time required to encounter a muskellunge and many now practice catch-and-release fishing to help improve the quality of fishing.

Muskellunge occur in 711 lakes (615,241 acres) and 83 river segments (1,682 miles). Waters are subjectively divided into three classes based on the relative abundance of muskellunge and the quality of the fishery:

Class A – Support good muskellunge populations and provide the best muskellunge fishing (356 waters; 217,364 acres).

Class A1 – “Trophy waters” (104 waters; 118,173 acres)

Class A2 - “Action waters” (252 waters; 99,191 acres)

Class B – Support intermediate populations that provide good fishing, but with generally lower catch rates than in Class A waters (222 waters; 115,452 acres).

Class C – These waters have fishable muskellunge populations but they are generally not of major importance to the fishery (216 waters; 282,425 acres).



Objectives:



1. 30% of all adult muskie larger than 30” are 38” or larger.
2. Complete update of muskie management plan by 2007.
3. Complete a comprehensive survey of muskie genetics to identify stock boundaries by 2008.
4. Increase trophy fishing opportunities for muskies above 45” by increasing the number of lakes with trophy size limits were growth potential and public support warrant it.

Fisheries Research Activities in Support of Statewide Muskellunge Management

Fisheries Research is coordinating the muskie genetics project with collection of tissue samples from populations of interest, obtaining archival material to reconstruct historical patterns, and by acting as a thesis committee member for a student at UWSP.

Fisheries Research has initiated a project to evaluate growth potential of native Chippewa River Basin muskellunge and Mississippi R. (Leech L.) muskellunge in waters of the St. Croix Basin. This project was developed in response to angler interest in genetically based differences in growth potential.

Fisheries Research is conducting evaluations of tagging methodology in muskellunge. Passive Integrated Transponder (PIT) tags provide long-term identification of individual fish, aiding assessments of growth and other important population parameters. This technology also provides a tool for quantifying the contribution of the propagation program to the fishery.

Fisheries Research will conduct research to gain a better understanding of muskellunge population dynamics and population variability in naturally reproducing populations. The study includes both exploited and unexploited populations and will provide managers with valuable baseline information that can be used to interpret the effects of harvest and management scenarios on other muskie populations. As part of this study a The muskellunge stock-recruitment relationship will also be modeled using various biotic and abiotic factors.

Bass (in lakes):

(Additional information may be found at: <http://dnr.wi.gov/org/water/fhp/fish/pubs/bassplan.pdf>)



Wisconsin is home to both large mouth and small mouth bass (which are found more commonly in northern Wisconsin. The popularity of bass fishing has increased in the past 6 years as both a recreation and competitive sport. Over half (56.5%) of Wisconsin residents reported fishing for bass which is the second most sought after game fish in Wisconsin, finishing second only to the walleye. Largemouth are common in 4,151 lakes; smallmouth are common in 1,500 lakes and 214 streams. Our goal is to manage both species of bass as self-sustaining populations by identifying and protecting shallow water habitat critical to bass survival and reproduction. We intend to manage bass fishing with regulations to provide the angler with a variety of bass fishing experiences which vary because of different lake and climate conditions in northern and southern Wisconsin.



Objectives:



1. 30% of all adult bass over 8" are 14" or larger.
2. Fall surveys of 8" or larger bass find at least:
 - a. 10 LMB/mile of shoreline in N. Wisconsin
 - b. 20 LMB/mile of shoreline in S. Wisconsin
 - c. 3 SMB/mile of shoreline
3. All bass lakes > 100 acres are sampled at least once every 12 years.

Smallmouth Bass in streams & rivers:

The long term direction is to develop a targeted management program of regulations and habitat rehabilitation similar to trout.



Objectives:

1. Classify all bass streams and rivers by 2017 with respect to the catch from standard protocol surveys per mile of stream thread for juvenile, bass > 8", and bass > 14".

2. Continue to manage SMB in streams with a minimum statewide size limit and occasional stocking or habitat restoration. Modify these objectives as data are accumulated and analyzed.

Fisheries Research activities in Support of Smallmouth Bass in streams and rivers

Fisheries Research provides technical guidance in designing and implementing scientifically sound fish monitoring programs for smallmouth bass streams and rivers. Fisheries Research will provide comprehensive monitoring of select smallmouth bass streams to help set statewide fisheries management objectives.

Panfish: Bluegill and crappies.



Our most popular fish to catch occur throughout the state and anglers enjoy catching them throughout the year. Reduced bag regulations are currently under evaluation in St. Croix County and several other lakes.



Objectives:

1. PSD 30% (defined by lake classification)
2. Sample 1,223 waters on a 12-year rotation using the standard protocol



Lake Sturgeon

(Additional information may be found at:

<http://dnr.wi.gov/org/water/fhp/fish/sturgeon/mngtplan/index.htm>)



The waters of Wisconsin collectively possess one of the largest self-sustaining populations of lake sturgeon, *Acipenser fulvescens*, in the world. The lake sturgeon is a unique species with respect to longevity, spawning maturity, intolerance to pollution, and the ease in which a population may be impacted in an exploited fishery. Sturgeon populations are declining worldwide and are threatened with extinction, except in Wisconsin. Here, careful management of sturgeon and its habitat, in cooperation with individual anglers and sturgeon clubs, have secured its future as a sustainable fishery. Our goal is to manage Wisconsin sturgeon populations as a sustainable fishery and restore native lake sturgeon to the waters where they were once found.



Objectives:

1. Continue to manage the sturgeon fishery of the Winnebago-Wolf River system as a sustainable population through harvest regulations, protection, and habitat improvement.
2. Preserve and enhance existing naturally reproducing populations. Re-establish populations in waters within their original range consistent with their genetic origins.
3. Reintroduce Lake Michigan strain lake sturgeon into suitable tributary habitats in cooperation with other states as discussed in the Joint Plan For Management of Great Lakes Fisheries.
4. Continue to restore at least 4 lake sturgeon populations through 2013 from prioritized waters listed in the Wisconsin Lake Sturgeon Management Plan (e.g., middle Wisconsin River, Menominee River, Milwaukee River, Manitowish River, Manitowoc River, Green Bay).
5. Revise Wisconsin's Lake Sturgeon Management Plan by 2008 with the involvement of stakeholders.
6. Allow for sport harvest opportunities where there is a harvestable surplus.
7. Evaluate impact of sturgeon hook and line harvest tag on angler participation, sturgeon harvest and management activities by 2012.



Trout:

The trout resources in Wisconsin are generally in very good shape. Improved land use in the western Wisconsin Driftless Area has resulted in increased water infiltration and increased trout stream flows. Especially where combined with trout stream habitat restoration, this has resulted in increased trout populations, more natural reproduction, and conversion to native brook trout. For example in the last 10 years, over 250 trout streams and 800 miles have been added to our list of classified trout streams.

In 2005 the Wisconsin DNR became one of the main partners in the Midwest Driftless Area Restoration Effort – a geographically-focused, scientifically based, broad partnership to improve the trout resources throughout the four-state Driftless Area. It is part of the National Fish Habitat Action Plan and is expected to bring numerous funding sources to bear on this unique area. It will attempt to bring all partners together in a coordinated regional approach to increase the effectiveness of watershed restoration by strategically linking upland conservation efforts with stream restoration.



“NR 102 (7) TROUT STREAM CLASSIFICATION.

The department shall identify and classify trout streams as follows to ensure adequate protection and proper management of this unique resource.

(a) For the purpose of this subsection, the following terms are defined as:

1. “Classification survey” means a fishery survey employing techniques generally accepted by fisheries biologists that:

- a. Investigates the variety of habitat types present in the water being surveyed;*
- b. Provides a representative sample of the fish species present, and their relative abundance;*
- c. Provides the length distribution and the age structure of the trout “population.”*

The trout resources of Wisconsin are not without some threats to their health. Groundwater use in the central sand plains appears to be reducing flows in many trout streams and have completely eliminated flow in at least two streams for short periods of time. Recent legislation gives the DNR some authority over new high-cap wells within close proximity of trout streams, but will require help from Fisheries to successfully implement. Recent droughts have aggravated the problem, but increasing competition for groundwater will result in allocation issues that will be difficult to solve.



Objectives:

1. Sample trout populations in all 2, 3, 4, and 5th order streams on a 1, 3, 6, or 12 year rotation with the standard protocol as specified in the sampling design. Sample 1st order streams with trout as specified in the protocol.
2. Sample 30 (6 per region) unclassified but potential trout streams every year as candidates for a higher level of environmental and ground water protection as trout streams.

Fisheries Research activities in support of in-land trout management

Fisheries Research is continuing to develop and refine models that predict stream temperature, fish presence/absence and relative fish abundance using GIS landscape data and climate data. This stream classification and land-use model will be used to allocate trout stream monitoring efforts (e.g., by identifying unclassified but potential trout streams), to identify trout streams for restoration work based on the potential for success, and to evaluate the relation between watershed land use and trout populations in streams.

The Wisconsin DNR has a wild trout stocking program that uses hatchery-reared trout of wild parentage to develop self-sustaining populations of brook trout and brown trout in waters that lack them and to increase the survival and longevity of trout stocked in streams. Fisheries Research will continue to study the viability of the source populations that provide eggs for this program to ensure a sustainable wild trout stocking program into the future. These studies will examine viability from both population dynamical and genetics aspects.

Fisheries Research will continue to study how in-stream habitat restoration can be used to benefit native brook trout versus brown trout in streams in which they coexist.

Fisheries Research will continue to develop population models to help manage trout populations in Wisconsin streams. Trout population models will complement stream classification and land-use modeling. Stream classification and land-use modeling, as described above, will be used to predict the ecological status of streams and how current and future land use may broadly affect fish habitat and fish assemblages therein. Trout population models will explicitly consider trout size and age classes. Given that there is a population of trout in a stream, stressors such as habitat degradation or loss and angler catch and release or harvest may affect trout reproduction or growth or survival of trout in different size and age classes. Trout models will aid in the better understanding of processes that regulate and factors that limit trout populations and will provide a framework for the rigorous evaluation of trout fishing regulations and habitat management activities.

SPECIAL LEGAL MANDATES – Treaty Fisheries

(Additional information may be found at: <http://dnr.wi.gov/org/water/fhp/fish/ceded/index.html>.)



Objectives:

1. Ensure that the joint sport and tribal fishery in Wisconsin's ceded territory is managed at a sustainable harvest level and within the constraints of the federal court decision.
2. Implement the court-mandated requirements for monitoring, assessing, and managing the joint sport and tribal fisheries in the ceded territory. Conduct approximately 25-30 walleye and muskie population surveys, 150 fall young-of-year surveys and 15-20 creel surveys each year. Establish treaty safe harvest levels for walleye and muskie on 800 lakes each year.



“NR 20.36(1) (1) ADJUSTMENT.

In order to prevent a total harvest of more than 35% of the adult walleye population or 27% of the adult muskellunge population, the secretary may lower the daily bag limit on walleye and increase the minimum size limit for muskellunge in specific waters in response to the harvest goals of the Chippewa bands for their spear, net or trap fisheries. The adjusted daily bag and size limits shall be in effect until March 1 of the year following the tribal harvest. The safe harvest levels on individual waters shall be determined by the department.”

Fisheries Research Activities in Support of Treaty Fisheries

Fisheries Research will continue a long-term study on the effects of exploitation rates on northern walleye populations. This research will provide information about sustainable walleye exploitation rates as included in the current walleye safe harvest system referenced in Objective 1.

B. GREAT LAKES

(Additional information may be found at:

<http://dnr.wi.gov/org/water/fhp/fish/lakemich/index.html>.)



The Great Lakes fisheries program comprises a variety of activities, such as assessments, regulations, and stocking, supporting recreational fishing, commercial fishing, and native species restoration (G. L. spotted muskie and Lake Sturgeon). The program follows an annual cycle of work and reporting that is grounded in longer-term strategic planning. The major strategic planning documents are the Fish Community Objectives for Lake Michigan, the Fish Community Objectives for Lake Superior, the Lake Michigan Integrated Fisheries Management Plan, the Wisconsin Lake Superior Basin Brook Trout Plan, the Lake Trout Restoration Plan for Lake Michigan, and four restoration plans adopted



“NR 1.04 Great Lakes fishery management.

The board endorses a flexible management system for the protection, development and utilization of the waters and fish populations of the Great Lakes for the maximum public benefit.

(3) Management of the fishery resources shall be based on a sound understanding of the dynamics of interacting fish stocks. The department shall conduct research and resource base, inventories, and collect harvest and utilization statistics on which to base sound management decisions.”

by the multi-agency lake Superior Committee, one each for lake trout, walleye, brook trout, and lake sturgeon. Restoration of several species is being pursued. This includes lake trout on both lakes, lake sturgeon in two L. Michigan tributaries, Great Lakes spotted muskie in Green Bay, walleye in the Milwaukee River, and lake sturgeon in the St. Louis River. Coordination with other jurisdictions is accomplished through the Lake Michigan and Lake Superior Committees and the Lake Michigan and Lake Superior Technical Committees, under terms of the Joint Strategic Great Lakes Fisheries Management Plan. On Lake Superior the management and exploitation of lake trout and other species are guided by terms of the State-Tribal Lake Superior Agreement.



Objectives:

1. Continue to assess and monitor the recovering yellow perch populations of Green Bay and Lake Michigan and manage recreational and commercial harvest appropriately to allow exploitation consistent with continued population recovery.
2. Continue to assess and monitor the recovering lake trout population in Wisconsin waters of Lake Superior and work with the Red Cliff and Bad River bands of Lake Superior Chippewa support the State-Tribal Lake Superior Agreement and to adjust harvest limits appropriately to allow exploitation consistent with continued population recovery.
3. Continue to pursue brook trout restoration in Lake Superior tributaries pursuant to the Wisconsin Lake Superior Basin Brook Trout Plan.

Fisheries Research Activities in support of B.3

Fisheries Research is evaluating relations between brook trout and introduced salmonids in L. Superior tributary streams. This work is designed to identify potential limiting factors in local brook trout abundance, and will help set realistic goals for rehabilitation.

Additional work on genetic profiles of brook trout in tributary streams has provided a framework for evaluating rehabilitation strategies. This work allows assignment of brook trout captured in the lake to local stream or hatchery population. Thus, any rehabilitation effort that is successful can be verified by matching genetic profiles of individuals exhibiting a potadramous life history to work done in individual streams.

4. On Lake Michigan, continue to work with other jurisdictions through the Lake Michigan Committee to adjust lakewide salmonine stocking strategies to meet mutually accepted fish community objectives and support recreational fishing.
5. Work with the Lake Michigan Committee to finalize and implement a new lakewide lake trout restoration plan.
6. Sustain long-term assessment data bases on both lakes.
7. Continue to develop and improve statistical catch-at-age population models for lake trout in Lake Superior and yellow perch in Green Bay and Lake Michigan.
8. Continue to develop and enhance our human and technological capabilities for science-based fisheries management.
9. Continue stocking and reintroduction of Great Lakes strain spotted muskie into Green Bay, Lake Michigan, and appropriate tributary streams in the Lake Michigan basin in

cooperation with other states and the USFWS. [A goal of self-sustaining stocks is not achievable during this planning period.]

10. Continue management of Lake Michigan strain lake sturgeon in the Menominee, Peshtigo, and Oconto rivers as source populations for Green Bay and Lake Michigan. Reintroduce Lake Michigan strain lake sturgeon into suitable former river habitats in cooperation with other states and the USFWS with techniques such as streamside rearing and fish passage.

Fisheries Research Activities in Support of Objective B.10

Fisheries Research will coordinate the the genetic monitoring and assessment of the long-term sustainability of streamside rearing of lake sturgeon in Lake Michigan. This project will include the collection, analysis, and archiving of tissue samples from adult spawning lake sturgeon and representative progeny to determine the genetic diversity of stocked fish, in future years the genetic diversity of returning adults, and the straying rate.

11. Revise the L. Michigan Integrated Fishery Management Plan and the Lake Superior Plan and gain stakeholder and Department approval by 2013.

C. MISSISSIPPI RIVER



Objectives:

1. Rehabilitate 500 to 700 acres of Mississippi River habitat each year using the Environmental Management Program.
2. Manage for a stable commercial fishery within the productive capacity of the Mississippi River.

Fisheries Research Activities in Support of Mississippi River Fisheries

Fisheries Research conducts annual standardized monitoring of Pool 11 of the Mississippi River and the Lower Wisconsin River to determine game fish abundance and as surveillance monitoring for the invasion of Asian carp into the upper pools of the Mississippi River.



“NR 1.03 Mississippi River fisheries management.

In carrying out an effective management program for fish and aquatic resources, the department shall:

1. *Regulate sport and commercial harvest to provide an optimum sustained yield.*
2. *Promote cooperative agreements with Iowa, Minnesota and the U.S. Fish and Wildlife Service in an effort to maintain:*
 - (a) *The unique habitats on the river;*
 - (b) *Programs to maintain and improve public access;*
 - (c) *Cooperative research and surveys of populations and harvests, especially those related to endangered or threatened species.”*

D. HABITAT IMPROVEMENT



TROUT HABITAT

Effectively utilize available Trout Stamp funding to restore and improve an optimal amount of inland trout stream habitat each year. Provide additional Fish and Wildlife Account funding such that total investments in inland trout management programs (including inland stocking) are commensurate with the number of inland trout anglers and trout harvest (currently about 12% of total anglers and catch).



“NR 1.02 (2) Habitat Protection and Improvement.

The department shall actively protect and maintain habitat capable of supporting aquatic species. Habitat shall be improved where fish populations can be increased and such improvements are economically and ecologically feasible.”

“NR 1.02 (5) Population Manipulation. *The department may, were feasible, control fish populations that are stunted or harmful to more desirable fish species.”*



Objectives:

1. Restore 25-30 miles of trout stream per year (based on funding) and maintain past habitat development, while protecting and enhancing habitat for non-game, threatened or endangered species.

2. In conjunction with Department of Agriculture, keep high priority streams, free of beaver dams consistent with the beaver control policy.

E. PROPAGATION AND STOCKING



While most Wisconsin waters do not need fish stocking to provide outstanding fishing because they have adequate natural reproduction, approximately 10% of lakes and streams including Lakes Michigan and Superior will have better fishing for some species if stocked. To accomplish this DNR effectively stocks all waters that need stocking as determined by scientific assessments. State fish hatcheries currently produce 90 different species, strains, and sizes of fish for stocking to ensure a diversity of sport fishing experiences, the genetic integrity of specific fish populations, and the selective reintroduction of native species to Wisconsin waters.



“NR 1.02 (4) Propagation, Rearing and Distribution.

The department shall rear fish for stocking in waters lacking adequate natural reproduction and where reasonable returns are demonstrated by surveys. Stocking priorities will be based on use opportunities, hatchery production capabilities, cost and habitat potential. Stocking of exotic species shall be thoroughly evaluated.”

Estimated annual production quotas:

2007-2008 quotas by DNR Hatcheries, DNR Ponds, and DNR Coop Ponds.

Species	All Ages Total	Small Fingerling	Large Fingerling	Yearling	Adult	Fry
Great Lakes Lake Sturgeon	3,000		3,000			
Great Lakes Muskellunge	47,500		46,500	1,000		
Great Lakes Salmon	1,894,234	1,364,236	220,000	309,998		
Great Lakes Trout	1,790,746		675,870	1,114,876		
Great Lakes Walleye	210,000	200,000	10,000			
Inland Lake Sturgeon	34,765	10,000	23,265	1,500		
Inland Muskellunge	110,872		110,772	100		
Inland Northern Pike	2,181,518	193,593	50,635			1,937,290
Inland Sauger	1,010,000		10,000			1,000,000
Inland Trout	2,021,721	665,096	639,482	605,545	6,598	105,000
Inland Walleye	17,062,431	2,859,941	181,290			14,021,200
Total Fish Stocked	26,366,787	5,292,866	1,970,814	2,033,019	6,598	17,063,490



Objectives:

1. Implement the 2007 statewide stocking guidelines (and subsequent revisions) to direct the priority system for establishing stocking quotas and set production goals.

Fisheries Research activities to support Objective E.1

Fish Research will continue to conduct stocking evaluations to determine whether it is more cost effective to stock small walleye fingerlings (1.5") in June or extended growth walleye (>6.0") in September. The results of the study will be used to amend the statewide stocking guidelines.

Current stocking guidance requires the use of regional brood stocks to guard against the risk of outbreeding depression. Conversely, the repeated use of regional brood stock lakes runs the risk of inbreeding depression. Research staff will examine the utility of PIT tagging adult muskellunge to identify individual fish within a lake and develop a database to insure gametes are not repeatedly collected from the same fish for the hatchery system. c) This same tagging technique (PIT tag) will also be used to evaluate the contribution of stocked muskellunge fingerling to the fishery.

2. By 2007, complete a U.W.-Green Bay production cost analysis of all hatchery products and implement recommendations from the evaluation after 2008.
3. Operate and maintain the hatchery system as a flexible system of facilities that responds to quota requests developed for a 6 to 10 year horizon.

Fisheries Research activities in support of Objective E.3

The hatchery system is working on producing an alternative hatchery product for the walleye stocking program. Research Staff is piloting an effort to assess whether we can improve returns by stocking 2.5" fingerlings as opposed to 1.5" fingerlings during a critical life history stage in late June.

4. Issue an annual report of stocking for stakeholders.
5. Ensure the fish stocked in Wisconsin are healthy and conduct diagnostic testing and annual health inspections at state hatcheries.
6. Use the best techniques available to prevent the transfer/transmission of fish pathogens and the occurrence of fish diseases (vaccination, high quality diet, good water quality, and improved aquaculture.)
7. Use contract and cooperative agreements for species routinely produced by private aquaculture where it is cost effective and meets management needs for healthy fish and appropriate genetic stocks.

F. PROPAGATION INFRASTRUCTURE



Our general strategy for the Wisconsin state fish hatchery system is to re-develop a small number of our current facilities to meet our needs through the middle of the 21st Century. We recognize that doing so implies a consolidation from the many small and obsolete facilities we have inherited from the past; many of our current facilities are 50 to 90 years old. Legislative approval for redevelopment of Wild Rose Hatchery was received in 2003 and reconstruction began in 2006. In planning for the future, we recognize the need for more flexibility in our facilities and better environmental controls to produce a healthy product and meet anticipated environmental standards in the future. We anticipate the need to produce many different strains of fish to ensure the genetic integrity of our native species and their restoration and to respond to emerging fish disease issues.



Objectives:

1. Complete the renovations to Wild Rose Hatchery Phase I by 2008 and begin Phase II by 2009.
2. By 2009, complete a statewide propagation facilities study to guide redevelopment and consolidation of facilities to meet the stocking needs and staffing constraints of the future.
3. Gain Department, Executive, and Legislative support for a propagation system redevelopment plan by 2009-2010.

H. STRATEGIC APPROACH FOR SHORE FISHING FACILITIES:



The WDNR approach to shore fishing facilities fully recognizes that there are an enormous number of potentially good shore fishing sites among our 15,057 lakes, 8,000 miles of trout streams, 30,000 miles of inland rivers, and hundreds of miles of shoreline on the Great Lakes and Green Bay. Through June 30, 2007 under the federal Sport Fish Restoration program, the Department has developed 99 shore fishing facilities (Northeast Region – 19, Northern Region – 29, Southeast Region – 14, South Central Region – 20, West Central Region - 17). Shore fishing facilities include fishing piers that extend out into the water, flat spots along the shore and fishing trails with several fishing stations. A fishing facility may include other amenities, such as



NR 1.10 (7) Public Access.

With access to Wisconsin's lakes and streams a prerequisite for their use by the public, the acquisition and development of public access to waters should be accelerated, particularly in the more populous areas of the state.

restrooms or a fish cleaning station, if the level of use warrants it. Our intent is to provide ADA compliant accesses in good fishing locations for the many anglers who don't have a boat. The actual demand for shore fishing facilities has not been quantified, however anecdotal information from local communities, NGO service organization, and fishery biologists suggest that the current demand is far from satisfied. Given other program priorities, we choose to manage the shore-fishing program with:

- A relatively low level of asset investment,
- A high emphasis on partnerships with local communities, federal agencies, and non-governmental organizations where DNR provides partial or full funding for shore fishing facility development to partners willing to provide long-term maintenance of the facility and long term angler use agreements.
- Minimal investments to sites on Department property where we will incur a continuing maintenance obligation.

Consequently, we look for good fishing sites with a high degree of commitment and long-term involvement by active partners. The goals and objectives reflect this strategic assessment and approach. The department and its partners will provide and improve shore-fishing facilities on the state's navigable lakes, rivers and streams. Developments and improvements will occur that are consistent with demand and sensitive to the capacity of the resource to support recreation.



Objectives:

1. Develop 8-12 shore-fishing facilities per year for non-boaters that meet federal ADA standards with an annual allocation of \$200,000 - \$300,000.

Priorities for development include:

- Sites on water without shore fishing facilities or the first facility over 5 miles from the next facility on a river, Great Lake or large lake with greater than 5 miles of shore.
 - Sites that are close to a local community center or a cluster of housing or are located in a campground area.
 - Facilities that will be funded in part with non-SFR funding (any state or local funding source).
 - Facilities that will be planned and constructed by a non-DNR partner and/or will be maintained by a non-DNR partner.
 - All sites must provide reasonable sport fishing opportunities for shoreline angling.
2. Allocate up to 10% of SFR funds available annually for shore-fishing facilities for maintenance and upgrades of Department owned facilities.
 3. Where practical, seek agreements with local units of government and other partners to maintain shore fishing facilities when it is in the best interest of the Department to seek partnerships for state owned facilities.
 4. Seek local partnerships for the development and maintenance of shore-fishing facilities in order to complete more projects with the available resources.
 5. Ensure that local partnership agreements provide for federal ADA accessibility.
 6. Provide information about shore fishing facilities available statewide on the Department's Internet site, which both Department staff and the public can access.
 7. By June 30, 2008, verify through site visits the information currently entered into the statewide access website and collect additional information for each shore fishing site.

8. Add additional shore fishing sites as completed, update information as necessary and upgrade the access website as needed.

I. AQUATIC EDUCATION and OUTREACH PLAN:



The Fisheries Outreach and Aquatic Education programs are focused on increasing the ecological literacy of our citizens and their relationship to Wisconsin's waters and fisheries. It operates through regional fishery biologists who speak to anglers, interest groups, and schools. It also

operates more formally through our aquatic resources education director who trains school teachers to use our materials which are aligned to state teaching standards and the Wisconsin Model Academic Standards as set forth by the Wisconsin Department of Public Instruction. It provides accessible information over the internet, produces exhibits, and provides fishery biologists with selected materials for discussion with the public and school groups. Although the program will build on its past accomplishments, programs, and active volunteer instructors, its focus through 2013 will be on teacher training to enhance formal education in schools, and consistent outreach messages to traditional and non-traditional publics.



NR 101.9 (d) Education and Outreach.

A sense of responsibility for the resource is inherent in all who participate and enjoy fishing;



Objectives:

Aquatic Education

1. Increase the number of teachers trained at workshops offered for university credit as requirements to maintain state licensure from 50 to 100 per year by 2007 and average 100 or more through 2013. Teacher participation may be assisted through stipends to cover expenses for teachers from poorer school districts. Once trained, we expect each teacher to reach 30 to 60 students each year.
2. Attend, demonstrate, market, and recruit teacher candidates to the for-credit workshops at a minimum of five professional educator statewide conferences each year.
3. Provide school district-wide in-service workshops upon demand as schedule allows.
4. Provide pdf versions of all written and visual information to decrease dependence on printed materials. Encourage use of the FH website by fisheries staff, educators, volunteers, and the public as materials are updated. Provide CDs as companion student materials for teachers to print as needed.
5. With regional fisheries staff, parks staff and select partner organizations, maintain and replace equipment at 42 or more tackle loaner sites around the state.

6. Develop and test exhibits at major event venues and then locate the final exhibits at hatchery facilities consistent with the operating parameters for the facility.
7. Regional fisheries staff, interns, and other DNR staff will participate in 15 to 25 fishing related events (including free fishing weekend, state fair, etc) to promote fishing, especially in urban areas.
8. Develop consistent fishery messages and materials for fishery biologists to use in discussing the relationship between people' actions, Wisconsin's waters and its fisheries.
9. Collaborate with Department and university colleagues to offer comprehensive aquatic education resources to schools and partner organizations that support FH goals and objectives, in conjunction with other related nature-based education program.

Outreach

1. Develop and implement an annual outreach communications plan to traditional and other stakeholders that includes an annual Spring Fishing Report, annual report of expenditures, and a consistent message package concerning ecological literacy and fisheries management with supporting graphics and images for use by all biologists.
2. All biologists will plan 200 hours per year to present these messages, with additional local information, to schools, conservation and angling groups, lake associations, and non-traditional stakeholder groups.
3. Increase the utility and timeliness of the external website for fisheries information.

Fisheries Research support of Education and Outreach

Fisheries Research will continue to compile data on all aspects of the biology (e.g., taxonomy, identification, distribution, ecology, life history) of all fish species in the state and making these data available in accessible and easy-to-use formats for both our managers and the public.

See: <http://www.wiscfish.org/fishid/>

**Goal: Making People Our Strength –
“To help ensure that people remain the strength of our fisheries program.”**

J. EMPLOYEE SAFETY

A safety first culture must be established and nurtured to avoid injuries or risks to employees. Fisheries management and research field activities involving heavy equipment, shops and tools, boats and other on-water based equipment, electroshocking, chemicals, and similar activities introduce safety risks for employees.



Objectives:

1. To create a culture within Fisheries that puts safety first, we will implement and manage the 7 component FM Safety System through 2013 with primary responsibility assigned to the Fisheries Board and Safety Task Force.
2. Employee safety concerns will be investigated by Safety Task Force and Fisheries Board members within 48 hours of being reported.
3. Conduct safety inspection audits annually in each region and report to the Fisheries Board.



State Statute: 16.752(8)(e).

Comply with applicable occupational health and safety standards prescribed by the U.S. secretary of labor, the federal occupational health and safety administration or the department of commerce.

K. EMPLOYEE TRAINING AND SUCCESSION PLANNING

By 2010, more than 20% of our senior employees will be eligible for retirement. The recruitment, hiring, training, and mentoring of high quality staff to replace those who retire is a strategic need that must be met. Recruit, train, and retain a professional and technical workforce suited to meet the challenges managing Wisconsin's fishery resources and serving its fishery customers in the future.



Objectives:

1. By 2007, establish a statewide fisheries technical training team and engage the university community in development and teaching of a curriculum for fishery staff.
2. By 2007, establish and manage a mandatory technical and safety training program of 100 hours per year for fishery biologists and 100 hours per year for technicians.
3. By 2007, develop and implement an orientation and mentorship program of not less than 320 hours for new biologists and supervisors during their first year.
4. By 2007, the Fishery Board will develop and implement a succession plan for key supervisory positions to ensure a transition overlap of 3 months so that senior employees can work with their successor.
5. By 2007, develop and implement a mentoring program for technicians to ensure an adequate pool of technicians trained in specialized activities (e.g. electrofishing construction and

maintenance; assistant boat captains on Great Lakes research vessels; heavy equipment operation and safety certification, fish disease diagnosis, chemical applications).