Lake Huron Citizens
Fishery Advisory Committee

Established by the Michigan Department of Natural Resources to improve and maintain fishery resources of Lake Huron through better communication and partnership.

Lake Huron Citizens Fishery Advisory Committee
Jay's Sporting Goods, Inc., Clare, Michigan
Tuesday, April 11, 2017
Draft

Attendees: Ed Roseman, Terry Lyons, Rick Colonna, Dustin Phelps, Brent Lynch, Bob E. Miller, Bill Parker, Bryan Burroughs, Wally Balcerzak, Scott Lutz, Frank Krist, Randy Claramunt, Darryl Hondorp, Bryan Darland, Dennis Gulau, Jim Johnson, Lee Martin, Eric Morrow, Tom Hamilton, Randy Terrian, Dave Borgeson, Kynzie House, Julie Shafto, Stephen Shafto, Richard Haslett, Eric Andersen, Ed Eisch, Aaron Switzer, Steve Lepeak, Nathan Skibbe, Jason Snyder, Brad MacNeill, Lance Campbell, Doreen Campbell, Jerry Lockhart, Jim Baker, Paul Vantol, Ron Beaulieu, Gary Boersen, Nick Popoff, Seth Herbst, Leo Mrozinski, Bob Kettner, Ken Merckel, Ed Retherford, Terry Walsh, Dave Fielder, Donna Wesander, Jerry Serafin, Dana Serafin, Tyler Williams, Tod Williams, Tom Keerl, Brandon Schroeder, Lt. David Shaw, John Moore, Kenneth Pletcher.

Welcome and Introductions (Frank Krist, and Randy Claramunt, DNR Lake Huron Basin Coordinator):

Frank started the meeting by welcoming attendees and inviting them to introduce themselves. The meeting was well attended.

Introduction to the Lake Huron Citizens Fishery Advisory Committee new Facebook Site (Dennis Gulau, and Randy Claramunt, DNR Lake Huron Basin Coordinator):

Randy thanked Dennis for his help on establishing a Facebook page for the Lake Huron Citizens Fishery Advisory Committee, https://www.facebook.com/Lake-Huron-Citizens-Fishery-Advisory-Committee-218571618607049/. Dennis asked anyone interested to share with himself or Frank, ideas, stories and pictures that illustrate activities in Lake Huron that could be added to this page. The assistance would be very helpful.

Randy spoke of his recent visit with Michigan State University Fisheries and Wildlife students. His meeting with younger individuals highlighted the need to stay abreast of technology and cutting edge communication tools. Social media is used heavily by the younger generations and increasingly by older individuals to obtain the news. A Facebook page should assist in getting information out to a wider audience.

Randy mentioned the importance of candid and frank communication. He briefly discussed the report, ***Information Flow in Fisheries Management: Systemic Distortion within Agency Hierarchies,*** that can be found at the following link:
http://csis.msu.edu/sites/csis.msu.edu/files/Distortion_Siitari%20et%20al%202014.pdf
The report discusses how good news tends to travel quickly as it moves through the different levels in an agency while bad news tends to arrive late and is understated. Reviewing this article is highly recommended since it shows the importance of encouraging open debate and it applies to both members of the Advisory Committee and the agencies.

Discussion of the proposed commercial fishing statute (Randy Claramunt, DNR Lake Huron Basin Coordinator):

Randy gave an overview of the proposed commercial fishing statute and asked who knew of the statue. Most in attendance were aware of it. Randy outlined the goal and history of the statute and its patchwork nature, multiple amendments (23) from 1929-1960s but none recently. There are currently 50 state commercial fishing licenses with 33 being active:

8 on Superior (6 active)
15 on Michigan (8 active)
24 on Huron (16 active)
3 on Erie (3 active)

Twenty-one (21) commercial fishing businesses own these active licenses.

The DNR has bypassed the legislature for all commercial fishing regulations from the 1960s and later, including prohibiting walleye and lake trout harvest. The DNR recognized the statute was out of date and compiled a more pertinent proposed statute to deal with a fishery that is much different than when original statute was enacted. There were 3 previous attempts to rewrite the statute since 1980.

Randy emphasized the goal is to remove conflicting and obsolete sections and replace them with firm regulations. Administrative rules have been added to provide limited flexibility to regulate items such as size limits, seasons, reporting methodology, etc. For immediate flexibility, Director's orders will address emergencies.

Major items in the new proposal:

- Modernized fees, penalties
- Restitution for poaching and resource violations
- Better reporting to improve tracking and enforcement
- Require the immediate notification of unattended, lost, vandalized, or stolen gear
- Create a commercial fishery advisory committee
- Define crucial terms
- Clarify enforcement procedures
- Create lists of commercial species and species prohibited from commercial harvest
- Sport trolling, license requirement no longer needed
- Lake Trout and Walleye bycatch allowances are added

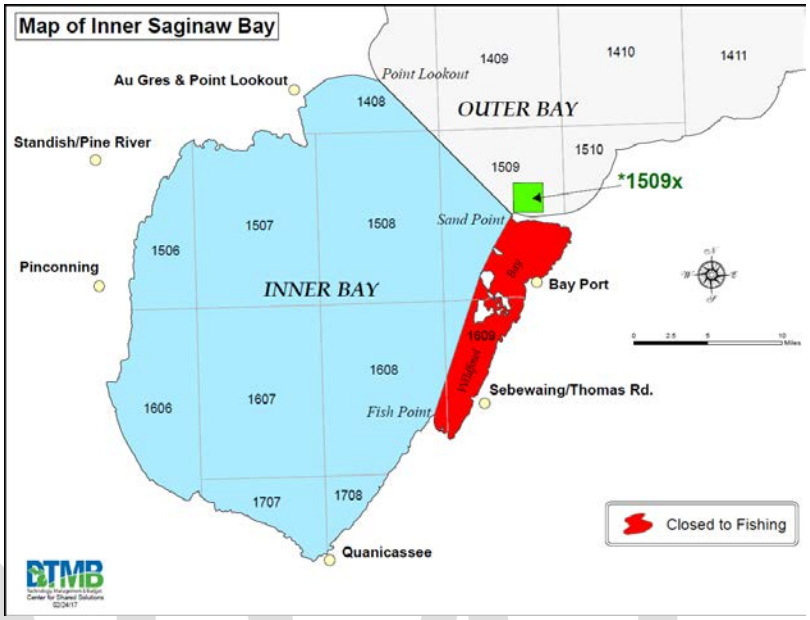
A major change was including bycatch allowances for the non-targeted species of walleye and lake trout. Randy brought mentioned that this is a policy decision. If this new policy is adapted then the impacts will be considered. Randy then went into the details of the amount of bycatch allowed for lake trout and walleye:

1. ***Bycatch of Lake Trout in Lakes Huron Michigan and Superior:*** a bycatch of 100 pounds of walleye will be allowed per day per license actively fished. The season will be from April 15 – Nov 6 and lake trout must be 17 inches to sell. The bycatch in the 1836 Treaty Waters cannot affect the state's total allowable catch.

2. ***Bycatch of Walleye outside of Inner Saginaw Bay in Lake Huron and all of Lakes Michigan and Superior:*** a bycatch of 100 pounds of walleye will be allowed per day per license actively fished.

3. ***Bycatch Walleye for Inner Saginaw Bay*** with the use of small mesh yellow perch nets, walleye and lake trout could be retained May 15 – Nov 6. The walleye bycatch allowance depends on the following:
    - Licenses up to 20 nets = 5 lb. / net / day
    - License with 1 net has daily allowance of 5 lb.

- License with 10 nets has daily allowance of 50 lb.
- License with 20+ nets has daily allowance of 100 lb.



The definition of Saginaw Bay for commercial fishing is the blue area of this map and includes the small green box 1509x

Only one net authorized on the licensed would be required to be fished each day to receive the full bycatch allowance. The overall catch is limited to 15% of recreational harvest, and walleye must be at least 15 inches in length to sell.

Randy explained the potential maximum impacts of the bycatch allowance. There are an estimated 2.5 million adult walleye in Saginaw Bay, and the sport harvest is about 150,000 fish annually. The bycatch allowance theoretical max is 105,000 fish annually while the 15% rule is 25,000 fish. Not all licenses are fished, so it is not certain how large the bycatch would be if the proposed commercial fishing statute is implemented.

Randy stated that there is a need to evaluate the difference of bycatch and bykill, and be cognizant of differing value systems; for some, one walleye killed in the commercial nets is too many.

Walleye bycatch is the amount of walleye that would be allowed to be retained for sale while bykill is the amount of walleye that are killed each time the nets are set and lifted. Depending on the conditions when the nets are fishing and lifted, the bykill can be more than the bycatch. The current walleye population encompasses the commercial bykill that has existed for the past few years.

Legislative Process for Input: Currently, the goal is to have stakeholder input on the proposed statute provided through hearings during the legislative process. The following is a summary of that process

Legislative Process

Senate

- Legislator requests a bill to be drafted, then sponsors and introduce the bill
- Bill is referred to a senate committee (NRC)
  - Chairman must schedule a hearing
  - If supported, bill voted out of the committee
- Bill is considered and voted on by the entire Senate

House

- Bill is referred to the House, read on the floor, and referred to a committee (NRC)
- Sponsor requests a hearing by chair
  - -Typically, if hearings are scheduled
    - Committee will take public testimony at 1st hearing
    - Action will be taken at 2nd hearing
  - If supported, bill voted out of the committee
- Bill is read on floor and voted on by the entire House

Final Approval

- Bill is referred back to the Senate
- Concurrence vote on any changes by the house.
- Governor has 14 days to sign or veto the bill.
- Legislative Timeline Goal: December 2018

Comment: Lt. David Shaw from Law Enforcement Division said the proposed change to the commercial fishing statute would allow them to be more effective in going into wholesale markets, which will result in better enforcement capabilities. He said electronic reporting is essential for law enforcement to effectively track commodities. Lt. Shaw said none of the officers in his unit were able to attend the meeting today since they had to be in the Upper Peninsula. He also said some safety considerations are addressed in the statute proposal concerning net location reporting, abandoned nets, removal of nets during closure. He said the increased penalties and restitution were a step in the right direction as well.

Question: Eric Andersen, President of Michigan Charter Boat Association (MCBA), expressed some confusion as to whether the bycatch could be sold. Randy responded that, yes, bycatch can be sold. The MCBA representative also asked, "What is the timetable, some people are worried about it happening quickly?"

Response: Randy did not have rough timetable. While a couple of months is likely unrealistic, we do not have a good idea of when it might get traction in the legislature. This proposal is not even a bill yet, so according to Nick Popoff, the goal of December 2018 may be optimistic.

Question: Frank asked if the debate regarding the proposed commercial fishing statute would occur within the legislature, or would there be public meetings.

Response: Nick Popoff said that the process is up to the legislature, since this is a statutory proposal. Randy said this topic is a part of all scheduled Sea Grant stakeholder workshops, so there is already a certain level of public outreach and education occurring. Randy emphasized his desire to educate interested parties, and then take the temperature of the feedback. This does not mean this will change legislative process. Frank asked if feedback to DNR could produce change. Nick Popoff replied that once the bill is introduced, Fisheries Division must provide an analysis to Governor, and any feedback received will be included in that analysis. Whatever ends up being proposed, Fisheries Division cannot change, but can provide input and testimony, including public feedback that they received.

Comment: It appears that with the current process, the public will be severely limited to providing input at legislative hearing(s).

Question: Who came up with 100 pounds per day?

Response: Nick explained that the tribes are allowed 150lb/day, and 100 pounds seemed reasonable in comparison. Nick emphasized that those involved in this effort examined the commercial fishery as a whole including both the tribal and state licensed commercial fisheries.

Comment: Jim Johnson believed progress was needed regarding the commercial fishing statute, but was alarmed about the process used to date, and the lack of public opportunity to review the proposal. It seems there was a very fast track to get it to the legislature. Bycatch allowance seemed to be a deep secret, and this lacked the Division's usual transparency. Jim thinks we need to take more time and gather support from the public by slowing down the process. Jim said we should not assume the commercial fishery will only keep mortalities, and it is likely the fishery will keep the most marketable fish. As a result, there will be some discarded bycatch mortalities as well as fish kept as marketable catch.

Response: Randy, emphasized that we could spend a lot of time talking about the approval process used so far but the past cannot be changed. He said that what we need to do now is make people aware of the proposal, and Fisheries Division will be available to any group that is interested. Randy said he does not want to argue the merits of the past process, but does want to do what he can to improve what happens going forward.

Question: Mike Ferguson, MDNR creel clerk, has been asked by anglers about how nets will be monitored to ensure that they are not allowed to fish unattended.

Response: Randy said that the proposal included better provisions for tracking nets, and managing gear.

Comment: Tod Williams of Bay Port Fish Company stressed that the nets they use are worth over $10,000, and that they do remove their nets from the water when not in use. He emphasized that an important aspect of the proposed statute is to get the state prepared for the negotiations for the 2020 Consent Decree. He said the proposed statute is critical, because if the state wants to have similar provisions in the 2020 Consent Decree for tribal fishermen, state licensed commercial fishermen must be held to a similar standard.

Comment: Eric McMillian's (Michigan State University) commercial bycatch study was brought up, reminding the Committee that it showed significant walleye mortality associated with the small mesh yellow perch trap net commercial fishery in Saginaw Bay.

Response: Randy Claramunt reminded the Committee that the bykill mortality has been occurring during the increase in walleye abundance and is ongoing so the observed walleye population has been incorporating that mortality. Randy mentioned that bykill mortality occurs in the recreational fisheries. Also, Randy does not want to equate bycatch with bykill. Bykill is going to happen.

Question: Randy was asked to compare the relative contributions to the economy of 1000 pounds of sport caught fish versus 1000 pounds of commercially caught fish.

Response: Randy mentioned that we can roughly generate estimates of contributions to the economy for sport caught fish, but at this time he does not know how to quantify the total commercial fishing contribution to the economy.

Comment: Ken Merckel said that Jim DeClerck could not be here for the meeting today, but Jim asked Ken to present a motion to the Advisory Committee. Ken read the following **motion**: "***The MDNR cease the negotiations on the Commercial Fishing Statute rewrite and not resume until a transparent process is in place that will allow input from all stakeholders, not just commercial fishers. Furthermore all provisions of retention and sale of lake trout and walleye be removed from the draft language. Issues of conversion of the Harbor Beach research permit to a license, as well as backfilling nets into Saginaw Bay must also be resolved.***"

Ken asked for a vote on motion and Jim Johnson **seconded** the motion.

The discussion continued.

Question: Randy was asked if the statute proposal has a built-in provision for changing bycatch allowances due to changing fish populations.

Response: Randy mentioned the provision that required bycatch allowances is limited to a percentage of the sport fishing harvest. He also said that there are not population estimates on all stocks that might be fished. Randy feels the answer to that question is generally, yes.

Question: Frank asked if Fisheries Division can change the review process to allow meaningful public discussion.

Response: Randy clarified that what occurred in the past cannot be changed. Randy's role is to educate anglers and stakeholders, and bring that feedback back.

Question: Frank asked Ken Merckel if he wants Fisheries Division to alter the process now and go back to the groups and discuss the proposal.

Response: Ken said he wants the Advisory Committee to go on record with a vote as the motion reads.

Comment: Frank reiterated that he did not like how this process went. There was no opportunity to vet the proposal early in the process, and now we are required to testify at a legislature hearing to have input.

Question: Ken Pletcher asked why the bycatch provision was in the proposal. He said that it makes sense to have all the reporting provisions, revised fees and penalties, etc., but why have the bycatch allowances because it seems like it makes enforcement much more difficult. Shouldn't the commercial fishery pay fees that will pay for all the DNR monitoring efforts?

Comment: Tod Williams said that there are a lot of people in the state that do not fish, and that the commercial fishery provides a service to those people. There are walleye in the market which are coming from other fisheries, notably Canada. Tod says this is a shared resource, and there will be increased fees as part of the proposal.

Comment: Randy Terrian, supported Ken and Jim's motion, and stated that the lack of transparency has caused trust issues. He stressed the need to communicate with the Advisors and public in order to get support for any bill that ultimately goes to the legislature.

Question: Tod asked what happens if there is no movement on bill.

Response: Nick Popoff said there will continue to be much uncertainty about the Department's current ability to regulate the fishery.

Question: Bryan Burroughs mentioned that inherent in the proposal is a harvestable surplus and he asked why this surplus was not allocated to the sport fishery in terms of bag limits or seasons.

Response: Randy stated that this is a policy decision and is not connected to the stock size. Changes in the recreational walleye bag and size limit were viewed separately from commercial operations. We have closed seasons in the spring to be protective of walleye. Bryan stated that we fish steelhead during spawning run, and we can manage expanded opportunities with properly applied science, regardless of the time the fishery occurs. Randy agreed, stating the risks are bit higher on spawning populations, but could be managed.

Comment: Bryan asked if the increased fees would be enough to cover DNR staff expenditures for managing the commercial fishery program. Bryan would like an economic analysis done to determine the extent of the program costs covered by the commercial fees. Bryan believes sport anglers are paying for much of the commercial fishery oversight. Bryan also suggested that Fisheries Division communicate to the legislature

through their legislative liaison that Fisheries Division should go back and do more work prior to moving the proposal forward.

Question: Dana Serafin asked how much do folks pay for charter licenses? Someone replied that it was $100 for charter licenses. Dana asked, "Why don't we increase charter fees as well?"

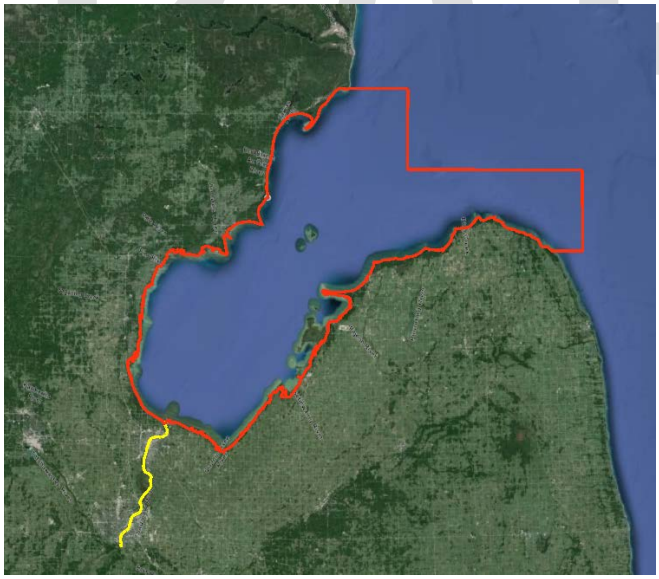
Response: Nick Popoff said that the DNR cannot increase commercial fishing fees enough to cover all costs. The industry is too small to absorb the total cost of the program. The intent is to try to put the fees in line with the other Great Lakes states, like Wisconsin. The bycatch effort was not generated due to a harvestable surplus situation, it was a recognition of the fact that bycatch has been occurring.

Comment: Jim Johnson stated that there are three parts to the motion being considered but the main part is to have the DNR halt the current legislative process. Jim suggested that it is essential that time be spent for the public to fully vet the proposal. There was a brief discussion about clarifying the motion.

Comment: Randy suggested that we break for lunch and have a small group clarify the motion. Ken agreed to temporarily table the motion and move the topic to first item on the agenda after lunch.

Note: see continuation of the proposed commercial fishing statute directly after the lunch break

Saginaw Bay walleye and yellow perch regulations for 2017 (Dave Fielder, DNR Great Lakes Research Biologist; Randy Claramunt, DNR Lake Huron Basin Coordinator):



Objectives of the 2015 Saginaw Bay management changes:

- ***Walleye:***
  - To more fully utilize the Saginaw Bay walleye population.
- ***Yellow Perch:***
  - To improve survival of perch and lead to the recovery of the fishery.
- ***Prey fish:***
  - To achieve greater predator/prey balance in the fish community.

Management Changes implemented in 2016

- ***Walleye***
  - Reduce Minimum length to 13 inches
  - Increase the daily bag limit to 8 walleyes

- ***Yellow Perch***
  - Liberalize walleye harvest
  - Reduce commercial harvest
  - Reduce daily bag limit to 25
  - Support cisco recovery in the Bay
  - Cormorant management program was halted by court order in May.

Walleye Survey Results: Dave presented the 2016 Saginaw Bay walleye, yellow perch, and prey fish survey results. The walleye gill net results showed the highest catch rate during the 1994 to 2016 period. The variability in the walleye results over the years may be impacted by the timing of migrations back into Saginaw Bay. The mean length of age-3 walleye increased slightly during 2016 and is near the target level which shows the fishery is in the recovery zone. The growth rate of age 2 and older walleye seems to be coming down a little from high levels, which is mimicking Lake Erie when the fishery recovered and became more stable.

The walleye sport catch rates and harvest were down a little from last year which was unexpected but was related to less fishing effort. Without the change in regulations, the harvest decline would have been even more dramatic.

The release rate for walleye was down, which indicates many anglers were keeping fish between 13 and 15 inches, likely reducing hooking mortality. There was an average increase in harvest of 30% across all fishing party sizes (number of anglers fishing together), indicating the regulations had a measurable impact on increasing harvest.

Yellow Perch Survey Results: The gill net and trawl surveys showed that the yellow perch abundance was down but there was actually an increase in harvest and catch rates. Approximately 11% of parties reached their yellow perch limits. There are not enough data to determine if the new 25 yellow perch bag limit reduced the number of yellow perch harvested. More young perch are being caught in recent surveys, but not many adult fish are caught.

Prey Fish Survey Results: The prey fish population is still down but it increased a little during 2016. Juvenile yellow perch is a significant component of the prey fish population.

Recommendations: No regulation changes are recommended for this year.

Question: Ed Retherford wondered why doesn't the DNR reduce perch bag limits in rivers and cuts, since they are the same population. Frank said that others had brought up that point to him as well.

Response: Dave Fielder indicated that this was discussed but it would complicate enforcement efforts. Randy, indicated that a 25 yellow perch daily bag limit regardless of location could be discussed at upcoming meetings.

Comment: Frank, suggested that all sources of walleye mortality in the Saginaw Bay population should be discussed to determine if more fishing opportunities could be provided for year-round shore and small boat anglers in the rivers.

Overview of the Joint DNR and USGS Round Goby Project (Darryl Hondorp, Supervisory Fishery Biologist, USGS Great Lakes Science Center):

Darryl thanked contributors to the Round Goby Project, and gave a short history of the goby invasion. Goby prefer rocky habitat but they are found on a variety of bottom materials. They will consume quagga and zebra mussels but will often consume native invertebrates. Goby prey upon or out-compete native prey fish species such as the mottled sculpin. Since the goby population has been increasing they have become an important food source for many predators.

Better abundance estimates of the round goby population are needed. The round goby prefers rocky habitat but sampling trawls become entangled in this material so it is not possible to survey these areas effectively with the nets currently in use. The present surveys avoid the rocky areas resulting in high variability in the results. More understanding of the inshore and offshore movements is needed to determine the best time and location to conduct the surveys.

The goal of the project is to use multiple sampling tools to determine the distribution of gobies relative to depth, bottom material, and food availability. Since goby prefer hard surfaces, innovative assessment tools will be tested such as stereoscopic video with computer shape recognition analysis, eDNA, fixed point video, and beam trawl. The project work will begin this spring and is planned for Thunder Bay which has a variety of bottom types including artificial reefs and long term completed surveys for comparisons.

Lake Huron/Lake Michigan Predator Diet Study to assist in managing trout, salmon, walleye and other predators during times of a constantly changing food web (Ed Roseman, Research Fishery Biologist, USGS Great Lakes Science Center).

Frank introduced Ed, and referenced the first predator diet study, and hopes this one is even better.

Ed stated that already over 1000 collection bag have distributed. Money from Coordinated Science and Monitoring Initiative is promised, so it was decided to embark on the study. Since 2002, environmental organizations from the United States and Canada have teamed up each year to assess conditions in one of the five Great Lakes. This year research efforts and funding are focused on Lake Huron.

Pelagic or midwater prey fish such as alewife and smelt are at low levels and last year no alewife were caught in the forage fish surveys. On the other hand, goby abundance has been increasing and this study will assist in showing how well predators are adapting to this new food source. Ed referenced Darryl Hondorp's Round Goby Project which is closely linked to this Predator Prey Diet Study. Together, both studies should provide better estimates of goby abundance and determine if the predators are consuming them.

In the previous study, over 6,700 stomachs were collected with much assistance from anglers. Stocked fish were common in the diets making planting fish a challenge. Often, many invertebrates including terrestrial insects were consumed. In the earlier study, gobies were present in all predators except Chinook salmon.

Ji He, DNR researcher and others are working on food web modeling that requires detailed diet information to determine if the there is enough food available for the existing predators. With lake trout and walleye abundance recovering because of wild reproduction and uncertainty with the changing food web, emphasis is focusing on learning more about how many trout, salmon and other predators the food web can support. This Predator Diet Study is an important part of that effort.

Attached is a fact sheet that explains the Diet Study and how to participate in providing stomach samples. In addition, attached is an instruction photo, sample label (tags) and a list of drop off sites. Anyone can receive this information in electronic form by emailing Frank at krists@speednetllc.com

Lunch Break

Resolution on the proposed commercial fishing statute continues:

After lunch, Ken Merckel read the updated **motion** that stated,

"The MDNR needs to cease the negotiations on the Commercial Fishing Statute rewrite and not resume until a transparent process is in place that will allow input from all stakeholders, not just commercial fishers. In addition, the draft statute needs to be withdrawn from the legislative process until the public review process is

completed. Further, the issue of the Harbor Beach research permit conversion to a license and the backfilling of nets into Saginaw Bay needs to be resolved."

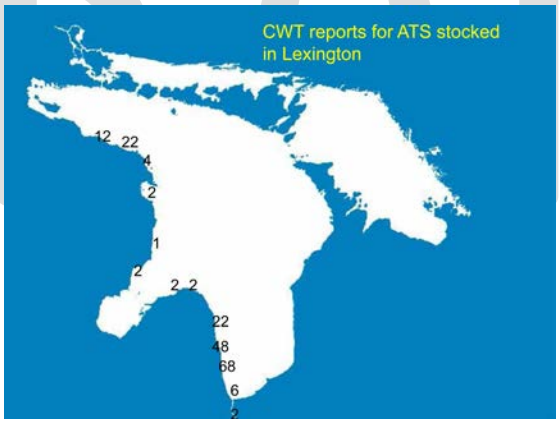
Randy Terrian seconded the motion. Frank then asked for a vote with Committee members present. The results were 10-2 in favor of the motion.

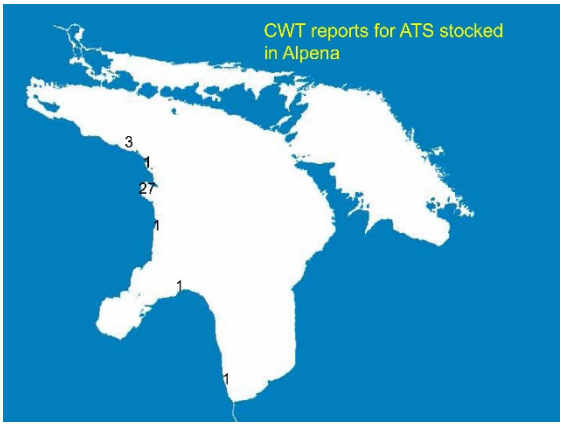
Are trends developing that show where the Atlantic salmon stocked at the various ports are being caught and how well they are surviving? (Aaron Switzer DNR Platte River, Harrietta and Oden Hatchery Manager; Dave Fielder DNR Fisheries Research Biologist and Randy Claramunt, DNR Lake Huron Basin Coordinator).

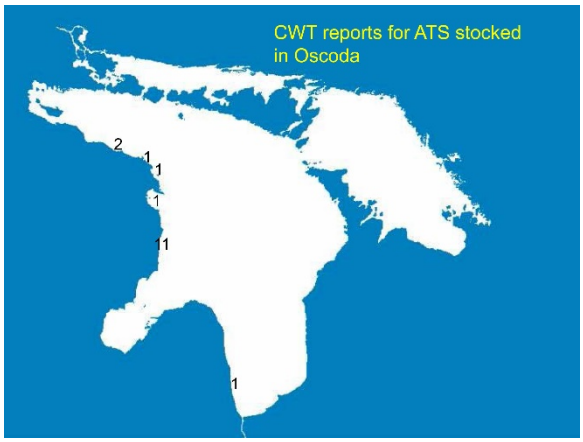
Randy introduced Wally Balcerzak, who is an outdoor writer. Wally said he recently became interested in Atlantic salmon fishery and wanted to explore the possibility of writing about it. He learned the history while talking with Aaron Switzer, Roger Greil, and others and wrote an article with the intent of making it understandable for the public. It should be in the Great Lakes Angler's magazine June or July issue.

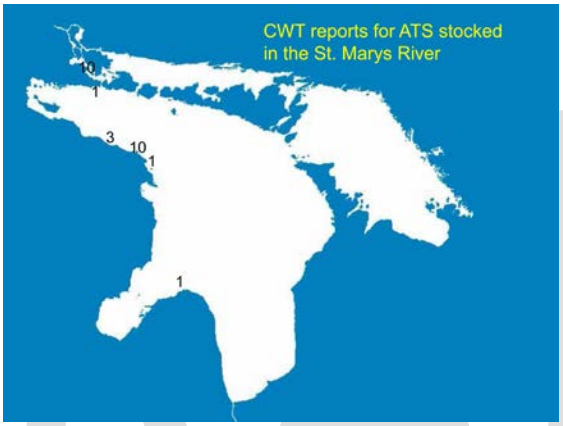
Randy Claramunt encouraged all anglers to provide catch information to Fisheries Division, showing the posters that have been developed requesting assistance from anglers to report their Atlantic catches. The information for reporting the information is attached and electronic copies can be obtained by emailing Frank at krists@speednetllc.com

Randy presented Atlantic salmon catch data obtained from returned heads with Coded Wire Tags (CWT). Lexington stocked fish stood out with good numbers of those Atlantic salmon being caught from Port Huron to Harbor Beach. In addition, many of the Lexington stocked Atlantic salmon are being taken at Presque Isle, Rockport and Rogers City. The following charts show where Atlantic salmon stocked at the various ports with Code Wired Tags (CWT) were caught.









Some of the Atlantics stocked at Alpena have been showing up locally, but have not shown up in other areas. The Atlantics stocked in the Au Sable River have also provided limited returns. The DNR Atlantic salmon stocked in the St. Marys River has shown up in limited numbers in the St. Marys River and in the area from Rogers City to Rockport. Atlantics stocked at Lexington have been showing up much better, and in many other places up and down the lake.

The DNR is looking at various factors that might contribute to the variable returns and poor relative survival to the creel at the different stocking locations. Stocking size differences do not appear to be a large contributing factor. The DNR Atlantic salmon were stocked in the St. Marys River when the water was very cold and Aaron feels a higher temperature might result in better performance of the stocked fish. To accomplish this, the Platte River Atlantic salmon were placed in an unused turbine bay in the St. Marys River near the bay used by Lake Superior State University Aquatic Research Laboratory. The fish will be held in the turbine bay until the water warms and both the DNR and Aquatics Laboratory Atlantic salmon will be stocked at the same time for comparison.

Comment: Randy Terrian suggests that lake trout and walleye predation is the major factor for limited returns of Atlantics stocked in the Au Sable River. He noted that the first efforts were to stock the fish earlier to avoid predators. Recently the higher stocking temperature of 50 degrees Fahrenheit has been targeted, but walleye and lake trout are present and eating large numbers of the stocked fish. He noted that this is extremely frustrating. There is little cover at the stocking location and the fish tend to ball up in one area where they are very vulnerable. It was suggested that one solution to the predation problem might be to stock the fish near but outside of the river along the Lake Huron shoreline.

Comment: Jim Johnson noted that the smolting condition may be critical to movement and survival. Once the Atlantic salmon have smolted there is evidence in the literature that the fish move very quickly offshore so timing of the plants is critical.

Most of the Atlantic salmon caught ranged from 18 to 30 inches with a peak in the 21 to 26 inch range. Fish as small as 8 inches and as large as 36 inches have been caught. Effort was primarily by boat, with some pier and shore fishing. Lexington had a small ice fishery.

Recent losses of Atlantic salmon in the hatchery due to disease necessitated required cuts at the stocking sites. Lexington will receive proportionately less of a cut than other sites due to the good performance of the Atlantics stocked at that location. The St. Marys River site will receive the largest proportional cut.

Aaron Switzer was worried that clipping the fish with the autotrailer might increase the stress resulting in more disease. The autotrailer is only available during warmer weather. A test was done to hand clip part of the fish during cooler weather but there was no difference in outcome so the recommendation is that all fish should be clipped in the autotrailer.

Aaron reported 15,000 fish have already been stocked in the vacant turbine bay in the St. Marys River. This freed up space in the hatchery to spread out in the vacant raceway the 39,000 very large Atlantic salmon destined for Lexington. There are 29,000 fish scheduled to be stocked in the Au Sable and 30,000 scheduled for stocking in the Thunder Bay River. However, these fish are being held at high densities and there may be more mortalities to come. This could mean additional decisions must be made in the future to avoid some of the current difficulties. A decision might have to be made to either raise more smaller fish or fewer larger fish. Aaron said that it can be demoralizing for hatchery personnel to see fish struggle for survival when rearing limits are pushed to the edge.

Question: Aaron was asked why the Atlantics were a bigger size this year?

Response: Aaron said that a contributing factor was the much warmer winter the past two years, after the previous two very cold winters. He reminded everyone that the Platte Hatchery is on surface water. Better hatchery practices have also helped with increased size at stock-out.

Question: Aaron was asked if they had heated water available?

Response: There is some warm water available early in the process to help young fish grow faster, but not later when the Atlantics are larger and need a larger quantity and flow of water. Heating water with boilers is expensive as well. Early in the rearing process, the water originates from springs that must be treated with ultraviolet (UV) light. The bulk of the water eventually comes from Brundage Creek, where the fish are more likely to pick up pathogens. Treating this larger volume of water would take a significant investment installing UV equipment and additional boilers. Ed Eisch said that they do not have near the budget to absorb that kind of investment at this time plus there would be ongoing energy and maintenance costs associated with the new equipment.

Comment: Frank suggested that the stakeholders could assist by encouraging the legislators to support the improvement but first, the Committee would need to know what equipment is needed along with the costs. Ed Eisch mentioned that increasing the egg take may be problematic because of the limited size of the spawning stock in the St. Marys River at the LSSU Aquatics Research Laboratory.

Question: Ken Pletcher reminded everyone that at the beginning of the program suitable stocking locations were being reviewed including the Cheboygan River. He then asked when is a reasonable time to reassess stocking locations and numbers?

Response: Randy Claramunt said we should be looking at stocking decisions constantly, in terms of sites, locations, and timing.

Question: Ken Pletcher also asked about steelhead stocking, and are there similar trends for steelhead post-stocking survival. Randy Claramunt said there is much uncertainty with steelhead, but the plans are to tag all steelhead stocked in Lakes Michigan and Huron next year so that there will be more information available on

the relative contribution from each stocking site.

Comment: Jim Johnson suggested that we should look for a place with the fewest predators possible and stock there. Frank recommended that perhaps stocking Atlantic salmon anywhere around Rogers City or Presque Isle may be a good site considering the return information received up until now. Atlantic salmon from all over the lake appear to be drawn to the area. During the brown trout study, Rogers City had the best return rate of all the sites, which was probably due to the lack of predators.

Comment: Ed Eisch spoke to the timing of the Atlantic stocking, emphasizing that they need to get fish stocked by the time hatchery water is 8 to 10 degrees Celsius to avoid disease problems. Randy Terrian asked how long can the fish be held, and might survival increase if they were held later. Aaron suggested that this is playing with fire, and losses due to holding fish could go up exponentially. Sick fish have to be treated and there is the potential of losing them all if held too long.

Update on the Sea Grant Workshops (Brandon Schroeder, Michigan Sea Grant).

Brandon talked about the upcoming workshop at Oscoda on April 26 and Cedarville on April 27. To be successful, it is important to get the word out about the workshops. The workshops at Port Huron and Bay City had good participation and much input was provided.

Brandon discussed Sea Grant agent Dan O'Keefe's citizen monitoring science effort regarding Chinook salmon in both Lakes Huron and Michigan. The program is called the Salmon Ambassadors and volunteer anglers keep a record of all the Chinook salmon they catch each season. The very interesting results for both lakes and information on how to participate can be obtained at this link: http://www.miseagrant.umich.edu/explore/fisheries/salmon-ambassadors/

There are other opportunities for anglers to assist in collecting information for scientists. The following link will provide the details: http://msue.anr.msu.edu/news/fishing_for_answers_how_you_can_help_great_lakes_fisheries_msg17_okeefe17

Changes to the lake trout regulations in the various districts of Lake Huron (Randy Claramunt, DNR Lake Huron Basin Coordinator)

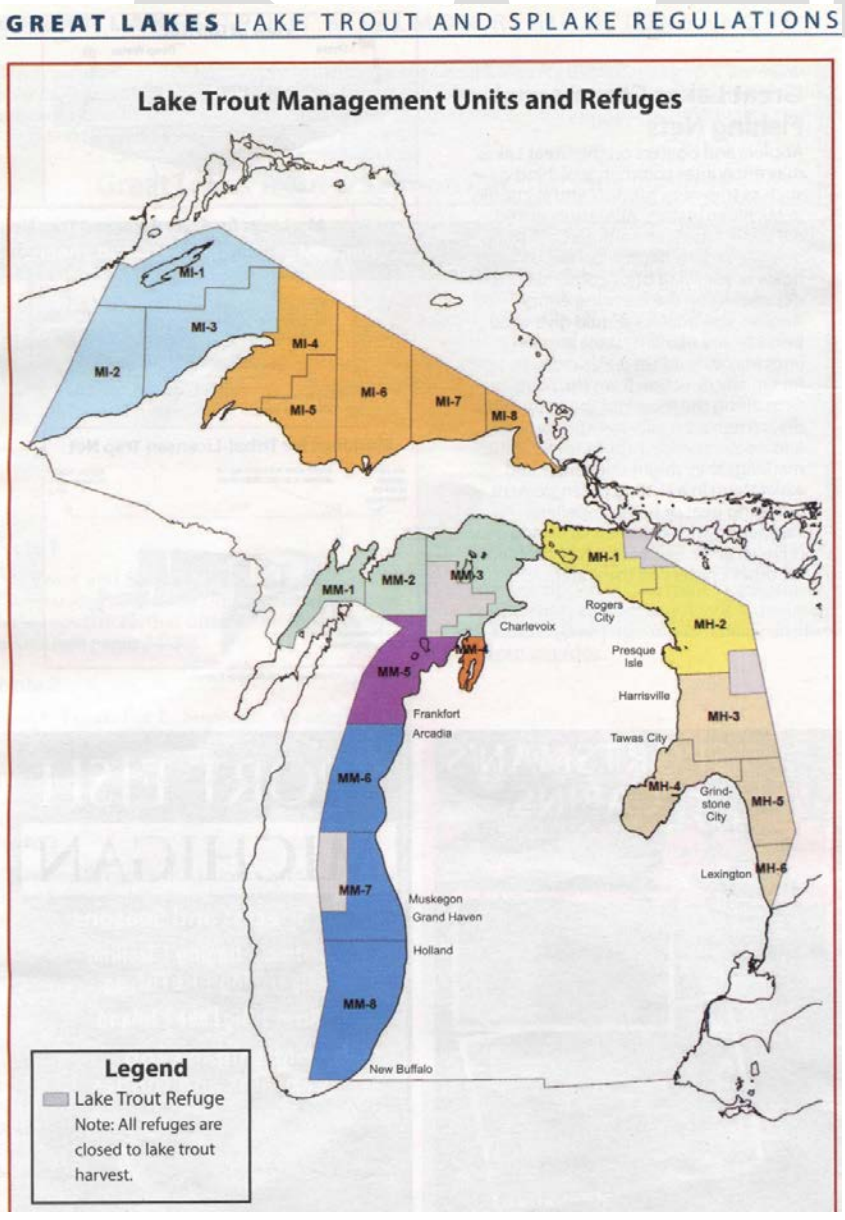
The waters of northern Lake Huron are managed under the 2000 Great Lakes State/Tribal/US Fishing Agreement that is under a federal court decree. During 2015 and 2016, the recreational lake trout quota for Management Unit MH-1, Rogers City to Drummond Island, (see map below) was established at 50, 512 pounds. During the 2015 season, 43,969 pounds of lake trout were harvested by anglers but during the 2016 season the lake trout quota was exceeded by 27,800 pounds since the anglers harvested 78,312 pounds. This large increase was caused by an increase in the lake trout catch rate (easier to catch), the lake trout throwback mortality increased from 15 to 42% and the average size of the lake trout harvested in 2016 increased by 0.7 pounds.

Since the angler's quota for 2016 was exceeded, the 2000 Great Lakes Tribal/State/US Fishing Agreement requires a penalty equal to the overage of 27,800 pounds be invoked so the quota for this season will require that 27,800 pounds be subtracted from the 2017 quota. If the quota for 2017 remains the same as the 2016 quota, this would leave only a 22,712 pound quota in MH-1 for 2017 and make it difficult to have even a 1 fish daily bag limit this season without going over the quota.

Lake Trout Management Unit MH-2 from Rogers City to Black River (see map below) had a much higher lake trout quota during 2016 of 118,750 pounds yet the harvest was only 69,250 pounds. This Unit had

significantly more room for harvest. Since both MH-1 and MH-2 are treated as one unit when the quotas are generated with the biological model, the DNR is approaching the Tribes and US with a proposal to combine both MH-1 and MH-2 and have a single quota established from Drummond Island to Black River. If this proposal is approved, there would be a better opportunity to stay under the quota in both Units. It appears this would enable the anglers stay under the quota for 2017 and for 2018 there is a chance that the bag limit for lake trout could return to 3 fish per day in both units.

As anyone knows that fishes Lake Huron regularly, it is very easy to catch lake trout and it appears that the lake trout abundance has been increasing steadily the last several years. Under the Decree signed in the Federal Agreement, there is a Modeling Subcommittee composed of biologists from the State, Tribes and US that calculate the lake trout quotas for the Treaty Waters each year. In Lake Huron, there has been problems with the model accounting for the amount of wild lake trout produced each year. The fishery is switching from a mainly stocked fishery to all wild reproduction and there are problems determining how many juvenile lake trout are added to the fishery each year. Small lake trout are difficult to sample in the current surveys. Work is being undertaken to correct this problem so it is possible that the quotas may increase. The model is being run over the next couple of weeks so the results should be known soon. There is a possibility that the bag limit for lake trout in MH-1 and MH-2 will stay at 3 lake trout per day. A decision is likely within 30 days.



Comment: Ed Retherford stated that he was part of the lake trout throwback mortality study. Ed says the fishermen are likely over reporting the number of fish that they catch and release. Ed does not agree with combining MH-1 and MH-2 and taking the bag limit cut that MH-1 must take. He thinks there will be a lot of floating fish out there, or he and other boats may just take more people on board so that they can keep more fish. So he doesn't think there will be many fish "saved" by the regulation.

Comment: Another recreational fisherman said he thought it is a disservice that there has not been more communication through this process. Randy Claramunt says that timing was very tight on the MH-1 lake trout issue, and the information was communicated as soon as the overharvest was known. It was noted that if MH-1 and MH-2 are not combined, the fishery in MH-1 would likely have to be shut down stopping people from fishing. These are very difficult choices and if there is a better resolution that anyone can provide then it surely would be considered. It was reiterated that if the Tribes do not agree to the proposal, it may not go into effect. The Tribes did not overharvest in either MH-1 or MH-2.

Question: How are the recreational harvest estimates generated?

Response: Randy replied that the angler harvest numbers are generated based on information gained by the creel clerks. The clerks interview anglers, record the catch including throwback and how long they were fishing. Airplane flights are occasionally used to generate boat counts. Mandatory reporting of the charter boat harvest is also included.

Comment: Frank said that implementing a 1 lake trout per day bag limit in MH-1 would devastate that fishery. Maybe everyone should think about the past and how we got to this point, and the arbitrary nature of the allocation between Tribal fishers and state anglers (12% in MH-1), and what was negotiated to get a reduction of gillnets further to the south. He also said he was hopeful that this bag limit reduction would only be needed for one year if it is implemented.

Comment: Randy recognized that there are difficulties in applying the model results to generate proportional changes in harvest in a given year. The model may predict a large increase in lake trout abundance, but in practice you can only increase the quota by 15% in any given year.

Question: An angler asked if this was just a proposed regulation or if it is already in place, because if you look in the fishing guide, the 3 fish per day lake trout bag limit is listed.

Response: Randy replied that Fisheries Division wanted to act quickly to anticipate a required regulation change to avoid an emergency shutdown of the fishery so the proposed 2 daily lake trout bag regulation change will be presented to the Natural Resource Commission later in the week at their monthly meeting as a notice of potential change. A final decision will probably be made in time for the May meeting if a change is needed. If the Tribes do not agree, the proposal will be withdrawn.

Question: Brad MacNeill of the Alpena Brown Trout Festival asked when we will it be known whether we have to go to the 2 fish bag limit?

Response: Randy said that hopefully it will be known within a few weeks if the Tribes will accept the proposal. Randy added historic perspective to the situation. The negotiators of Consent Decree did not anticipate that both the Chinook salmon and whitefish fisheries would decline dramatically while the lake trout population would rapidly expand.

Question: An angler asked if a slot limit could be used.

Response: Randy replied that applying the new 42% catch and release mortality rate would result in too many released fish dying and the quota would be easily exceeded. He reiterated the hope that if the recreational fishery can stay under the revised quotas for this year the regulations may return to normal in 2018.

Comment: Donna Wesander said that Lake Michigan has gone through many similar situations like this in the past using changing bag limits and size limits to try to stay within the quota.

Lake Trout Season Update for Management Units MH-3, MH-4, MH-5 and MH-6 On a more positive note, because the lake trout population is doing well in lake trout management units MH-3 to MH-6 the lake trout season is proposed to be open the entire year. Since few anglers fish for lake trout from October through December, extending the season should have little impact on the population but it will provide additional fishing opportunities for shore and small boat anglers.

Fisheries and Law Enforcement Manager updates

Dave Borgeson, DNR Northern Lake Huron (NLH) Unit supervisor for Fisheries Division noted that the NLH crew, with help from Fisheries personnel across the state, including the Alpena station, is currently surveying Hubbard Lake, trying to generate a walleye population estimate for the lake. They have caught over 3,600 walleye to date. Fish stocking efforts are in full swing, and several area sites have avian predation hazing efforts associated with them. Dave thanked Ed Retherford for his coordination of these efforts and Randy Terrian as a bird hazer for his group's flexibility to changes in stocking schedules caused by difficulties with some of the trucks in the fleet.

Ed Eisch, DNR Hatchery Production Manager relayed that capital improvements to Fish Production facilities are on the fast track. They are in the conceptual design phase for hatchery improvements and are really pushing to get this done ASAP. The Arctic Grayling initiative is ongoing, with four different core groups addressing different aspects of the initiative. Ed is part of the fish production core group. They have pushed back the Arctic Grayling egg procurement phase until 2018. Hatchery trucks are on the road this time of year, so you may see them heading all over the state stocking fish. Also, egg take operations are occurring, with the steelhead egg take at the Little Manistee weir ongoing, and the walleye egg take in Little Bay de Noc starting. The Muskegon River walleye egg take was completed.

Ed Roseman, Unites States Geological Survey (USGS), Great Lakes Science Center, explained to the Committee that 2017 is the year the Coordinated Science and Monitoring Initiative (CSMI) will focus on Lake Huron. The goal of this program is to survey the entire food web of Lake Huron. This is a large effort involving many agencies. Steve Pothoven, Research Scientists from the NOAA - Great Lakes Environmental Research Laboratory is one of the major contributors in this initiative and has a proposal that is attached. Electronic copies of this proposal can be obtained by emailing Frank at krists@speednetllc.com

Jim Baker, DNR Fisheries Division Southern Lake Huron unit supervisor said that his crew has finished walleye spawning run tagging operations. He noted that two fish over 16 pounds were tagged this year. Again this season, fish were tagged in multiple rivers. Eggs have been taken from Muskegon River walleye, so walleye fry will be in the rearing ponds soon. Stocking efforts are getting in full swing, as are cormorant hazing activities. Creel clerks are also being deployed, so those surveys are now in full swing.

Donna Wesander, DNR Fisheries Division, said all charter fishing results for 2016 are now available on web. If anyone has any questions concerning the charter results, they should contact Donna. She also mentioned that several efforts are being made to digitize data reporting in the Fisheries Division and it appears that charter fishing harvest data will move to online reporting soon.

Lt. David Shaw, DNR Law Enforcement, is hopeful that five boat captains will remain part of the budget for the Great Lakes Enforcement unit, along with a trailer able boat with a gillnet lifter that will allow for a quicker response. Aquatic Invasive Species (AIS) enforcement and an educational blitz is planned this year. The effort will include the New Zealand mud snail monitoring effort.

Dave Fielder, DNR Alpena Fisheries Research Station Biologists, said the large spring gillnetting effort tops their list of priorities currently.

Seth Herbst, DNR Fisheries Division's Aquatic Invasive Species Coordinator, briefed the Committee as to the status of New Zealand mudsnail. The first detection occurred in 2015 and they are currently looking at the snail's invasion dynamics in the Pere Marquette River. There is also a citizen-science effort on the Au Sable River near Grayling. Early detection for mudsnails is a priority, with current populations known to occur in the Boardman, Pere Marquette, and Au Sable rivers. Seth also mentioned the invasive carp challenge aimed at finding solutions to prevent introductions of big head and silver carp into the Great Lakes. The Governor's office allocated one million dollars to promote people to look for innovative solutions to prevent movement of these carp species. This initiative is likely to launch soon. A company has been selected to manage this challenge. Seth also said that they are looking at eDNA approaches to increase detection capabilities for Asian carps in other waters. Seth highlighted the fact that they have a website everyone can visit to obtain more information on invasive species http://www.michigan.gov/invasives/

Nick Popoff, DNR Supervisor of Fisheries Division's Aquatic Species and Regulatory Affairs unit, said they too, have a lot of invasive species work ongoing. Nick praised Lt. Shaw's unit's work on invasive species, including their outreach and education efforts. Nick said the President's budget has cuts targeting work within the Great Lakes. Nick emphasized the importance of the work that has been funded by the federal government in recent years. Nick also mentioned the mandatory bass tournament registration that began last year will be expanded to mandatory registration of tournaments targeting any species in coming years.

Cormorant Program Update:

Randy Claramunt reminded the Committee that the DNR does not have authority to manage cormorant populations, so there is no ability to have lethal control for any potential public resource damage caused by the birds. The only control is for aquaculture facilities, mostly in southern states. The DNR put in a request to kill 3,800 cormorants, but that request was denied by the USFWS. Pat Lederle is the DNR Wildlife Division point person, and Fisheries Division is in consultation with Pat on matters regarding cormorants.

Frank urged attendees to contact US Legislators regarding the issue of cormorant management, and mentioned the letter that Jim Johnson drafted and forwarded to legislators urging the resumption of cormorant control. A legislative representative is scheduled to attend the Cedarville stakeholder workshop on April 27. At the Port Huron meeting, attendees voiced that they were upset with cormorants eating stocked fish. Frank reiterated the need for concerned persons to contact their US Congressional Delegation and have them urge the US Fish & Wildlife Service to update the required Environmental Impact Statement and to return to federal court to have the cormorant program reauthorized.

3:05 Meeting Adjourned

Next meeting Dates for 2017
Thursday June 22, 2017
Wednesday October 11, 2017

2017 Lake Huron Predator Diet Study

We need diet information from angler-caught predators during 2017. This is an important year. In offshore waters, there will be very few alewife, some rainbow smelt, but chubs should be abundant. We are also interested in the role that round gobies serve in the Lake Huron foodweb, because they were abundant in diets from the previous study that anglers helped conduct in 2009-2011 and appear to be a dominant benthic prey species. Our goal is to learn how predators are responding to this novel forage base. Offshore, lake trout are continuing to reproduce naturally, and show signs of recovery. The 2009-2011 diet study showed high consumption of round goby by lake trout. In Saginaw Bay, we have a growing walleye population and we want to estimate their predatory demand, especially on yellow perch. We are asking anglers to freeze stomachs from the fish that they creel, because angler caught fish are the only way we can get data this year from Michigan waters.

Angler caught fish are great sources of information. Potential biases are accounted for in the analysis. However, there is one bias that can ruin a study. When you fish, we need you to decide before you go out if this will be a day that you will collect stomachs. Then collect stomachs from all fish you keep whether they are full or empty. It will hurt the study if you decide to collect data only when you perceive something interesting or unusual. What we need are data from all the fish you catch on a trip regardless of what they did or did not eat.

It is very important to keep samples cold to slow digestion until it can be stopped by freezing. Carry plenty of ice. Keep captured fish on ice, and it helps to keep stomachs on ice until you can get to a freezer. Otherwise even freshly consumed prey may be well digested by the time you get home. This increases the proportion of unidentifiable prey in the study and reduces our ability to determine how predators are responding to changes in the forage base. Think COLD!

Instructions: When you clean fish, place the entire stomach in a plastic bag, fill out the tag and place it inside the bag. Use a pencil so the writing will not bleed. Add a little water to prevent freezer burn, and then freeze it.

There may be cases where prey fall out of the stomach, or aren't in the stomach. If fish regurgitate prey, the stomach spills open, or there is a prey fish tail sticking out of the mouth, save it anyway but try to be as complete as you can.

How to fill out the tags:

Species: Record the species you caught.

Chinook Salmon – CHS	Lake Trout – LT	Atlantic Salmon – ATS
Pink Salmon – PS	Coho Salmon – COHO	Steelhead - STEEL
Walleye – WAE		

Length: Measure total length in inches, mouth closed, tail pinched.

Putting the fish over a yardstick is the best way, but a tape measure works fine.

How to fill out the tags continued:

Location: Record location on the tag, and you can write on the back. Be as specific as you can. A good way to do this is to record the distance and direction from a recognized port, e.g. "8 miles NE of Port Austin". You could also record the feature you were fishing, e. g. "Merkle Reef ' or "Sturgeon Point". Be sure to note if you were fishing in inner or outer Saginaw Bay. The inner bay is inside a line running from Point Lookout to Sand Point; the outer bay border would be a line running from Au Sable Point to Point aux Barques.

Depth: If you can, try to record the total depth and the depth below the surface where the fish was captured. It may be hard to do this, but it provides much useful information about the food being eaten.

Frequently Asked Questions (FAQ's)

Why should I do this?

There is consensus among the biologists that predator diet information is important, and needed. It is logistically impossible for us to get the sample sizes we need from Lake Huron. Even if we had the ability to put all our boats on the water with gill nets, we could, at best, sample only limited locations at specific times. This is the best way to get predator diet data from the entire lake (north to south) and across the fishing season. It is also a way for anglers to make a difference and participate directly in efforts to better understand Lake Huron.

What species should I save?

Chinook (king) salmon, coho, Atlantic salmon, pink salmon, lake trout, and walleyes.

Do you need the whole fish?

No! We only want a bag with the stomach and the tag.

I caught a fish whose stomach was too full for a single one quart bag. What do I do?

Open it up and divide the stomach contents among bags. Duplicate the information on the tag, and make a note on the tag that there are multiple bags per fish. A good way to do this is to write 1 of 2, 2 of 2, etc.

I caught a fish that was obviously empty. Do you really want it?

Empties are important! The fish that are not eating can tell us a lot. So save all stomachs whether they look empty or full.

I caught a fish that looked like it ate a bunch of beetles. Do you still want it?

Yes. Fish with unusual diets are just as important as those with traditional diets.

How will I get the fish to you?

We will pick them up, or you can drop them off with volunteers, or at strategically placed freezers (see attached list of drop off locations). Michigan DNR creel clerks are also assisting with sample collections, and you can give samples to them.

I only fish once or twice year. Should I participate?

Absolutely! Every fish we can get adds to the database. The three lake trout and two walleyes you give us may be the only samples we get from that location at that time. As long as you are following the protocol, your data are valid and important.

We caught so many fish that there was not time to collect stomachs from all of them. What should we do?

Divide the catch in half, and flip a coin to randomly select the group that will be processed. Any sort of truly random sampling can be used to sub-sample. Just don't pick all the big ones, all the small ones, or the ones that look like they have eaten.

We had a power failure and the stomachs thawed for a couple of hours. Are they ruined?

Probably not. The contents will be harder to work with, and the prey may be more difficult to identify, but they are likely to be useful.

Are USGS and MDNR collecting fish?

We will visit several tournaments. MDNR creel clerks will help out as well. However, a study like this was done before in the 1980's and 2009-2011 when most of the fish came from anglers and charter captains!

What if I run out of tags or bags?

Call Ed Roseman at 734-214-7237 or email eroseman@usgs.gov to request more. Be sure to include your full mailing address and zip code. We will mail you more.

How will I be informed about results?

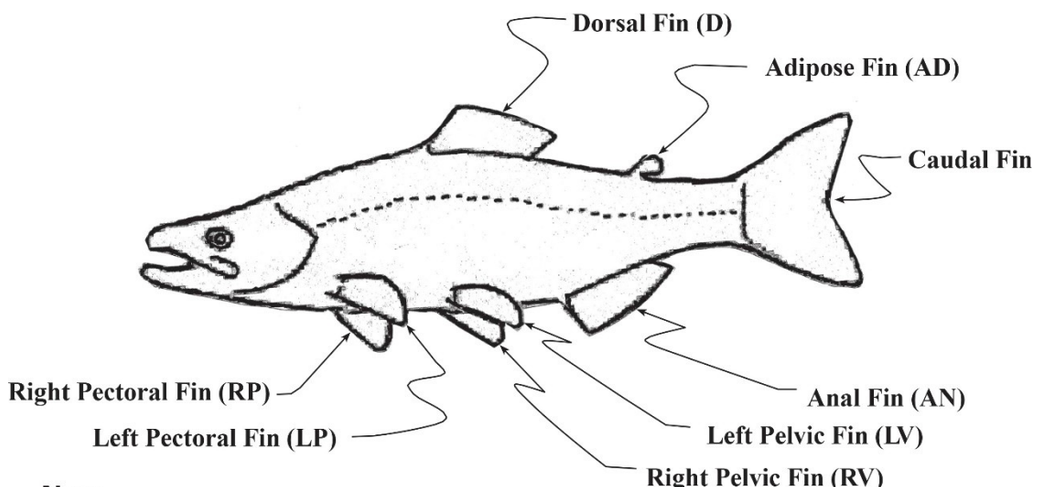
We will develop an email contact list and provide updates of our progress throughout the season. The data will be analyzed during the fall and winter, and results will be presented at the various meetings and workshops held during 2017-2019.

ATTENTION ANGLERS

Atlantic Salmon Catch Information Needed

Michigan DNR and Lake Superior State University have been stocking Atlantic salmon in Lake Huron and the St. Marys River. Fins on these fish may be missing, which indicates that they are hatchery fish, and the unique fin clips allow the DNR to identify their stocking year and location. We are asking anglers to report all (clipped and unclipped) Atlantic salmon catches to the DNR to help us better manage this species. Please include clear photos of both sides of the fish. Information can be sent to: **(Tim Cwalinski, 989-732-3541 or cwalinskit@michigan.gov)**.

Names of Fish Fins and Their Abbreviations in Parenthesis



Note:

Marked fish can have several combinations of fins clipped and missing but fish marked with coded wire tags have the adipose fin clipped.

** Fish that have the adipose fin clipped usually have a coded wire tag in the nose. If the fish is kept, submit the head and harvest information to the DNR.

Information Needed: Location Caught, Date, Boat/Shore, Length, Weight, fin clip if known, photo.

Recent Atlantic Salmon Stocking in Lake Huron

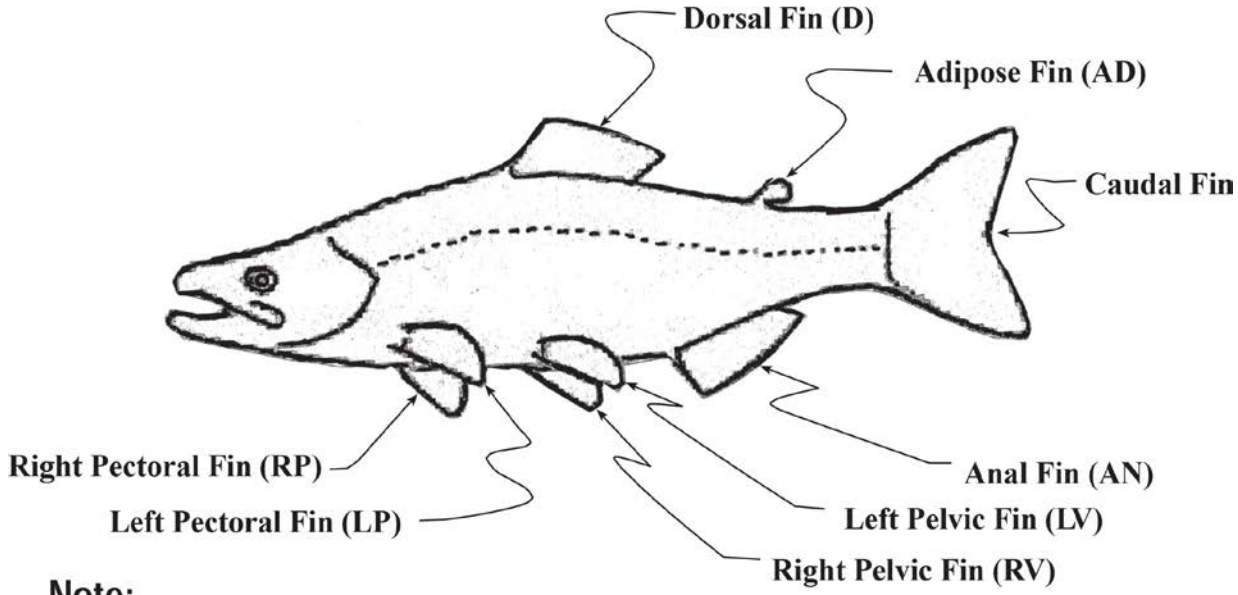
Number of spring yearling Atlantic salmon stocked by the DNR and LSSU into Lake Huron and the fin clips

	St Marys River LSSU		St Marys River DNR		Au Sable River		Thunder Bay River		Lexington Harbor		Whitney Drain		Total	Total	Grand Total
	Number	Fin	Number	Fin	Number	Fin	Number	Fin	Number	Fin	Number	Fin	for	for	for
Year	Stocked	Clip	Stocked	Clip	Stocked	Clip	Stocked	Clip	Stocked	Clip	Stocked	Clip	LSSU	DNR	Lake Huron
2010	26,301	LV									12,689	None	26,301	12,689	38,990
2011	31,100	RP	21,742	None									31,100	21,742	52,842
2012	35,230	RV	35,120	None									35,230	35,120	70,350
2013	35,000	LP	35,000	AD	30,000	AD	20,773	AD	15,092	AD			35,000	100,865	135,865
2014	40,908	LV	50,659	AD	35,860	AD	25,000	AD	19,584	AD			40,908	131,103	172,011
2015	39,907	RP	43,753	AD	36,984	AD	39,862	AD	39,873	AD			39,907	160,472	200,379
2016	36,790	RV	41,661	AD	47,218	AD	37,883	AD	33,091	AD			36,790	159,853	196,643
2017															

Note: fish with AD clips after 2013 have coded wire tags in their snout which indicates stocking site and date. Please save and freeze these heads for the DNR.

Update: April 3, 2017

Names of Fish Fins and Their Abbreviations in Parenthesis



Note:

Marked fish can have several combinations of fins clipped and missing but fish marked with coded wire tags have the adipose fin clipped.

Project Title: Does spatial structure of the aquatic food web differ between nutrient rich and nutrient poor areas of Lake Huron?

Principal Investigators: Vanderploeg, Rutherford, Pothoven, Mason, Anderson, and Stow

Lead Agency: NOAA GLERL

Collaborating Agencies: Cooperative Institute of Limnology and Ecosystem Research University of Michigan (Technician support and glider deployment)

Funding Requested: $194,900

Lake Partnership Science Priority Addressed: "Determination of nutrient/energy flows from tributaries → nearshore → offshore." In addition, addresses the priority of the larval fish bottleneck.

Project Description:

Field sampling design:

Previous work in Lake Michigan and Lake Huron has shown that the food web—from microbes to fishes—is highly spatially organized over the diel cycle and across seasons. These studies have revealed extreme spatial organization of the lower food web, with larval fishes and zooplankton inhabiting narrow vertical layers between the metalimnion and hypolimnion. These pattern can vary radically horizontally (nearshore to offshore), vertically, between day vs. night, and across seasons.

We propose to expand upon our recent work in Lake Michigan (CSMI 2015) and past work in Huron (2012) to determine fine-scale food-web structure and function from phytoplankton to fishes along a nutrient-rich transect (from inner Saginaw Bay out to the 65-m deep Bay City Basin) and along a nutrient-poor transect (from inner Thunder Bay out to the Thunder Bay basin) during May, July, and September. We will collect **additional samples of fish larvae and zooplankton along both transects in June to help estimate larvae growth, diet, density and mortality and to identify recruitment bottlenecks.** The Saginaw River is the highest loader of P into Lake Huron. We expect that structure and function of the food will vary along a nutrient gradient of very high P to the nutrient-poor regions of the lake; therefore, we will sample along a transect from the high P concentrations in Saginaw Bay to the low P concentrations of Lake Huron proper. We expect the deep site in the Thunder Basin will be even more oligotrophic than the Bay City Basin. This approach is very similar to our successful work in Lake Michigan but also includes examination of contrasting nutrient-rich and nutrient poor regions.

We propose to use a full range of tools —many of them unique to GLERL—to sample fine-scale distributions (day and night) and the factors that affect them:

- Finite Volume Coastal Ocean Model (FVCOM): to model advection by lake currents of nutrients, zooplankton and fish larvae from nearshore to offshore areas.
- Plankton Survey System (CTD, laser optical plankton counter, calibrated fluorometer, CDOM, scatterometer, PAR on V-fin) run simultaneously with fisheries acoustics. (We calibrate the optical plankton counter with net tows to define spatial distribution to major zooplankton taxa and the fluorometer with grab samples measured by extraction).
- Fisheries acoustics to measure the size structure, abundance and spatial distribution of pelagic fishes

- UV radiometer (necessary for understanding vertical distribution of plankton)
- MOCNESS (Multiple Opening-Closing Net Environmental Sampling System) with strobe to increase sampling efficiency of *Bythotrephes*, *Mysis*, and larval fishes. Larval fishes will be sampled in the inner bay, outer bay and Lake Huron proper along both transects.
- FluoroProbe (in situ spectral fluorometer) to measure vertical profiles of algal classes
- Grab samples: nutrients, C:N:P seston ratios, dissolved organic carbon, and size fractioned chlorophyll (to evaluate size structure of phytoplankton available to zooplankton).
- Bottom and mid-water trawls to sample fishes to calibrate acoustics, and for diet and energy density estimates (focus will be a deep site in the Thunder Basin and Bay City Basins and in inner and outer Saginaw Bay).
- Small vessels will be used in the inner bays, while the Laurentian will be used to sample in the outer bay and in Lake Huron proper.
- Slocum Glider will be deployed for a total of 16 weeks to monitor changes in temperature, Chl, CDOM, and PAR within outer Saginaw Bay and the Main Basin. Deployment times and coverage will be coordinated with other glider deployments by EPA ORD and/or USGS, spatial cruises, and periods of expected higher nutrient loads. When possible, we will also coordinate with weekly hyperspectral flyovers already scheduled for Saginaw Bay. Leveraging existing support from CILER, the data will be processed using standard methods and then archived and disseminated through the NOAA Integrated Ocean Observing System's Glider Data Assembly Center and the Great Lakes Observing System data portal no later than 2019.

Nutrients and FVCOM modeling of passive particle transport:

Nutrient loading will be determined using the most recent nutrient loading models for Saginaw Bay and in-situ concentrations determined from samples collected by NOAA GLERL personnel through another project. Dispersal of nutrients and other passive particles (zooplankton, fish larvae) from nearshore to offshore will be determined using FVCOM. Measurements from the Glider will help track the impacts of nutrient loading from Saginaw Bay.

Larval fish density, growth, mortality and recruitment bottleneck details:

Larval fish will be collected in replicated net tows during May, June, and July in inner and outer Saginaw Bay, Thunder Bay, and in the main basin in Lake Huron. In inner Thunder Bay and Saginaw bay, larvae will be collected with neuston and bongo nets in May, June and July using a small boat (Cyclops, 41', 55'), and in the outer bay and main basin, larvae will be collected with MOCNESS and neuston nets in May, June and July on the Laurentian. Zooplankton biomass will be sampled in all areas with vertical lift hauls and by PSS in the outer bay and main basin. Larvae will be identified, measured, and densities estimated from volumes filtered. Larvae diets will be quantified by examination of larvae stomach contents, and prey selectivity indices calculated. Larvae otoliths will be extracted and increments counted to estimate larvae age and growth rate. Cohorts of larvae hatched within the same week will be identified, and their mortality rates estimated from changes in density with age. Cohort-specific larvae growth and mortality rates will be related to temperature and zooplankton prey biomass estimate to evaluate if there is a recruitment bottleneck in the larval stage. Advection of fish larvae by lake currents

from putative hatch sites to capture sites will be simulated by NOAA hydrodynamics models to determine the role of lake currents in larvae dispersal. Densities of fish larvae will be compared to densities of larvae caught by other agencies in Saginaw Bay and Thunder Bay in April and early May (US FWS), to densities on nearshore to offshore transects north and south of Saginaw Bay in May and July (USGS-GLSC, EPA); and to juvenile densities sampled by USGS-GLSC.

Plan to analyze samples:

- PSS system results will be processed within 1 month of collection and made available on our web site.
- Nutrients, chlorophyll, zooplankton and larval fish samples will be analyzed within 1-2 years of collection.

Plan to report results

- Results will be presented at meetings within one year after collection as well as at appropriate SOLEC meeting or in SOLEC reports
- First major manuscripts will be published within 2 years of sampling.

Linkages to base agency programs:

This project will allow us to compare Lake Huron to our major base funded program in Lake Michigan as well as results of CSMI Lake Huron 2012 and CSMI Lake Michigan 2015. Although we do not have an ongoing base funded effort now on open Lake Huron, GLERL management agreed to transfer funds and efforts from our spatial program in Lake Michigan, including the Federal FTE equivalent worth $493,882 distributed among 6 PIs and 4 support staff (for cruises, zooplankton, nutrients, models and other data analysis) as well as providing $137,000 for supplies, CILER technical staff, and ship support to augment our request to GLRI (See budget table below). Our work on Saginaw Bay will also leverage our presence there in GLERL's HABs program, including hyperspectral flyovers.

Lessons Learned:

Our work in Lake Michigan and Huron has shown the food web is highly spatially organized over the diel cycle in vertical and horizontal space and across seasons, and understanding availability of food available to fish larvae depends on knowledge of this structure and the factors driving the structure. Important drivers of the system include light, UV radiation, diel vertical migratory response of the zooplankton community as it relates to their vulnerability to predation from both visual invertebrate (*Bythotrephes*) and vertebrate predators (fish) and non-visual invertebrate predators (*Mysis*). We learned the Lake Michigan food web has been radically changed by the dominance of picoplankton that affects production of the whole food web. We have succeeded in learning how to use a broad array of observation tools simultaneously to describe the system, which is unparalleled and necessary to understand Great Lakes food webs.

Budget showing total cost, GLERL's contribution to project, and amount requested from CSMI

Item	Total Cost	GLERL	CSMI
GLERL Federal Salaries	$493,882	$493,882	
Laurentian[1]	$115,500	$56,000	$59,500
Small vessel[2]	$12,500	$1,300	$11,200
Batteries for Glider	$15,000		$15,000
Technical support[3]	$90,000		$90,000
Acoustics Software license	$8,000	$8,000	
Supplies	$18,000	$4,000	$14,000
FluroProbe calibration	$2,000		$2,000
Field Travel	$3,700	$1,500	$2,200
Administrative Travel	$1,000		$1,000
TOTAL	$757,782	$564,682	$194,900

[1] Laurentian cost: $3.5K per day for 33 days

[2] Small vessel: $800 per day for 14 days (6 days for Glider support) and 5501 vessel: $1.3K per day for 1 day

[3] CILER UM technical support ($75K for federal employee lost to retirement; $15K for FVCOM nutrient and larval fish dispersal)

Ship Narrative: (See conceptual figure for approximate locations):

Trawling and diet work, **Pothoven lead**:

- Inner Saginaw Bay: *three 12-h days (1 in May, 1in July, 1 in September) with small boat* (Cyclops, 41', 55' would all work) for trawling and diet work
- Outer Saginaw Bay-Bay City Basin transect plus deep site in Thunder Basin: **nine 24-h days on Laurentian** (3 in May, 3 in July, 3 in September)

Long and Short Transect work, **Vanderploeg/Rutherford leads**:

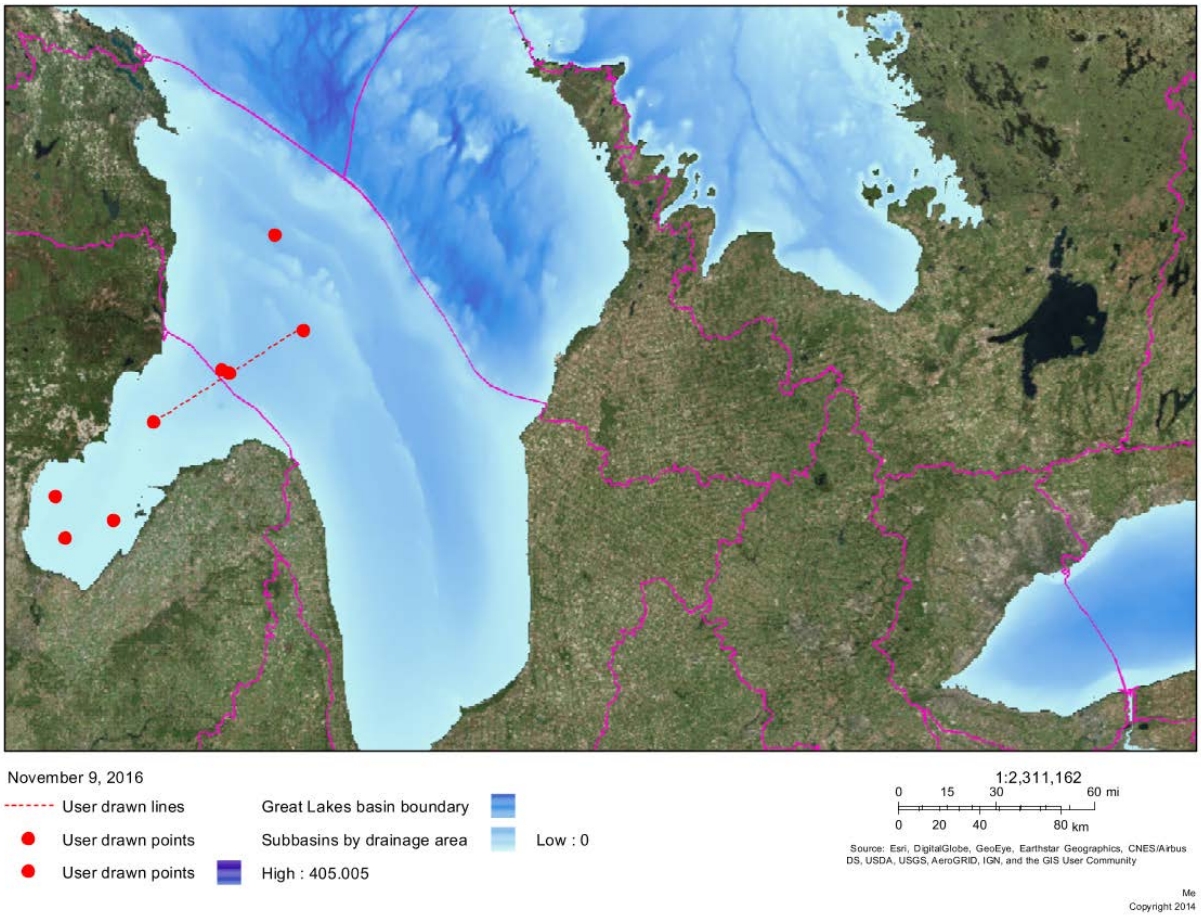
- Long PSS-acoustics transect (day/night) from outer Saginaw Bay to Bay City Basin and short diel transects at 65-m deep site in Bay City Basin and 86-m site in Thunder Basin. MOCNESS will be used to sample larval fish at each site. Laurentian **21 24-h days on Laurentian** (7 days in each of May, July, and September) assuming good weather. We would like to block out 30 days total to allow for weather days.

Special larval fish sampling by **Rutherford** that will be in addition to Vanderploeg's spatial cruises in May, July, and September that focuses on deeper sites and total food web:

- *Inner Thunder Bay: 3 12-h days (1 per day in May, June, and July) on small boat* (either Cyclops, 41', or 55') using bongo sampler, neuston net, and vertical zooplankton nets to pick up Lake Whitefish sampling from where US FWS left off earlier in year;
- *Inner Saginaw Bay: 3 12-h days small boat* (1 per day May, June, and July);

- Outer Saginaw Bay and main basin using MOCNESS on Laurentian in June: **3 24-h days** on transect from outer Saginaw Bay to main basin (Bay City basin), plus Thunder basin.

GLERL sites


November 9, 2016
User drawn lines
User drawn points
User drawn points
Great Lakes basin boundary
Subbasins by drainage area
High : 405.005
Low : 0
1:2,311,162
0 15 30 60 mi
0 20 40 80 km
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Me
Copyright 2014

Michigan Department of Natural Resources
Fisheries Division

CODED WIRE TAG RECOVERY

Complete using pencil.

Name of Angler (Last, First, Middle Initial)		Date Caught	Capture Coordinates Lat. Long.	Grid No.
Street or Route Address	Apt. #	Capture Port & Location		
City, State, ZIP		**Capture Lake** ☐Superior ☐Michigan ☐Huron ☐Erie ☐Ontario ☐Other:		
Would you want a reward lure? *(if applicable)* ☐Yes ☐No		**Source** ☐Sport ☐Charter ☐Census ☐Commercial ☐Weir ☐Other:		
Species *(check one)* ☐Chinook Salmon ☐Atlantic Salmon ☐Lake Trout ☐Coho Salmon ☐Rainbow (Steelhead) ☐Brown Trout		**Length** *(nearest 1/10 in.)*	**Sex** ☐Male ☐Female ☐Unknown	
		Weight *(nearest 1/10 lb.)*	**Maturity** ☐Mature ☐Immature	

Place data in a bag with head and freeze. Take bag to the nearest "head" drop site or contact:

CHARLEVOIX GREAT LAKES STATION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES
96 GRANT STREET
CHARLEVOIX MI 49720

Telephone: (231) 547-2914

DNR USE ONLY

Management Unit	OTC	Scales	ID Number	Collector	Length (mm)	Weight (gm)

PR8550 (Rev. 01/12/2007)

Michigan Department of Natural Resources
Fisheries Division

CODED WIRE TAG RECOVERY

Complete using pencil.

Name of Angler (Last, First, Middle Initial)		Date Caught	Capture Coordinates Lat. Long.	Grid No.
Street or Route Address	Apt. #	Capture Port & Location		
City, State, ZIP		**Capture Lake** ☐Superior ☐Michigan ☐Huron ☐Erie ☐Ontario ☐Other:		
Would you want a reward lure? *(if applicable)* ☐Yes ☐No		**Source** ☐Sport ☐Charter ☐Census ☐Commercial ☐Weir ☐Other:		
Species *(check one)* ☐Chinook Salmon ☐Atlantic Salmon ☐Lake Trout ☐Coho Salmon ☐Rainbow (Steelhead) ☐Brown Trout		**Length** *(nearest 1/10 in.)*	**Sex** ☐Male ☐Female ☐Unknown	
		Weight *(nearest 1/10 lb.)*	**Maturity** ☐Mature ☐Immature	

Place data in a bag with head and freeze. Take bag to the nearest "head" drop site or contact:

CHARLEVOIX GREAT LAKES STATION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES
96 GRANT STREET
CHARLEVOIX MI 49720

Telephone: (231) 547-2914

DNR USE ONLY

Management Unit	OTC	Scales	ID Number	Collector	Length (mm)	Weight (gm)

PR8550 (Rev. 01/12/2007)

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

Location _____

Depth _____

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

Location _____

Depth _____

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

Location _____

Depth _____

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

Location _____

Depth _____

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

Location _____

Depth _____

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

Location _____

Depth _____

Lake Huron Diet Study

Species _____

Length (inches) _____

Date Caught _____

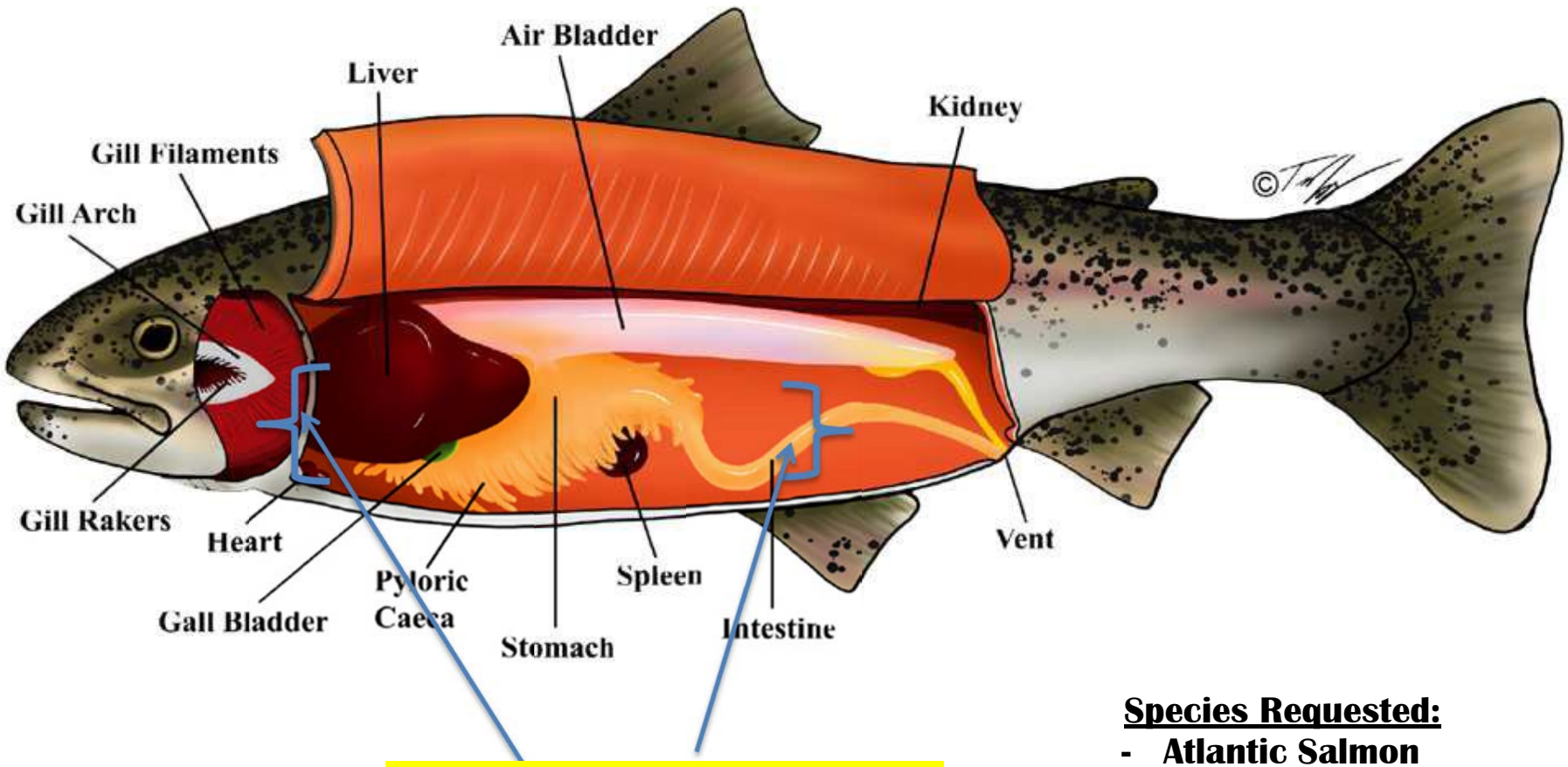
Location _____

Depth _____

Number of Atlantic Salmon Reported Caught by Anglers During 2016 at the Various Ports

- 290 St. Marys River
- 1 St Igance
- 2 Les Cheneaux
- 36 Detour
- 2 Manitoulin Island
- 8 Cheboygan
- 42 Rogers City
- 111 Presque Isle
- 18 Rockport
- 37 Alpena
- 2 Harrisville
- 17 Oscoda
- 4 Tawas
- 5 Port Austin
- 5 Grindstone City
- 30 Harbor Beach
- 76 Port Sanilac
- 79 Lexington
- 17 Port Huron
- 6 St. Clair R.
- 1 Saugatuck
- 1 Owen Sound

Predator Fish Stomach Removal



Species Requested:

- Atlantic Salmon
- Chinook Salmon
- Coho Salmon
- Pink Salmon
- Lake Trout
- Rainbow Trout / Steelhead
- Walleye
- Black Bass
- Northern Pike

ANGLERS:

- Record complete information on supplied tags/forms
- Note the catch location using the nearest major port or nautical land mark
- Ice down or freeze samples as soon as possible

Below is a list of drop-off sites for coded wire tagged fish heads and USGS stomachs for Lake Huron.

Sault Ste. Marie – City fish cleaning station at the Aune Osborne municipal boat launch. DNR freezer is planned to be placed here in the spring/early summer 2017. Coded wire tag forms/bags and bags/tags for stomachs are available in the freezer. For more information call DNR creel clerk Mike Ferguson at (517) 512-5988.

Drummond Island – For drop-off information and forms for coded wite tagged fish & USGS stomachs call creel clerk Mike Ferguson at (517) 512-5988.

Detour – City fish cleaning station – the freezer is for fish gut disposal, however inside the freezer is a 5 gallon DNR bucket for the collection of coded wire tagged fish heads and stomachs. Coded wire tag forms/bags and bags/tags for stomachs are available in the freezer. For more information call DNR creel clerk Mike Ferguson at (517) 512-5988.

Cedarville/Hessel – For drop-off information and forms for coded wire tag fish & USGS stomachs call DNR creel clerk Mike Ferguson at (517) 512-5988.

St. Ignace – City fish cleaning station located at city marina and public boat launch – the freezer is for fish gut disposal, however inside the freezer is a 5-gallon DNR bucket for the collection of coded wire tagged fish heads and stomachs. Coded wire tag forms/bags and bags/tags for stomachs are available in the freezer. For more information call DNR creel clerk Kynzie House at (517) 896-2495.

St. Ignace – Straits State Park office/garage contains a freezer for the drop-off collection of coded wire tagged fish heads and USGS stomachs. Forms are available at the city boat launch cleaning station. For more information call DNR creel clerk Kynzie House at (517) 896-2495.

Cheboygan – Fish cleaning station at Marina and boat launch near the mouth of the Cheboygan River. Coded wire tag forms/bags & bags/tags for USGS stomachs are available in the freezer. For more information call DNR creel clerk Kynzie House at (517) 896-2495.

Rogers City – City fish cleaning station at marina. Coded wire tag forms/bags and bags/tags for USGS stomachs are available in the freezer area. For more information call DNR creel clerk Julie Shafto at (517) 899-9813.

Alpena – City fish cleaning station at marina. Coded wire tag forms/bags and bags/tags for USGS stomachs are available in the freezer area. For more information call DNR creel clerk Lee Martin at (517) 512-9264.

Harrisville – Harrisville State Park office/garage contains a freezer for the drop-off collection of coded wire tagged fish heads and USGS stomachs. Forms are available by calling DNR creel clerk Lee Martin at (517) 512-9264.

Oscoda – Wellman's Party and Bait store at 410 State St. in Oscoda contains a freezer for the drop-off collection of coded wire tagged fish heads and USGS stomachs. Forms are available by calling DNR creel clerk Lee Martin at (517) 512-9264.

Bay City – DNR Bay City Operations Service Center at 3580 State Park Drive contains a freezer for the drop-off collection of coded wire tagged fish heads and USGS stomachs. Forms are available by calling DNR creel clerk Matt Currie at (989) 297-5425.

Harbor Beach - Fish cleaning station at Marina and boat launch. Coded wire tag forms/bags & bags/tags for USGS stomachs are available in the freezer. For more information call DNR creel clerk Mary Beth Houel at (517) 242-8252.

Harbor Beach – Let's Go Fishing bait shop at 731 N. Huron Ave. contains a freezer for the drop-off collection of coded wire tagged fish heads and USGS stomachs. For more information call DNR creel clerk Mary Beth Houel at (517) 242-8252.

Port Sanilac – Fish cleaning station at municipal boat launch. Coded wire tag forms/bags & bags/tags for USGS stomachs are available in the freezer. For more information call DNR creel clerk Mary Beth Houel at (517) 242-8252.

Lexington – Fish cleaning station at municipal harbor and boat launch. Coded wire tag forms/bags & bags/tags for USGS stomachs are available in the freezer. For more information call DNR creel clerk Mary Beth Houel at (517) 242-8252.

Port Huron – Pro Bait bait shop at 2731 Pine Grove Ave. contains a freezer for the drop-off collection of coded wire tagged fish heads and USGS stomachs. For more information call DNR creel clerk Mary Beth Houel at (517) 242-8252.