

**Minutes of the  
Lake Superior Technical Committee Meeting  
January 15-17, 2002  
Hampton Inn  
Duluth, Minnesota**

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**List of Attendees:**

Mark Ebener, CORA  
Mike Hoff, USGS  
Rick Huber, Band River Band  
Tom Fratt, Red Cliff Band  
Lori Evarhard, USGS  
Lee Newman, USFWS  
Mike Fodale, USFWS  
Jessica Richards, USFWS

Henry Quinlan, USFWS  
Mark Dryer, USFWS  
Ron Kinnunen, Michigan Sea Grant  
Kory Groetsch, GLIFWC  
Bill Mattes, GLIFWC  
Stephen Schram, WiDNR  
Ben Whiting, Grand Portage Band  
Carl Richards, Minnesota Sea Grant  
Doug Cuddy, DFO

Dennis Pratt, WiDNR  
 Janet Kenough, USEPA  
 Marty Auer, MTU  
 Jack Wingate, MnDNR  
 Chuck Krueger, GLFC  
 Dale Bast, USFWS  
 Damon Krueger, UMD  
 Owen Gorman, USGS  
 Chris Harvey, NMFS  
 Tom Hrbik, UMD  
 Don Branstrator, UMD  
 Mike Petzold, OMNR  
 Mike Friday, OMNR

Marilee Chase, OMNR  
 Don Schreiner, MnDNR  
 Shawn Sitar, MiDNR  
 Greg Fischer, Red Cliff Band  
 Gene Mensch, Keweenaw Bay Band  
 Stuart Sivertson, Lake Superior Advisor  
 Molly Negus, MnDNR  
 Jerry Neimi, NRRI  
 Lucinda Johnson, NRRI  
 Steve Geving, MnDNR  
 Joe Ostezski, MnDNR  
 Ted Halpern, MnDNR  
 Jeff Gunderson, Minnesota Sea Grant

**Agenda Item 1 – State of the Lake**

Tentative presentations are listed below. Presentations 1, 2, 4, 8, 11, and 13 were not reviewed by the LSTC because the presenters could not attend the meeting. Ebener will contact the presenters that could not attend the LSTC meeting and discuss the content and structure of their presentations. In the minutes that follow, recommendations are made by the LSTC to each presenter on how to modify either the content or structure of each presentation.

<b><u>Topic</u></b>	<b><u>Presenter</u></b>	<b><u>Affiliation</u></b>
I. Introduction		
1. Where have we been	George Spangler	University of Minnesota - St. Paul
II. Aquatic Ecology		
2. Ecological Interactions	<i>UW-Madison?</i>	University of Wisconsin - Madison
3. Fish Community Structure	Michael Hoff	U.S. Geological Survey - Ashland
III. Habitat of Lake Superior		
4. Bi-national Program	Jim Cantril	Northern Michigan University
5. Contaminants	Cory Groetsch	GLIFWC
6. Habitat of Lake Superior	Carl Richards	Minnesota Sea Grant
7. Wetlands and Water Levels	Janet Keough	U.S. EPA - Duluth
8. <del>Tributary Restoration</del>	?	
9. Tributary flow sediments	Faith Fitzpatrick	United States Geological Survey
10. KITES	Marty Auer	Michigan Technological University
11. Thermal habitat & fishes	Else Ralph/Tom Hrbik	University of Minnesota - Duluth
<del>12. Water Level Changes</del>	<del>Janet Keough</del>	<del>U.S. EPA Duluth</del>
IV. Status of Lower Trophic Levels		
13. Phyto/Zooplankton/Benthos	Marc Tuchman	U.S. EPA- Chicago
V. Status of Exotic Species		
14. Unintentional Introductions	Mark Dryer	U.S. Fish and Wildlife Service
15. Sea Lamprey	Doug Cuddy	Canadian Dept. of Fisheries & Oceans
VI. Description of the Fisheries		
16. Commercial Fishery	Mark Ebener	Chippewa/Ottawa Resource Authority
17. Recreational fishery	Don Schreiner	Minnesota Dept. of Natural Resources
VII. Status of Important Fish Species		
18. Prey Fish	Owen Gorman	U.S. Geological Survey - Ashland
19. Lake Trout	Shawn Sitar	Michigan Dept. of Natural Resources
<del>20. Lake Trout Genetics</del>		
21. Other Salmonines	Don Schreiner	Minnesota Dept. of Natural Resources
22. Lake Whitefish	Mike Petzold	Ontario Ministry of Natural Resources

23. Brook Trout	Marilee Chase	Ontario Ministry of Natural Resources
24. Lake Sturgeon	Henry Quinlan	U.S. Fish and Wildlife Service - Ashland
25. Walleye	Stephen Schram	Wisconsin Dept. of Natural Resources
VIII. Concluding Remarks		
26. Where do we go from here	Horns/Ebener/Hansen	

**Agenda Item 1-2 Presentation Format**

- All presenters should provide Mark Ebener with a copy of their presentation by March 1, 2002
- Ebener will printout and have copies made of each presentation, and put all the presentations together for distribution at the meeting
- Presentations should be provided to Ebener either on CD's, Zip disks, Jazz disks, for via e-mail.
- Harvard Graphics ver. 3.0 or PowerPoint presentations are acceptable, .
- All text on slides should be in 28 point and larger.
- Keep the presentations simple and limit the amount of text to no more than 5-6 words per sentence.
- Background for each presentation is left to the discretion of each presenter, but presenters should remember that bolded white text on a black background becomes blurred and difficult to read. The acceptable slide backgrounds are:
  - white with black or colored text,
  - blue with white text or yellow text
  - black with white text not bolded
- State each fish community objective at the beginning of the presentation and use the March 2002 draft of FCO's if there is an appropriate FCO .
- The last slide of each presentation should either;
  - summarize the talk, or
  - make several recommendations to the LSC, or
  - include information needs or key research questions.

**Agenda Item 1-3 Fish Community Structure (Hoff)**

- The current presentation has too much text, reduce the amount of text and length of sentences.
- Don't use red and green colors in the same graphics.
- Keep graphics as simple as possible
- Use more pictures of fish and trawls
- Define communities you are referring to
- Keep description of the methods very short

**Agenda Item 1-5 Contaminant Presentation (Kory Groetsch)**

- Try to create a slide that simply shows the total pounds of contaminants released into the Great Lakes, or at least make these numbers stand out in the existing slide.
- Try to make Lake Superior trends in contaminants in fish stand out more in the line graphs, i.e. start in 1977
- Try to mention in presentation about load reduction targets in LaMP documents and Lake Superior as a demonstration project for chemical reductions. Then state that if we reach the load reduction targets these reductions will not be sufficient to remove fish from the consumption advisories
- Add fish community objectives slide to presentation

**Agenda Item 1-6 Habitat of Lake Superior (Carl Richards)**

- Remove grid lines from bar graphs.
- Add USGS and CORA mapping of bottom substrates in Whitefish Bay to slide that discusses other habitat mapping projects
- Add fish community objectives for Habitat to the presentation

**Agenda Item 1-7 Water Level Changes (Janet Keough)**

Janet will incorporate the wetlands and water level changes presentations into one presentation that will last about 30 minutes, and the presentation will be written for the educated general public.

**Agenda Item 1-9 Tributary Flow, Floods, and Sediment Loads (Faith Fitzpatrick)**

- Focus more of the presentation on restoration and rehabilitation techniques
- Stress the large amount of sediment loads coming into Lake Superior
- Incorporate some fish data into the presentation where possible
- Increase the fonts and size of some of the graphics

**Agenda Item 1-10 KITES (Marty Auer)**

- Slide that deals with deep chlorophyll layer needs to have the temperature graphic labeled.
- Keep slides relatively simple and avoid, where possible, scientific jargon that may not be understandable to the general public

Marty briefly discussed the State of Lake Conference being planned for Houghton, MI in May 2002 and invited LSTC members and liaisons to present papers at the conference.

**Agenda Item 1-14 Unintentional introductions of Exotic Species (Mark Dryer)**

- Should list alewife as one of the unintentionally introduced fish species, and state when these fish were introduced and how
- Combine the graphs for the Flag, Iron, Ontonagon, and Amnicon into one graphic with separate colored lines for each river
- Show the graphic of trends in abundance of ruffe in the St. Louis estuary before the graphic for the Flag, Iron, Ontonagon, and Amnicon rivers.
- The size of the “red dots” on the graphic illustrating distribution of exotic species in Lake Superior should reflect relative or absolute abundance of the species at each location
- Review the published papers by Barbiero and Tuchman published in the Journal of Great Lakes Research in 2001 on plankton and zooplankton abundance in the Great Lakes based on the EPA open water surveys to assess abundance of B.C. in comparison to other indigenous zooplankton
- Need to focus the presentation more on the potential effects of as of yet un-introduced species.
- State that the number one recommendation is to prevent future introductions
- Combine figures showing spatial distribution for species that are very isolated in their distribution, i.e. tubenose goby, round goby, etc.

**Agenda Item 1-15 Sea Lamprey (Doug Cuddy)**

- Add to current issues the possible classification to endangered status of native lampreys in Canada and how this potential re-classification may affect chemical treatment of streams in Canada
- Reduce amount of text
- Add figure to show the ten largest producers on the lake
- Reduce history slides
- Illustrate the effects of only leaving 2% of larvae on subsequent transformer production
- Add slides showing electro-fishing and lamprey
- Discuss why barriers are losing favor, i.e. rehabilitation plans for depleted species like brook trout and sturgeon

**Agenda Item 1-16 Description of the Commercial Fishery (Mark Ebener)**

- Add slide to talk about economics of fishery in terms of price per pound, conversion to trap nets from gill nets because price per pound better for trap nets, how price per pound has not changed much through time, etc.
- Add slide to show value of fishery.
- Add slide and discussion on why there is concern about incidental catch of lake trout in large mesh gill net fisheries (use data from Lake Huron study into this)
- Change siscowet into lake trout for slide of commercial harvest since 1970s

- Trap net fishery now starting in Keweenaw Bay area and no trap net fishery in Ontario.
- Talk about percentages in slides that show contribution of various mesh diameters and meshes deep.
- Agencies should provide Ebener with the 1999 and 2000 commercial harvest for each species and the total large-mesh and small-mesh gill net effort as well as trap net/pound net effort.

**Agenda Item 1-17 Description of Recreational Fishery (Don Schreiner)**

- Keep as long a time frame as possible in graphics that illustrate trend through time.
- Ebener should send the Lake Huron sport fishery catch and effort data to Don for comparison with the Lake Superior data.
- Add charter boat catch and effort data to the presentation. Agencies should provide Don this information
- Don is asking each state agency to provide estimates of the cost of management of the sport fishery
- Add comment to presentation that other fisheries are not really that large (i.e. walleye, perch, rainbow trout) but also not much data on them

**Agenda Item 1-23 Brook Trout in Lake Superior (Marilee Chase)**

- Have map of lake showing locations with brook trout populations.
- Each agency will provide Marilee with current regulations targeted at brook trout and new proposed regulations.
- Focus less on fact that we have a plan and more that we are now moving forward with strategies contained in the plan and then describe what these strategies are.
- Discuss more habitat issues.
- Agencies should provide Marilee with a description of their respective watershed management strategies, and make sure to point in the presentation that watershed rehabilitation, and brook trout, is a very long-term strategy.

Lee Newman briefly discussed other brook trout issues with the LSTC. Lee will be discussing with EPA the possibility of expanding the current study of aerial imaging of upwelling areas to more of a lakewide basis.

Lee provided the LSTC with a handout of selected portions from a recently published literature review pertaining to the current state of knowledge regarding splake stocking. The review was published by the Ontario Ministry of Natural Resources in 2000 and is titled "F<sub>1</sub> Splake: an annotated bibliography and literature review." The LSTC was asked to review the handout from Lee in advance of the summer 2002 meeting where Lee will have the opportunity to further discuss the issue of splake stocking.

**Agenda Item 1-18 Prey Fish Stocks (Owen Gorman)**

- Do not discuss the smelt stock recruitment analysis; just state that reproduction drives biomass. For that matter it is probably best to not discuss the herring stock recruitment analysis.
- For trends in biomass show first for U.S. and Canada only, and then show only jurisdiction trends.
- Move titles of graphs to the top of each slide.
- Make point that biomass on graphs represents index of biomass not absolute biomass and that probably underestimate biomass with the bottom trawls.
- Add a graphic that illustrates the difference in biomass made by acoustics and bottom trawls in western basin in 2000.
- Point out fact that declines in biomass are also occurring in lakes Huron and Michigan.

**Agenda Item 1-19 Lake Trout (Shawn Sitar)**

- Ebener provide Sitar with the current lake trout stocking information for Lake Superior from Donofrio, Schreiner, Cullis, and Schram

- Need to revise the relative abundance graphs to just one bar that represents the average CPUE during 1993-2000 then compare to CPUE during the previous ten years.
- Add the current FCO for lake trout to the beginning of the presentation.
- Make one graph that combines the lakewide commercial and sport fishery harvests.
- Ebener send Sitar the actual sea lamprey marking data for Lake Superior.
- The mean weight at age 7 slide needs to be fixed.
- Describe the siscowet survey to a limited degree.
- Cut down the amount of text on the slides for SCAA.
- Reduce the amount of text on the SSBR slide and try to simply explain the concept of SSBR.

**Agenda Item 1-21 Non-Native Salmonids (Don Schreiner)**

- All agencies provide Don with numbers of non-native salmonids stocked in their respective jurisdiction in 2000.
- Put in comparison of mean weight of a harvested fish in Lake Superior with that in lakes Michigan and Huron. Agencies should provide Don with this information.

**Agenda Item 1-22 Whitefish (Mike Petzold)**

- Modify the slide that deals with changes in meshes deep of gill nets so it is more visible.

**Agenda Item 1-23 Lake Sturgeon (Henry Quinlan)**

- On movement data slide add text that says data from telemetry or tagging.
- Make bar graph larger on survey index slide and reduce amount of text.

**Agenda Item 1-24 Walleye (Stephen Schram)**

- Do not need to discuss status of walleye in the upper St. Marys River, just stick with Waiska and Tahquamenon rivers.
- Change spelling of Waiska to Waishkey.
- Add one slide on historical commercial harvest.

**Agenda Item 1-25 Future Direction**

Take home message is that the system is really in good shape.

1. Lake trout are abundant,
2. Lake herring have partially recovered,
3. Habitat is in good condition within the lake itself,
4. Sturgeon, walleye, and brook trout are present and increasing in abundance,
5. Fish community in pretty good shape and probably contains sufficient buffering capacity to resist most future invaders.
6. Many recent invaders such as zebra mussels, B.C., round goby, ruffe, appear to be relatively benign.

Issue to stress and identify for the Lake Superior Committee are:

1. We need to achieve a balance between sea lamprey control and rehabilitation of native species including other sea lampreys
  - a. issues are fish passage, and indigenous lampreys in Canada, the sturgeon treatment protocol
- 2) Ability to achieve FCO's for many species will depend upon restoration and protection of tributary habitat. Must focus habitat restoration efforts in tributaries and this will require development of watershed management plans and coalitions between local units of governments, interested citizens, and agencies and is a very long-term issue (50+ years)
- 3) Recognize that even with future reductions in contaminant loading the levels of contaminants in fish will still be sufficient to elicit consumption advisories. There are probably synergistic effects of these toxic compounds.

- 4) Non-indigenous species may still enter the lake and cause future problems so LSC needs to push effective mandatory ballast water management and address vectors for future invasion.
- 5) We don't know enough about nearshore abundance and biomass of primary species.
- 6) Need to define appropriate harvest levels for the primary commercial and recreational fisheries.
- 7) The lack of coordination and monetary commitment of Canadian agencies is really hindering ability to accomplish lakewide objectives.

Recommendations for Future Research:

- 1- Develop research and assessment capabilities that includes acoustic in the offshore waters of Lake Superior to:
  - a. Describe community structure
  - b. Estimate abundance and biomass of pelagic and benthic fishes
  - c. Understand habitat use of fishes in this habitat
  - d. Understand the role of the deepwater fish community in supporting sea lamprey production
  - e. Understand trophic interactions in this habitat.
- 2- Map habitat within Lake Superior to evaluate carrying capacity and ability to achieve FCOs.
- 3- Study the spatial overlap or interactions between native and non-native species, i.e. effect of Pacific salmon on brook trout in tributaries.
- 4- Understand how physical and chemical parameters in the lake affect fish community structure.
- 5- Evaluate stocking programs that are compatible with restoration goals for native species
- 6- Understand connectivity of lower trophic levels with prey fish abundance.
- 7- Test and evaluate new sea lamprey control techniques.
- 8- Understanding genetic and stock structure of many Lake Superior fishes such as deepwater ciscoes, lake herring, lake trout forms, brook trout, and lake sturgeon.
- 9- Implement acoustic sampling in nearshore and offshore waters and link that sampling with bottom trawling
- 10- Incorporate uncertainty and additional future information into food-web models
- 11- Document fish community structure in all the primary habitat types described in FCOs and relate these to habitat variables
- 12- Develop appropriate methods to determine surplus production for primary commercial and recreational fisheries.
- 13- Habitat requirements of brook trout and lake sturgeon.
- 14- Development of a lakewide lake trout population model

Predictions of where the fish community of Lake Superior will be in ten years:

- 1) Brook trout populations will resurge and produce managed fisheries in localized areas
- 2) There will be no need to stock hatchery-reared fish of any species.
- 3) Illegal harvest of lake sturgeon will increase as abundance of sturgeon increases.
- 4) The demand for lake herring roe will increase as other fisheries around the world decline.
- 5) Lake sturgeon populations will continue to increase.
- 6) Continued human demand on resources of the lake will continue to degrade important fish habitat.

**Agenda Item 2 - Isle Royale Management Plan**

Jack Olfeke of the Isle Royale National Park discussed the fishery management plan being developed for the Park. Jack and Henry Quinlan will be working together on development of the plan. The Park Service has jurisdiction over the inland waters on the Island, whereas Michigan DNR has jurisdiction over Lake Superior waters surrounding the Park. There will be a scoping workshop in Houghton, MI during April 2002 to begin the process of developing the fishery management plan. The Park Service will be hiring a fishery biologist who will work solely on the Island. The initial proposal wanted to:

- Establish objectives for management and regulation of the fishery in the inland waters.

- Establish mechanisms for communication between the NPS and State of Michigan on Lake Superior fishery issues.
- Increase Isle Royale awareness of and opportunities to assist MiDNR and other fishery agencies with fishery management and research within Isle Royale boundaries.
- Cooperatively establish management strategies for lake trout and brook trout in park boundaries.
- Establish a long-term fishery population-monitoring program.
- Identify existing and potential threats to the native fish community, particularly in terms of non-indigenous invasive species,
- Identify the needs and approach to monitor contaminants within the park.
- Identify information gaps and potential research needs.

The LSTC suggests that the Park Service include non-governmental groups and the technical committee in development of the plan, and that Henry and Jack use the LSTC mailing list to inform other agencies about the future workshops and meetings.

### **Agenda Item 3 - GLFC Fishery Research Program**

Chuck Krueger from the Great Lakes Fishery Commission discussed the new Fishery Research Program being implemented by the Commission. Chuck was charged to develop linkages between the GLFC research programs such as BOTE and the Coordination Funds. All research-oriented projects (i.e. data collection and analysis) will be peer reviewed. Under the new program all budget decisions will happen in December of each year. There is also a lake committee research component to the new fishery research program. Objectives are to:

- provide easier access to funding,
- increase connection to management,
- encourage new researchers in Great Lakes basin,
- be more responsive to new ideas,
- increase potential to influence other funding programs.

The new fishery research program will oversee the GLFC federal aid and BOTE money. The CAP funds will be separate. Pre-proposals should be submitted by January 30 at latest for 2002, but normally will be January 1. Chuck will be flexible with proposals for 2002, but thereafter the schedule will be rigid. State of Lake conference should provide clear list of research priorities for which the GLFC Research Program can write RFPs. To tap the Lake Committee research program money the researcher will need a written letter of support from the lake committee.

### **Agenda Item 4 - NRRRI Study on Biological Indicators**

Jerry Neimi of the University of Minnesota at Duluth Natural Resources Research Institute (NRRRI) described the project funded by the U.S. EPA to identify, evaluate, and recommend a suite of environmental indicators to measure the condition of the Great Lake coastal regions. The project was funded \$6 million by the EPA for five years from 2001 to 2005. The title of the Project is the “**Great Lakes Environmental Indicators.**”



The task is to develop a suite of new, integrative indicators of ecological condition. Objectives are to:

- quantify stressor-response relationships for novel and existing indicators,
- develop predictive model to infer relationships,

Lucinda Johnson of NRRI discussed the fisheries and macro invertebrate portion of the study. The process indicators will be divided into Habitat, Nutrients, and Sediments. Indicators species include walleyes, exotics, % of prey fish populations, diversity, predator/prey ratios, and % exotic to native species to name just a few. The project will identify the dominant shoreline habitats and then have two transects in each shoreline habitat. Will not sample beyond the 10 m depth or 2 km distance from shoreline. In river influenced areas will sample out to 15 m deep.

#### **Agenda Item 5 - Trophic Food Web Interactions in Lake Superior**

Chris Harvey made a presentation to the LSTC that summarized all the results from his Ph.D. dissertation. Purpose of the work was to evaluate how rehabilitation of lake trout can occur in a food web context where you have both the indigenous community interactions and an additional non-indigenous community. Chris used stable isotope research to evaluate the food web interactions. Isotope research can identify food types consumed within the past year or less depending upon growth rate of the species. Some results of the study were that:

- there is little trophic overlap among native and exotic predators
- stable isotope requires temporal resolution
- there is limited overlap between leans and siscowets
- trophic overlap in early life histories stages around Apostle Islands
- sea lampreys show evidence of predation on lower trophic levels and not just lake trout
- at later portions of their life cycle sea lampreys are feeding on other species besides lake trout
- coregonines made a substantial portion of the diet of sea lampreys

#### **Agenda Item 6 - Zooplankton Report**

Owen Gorman provided a presentation on “Trends in early spring Lake Superior Zooplankton Communities in 1989-2000.” The study compared zooplankton communities from four ecoregions of Lake Superior during the spring (within 30 days of ice out) bottom trawl surveys. Those four areas are:

Region 1 – northern 2/3 of Minnesota shoreline

Region 2 – Apostle Islands

Region 3 – eastern Keweenaw Peninsula

Region 4 – Whitefish Bay

Found three copepods were far and away the most abundant; *Limnocalanus macrurus*, *Diatomus sicilis*, and *Diacyclops thomasi*. Cladocerns were not very abundant in the spring in the four regions.

Portions of this study that will be useful for the state of the lake presentations are;

- composition of zooplankton in diets of smelt and herring
- changes in zooplankton abundance with changes in fish biomass, particularly in Apostle Islands
- relative abundance of zooplankton in spring survey

Owen will ensure that some of his information is incorporated into the zooplankton and benthos portion of the state of the lake presentations.

#### **Agenda Item 7 - Analysis of Predator Diets in Lake Superior**

Dr. Tom Hrbik from UMD discussed his research project that has been funded by the USFWS Restoration Act to analyze diets of predatory fish in Lake Superior. The project will be establishing a hypothesis and testing it. The hypothesis is that “expect lake trout and other predators to show preference for rainbow smelt over native coregonines.”

#### **Objectives:**

- test for differences in prey community among collection areas
- test for species and size selection by each species of predatory salmonines within each area
- determine the extent of diet overlap among salmonines within areas
- establish an up to data diet data set incorporating appropriate spatial scales to fuel bioenergetics and ecosystem modeling exercise

#### **Methods:**

- combine data that has been collected with an established diet data set and stored at GLSC
- perform quality control checks to ensure the integrity of the data set
- a graduate student will travel to the various state and tribal organizations to gather diet data and enter it
- link diet data to the forage fish data set and compiled by the GLSC

Database currently contains about 14,000 diets but at completion should be about 45,000 diets.

#### **Agenda Item 8 - Acoustics Study in Western Lake Superior**

Mike Hoff provided a handout describing progress in development of a lake-wide acoustic monitoring program for Lake Superior pelagic fishes. The goal is to develop a pelagic program to sample fish lakewide. In 2001 mid-water trawl sampling and acoustic data collections were performed 50 times in the Apostle Islands and Chequamegon Bay in spring and summer of 2001. Five different types of acoustic equipment were evaluated in 2001. The 50 mid-water trawls tows captured 6,000 fish from 22 taxa in 2001; 48%

were smelt, 47% were lake herring, and 4% were bloaters. The Great Lakes Aquarium in Duluth allowed access to their fish community tanks so that multi-frequency information on known fish species could be collected. Field work will also be conducted in 2002 after the 2001 data collections were evaluated.

### **Agenda Item 9 - Research Priorities of the LSTC**

Ebener provided the LSC with the LSTC list of research priorities because the CLC is developing the RFP for USFWS Restoration Act funds. The LSC has now transferred these priorities to the CLC. The priorities are:

- hydroacoustics sampling of the nearshore and offshore waters
- development of a lakewide lake trout population model
- habitat supply analysis to evaluate appropriate FCOs and understand linkage between habitat and fish production
- brook trout and lake sturgeon habitat requirements

The funds now total around \$575K.

Mike Hoff provided the LSTC with a pre-proposal to develop an acoustic assessment survey program for Lake Superior pelagic prey fishes. Mike should change the proposal to account for the fact that the present acoustics equipment can go as deep as 250 m, so we should be surveying the deeper offshore areas.

All agencies or individuals that will be submitting proposals to either the USFWS Restoration Act, GLFC Coordination Fund, or GLFC Fishery Research Program should provide Ebener with a copy of that proposal and Ebener will send a list of the proposals to the LSTC for ranking. The list will then be distributed to the LSC.

### **Agenda Item 10 - GIS mapping of Spawning and Nursery Areas**

Bill Mattes provided copies to everyone of the final report by GLIFWC on development of a GIS based map of the historic fish spawning and nursery areas in Lake Superior. The report was provided in the form of a CD that contains ArcView and JPEG files.

### **Agenda Item 11 - Lake Sturgeon Study on the White River**

Bill Mattes reported on the final results of the U.S. EPA CEM funded study to determine habitat use of spawning sturgeon in the White River, Wisconsin. No adult sturgeon were observed in the White River, however, this project found evidence of adult lake sturgeon successfully using the upper reaches of the White River, a tributary stream to the Bad River, by the capture of drifting larval lake sturgeon near State Highway 13. Bill provided copies of the final report to the LSTC.

### **Agenda Item 12 - Depth and Temperature Study of Lake Trout**

Bill Mattes described preliminary results from his study to implant adult lake trout with sensors that constantly record depth and temperature of water at which lake trout are living. Bill reported that 55 lake trout were tagged and released in MI-4 while another 45 were tagged and released in MI-5. The lake trout averaged 29 inches long at tagging. One fish has been recaptured thus far that traveled from Buffalo Reef in MI-4 to Pancake

Bay in OS-33. The recaptured fish lived at water temperatures that ranged from 47 to 41 degrees Fahrenheit and lived in depths of 3 ft to 283 ft. Bill said there is enough money left over to buy an additional 25 tags, which will be purchased and put into lake trout in this coming fall.

**Agenda Item 13 - Identification of Fish**

Ebener reported on the results of the summer 2001 workshop on identification of various forms of deepwater ciscoes and lake trout forms in Lake Superior. The analysis indicated that the workshop itself was successful at increasing the level of agreement among individuals and agencies at identify the various fishes. The Kappa statistic increased from the first to second trial for leans, ½ breeds, siscowets, lake herring, bloaters, and shortjaw.

Mark Ebener reported that Dr. Kim Scribner of MSU would like to hold a workshop on the use of artificial intelligence software to discriminate between strains, forms, or species of fish. Dr. Scribner would like to invite to the workshop several members of the LSTC that possess databases of information on measurements from fish. Both Tom Hrbik and Mike Hoff showed interest in the workshop.

**Agenda Item 14 - Survival of Stock Lake Trout**

Don Schreiner and Gene Mensch reported on survival of lake trout stocked in Minnesota waters and lower Keweenaw Bay, respectively. Don reported that Minnesota will discontinue stocking lake trout in MN-3 next year (2003), and further reduce stocking in MN-1 in later years. Don reported that survival of lake trout in Minnesota waters continues to decline and fall below the index of 1.0. In Keweenaw Bay survival was below 1.0 for the 1984-1992 year classes, but the 1993-year class experienced survival above 1.0. In Keweenaw Bay all these fish are stocked in lower Keweenaw Bay.

The LSTC would also like to see the same analysis for the size at age stocking experiments.

**Agenda Item 15 - Time and Place of Next Meeting**

The summer meeting of the LSTC will be held Sault Ste. Marie from July 30 to August 1, 2002. Ebener will make arrangements for the meeting.