

## Questions received via Question cards at the August 29, 2016 LM Fisheries Forum Meeting

### General Questions

#### **What is being done to clean ballast water before being dumped in the Great Lakes to prevent more invasive species problems like the quagga mussel?**

Since 2006, ocean going vessels have been required to “rinse and spit” at mid-ocean. This means they have been required to exchange their ballast water before they enter the Great Lakes. These actions result in a discharge of invasive species at mid ocean (where they will likely perish) and a refill with water that is much less likely to contain AIS. Since this has been in effect, no new AIS have been discovered in the Great Lakes. Wisconsin has a Ballast Water Discharge Permit and an inspection program that also helps to ensure that ocean going vessels comply with the “rinse and spit” requirement. At some point, ocean going vessels will need to install on-board ballast water treatment systems to ensure compliance with regulations...unfortunately there are no systems that meet the current federal standards for freshwater.

#### **Did we stop the ships from bringing in invasive species?**

The “rinse and spit” requirement (see above) has been very effective at stopping the delivery of AIS to the Great Lakes. This requirement plus Wisconsin’s Ballast Water Permit and inspection program has been effective at stopping AIS from entering the Great Lakes.

#### **Is the Chicago River still allowing entry of the Asian carp?**

This is a very large and complex issue. In short, other than one individual collected years ago, no silver or bighead carp have been detected upstream of the three electrical barriers that are used to stop upstream migration of these fish. More information on the topic can be seen at this website - <http://www.asiancarp.us/index.htm>

#### **The forage surveys being conducted by the USGS are taking place right now in late August; will these data be used to further adjust the 2017 stocking recommendation?**

Information from all surveys are continually being analyzed, summarized and used by agencies to inform us on the current status of the fisheries in Lake Michigan. We will use the most recent information to make the correct decision in Wisconsin.

#### **Is the changing clarity of the lake being documented and is it a factor in bait mortality and/or location?**

Yes. The increase in water clarity can in large part be attributed to the proliferation of quagga mussels in Lake Michigan. These mussels can filter tremendous amounts of water per day stripping out the phytoplankton that is important for small fish. This means that the overall productivity of the lake to produce pelagic fish has decreased

since these mussels were found in Lake Michigan. On the other hand, this has led to increased nearshore benthic production, which may have facilitated goby proliferation.

### **Have you completed the economic impact study?**

Previous stocking reductions have not led to large decreases in the number of charter or sport-fishing trips on Lake Michigan, our best metric of economic impacts of the fishery to local communities. Therefore, we do not anticipate the stocking reductions proposed by the LMC will have a large economic impact to Wisconsin as long as the alewife population stabilizes or increases. However, anecdotal evidence from Michigan suggests that the collapse of alewives, and subsequently the chinook fishery, in Lake Huron had many negative economic impacts to coastal communities as angler effort decreased. Similar changes to the Lake Michigan fish community could have similar consequences for the economies of coastal communities in Wisconsin.

The Lake Michigan fisheries team is currently working with an economist from the University of Wisconsin – Madison to better characterize the economics of the Lake Michigan fishery. This project will provide information on anglers' actual trips but also gauge their preference for different species under different configurations in the fishery. Accurately characterizing the importance of the fishery to anglers and local communities and how this may change in response to changes in the fishery is contingent on angler participation. If contacted, anglers are encouraged to complete the survey to ensure their perspective is represented.

### **What is causing your red flags to cut again?**

Among the outcomes of past meetings has been the introduction of a new framework for understanding the interaction of chinook salmon with their favorite prey, the alewife. The predator/prey ratio now serves as the main tool by which agencies determine the stocking levels needed to maintain a sustainable forage base into the future. This ratio and other parameters are evaluated on a yearly basis and changes in stocking levels both up and down are considered by the LMC during the summer.

The predator/prey ratio analysis is based on a very simple concept of predator/prey balance, but incorporates detailed datasets and analytical approaches (e.g., modeling) that help account for some of Lake Michigan's complexity. The primary indicator used in the predator/prey ratio analysis is a ratio of total lake-wide biomass of chinook salmon ( $\geq$  age 1) / total lake-wide biomass of alewives ( $\geq$  age 1). Associated target and upper limit reference points and projections have also been developed to provide additional insight and guidance for management decisions. The chinook salmon / alewife ratio itself is pretty simple to interpret (i.e., a high ratio suggests too many predators with few prey, while a low ratio suggests too few predators with abundant prey), but it's important to acknowledge that the underlying methods are very comprehensive and account for the impacts of other predators.

Results from the latest run of this model indicate that there is an imbalance in the number of predators compared to prey in Lake Michigan and that a reduction in the predators in the lake is needed to bring this ratio back into balance.

**What is your goal moving forward? You have not set an agenda on keeping Lake Michigan a fantastic fishery.**

The Lake Michigan fisheries team over the last 20 years has been publishing a Lake Michigan Integrated Fisheries Management Plan that sets objectives and goals for the subsequent 10 years. We are in the process of finalizing our next plan and hope to have it completed in the next several months. You can view a draft of the plan at the website below.

<http://dnr.wi.gov/topic/fishing/Documents/LakeMichigan/LMIFMP2015-2024Draft.pdf>

**What are we doing to update our biomass testing?**

The USGS conducts two surveys to inform the Lake Michigan agencies on the status of forage fish in Lake Michigan. They conduct both a bottom trawl and acoustic survey. Over the last several years, staff members at USGS have refined both surveys to address angler concerns about the yearly estimates that are produced. These refinements include:

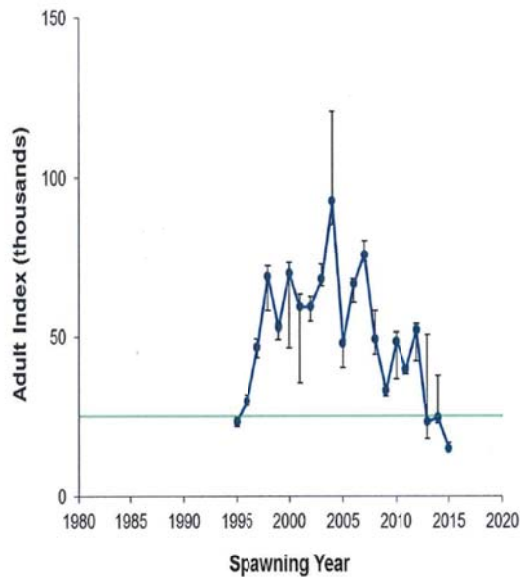
1. Deep (> 110 m) tows added to bottom trawl survey since 2013.
2. Attempts to collaborate with angler groups to report bait ball sightings.
3. Collaboration with partners to estimate round goby biomass in Lake Michigan, using computer modeling.
4. Analysis of bottom trawl data to determine long-term changes in alewife length at maturity.
5. Addition of more acoustic sampling by USFWS and also, in 2016, by Little Traverse Band. This has increased the amount of sampling from around 20 transects to 25-26 in the main lake plus around four in Green Bay.

**Why do we stock fish in a dead end slip in Port Washington and not in Sauk Creek?**

Part of the draft Fisheries Management Plan for 2017 is to work with local groups and anglers to determine the best stocking locations for salmon and trout in their county. We have done this before but feel it is time to update the stocking location list so that concerns and comments from anglers can be integrated into the revised document.

**Is the USFWS threatening lamprey funding?**

The Great Lakes Fishery Commission along with the U.S. Fish and Wildlife Service is committed to annually implementing the Sea Lamprey Control Program. The partners have been very successful for over 40 years at reducing the number of sea lamprey in the Great Lakes.



**Figure 5.** Index estimates with jackknifed ranges (vertical bars) of adult Sea Lampreys 1995 – 2015. The adult index in 2015 was 15,000 with jackknifed range (14,000-16,000). The point estimate met the target of 25,000 (green horizontal line). The index target was estimated as 5/8.9 times the mean of indices (1995-1999).

However, as with many federal and state agencies, it is a challenge every year to maintain budgets to implement the entire control program.

**How do you explain the large amounts of dead alewives and large schools of alewives marked on graphs in the Manitowoc area the last two years and reports of a declining forage base?**

The forage surveys completed by USGS are a comprehensive assessment of the prey fish community using consistent techniques applied at representative locations throughout the entire lake. Anglers typically target a relatively small area of Lake Michigan and often select areas where both baitfish and predator fish are concentrated. In contrast, surveys conducted by natural resource agencies target representative locations throughout the lake to get a statistically valid depiction of the entire prey fish community. While we certainly have alewives in Lake Michigan, we also have warning signs that the population is in decline and vulnerable to collapse, leading to concerns about the long-term sustainability of the chinook salmon fishery.

**Will Wisconsin make its own decisions with input from fishermen and businesses or will Wisconsin refer back to Michigan?**

Individual state or provincial agencies are responsible for managing fisheries within their state boundaries and each jurisdiction has its own decision making process. However, all states and provinces that border a Great Lake are signatory to the [Joint Strategic Plan for Management of Great Lakes Fisheries](#) and have collaboratively developed [Fish Community Objectives](#) for each of the Great Lakes through the individual Lake Committees.

Management agencies work together through the Lake Committee process to assure that Great Lake management actions are communicated and discussed among the state and provincial jurisdictions. The [Lake Michigan Committee](#) (LMC) has the following members on it: one representative from each state (Michigan, Wisconsin, Illinois and Indiana) and one representative from the Chippewa-Ottawa Resource Authority.

**Is the USFWS going to stock cisco?**

At this time, the Lake Michigan Technical Committee has assigned a group of agency staff and scientists to create a document describing the overall feasibility of stocking an additional forage fish in Lake Michigan. This report has not been finalized.

**With the predator-prey ratio getting out of synch, would it not be better to increase the stocking of rainbow and steelhead since they tend to eat insects and are very enjoyable to catch?**

While rainbow trout do eat other prey items like insects, flies, etc., they still consume a considerable amount of alewives. The main goal for the agencies is to balance all the predators with the available prey. We will pursue options to increase steelhead stocking in the future.

**Are there any discussions to enhance the streams and rivers to help natural reproduction?**

Streams in the native range of Pacific trout and salmon have mountain snow fed watersheds that provide abundant clean water to streams. These streams also have groundwater that percolates up through gravel stream beds into the stream. The movement of groundwater into streams keeps water temperature steady throughout the year and the eggs well oxygenated during development. These conditions also allow fry and fingerling trout and salmon to remain in streams for up to a year following hatching. Many Michigan streams that feed into Lake Michigan are groundwater fed with gravel and sand stream channels that are similar to those found in streams in the northwestern United States. These stream conditions allow Michigan streams to produce large numbers of naturally produced trout and salmon.

Wisconsin streams flow over different type of geology. For the most part, Wisconsin's Lake Michigan tributaries flow over glacial deposits of clay, gravel and sand. Streams are dominated by surface water runoff with limited amounts of groundwater. Since surface water picks up sediment and nutrients and is heated by the sun as it flows to Lake Michigan, streams can be turbid, high in nutrients, warm and have variable flow rates. These conditions mean that summer temperatures are too warm and winter temperatures are too cold. Additionally, low flows in winter may allow the stream to freeze to the bottom while nutrients can cause oxygen depletion below what is needed for egg and fry development, all of which limit the capacity of a stream to produce trout or salmon. This is not to say that there is no natural reproduction of trout and salmon in Wisconsin but rather that what occurs is limited and varies from year to year. Fisheries

surveys have documented natural reproduction in a number of Wisconsin streams, but numbers have been low, far less than what is stocked from hatcheries.

Over the years, DNR staff have worked on many projects that ultimately improve the possibility of increasing natural reproduction of salmon and trout in our rivers and streams. Some of these activities are listed below:

- Dam removal on many tributaries;
- Sediment cleanup in Areas of Concern;
- Improved culverts during road construction; and
- Habitat projects on selected streams (LUNKER structures, boulder placement, rock reefs, bank stabilization).

These efforts have improved stream habitat for fingerling and adult trout and salmon in many streams and improved fishing access for anglers. However, stream conditions found in Wisconsin streams such as low and high temperatures, very high or low flows and high nutrient levels that result in low oxygen levels limits the survival of trout and salmon eggs and fry. To provide trout and salmon as part of the Lake Michigan program, stocking by Wisconsin into streams will be needed.

A graduate student research project with the University of Wisconsin – Stevens Point is currently underway to evaluate wild production of trout and salmon (primarily targeting steelhead) in Wisconsin tributaries to Lake Michigan. General ideas for this project are to evaluate habitat, abundance and outmigration of young wild steelhead. This project will provide information that could inform future steelhead management efforts, including discussions about habitat improvement.

Although there may be opportunities for habitat improvement projects to enhance wild production of salmon and trout in Wisconsin tributary streams, several major limiting factors must be considered when developing short and long term expectations for wild production. Some limiting factors include: habitat fragmented by dams, seasonably warm water temperatures, variable flow driven by rain and runoff, nutrient and sediment loading and watershed land use practices.

### **What is being done to control the cormorants?**

Cormorant control (egg oiling and/or adult bird removal) has occurred on four islands in Wisconsin waters of Green Bay since 2006. Specific population goals were established for each of the four islands. By 2012, those population goals were met on two of the islands, with the remaining two islands being slightly over the population goals. The U.S. Department of Agriculture, APHIS, and Wildlife Services are the agency that conducts control efforts in Wisconsin, through a federal depredation permit from USFWS. However, the future of cormorant control is uncertain, as a lawsuit against USFWS was filed in 2015. In May 2016, a U.S. District Judge issued a ruling that halts cormorant control efforts for the time being.

**What is the effect on the predator-prey ratio if a 50 percent reduction is done?**

The basic reasoning for a stocking reduction is to reduce predation pressure (i.e., less mouths to feed) to balance predators with available forage. The exact effect that a 50 percent reduction will have on the overall chinook salmon/alewife ratio is somewhat uncertain, simply because there are many contributing factors (i.e., natural reproduction, mussels, survival of stocked fish, weather, etc.). Regardless, the current chinook salmon/alewife ratio (calculated with several local and lake wide datasets) remains very high and unbalanced. This ratio is high despite several past and recent stocking reductions, which supports the idea of a large future reduction as an effort to make an impact toward achieving balanced and sustainable fish populations. Reduced stocking might eventually have the effect of improving natural reproduction of chinook salmon as more alewife would become available.

**Why so many pink salmon being caught this year? Where are they coming from?**

The life cycle of pink salmon is such that adult fish are seen in the lake every other year. This year, anglers are reporting catching pink salmon from Door County all the way to the Wisconsin/Illinois border. We believe these fish are coming from the St. Mary's river in upper Lake Huron. This river was stocked decades ago and still has a small, naturally producing population of pink salmon. A brief overview of the history of pink salmon in the Great Lakes is available online at [http://www.michigan.gov/dnr/0,4570,7-153-10364\\_53405-214109--,00.html](http://www.michigan.gov/dnr/0,4570,7-153-10364_53405-214109--,00.html).

**If there is a reduction in chinook salmon stocking numbers, can it be reversed in the future or is it permanent?**

The number of chinook salmon stocked can be adjusted up or down based on the available science and data. When salmon levels were adjusted in 2006 and 2013, we informed the stakeholders that if conditions improved we would increase stocking of chinook salmon. Unfortunately, the overall abundance of alewives continues to drop, necessitating continued engagement with stakeholders on the appropriate numbers of fish to stock in Lake Michigan.

**Hatchery****What are you doing to speed up hatchery building at Kettle Moraine? What is the status of that project?**

At present a pre-design study has begun as of September 2016. This study will use information from the USGS groundwater study in combination with DNR fish stocking goals. At the conclusion of the study, we will have the information necessary to hire a design engineering company. We would then seek permission from the State of Wisconsin Building Commission to have the funding delegated to the project. Once design engineering is complete, the construction process would begin. It is still a possibility at this point in time that a design – build format would be implemented. This decision would come from DOA.

**You shorted us well over 1 million fish you promised us; when will we get them?**

Over the course of the last 20 years, analyses on the quotas by species versus the number stocked have shown that Wisconsin does an outstanding job at matching stocked numbers with approved quotas.

**Are you going to be able to collect enough king eggs due to very poor returns?**

Yes. The main collection facility for chinook salmon eggs is the Strawberry Creek Weir with backups at the Root River Steelhead Facility and Besadny Anadromous Fisheries Facility. With these three facilities operational, we are very confident we can collect enough chinook salmon eggs to maintain or increase our current stocking levels.

**When did Lake Mills come into effect? What about Westfield?**

Lake Mills State Fish Hatchery was traditionally used for raising Lake Michigan salmon and trout. However, with the detection of Viral Hemorrhagic septicemia (VHSv) in Lake Michigan in 2006, the department decided that hatcheries outside of the Lake Michigan drainage basin could not take wild transfer of eggs. Instead, Lake Mills produces 120,000 yearling rainbow trout (Arlee) for the program since these eggs come from the Federal Hatchery system and can be tested prior to transfer.

The Westfield Hatchery was closed about 10 years ago due to hatchery staff shortages and issues related to water quantity, quality and effluent treatments. In 2016 in response to angler comments, we tested the capabilities of the facility in terms of water quantity. We found that if the city of Westfield uses fire hydrants in the area of the hatchery we would lose significant flow of water into the facility and would lose fish. For this reason, re-opening Westfield Hatchery is not a viable option at this time.

**How can hatcheries be maxed out with cuts in 2013?**

The only fish that was reduced because of forage concerns in 2013 was chinook salmon. As illustrated in the presentation given during the June salmon and trout meetings (page 42 – 48 or at the 31:40 minute mark on the video), a reduction in chinook salmon does not result in more hatchery space for other species, rather it provides more room for fish already in the hatchery and a later stocking date. Reduction in chinook salmon from 1.2 million to 810,000 is about one raceway at the Wild Rose Fish Hatchery.

<http://dnr.wi.gov/topic/Fishing/lakemichigan/LakeMichiganSalmonandTroutMeetings.html>



## Net pens

### **Why not let the fry get larger before letting go, rear pond off of rivers?**

All salmon undergo a process call smoltification during the early stages of their life that prepares them for life in the ocean. Once this process starts the fish become very vulnerable to stresses and should be stocked out of hatcheries or net pens. For this reason, chinook salmon must be stocked at specific times and sizes and cannot be held in the hatchery or net pens to grow to large fingerling size.

Net pens are the primary method for holding fish in the wild but in Kenosha, local anglers maintain an off river facility that Chinook salmon are raised in just like net pens. So it is possible to use facilities like this for holding and stocking chinook salmon.

### **Why can't we use net pens effectively? Why no net pens in Sheboygan?**

Wisconsin DNR has partnered with many sport clubs over the past two years to use net pens. In most cases, chinook salmon have been raised for two weeks and released without incident. In our current draft plan, we are proposing to work with counties that currently do not have net pens. This proposal has been supported by many anglers.

## Species Mix

### **If we took a reduction in chinook salmon stocking could we get an increase in other species which feed on more broad spectrum and not just alewife dependent?**

If chinook salmon stocking numbers are reduced in 2017, the amount of hatchery spaced freed up would be negligible (see answer to question above). At Wild Rose Hatchery, yearling coho salmon and brown trout are stocked early to allow small chinook salmon to be put into large outdoor raceways. If we reduce the chinook salmon numbers, the result would be that coho salmon and brown trout would NOT get stocked out early, it would not result in more raceway space.

In order to increase stocking numbers of species we already produce or add one that we don't currently stock (Atlantic, splake) we would have to find additional hatchery space to accomplish that task.

## Lake Trout

### **If there is an advisory on lake trout of 27" of larger, how is this a viable fish to continue to be stocked? Why is the planting of lake trout a priority when the consumption reports say any lake trout over 29" are not healthy to eat?**

The current advisory for Lake Michigan indicates that lake trout under 30" can be eaten up to 1 meal per month. Lake trout over 30" should not be consumed. Anglers should consult the latest information on eating your catch before consuming a wild caught fish in Wisconsin - <http://dnr.wi.gov/topic/fishing/consumption/index.html>.

### Why millions of lake trout every year?

The number of salmon and trout stocked into Lake Michigan by Wisconsin is governed by internal policies and agreements with other states. Wisconsin has agreed to abide by the strategy set forth in the “A Fisheries Management Implementation Strategy for the Rehabilitation of Lake Trout in Lake Michigan.” This strategy calls for stocking lake trout in both refuge and nearshore areas that will hopefully lead to sustained natural production and a fishery for stakeholders. In addition, overall stocking numbers in Wisconsin have been discussed at many public meetings over the past two decades. We have taken all of these viewpoints into consideration and have decided to stock numbers to reach the harvest target ranges in the Lake Michigan Integrated Fisheries Management Plan. Since conditions have changed recently, the department is proposing to cut lake trout stocking in Wisconsin waters by 60 percent starting in 2017 (see table below).

### Are the Indians still involved in lake trout stocking through the Treaty?

Yes. In consent decree waters in Michigan, the Native American tribes, the state of Michigan and the federal government agreed to lake trout stocking levels. The majority of the lake trout stocked in these waters are raised and stocked by USFWS.

### Explain in detail the lake trout reduction proposal plan?

The proposal is to reduce all stocking of yearling lake trout in secondary sites in Wisconsin. In addition, Wisconsin is proposing to reduce 50 percent on the mid-lake reef.

#### LAKE TROUT for 2017

State	Stocking Quotas (from table)	Proposed	Number Reduced	Percent Reduced
Wisconsin	750,000	300,000	450,000	60%
Michigan-Consent Decree	2,120,00	2,120,000	0	0%
Michigan-Non-Consent Decree	80,000	200,000	(120,000)	-150%
Illinois	120,000	120,000	0	0%
Indiana	40,000	0	40,000	100%
<b>Total</b>	<b>3,110,000</b>	<b>2,740,000</b>	<b>370,000</b>	<b>12%</b>

#### LAKE TROUT for 2018

State	Stocking Quotas (from table)	Proposed	Number Reduced	Percent Reduced
Wisconsin	750,000	300,000	450,000	60%

Michigan-Consent Decree	2,120,00	2,120,000	0	0%
Michigan-Non-Consent Decree	80,000	0	80,000	100%
Illinois	120,000	120,000	0	0%
Indiana	40,000	0	40,000	100%
<b>Total</b>	<b>3,110,000</b>	<b>2,540,000</b>	<b>570,000</b>	<b>18%</b>

**If lake trout live for decades and eat as much as salmon, why doesn't DNR consider lake trout to be the top predator in the lake?**

There are several top predators in Lake Michigan's current ecosystem including native lake trout and non-native chinook salmon, coho salmon, rainbow trout and brown trout. DNR continues to manage for a balanced and diverse fishery, which includes each of these salmon and trout species. Recent stocking adjustments to reduce predation pressure on alewives have focused on chinook salmon reductions for several reasons. All of these salmon and trout species consume a fair amount of alewives. However, lake trout are generally more benthic/bottom dwelling and consume benthic prey including the currently abundant and nonnative round goby, while rainbow trout are more likely to feed on insects at the surface. For these reasons, trout are likely more adaptable to conditions with low alewife biomass. Further, chinook salmon are a pelagic/midwater predator geared to eat fish, and in Lake Michigan chinook salmon eat mostly alewives (a nonnative and pelagic/midwater prey fish). Chinook salmon are a relatively short lived fish, but regardless can grow quickly because they are effective predators capable of consuming large quantities of alewife. Also, the predator-prey ratio is estimated based on total consumption vs. forage availability at a given point in time (or in a given year), rather over the fishes' life span.

**Wouldn't cutting secondary stocking sites (lake trout) cut our throat especially where backup egg collections are used?**

Over the last several months and in prior years, anglers have asked the department to reduce lake trout stocking. As part of this draft plan, Wisconsin has proposed to reduce stocking of lake trout by 60 percent in Wisconsin waters. In order to reduce lake trout and still have some commitment to creating a self-sustaining population of lake trout, the department believes the best location for those reductions are in secondary sites and 50 percent reduction on the mid-lake reef. In addition, eggs from lake trout are not collected in the wild but rather from captive brood stock held at USFWS hatcheries.

**What is the percentage of natural reproducing lake trout?**

This question is a lot harder to answer for lake trout than for chinook salmon because of how long they live in the lake and the fact natural reproduction occurs at offshore

locations. In general, southern areas have higher natural reproduction estimates (15 to 40 percent), compared to middle (8 to 19 percent) and northern areas (0 to 3 percent).

**Is there a science based reason for not having a five bag limit for Lake trout?**

Yes. The lake trout bag limit of two was set so that Wisconsin anglers would harvest fewer than 80,000 lake trout per year. The main reason was so that there were enough lake trout on the mid-lake reef to successfully spawn and eventually create a self-sustaining population of lake trout in the mid-lake reef complex. Since Wisconsin anglers have harvested on average only 23,400 lake trout annually over the last 16 years, we think we can increase the harvest by liberalizing the regulations without jeopardizing the ongoing efforts to create a self-sustaining lake trout population on the mid-lake reef.

**Why not allow commercial fishing for lake trout?**

As we work through this process, DNR is committed to working collaboratively with all stakeholders on a variety of issues including this one. While we cannot implement all ideas brought forth by the department and anglers, we will continue to have dialogue on these important ideas at future meetings.

## **Chinook Salmon**

**How is Wisconsin DNR going to influence the other states that share Lake Michigan water to work as hard to support sustainability of the fishery?**

The major goal of the Lake Michigan Committee and the Great Lakes Fishery Commission is for ALL the agencies on a particular lake to work together to provide a framework for managing the fisheries of Lake Michigan. This framework has led to historic cooperation among the agencies over the last 20 years and is responsible for the continued success of the chinook salmon mass marking project. Wisconsin will continue to work with sister agencies around Lake Michigan to ensure that we are working in cooperation with these agencies toward common goals such as sustainability of the fishery.

**The bay of Green Bay is one of the most fertile parts of Lake Michigan (large alewives). Should not more fish be stocked in the part of the lake?**

Information from our current chinook salmon mass marking project and information we have collected over the last 20 years indicate that salmon and trout stocked in Green Bay contribute less to the fishery than Lake Michigan stocking sites. The main reason may be due to high predation by other fish in the bay. In order to address on this issue, the department began stocking brown trout offshore so that newly stocked brown trout would not encounter the spring walleye runs in selected streams. In addition, we are working with the Marinette Great Lakes Club and anglers in Gills Rock to stock chinook salmon in net pens to provide additional protection.

**If there are further chinook salmon stocking cuts, percent, will there be any discussion allowed as to the moving stocking allocations like has happened in the past?**

The strategy for stocking chinook salmon in Lake Michigan and Green Bay was analyzed, reviewed and agreed to in 2013. However, questions/concerns/discussions about the strategy can be part of the larger discussion at future meetings.

**With four states ultimately involved in the future of the Lake Michigan fishery, what is good for one may not be first choice of others. How are these disputes settled?**

Individual state or provincial agencies are responsible for managing fisheries within their state boundaries and each jurisdiction has its own decision making process. However, all states and provinces that border a Great Lake are signatory to the [Joint Strategic Plan for Management of Great Lakes Fisheries](#) and have collaboratively developed [Fish Community Objectives](#) for each of the Great Lakes through the individual Lake Committees.

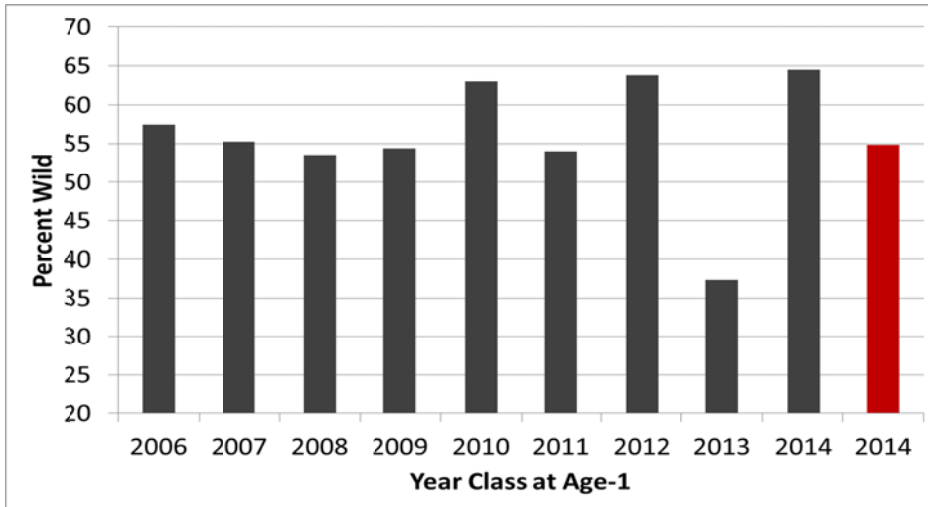
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**Does the increase in salmon caught without a fin clip truly represent natural reproduction in Michigan?**

The exact location of naturally reproduced chinook salmon is unknown but likely sources include the Pere Marquette, Manistee, Little Manistee in Michigan and Ontario waters of Lake Huron including Georgian Bay. The majority of the natural chinook salmon are being produced in Michigan streams but some may also be migrating in from sources in Lake Huron. In addition, we collected information in 2016 to address this concern (see the answer below).

**What is the estimated number of wild chinook salmon? How many stocked fish and wild fish are in the lake?**

Recent studies show that more than 60 percent of the chinook salmon in Lake Michigan are of wild origin. The majority of wild chinook salmon in Lake Michigan are thought to be produced in Michigan streams.



**Percent wild recruitment of chinook salmon 2006–2014 year classes, Age 1+**

**How many non-clipped chinook salmon were found to have CWTs?**

In response to angler concerns about non-clipped fish containing coded wire tags, we worked with the USFWS on two projects. One involved having the head hunter staff wand ALL chinook salmon for about a three week period; the team also looked at quality control information from the mass marking trailers.

From May 22, 2016 to July 29, 2016 we examined 1,031 non-clipped chinook salmon and found four with a CWT in their snout. This is about a 0.3 percent error rate which is very close to the error rate detected at the time of marking.

In addition, USFWS looked at information collected at the time of marking. During the tagging process, at least 100 fish are examined by hand every two hours. A total of 137,132 chinook salmon were examined from 2011 to 2015 and staff found that 0.5 percent lacked a fin clip and 0.3 percent had a coded wire tag but no fin clip. These rates match the rates we detected in the field.

In all cases, this very small percentage of non-clipped chinook salmon amount to a minute rate of error in the natural reproduction calculations.

**Can other species (splake or brown trout) be replaced in equivalent numbers for the reduction in chinooks?**

If Chinook salmon stocking numbers are reduced in 2017, the amount of hatchery spaced freed up would be negligible. At Wild Rose Fish Hatchery, yearling coho salmon and brown trout are stocked early to allow small chinook salmon to be put into large outdoor raceways. If we reduce the chinook salmon numbers, the result would be coho salmon and brown trout would NOT get stocked out early. It would not result in more raceway space.