



Lake Michigan Salmonine Stocking-Report of two structured decision workshops

Introduction and Background

In winter 2020, two structured decision making (SDM) workshops were held virtually (via Zoom) to engage stakeholders in the decision making process for salmonine stocking in Lake Michigan. The workshop was attended by members of the Lake Michigan Committee, various stakeholders from around the lake (as well as Lake Huron), and members of the project team (USFWS, MSU, Wisconsin DNR.

The workshops were facilitated by Drs. Kelly Robinson and Mike Jones from the Quantitative Fisheries Center at Michigan State U. The project has been funded by Michigan Sea Grant with the goal of providing decision makers with more information about

stakeholder values and desires related to salmonine stocking in Lake Michigan. During these two workshops, a “structured decision making” process was used to guide the process. Here we report on products of these two workshops. This work is ongoing, with more meetings and another workshop to occur as the project progresses.

Structured Decision Making (Decision Analysis) Overview

Structured decision making (SDM or Decision Analysis) is a framework for helping decision makers and stakeholders to work through a series of steps to identify values and objectives, as well as actions that can help to achieve those objectives, and to make difficult tradeoffs among objectives given the predicted outcomes of each potential management action. We like to think of this framework as a decision-aiding tool, as it provides decision makers with a more transparent, objective

We often use the acronym “ProACT” to describe the steps of the SDM process. The “Pr” stands for problem. In this step, the group identifies the problem to be solved or the decision to be made. This can be one of the most difficult or time-consuming parts of the process- the goal is to ensure that everyone involved understands the problem, the spatial and temporal scale of the problem, the stakeholders who should be involved or considered, the reasons why this problem exists, constraints that might hinder a decision, and any other aspect that might be cause for concern later in the process. The “O” (objectives) step involves taking stakeholder and decision maker values and turning them into a series of objectives that should be achieved in order to make the best decision possible. This step also requires the identification of measurable attributes, which describe the way that each objective will be measured.

Salmonine Stocking Report

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No ice is safe ice!

picture of the decision at hand. As temperatures drop, many Hoosiers will take advantage of frozen ponds and lakes to participate in winter activities such as ice fishing, skating, hiking, or just sliding around for fun. While these activities are exciting, they can also be dangerous. **Remember that no ice is safe ice.**

- ❖ Before going on the ice, leave a note of your whereabouts with a friend or family member.
- ❖ If you don't know the thickness of the ice, don't go on it. Always assume you are on thin ice.

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- ❖ Measure the thickness of ice using an ice auger. Solid ice should measure 4 inches or more for walking; at least 5 inches for snowmobiling.
- ❖ Avoid going out on the ice alone, wear a life jacket or flotation coat, and carry ice hooks and rope gear.

Teach your children safety tips before allowing them to play on frozen lakes and streams. With proper precautions, we can all enjoy outdoor winter activities in a responsible and safe way.

To learn more about ice safety, visit [our website](#). ❖

DNR publishes 2021 Sturgeon Spearing Season Forecast

Season Opening Date **Feb. 13**

OSHKOSH, Wis. – Wisconsin's annual sturgeon spearing season begins February 13 and runs for 16 days, or until any of the pre-determined harvest caps are met. This year, the Wisconsin Department of Natural Resources (DNR) predicts that harvest caps will be met prior to the 16-day season limit.

System-wide harvest caps for the 2021 Winnebago system sturgeon spearing season are 430 juvenile females, 950 adult females and 1,200 males.

Sturgeon spearing in Wisconsin is a sport rich in tradition and culture. Photos are a great way to preserve highlights of the season. The DNR encourages spearkers to share their stories using this [photo submission form](#). Photos of spearkers with their catch, cutting in, shanty life, scenic views observed during the season or any other captivating spearing traditions are encouraged. Please include a brief description for use in future outreach efforts.

Clear Waters Will Likely Result in High Harvests

This year, with more snow cover and less runoff leading up to the season kickoff, the DNR anticipates better water clarity than seen in recent years. Since water clarity is crucial in spearing success, the DNR expects higher harvests from Lake Winnebago in 2021 and for harvest caps to be met before the 16-day season cutoff.

Spearkers who have already scouted for the best areas for fish activity have reported clearer water, which was confirmed by DNR staff during a preliminary clarity check showing between 10 to 16 feet of clear water. Historical harvest data shows that an average lake-wide clarity of 12 feet or greater typically results in a shortened season with harvest caps being met more quickly. As the season approaches, the DNR will monitor

water clarity since conditions can change rapidly.

Additional season forecasts and daily season harvest reports will be available throughout the season on the [Winnebago system sturgeon spearing webpage](#).

Important Season Changes

Spearkers should review the [2021 sturgeon spearing regulations](#) for essential changes to the registration process, including new spear size and tine arrangement restrictions.

For the 2021 season, all DNR registration stations will be contactless. Spearkers should place harvested sturgeon on tailgates or in an easily accessible location before entering the registration area and then remain in their vehicles throughout the registration process. The 2021 season will also be the first year that spear size and tine arrangement will be restricted. The maximum spear head width is now limited to 18 inches and tines can only be arranged in a single plane.

2021 Ice Safety Measures

Although recent cold weather has strengthened ice conditions throughout the Winnebago system, the DNR reminds spearkers that no ice is ever 100% safe. The DNR does not monitor ice conditions, so spearkers should check with local fishing clubs and conservation groups near the area they plan to spear. These groups monitor conditions and maintain access points and ice roads around the lake system.

Because of the ongoing COVID-19 public health emergency, the DNR urges spearkers and spectators to practice social distancing, wash their hands, use hand sanitizer and wear masks. Visit the [DNR's website](#) for more information on the DNR's response to COVID-19. ✧



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Position Statement

Representing a major interest in the aquatic resources of the Great Lakes states and the province of Ontario, the Great Lakes Sport Fishing Council is a confederation of organizations and individuals with a concern for the present and future of sport fishing, our natural resources and the ecosystem in which we live. We encourage the wise use of our resources and a search for the truth about the issues confronting us.

Inland Seas Angler

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2020 Fish of the Year winners announced

DNR recently announced winners of the 2020 Fish of the Year contest. In all, 51 awards were given to 42 different anglers for their top catches. For a full listing of winners, visit the [Fish of the Year Winners website](#). For those of you looking to participate this year, some minor rule changes will be implemented for the 2021 contest onward. A picture clearly showing the measurement of the fish being entered is now required and a witness is no longer needed. This change allows anglers who fish alone to catch, measure, and release fish without the added hassle of finding a witness or extra stress on the fish of being unnecessarily transported. Find a full summary of program rules, an online entry form, and listings of Fish of the Year Winners and state record fish at: <https://www.in.gov/dnr/fishwild/3577.htm>. ✧

Wisconsin Walleye Management Plan for Columbia, Dane, Dodge, Green, Jefferson and Rock Counties Virtual Public Meeting Feb. 23

The Wisconsin DNR will host a public meeting to discuss updating the Walleye Management Plan for Columbia, Dane, Dodge, Green, Jefferson and Rock counties. <https://dnr.wisconsin.gov/newsroom/release/40751> ✧

Happy Valentine's Day!



DNR seeks input on proposed wildlife rule changes

DNR is seeking public comments on proposed wildlife rule changes, including updates to rules regarding legal equipment for turkey hunting, muzzleloaders for deer hunting, and beaver trapping season starting and ending times. There are two ways to submit comments:

1. Submit comments [online](#) by **February 12** at 11:59 p.m.
2. Mail comments to the [Natural Resources Commission](#).

For a complete list of proposed amendments, details, and more information about how to comment, visit our website. [DNR: Rule/Regulation Changes \(in.gov\)](#) ✧

Enjoy Free Fishing Weekend Feb. 13 and 14



For two days twice a year, families and friends can enjoy one of Michigan's premier outdoor activities – fishing – for free! This year's winter Free Fishing Weekend dates are **February 13 and 14**.

All fishing license fees will be waived those two days. A [Recreation Passport](#) will not be required for entry into state parks and boating access sites during Free Fishing Weekend. Residents and out-of-state visitors may enjoy fishing on both inland and Great Lakes waters for all species of fish. All fishing regulations will still apply. New to winter fishing? [Learn more about ice fishing basics](#).

For printable certificates to celebrate a child's first fish or a big fish, or for more information about Free Fishing Weekends, visit [Michigan.gov/FreeFishing](#). ✧

Great Lakes Fishing Guide Virtual Meeting Feb. 17

MADISON, Wis. – The Wisconsin DNR will hold a virtual public meeting at 6 p.m. on **February 17** to gather input on the proposed new rules for guides operating on the Great Lakes. Members of the public may access the meeting beginning at 5:45 p.m. via [Zoom](#) or by dialing 1-929-205-6099 and using meeting ID: 85289533642#.

The DNR will discuss new rule developments to help clarify reporting requirements, including who must report and when reports need to be filed, as well as proposed changes to the reporting method.

“These data are vital to our management of the expanding lake whitefish fishery in Green Bay, of which both the recreational and the commercial fisheries are a key component,” said Scott Hansen, a DNR Fisheries Biologist who manages whitefish populations. “With the concurrent ongoing stakeholder engagement process working toward an expanded commercial fishery for whitefish in Green Bay, now is the time to complete our work with Great Lakes guides to ensure the sustainability of this important resource.”

Similar to charter reporting, guided trip information is an important supplement to creel survey data. Guided trip data are often difficult to capture with standard creel methods and guided trips generally have a greater success rate when compared to non-guided angler trips.

“We look forward to discussing this information with stakeholders and gathering their comments and suggestions to help us complete this important work,” said Tom Meronek, the DNR's Northern Lake Michigan Fisheries Supervisor. ✧

Learn ins and outs of ice fishing



Winter is a great time to fish, and the DNR Outdoor Skills Academy can help boost your ice fishing know-how with upcoming Hard Water School classes.

The classes will be held outdoors at the Carl T. Johnson Hunting and Fishing Center, located in Mitchell State Park in Cadillac.

Hard Water School: Feb. 20 and March 6

This one-day, introductory class on ice fishing will focus on techniques for pan fish, walleye and pike. It will cover everything from how to set up equipment and how, where and when to fish, to ice safety and rules and regulations. Cost is \$35, which includes one-on-one instruction from a pro, lunch on the ice, bait and a goodie bag.

Participation for all classes is limited to 20 students, and COVID-19 safety protocols will be followed.

For more details and to register for classes, visit Michigan.gov/OutdoorSkills. ✧

NY Freshwater Fishing Regulations

View or Print the 2020-21 Fishing Regulations Guide

The 2020/21 Fishing Regulations Guide contains the fishing regulations that are in effect from April 1, 2020 through March 31, 2021. In order to reduce printing costs, the guide was printed in a magazine format with advertising.

[New York Freshwater Fishing Regulations Guide: 2020/21](#) ✧

2021 Black Lake sturgeon season wraps within hours; results announced

After only two hours of fishing, this year's sturgeon season on Black Lake (in Cheboygan and Presque Isle counties) ended slightly after 10 a.m. Saturday, Feb. 6. The season, which included spearing and hook-and-line fishing, was scheduled to run February 6-10, or until the harvest limit quota of six lake sturgeon had been reached.

Anglers initially were allocated a season quota of seven sturgeon, but the Michigan Department of Natural Resources set the harvest limit at six fish. This action helps accommodate the expected number of anglers and anticipate the possibility of near-simultaneous harvest of more than one fish. That occurred this year, with the sixth and seventh fish harvested within seconds of each other, while DNR officials were shutting the season down.

"The way this Black Lake sturgeon season ended highlights why we set our yearly harvest limit at a level lower than the state's harvest allocation," said Tim Cwalinski, DNR fisheries biologist. "Because of that foresight we were able to stay within our 2021 season harvest goal."

There were more than 500 registered anglers, including a good number of supervised youth. According to the DNR, four sturgeon harvested were male and three were female, ranging from 50 to 63 inches long and 25 to 61 pounds in weight.

- The first fish was a 50-inch male that weighed 26 pounds.
- Fish number two was a 54-inch male that weighed 37 pounds.
- Fish three was the largest, a 63-inch female that checked in at 61 pounds.
- Fish four was a 50-inch male that weighed 27 pounds.
- The fifth fish was a 57-inch female that weighed 38 pounds.
- The sixth fish was a 51-inch male that weighed 25 pounds.
- The seventh and final fish harvested was a 60-inch female weighing 43 pounds.

Three of the seven fish taken had been captured before by Michigan State University and the DNR during spring spawning runs in the Black River. A harvested 54-inch male originally was captured in 2014 and 2018. A 50-inch male had been captured and **tagged** during the 2014, 2016 and 2018 spawning runs in the Black River. A 60-inch female had been captured in the 2006 spawning run. In addition, a 51-inch male had been tagged in the past with a **coded wire tag** just prior to stocking.

"This past year brought on many challenges and being able to safely host this event at Black Lake for all the anglers and staff was a priority for us," said DNR fisheries manager Dave Borgeson. "We are pleased with how everyone adjusted to the safety protocols for us to have a successful season."

Participating anglers were notified of the season closure in a variety of ways, including text alerts to those who registered their cell phone numbers and ice shanty visits from DNR personnel. All methods were used to indicate the season's end within minutes of the final fish being harvested. DNR law enforcement officials and other department personnel again were embedded in the on-ice fishing communities and were able to quickly and safely report harvested fish this year, as well as to quickly contact all lake sturgeon anglers on the ice and close the season.

Rehabilitation of lake sturgeon in the Cheboygan River watershed is a cooperative effort involving the DNR, the Black Lake Chapter of Sturgeon For Tomorrow, Michigan State University, Tower-Kleber Limited Partnership, the Bay Mills Indian Community, the Grand Traverse Band of Ottawa and Chippewa Indians, the Little River Band of Ottawa Indians, the Little Traverse Bay Band of Odawa Indians and the Sault Ste. Marie Tribe of Chippewa Indians. ✧

Deer hunting concludes with hunters in Illinois taking 162,575 deer

SPRINGFIELD, Ill. – Hunters in Illinois harvested a preliminary total of 162,575 deer during all 2020-21 archery and firearm seasons, which ended January 17, 2021. The total preliminary harvest for all seasons compares with a total harvest for all seasons of 153,174 deer in 2019-20.

During 2020-21, hunters took 45.4% does and 54.6% males.

Archery: Archery hunters took a preliminary total of 75,544 deer (new record) during the season which began on Oct. 1, 2020 and ended on Jan. 17, 2021. The total archery harvest during the 2019-20 season was 67,743 deer.

Youth: Youth deer hunters harvested a preliminary total of 2,321 deer during the three-day Illinois Youth Deer Season (October 10-12, 2020), compared to 3,774 in 2019.

Traditional Firearm Season: Hunters took a preliminary total of 76,579 deer during the Illinois Firearm Deer Season on November 20-22, 2020 and December 3-6, 2020, compared with 75,417 deer taken during the 2019 firearm season.

Muzzleloader: Hunters using muzzleloading rifles harvested a preliminary total of 3,447 deer during the Muzzleloader-Only Deer Season on December 11-13, 2020, compared with harvest of 3,076 deer in the 2019 muzzleloader season.

Late-Winter Seasons: The 2020-21 Late-Winter Antlerless-Only and Special CWD deer seasons concluded on January 17, 2021 with a combined preliminary harvest total for both seasons of 4,684 deer, compared with a harvest of 3,164 deer taken during

those seasons in 2019-20. Season dates for the seven-day Late-Winter and CWD seasons were Dec. 31, 2020-Jan. 3, 2021 and Jan. 15-17, 2021.

There were 15 northern Illinois counties open to the Special CWD Season, which is used to assist in slowing the spread of chronic wasting disease in the Illinois deer herd.

There were 20 counties open for the Late-Winter Antlerless Season in 2020-21. Counties that are at or below their individual deer population goal for two consecutive years may be removed from the Late-Winter season.

For more info, check the IDNR website at <https://www2.illinois.gov/dnr/hunting/deer/Pages/AnnualDeerHarvestReports.aspx> ✧

Apply Now for Youth Wingshooting Clinics and Pheasant Hunts Events to be held **March 6 and 20**

SPRINGFIELD, Ill. – Young hunters, 10 to 17, can apply now for the Youth Wingshooting Clinics and Pheasant Hunts scheduled for **March 6**, 2021 at Pere Marquette State Park in Jersey Cty. and **March 20**, 2021 at the World Shooting and Recreational Complex (WSRC) in Randolph Cty.

All participants in the clinics and hunts will be required to follow all health and safety guidelines issued by the Illinois Department of Public Health, including wearing masks when social distancing cannot be achieved, and carrying and using hand sanitizer.

The Pere Marquette and WSRC Youth Clinics and Hunts have been popular late winter/early spring additions to the IDNR Wingshooting and Youth Pheasant Hunting programs. Most youth pheasant hunting opportunities are offered at IDNR Controlled Pheasant Hunting Areas in the fall or early winter.

During the events March 6 and March 20, young hunters will participate in wingshooting clinics during the morning. National Sporting Clays Association/IDNR Certified Wingshooting Instructors will teach the wingshooting clinics. Young

hunters will practice safe shotgun handling and operation while advancing their wingshooting skills. The pheasant hunts will take place during the afternoon. Young hunters must have successfully completed an approved Hunter Safety Course and have a valid hunting license to participate.

Co-sponsors will assist the IDNR, Pere Marquette State Park, and the WSRC with the wingshooting clinics and pheasant hunts. Co-sponsors provide funding for the clay targets, target and field shot shells, and lunch for the young hunters. Through the assistance of some of their members, co-sponsors also provide bird dogs, bird dog handlers, and hunting guides. At Pere Marquette, the 2020 co-sponsors included Alwerdt's Pheasant Farm, Altamont, Illinois; Bollini Taxidermy; Channel-Seedsmanship At Work; Clemens Insurance; Ducks Unlimited - Jersey County Chapter; Friends of Pere Marquette State Park; Fur Takers of America; Green Roof Kennels; the Illinois Federation of Outdoor Resources; the Illinois National Shoot-To-Retrieve Field Trial Association; Migratory

Waterfowl Hunters; the National Wild Turkey Federation - Midwest Gobblers Chapter; Olin/Winchester; Pfister Seed Company; Quail Forever – Illinois Pioneer Chapter; Todd Parish - Attorney At Law; and, Ward Financial Services and Whitworth-Horn-Goetten Insurance Agency.

At the WSRC, co-sponsors have included Friends of the WSRC; National Wild Turkey Federation – Randolph County Cutters and Strutters Chapter; and, the Okaw Valley Beagle Club.

Permits for the Pere Marquette and WSRC Youth Wingshooting Clinics/Pheasant Hunts are available through the IDNR Controlled Pheasant Hunting Internet Reservation System. Hunters need to review the “Illinois Youth Pheasant Hunt Information” and the “Illinois Youth Pheasant Hunt Regulations” on the IDNR controlled pheasant hunting webpage prior to applying. Completing a permit reservation online takes less than five minutes.

For details, check the controlled pheasant hunting webpage at <https://dnr2.illinois.gov/controlledhunting/> ✧

Salmonine Stocking Report

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The next step, “A” (alternatives), is when actions or alternatives (e.g., stocking or harvest strategies) are defined that could help us to achieve the objectives. After describing actions, we determine the consequences (“C”) of each action on each objective. In this step, models are often used to predict how actions will play out in terms of the stakeholders’ objectives. Finally, after predicting the consequences, we often find that there isn’t an action that best achieves every objective, so we move to the tradeoffs (“T”) step. We use the information we’ve gained from the consequences step to place more or less weight on each objective in an attempt to “optimize” across objectives. In this step, decision makers are able to see how different actions will or will not achieve different stakeholders’ values, and how placing different amounts of weight on these different values might change the decision. One of the benefits of SDM is that it is an iterative process—we can return to earlier steps if something needs to be changed or new information comes to light.

During the two workshops in late 2020, the facilitators led the group through the first three steps of the SDM process (problem, objectives, alternatives). The results of this work are described below.

Problem

The problem statement defines all of the aspects of the scope of the problem. We focused our discussions on the 1) stakeholders that should be considered, 2) any constraints that might affect the decision, 3) the spatial and temporal scale of the problem, and 4) any uncertainties that are associated with the system or decision.

Stakeholders:

- Charter fishers
- Recreational fishers
 - Stream fishers
 - Boat fishers
 - Bank / piers
- Tribal fishers
- Commercial fishers
- Warm water fishers (perch / walleye)
- Youth / future fishers
 - Could consider college fishing clubs
- Tourism industry / economic impact
 - Hotels
 - Bait / tackle shops
 - Private launches, marinas
 - Charter industry
 - Restaurants
 - Anything affected by tourism coming to area (gas stations, etc.)
 - Chambers of commerce around the lake
 - “Pure Michigan” campaign
 - Port communities (especially smaller ones)
 - Tackle manufacturers

Important to note that the workshop attendees aren’t necessarily representing commercial or tribal interests

Constraints (real or perceived constraints to the decision-making process)

- Consent decree and who is involved in that process
- Financial resources, lack of research in some areas
- Time constraints for determining stocking for the next year
- Federal restoration programs- steering the direction of the decisions
- Joint strategic plan—expectation that the jurisdictions around Lake Michigan coordinate the actions

Spatial and Temporal Scale

- Lake Huron should be included because Chinook move from Lake Huron to Lake Michigan in the summer
- Waters of Green Bay – tagged Lake Huron salmon have been caught in Green Bay
- Grand Traverse Bay
- Economic impacts of stocking affect all 4 states
- Actions taken by any one jurisdiction will affect the others (can’t consider on a state-by-state scale)
- Haven’t seen the salmon in southern Lake Michigan this summer at all (regional considerations)
- Connection / differences in local dynamics too
- Warm water species (perch / walleye fishery). Different interests beyond salmon
- Some of this has to do with alewife (e.g., Saginaw Bay)
- Include the tributaries in this process, too
- LMC’s fish community objectives (FCOs): keep alewife to a level to not affect the perch and walleye (but these FCOs have not been updated in a number of years). (Could be helpful to consider this here).

Uncertainties

- Planting success (e.g., with cormorant [DCCO] predation; walleye run timing)
- Inclusion of perception of fishing success (e.g., charter boat customers vs. rec fishers) – “good” catch per effort (CPE) might differ among groups
- Prediction of production of wild Chinook
- Uncertainty of the data collected—variability depending on what or when; how heavily is the data weighted in the model? Inclusion of weight or variability
- Natural reproduction rates of all species
- Climate change / future thermal habitat in Lake Michigan
- Up-to-date data for decision making (e.g., 5 years previous); climate change issues as well
- Lake trout dynamics including abundance and natural reproduction
- Predation rates on king smolts
- Food source for smolts in their first year (in context with invasive mussels / effect on plankton)
- Effects of increase in DCCO in south end of lake
- Pelican populations around Green Bay

- Plantings of walleye populations in the system
- Consumption studies for birds
- How does time of day for stocking affect success?

All of the information listed above helps define the overall problem statement for the group moving forward. The following short problem statement was crafted during the two workshops and is still subject to change or revision as necessary:

The goal of this project is to determine a stocking strategy that accounts for stakeholder desires regarding a productive fishery now and in the future for all of Lake Michigan, including Green Bay and Grand Traverse Bay, and includes consideration of the ecology and fish dynamics in Lakes Michigan and Huron, and that considers the needs of the economic sector (e.g., tourism, tackle, port communities) in all states that surround the lake.

Objectives:

Objectives describe what stakeholders value and ultimately want to achieve with whatever decision is made. Importantly, the full set of objectives may include individual objectives that might conflict with another objective. The goal of this step is to ensure that all stakeholders' values and objectives are included, regardless of whether all stakeholders agree that the objective is "important." We also began separating fundamental and means objectives. Fundamental objectives are those which stakeholders and decision makers fundamentally care about, whereas means objectives are the objectives that describe how to achieve the fundamental objectives. Finally, some objectives fall into the category of "process objectives." These objectives describe the way the process of making the decision should occur.

The group began by answering the question "why are we here?" and then worked to turn these answers into a set of objectives and a description of potential measures of those objectives. Below we provide the raw notes from this discussion, followed by the first draft of an objectives hierarchy (Figure 1) crafted by the facilitators based on these discussions. This hierarchy likely will continue to be refined as the process moves forward. In particular, there likely are means objectives that have not yet been articulated that would help to round out the hierarchy. Some of these potential discussion points are listed at the bottom of this section.

Why are we here?

- Keeping sport fishery viable for all / maintain world-class fishery in Lake Michigan
- More information for dynamics / changes in Lake Michigan
- Stocking
- All voices heard in working with the DNRs / Working together to manage resource
- Bring to broader audience of anglers
- Sound management of resource into the future / keep fishery for years to come

- Sustaining Lake Michigan salmon fishery (avoiding repeat of Lake Huron)
- Maintain healthy fishery in all Great Lakes / continue to preserve fishery
- Good balance of salmon in Lake Michigan
- Process of how / what decisions are made
- Continue to consider tributaries in stocking decisions
- Very low return rate for kings in Indiana / improve king fishery (obj: increase rate of return of kings to southern Lake Michigan)

Objectives discussion

- Obj: Maintain, improve world-class fishery
 - o Attributes of a world-class fishery? (Everyone does not have to agree on this)
 - o Size / healthy (disease free; good condition); at what point do you sacrifice size and health of fish for # of fish?: growth rates or size at age for salmonine species in last 5 years are considered "good" – reasonable benchmark (not trophy size, but healthy)
 - o Trophy fishery vs. world-class fishery (high catch rate)?
 - o Species composition of catch; Cohos are better to eat, catching a couple of kings for sport is fun too
 - o Diversity of catch, preference might differ in different areas of lake; options for catch; balance of species available, balance of age classes to get balance of sizes (all 5 species, Chinook most abundant in catch- survey info)
 - o Enables people to catch fish at any time
 - o Steelhead have greater presence in north/ Cohos greater in south; also considerations for timing of fishing throughout year
 - o Charter – generally there to catch Chinook (more vs. very large)
 - o Smiles, kids, people fishing, boat ramp lots full, businesses thriving, buying licenses – people are catching "fish"
 - o Available biomass of forage to support the balance / numbers of fish (means objective)
 - o Rec fisher "good" catch rate: 10 silver fish in a trip (fish on); at least 2-3 hits per fisherman per day; a fish an hour (hits)- silver fish (MI data: 1.4– 3.0 salmonines per angler for 5 hours- from Dan O'Keefe)
 - o Charter fisher "good" catch rate: 6 years ago 10- upper teens (maybe about 2 per person on a trip would be good); more recent avg catch 3-4 fish (majority kings); double digit action vs. catch (5 for 10 better than 5 for 5)
- Process: alignment of federal manager and stakeholder values
- Means: Improve data collection to improve models -> reduce uncertainties associated with stocking decisions
- How is quality of fishery defined? As an example, would fishers rather catch more 10 lb. kings or a smaller number of 25-30 lb. kings.
- Are we managing for quantity or quality?
 - o Obj: max. catch rates of kings

- o Obj: frequent catches of large fish
 - Process: Improve the use of research to guide decision making
 - Better / more accurate data of catches from recreational fishers other than creel reports (concerns about lack of creel clerks in some areas) - what are we taking out of the lake (mature vs. immature for instance)?
 - o Obj: improve data collection of harvest from all sectors, particularly young fish
 - Education for stakeholders, how the process occurs and educating others that aren't involved – science around decision making for salmon management
 - Obj: Maintain alewife abundance at a level to minimize effects on recruitment of valuable species (smaller # of anglers / \$ for warmwater fishery) – questions about actual effects of alewife on these fisheries given historical trends for these fisheries in presence of alewife, concerns with achievement and effects on alewife population size (include smallmouth bass in this)
 - Where would you like the alewife population to be?
- More alewife in lake- Lake Huron vs Lake Michigan stomach content analysis. Almost all salmonines in Lake Michigan consuming the alewives
 - Enough alewife to support the objective for the world-class fishery (catch rates that are defined above)
 - Multiple year classes of alewife (e.g., 6; feast or famine situation)
 - o Avoid large (widespread) die-offs of alewives (question about whether the climate can drive some of this?) – interaction of cold winters and alewife population in poor condition (e.g., so many fish that they can't build fat)
 - Obj (process): manage fishery in a way that accounts for climate change, especially in southern part of lake (e.g., fewer returns related to water temp)
 - Many lake trout in the south end of the lake. Julian's reef supports large #s of lake trout, goby population decreased, leading to more lake trout consumption of alewife in this part of the lake
 - o Regional considerations
 - Minimize costs for stocking while achieving other objectives (tradeoffs)

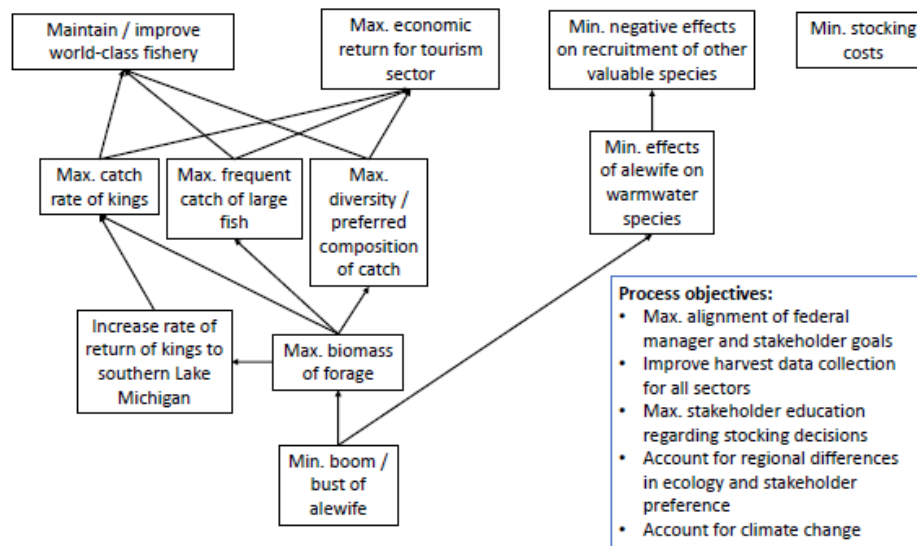


Figure 1: Current set of fundamental and means objectives, as well as process objectives

Measurable attributes: in order to make predictions in the consequences step, there must be a measure associated with each objective so that we can determine whether or how well we can achieve a given objective. We began discussing these measures in the workshops and will continue to refine these over time. In some instances, the facilitators have included suggestions of measures, as these were not all discussed in the workshop.

- Maintain / improve world-class fishery
 - o Healthy, disease-free fish (good condition)
 - o Preferred composition of species in the catch (this will be determined with the group and likely will be at least somewhat region-specific)

- o Rates of catch for each angling group
- Min. negative effects on recruitment of other species
 - o Catch rate of walleye, perch, smallmouth bass?
- Min. stocking costs
 - o Dollars spent or person hours?

Some considerations moving forward for this draft hierarchy:

- Should we include boxes / objectives related to abundance of each salmonine species?
- Is there a difference in how we would measure achievement of the world-class fishery (e.g., fish in good condition, preferred composition of species in catch, rate of catch for different species and angler

- groups) and maximizing the economic returns? If not, should we simply note that there's an assumption that achieving the world-class fishery will also achieve economic gain for tourism and remove this from the objectives hierarchy?
- We didn't explicitly describe the predator-prey ratio in the objectives and measures discussion, but this likely will be a measure used

Alternatives: This is the set of actions that could be taken to achieve the objectives that the group identified. Below we have identified some potential actions and considerations. This will be refined as we move forward.

- Stocking is the main action to consider
 - o Diversity to reflect objectives related to a world-class fishery (species composition)
 - o Economic impact (stocking, rearing, cost vs. returns [brown trout example])
- Odd/Even year planting system (species) – potentially reduce burden on alewife population
- End to cisco program because of challenge to forage base
- Triggers for when stocking practices should change (e.g., returns)
- Number of ports / distribution of ports where you stock
- Location of planting (river mouth vs. upriver) to diversify when fish reach the lake
- Some locations use net pens to hold fish prior to release to acclimate, discussions of time of day for release to reduce predation (dependent on water levels)
 - o Tactics to reduce immediate post-release mortality
- Also do offshore planting to reduce predation
- Ongoing study in ports in WI where net pens are being used (tagging studies on Chinook in MI show importance of net pens)

- Also seeing that offshore planting of Chinook leads to them moving back towards shore
- DCCO control for stocking to reduce predation (perhaps night release?)
 - o More coordination with sportsmen's groups for DCCO control / deterrence
- Increase release number to account for immediate post-release mortality that is known for the system

Next Steps

This report provides information that encompasses the first three steps in the SDM process (Problem, Objectives, Alternatives). The next steps will be conducted with shorter meetings with the stakeholder group as we iterate through honing the objectives and alternatives and then begin refining the models to predict the effects of the alternatives on the objectives. We plan to continue to engage the stakeholder group throughout the process over the spring and summer of 2021.

Action Items Identified from Workshops:

- Request for a description of how the models work now to prep for the next sets of meetings (e.g., how they determine populations; boil it down to what goes into the model and the decision framework)
- Perhaps send out the document on the GLFC website about how stocking decisions are made
- LMC has power point presentations that explain the existing models (PPR etc.)
- Include everyone that's involved when sending out the report / recording. ✧

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At issue is Fisheries Order 243.21. Michigan Fish Producers Association sued the Michigan DNR in federal court this month alleging that the order will make commercial fishing unprofitable and asking for a preliminary injunction that would allow Michigan's 13 commercial

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With the Coronavirus Response and Relief Supplemental Act of 2021, Great Lakes tribal fisheries were included in the \$30 million allotted for tribal fisheries nationwide. Another \$15 million was set aside for "non-tribal commercial, aquaculture, processor and charter

End