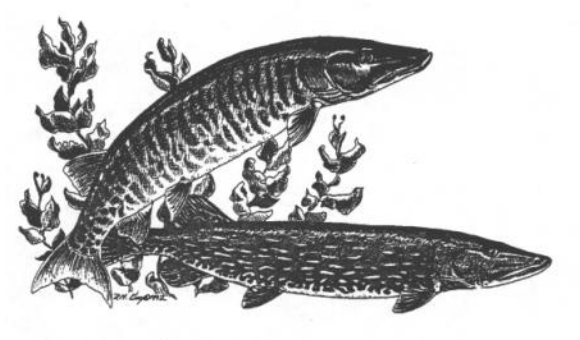

Esocid Technical Committee

North Central Division
American Fisheries Society

Chair – Rodney Pierce (Minnesota DNR)
Immediate Past Chair – Jim Diana (University of Michigan)
Chair-elect – Jonathan Meerbeek (Iowa DNR)

2010 Summer Business Meeting Minutes

ETC/WTC/CTC Joint Meeting at Stoney Creek Inn, LaCrosse, Wisconsin July 27-29

The following notes highlight discussions from the ETC business meeting held 29 July 2010. The meeting followed a full day *Age and Growth Workshop: Modern Techniques and Applications* (Dr. Daniel Isermann, University of Wisconsin Stevens Point, as facilitator) and another day of technical presentations during a joint meeting between the Esocid, Walleye, and Centrarchid technical committees. ETC members in attendance at the business meeting were D. Rowe, K. Battige, G. Drach, K. Koupal, M. Faust, J. Molenhouse, J. Diana, J. Weeks, S. Stewart, G. Wanner, and R. Pierce.

Winter Meeting Announcement: Members of the ETC were invited to attend the 71st Midwest Fish and Wildlife Conference during 12-15 December 2010 in Minneapolis. Your Minnesota hosts are expecting a large turn-out and a great program. A suggestion that the winter ETC meeting be held on a week day instead of Sunday (e.g. lunch time or evening) will be explored by Rod Pierce.

Coolwater Fishes Symposium: Rod Pierce has been organizing this symposium for the 71st Midwest Fish and Wildlife Conference. The symposium is a joint initiative between the ETC and WTC, and will be a 1-1.5 day session. Early registrations for the symposium included 15 presentations covering population genetics,

population rehabilitation, regulations, recruitment, fish aging, modeling population dynamics, and landscape scale management and broad-scale monitoring. Early registrants were polled about their interest in publishing symposium proceedings, and interest was low so participants are encouraged to publish their work elsewhere. (Update: there will be a whopping total of 25 papers for the symposium.)

Past and Future Leadership: A "thank you" plaque was presented to Dr. Jim Diana (Immediate Past Chair) for his active leadership and enthusiasm for the ETC since the committee's inception. A chair-elect was sought from Iowa due to the 2011 Midwest Conference being held in Iowa. Jonathan Meerbeek (Iowa DNR) volunteered and was unanimously voted chair-elect for 2011.

Themes/Location/Dates for 2011 Summer Meeting: Potential topics for the next summer meeting were discussed and included GIS, sampling and evaluating recruitment, new tagging methodologies (and hands-on workshop), angler retention and human dimensions, quantitative techniques, and long term databases and trend analyses. A joint meeting with WTC and CTC was preferred and suggested locations included LaCrosse, Dubuque, and the Quad Cities during the last two weeks in July. The location should hopefully be convenient for the new chair-elect.

Budget: The July 2010 balance in the ETC account was $2,154.64. However, the ETC borrowed $5,100.50 from the North Central Division AFS to publish 100 copies of the 2006 International Pike Symposium. The intent was to sell the books at $60 each, but only $1,450 has been generated in sales and 68 books remain unsold. Therefore, we still owe $3,650.50 to the North Central Division AFS. After some discussion about options, we decided to reduce the book price to $30 each and set up a table at the Coolwater Fishes Symposium to market more of them. We will staff the table with ETC members and students. In addition, Jordan Weeks will put in a plug for the book in a column he writes for Muskie Magazine. (Update: 10 more of the books were sold since the ETC meeting.) Anyone interested in purchasing a copy of the book should contact Rod Pierce. ***They're now ½ price folks!***

News Items: The University of Wisconsin – Stevens Point is in the process of establishing a Fishery Analysis Center, and one of the objectives of the center is to

build a gallery of structures from known-age fish. An on-line version would allow people to sharpen their fish ageing skills.

Muskies Inc. is considering a 2016 repeat of the Muskellunge Symposium that was held in Indiana in 2005.

State and Provincial Reports:

Dakotas (G. Wanner)

Current Research: Dr. Brian Blackwell – *Age structure and recruitment patterns of northern pike populations in northeast South Dakota.* In 2008, objectives were to describe northern pike population characteristics in 18 lakes among three different types of water bodies including: 1) permanent natural complex fish communities, 2) marginal natural simple fish communities, and 3) newly flooded wetlands/lakes. Additionally, the study will add six lakes that are shallow semi-permanent wetlands. The study will produce and report and publication in late 2010.

Dakota northern pike and muskellunge angling regulation changes and management: Both North and South Dakota have seen tremendous natural reproduction last year due to all the flooded vegetation in the Missouri River system and district lakes.

NDGF is anxiously looking forward to getting back in the muskie business. NDGF historically got muskies from PA, but the VHS threat to Great Lakes states has prohibited their ability to get fish to stock in ND lakes. The PA hatcheries have tested disease free for three years, so NDGF got a request to obtain tiger muskies this year.

SDGFP changed the daily limit of northern pike in Lake Oahe from 3 fish to 6 fish and 12 fish in possession to match the statewide daily/possession limits.

From Geno Adams, SDGFP – Lake Oahe was once known as the premiere northern pike fishery of SD. While catch rates were high for anglers targeting the species, the real draw for many fishermen was the chance to catch a true "twenty pounder". The popularity of this fishery has declined in recent years due to decreased catch rates, which is ultimately a factor of low water yield in the Missouri River. Northern pike recruitment in the reservoir is highly dependent on water levels because of the specific habitat needs during spawning. Northern pike spawn on flooded vegetation and during low water years, this habitat is nearly nonexistent. During the recent upturn in water levels, northern pike production was documented in Lake Oahe in 2008 and again in 2009, the first since the late 1990s. Also, anglers have reported catching "many small pike" in

2009 indicating that there has also been successful recruitment. The future is promising for this northern pike fishery, however, more years of high water will be needed to bring it back to what it once was.

Indiana (N. Thomas)

The Indiana Department of Natural Resources finished up its multiyear pit-tagging study of muskies in Lake Webster. Below is an excerpt summarizing its findings: Lake Webster is one of the Midwest's premier muskie fisheries and serves as brood stock for Indiana's muskie hatchery production. The population is based on annual fingerling stockings at 5/acre – higher than stocking rates in other states - prompting concerns that the rate may be too high to sustain good growth even though anglers have expressed interest in a higher size limit (40 inches) to improve quality. Since 2007, muskie fingerlings stocked in Webster have been fed live minnows for 30 days prior to release, down from 90 days prior to 2007. Therefore, long-term abundance, growth, and survival, as well as how the recent diet change might affect the muskie population are being monitored.

Altogether, 640 muskies (including recaptures) were caught during brood stock operations from 2006 through 2009 at the rate of 3.7/day/trap. During that time, the catch rate declined 48%. Individual muskies ranged in length from 16 to 47 inches, but size distributions shifted toward larger fish through 2008 before declining in 2009.

Annual survival of age-4 and older muskies was 78% and annual mortality was 22%. Annual mortality was 40% among age-5 and older muskies but 78% among age-8 and older muskies. Seber-Jolly estimates of muskie numbers varied from 1,461 in 2007 (1.9/ac) to 2,761 in 2006 (3.6/ac). The average annual estimate was 1,925 (2.5/ac).

Length distributions, mean length at age at time of capture, and growth increments differed between male and female muskies. Overall, males increased 4.2 inches from age-5 to age-8, whereas females increased 8.0 inches. Based on PIT-tag data, male muskies grew only 1-2 inches per year after 30 inches, while female muskies grew 1-2 inches per year after 36 inches.

Lake Webster continues to support a high-density population of adult muskies that may be near its carrying capacity. Increasing the size limit may only

slow growth further, given the high density, current growth rate, and low exploitation of the population. A larger size limit might be useful if the stocking rate is reduced, but a lower density could result in a shortage of brood stock. Reducing the stocking rate at this time, however, would confound results of a study to examine the diet change and pose a risk to the fishery and brood stock capability.

Additionally, stocking rates were reduced from 2/ac to 1/ac at Upper Long Lake, a lake stocked by the local chapter of Muskies Inc, due to local angler complaints. The Division of Fish and Wildlife is currently evaluating the success of muskies in Upper Long, as well as changes in the fish population that have occurred since stockings began in 1996. A proposal has been made to stock the remaining fingerlings in Everett Lake in Allen Co, which was the subject of a selective rotenone treatment targeting overabundant gizzard shad. In 2010, gizzard shad had returned to nuisance levels and may provide an adequate prey base for stocked muskies.

Michigan (J. Diana)

Statewide management plans for both northern pike and muskellunge were approved by the management team of the Michigan Department of Natural Resources and Environment in August 2009. Public and other comments were issued, and these plans were updated in January 2010. Management plans do not include regulation changes, and the target for regulation changes is April 1, 2012. The proposed regulation changes for pike are being evaluated by Fisheries Division staff during fall 2010. In addition, a Great Lakes Muskellunge Broodstock Program is still being considered, with the target of 2011 for the first planting of reared Lake St. Clair muskellunge. It will most likely take 7-10 years before the broodstock lake is ready to supply the hatchery for regular production of Great Lakes muskellunge.

Two regulation changes are being proposed by the public to the Coolwater Regulations Steering Committee, which should meet in late August. These include a liberalized regulation for muskellunge, which is proposed by the Spearing Association, and an increase in the minimum size limit for muskellunge, which is being proposed by the Michigan Muskies Alliance. It is most likely that neither

regulation change will receive serious consideration this year, especially since they conflict.

Probably the largest change in the management plans has to do with the proposal for a protected slot for northern pike. The exact details are not yet set, but the proposal is essentially for a protected slot from 24-30 inches on all lakes. There is potential for a few lakes to be managed in a trophy status, but all stunted pike lakes will be managed under this slot regulation as well.

Minnesota (R. Pierce)

Evaluations of experimental regulations for northern pike are now available in two publications 1) Pierce, R. B. 2010. Long-term evaluations of northern pike experimental regulations in Minnesota lakes. Minnesota DNR Investigational Report 556 (can be found at our website www.dnr.state.mn.us/publications/fisheries/investigational_reports.html); and 2) Pierce, R. B. 2010. Long-term evaluations of length limit regulations for northern pike in Minnesota. North American Journal of Fisheries Management 30: 412-432.

A new study is measuring the thermal habitat and depths used by northern pike. Pike were implanted with acoustic transmitters that emit temperature and depth information. Fixed-station hydrophones in the lake are recording acoustic signals from the fish. One of the study goals is to compare thermal habitat used by large versus small northern pike.

A goal of the long-range plan for muskellunge management in Minnesota was to expand the number of lakes managed for muskellunge. The expansion is somewhat controversial, but due to growing interest in muskellunge fishing, five new waters are being proposed for muskie stocking in fall 2011. Public input meetings concerning the five lakes will be held this fall.

Missouri (M. Anderson)

A notable change in muskellunge management in Missouri was the removal of Henry Sever Lake (158 ac.) from the program. Reasons for removing Henry Sever Lake from the program is best explained below, an excerpt from my spring Show-Me Muskie Project cooperator newsletter: "Henry Sever Lake was first

stocked with muskies in 1996 and was originally anticipated as a secondary brood stock lake for Missouri. A quality muskie fishery was developing until 2001 when a tremendous rainfall event caused the lake to overflow. Once the water receded, muskie skeletons and bone fragments were found below the principal and emergency spillways. We felt that we had lost a significant number of muskies during this event and our suspicions were confirmed when our 2002-2004 spring fyke net catch rates declined to less than 1 muskie per net. Muskies were stocked in 2002 and 2005-2008, and evidently survived well as catch rates in the spring of 2006 rose to nearly 6 muskies per net! Since 2006, catch rates have averaged nearly 3 fish per net including 2008 and 2009 when high water levels and poor lake and weather conditions curtailed muskie sampling. A spillway barrier was put in place in 2007 to reduce the chances of another exodus of muskies after a heavy rainfall event.

With that said, I'm sure many of you are wondering why we would discontinue Henry Sever Lake from the muskie program. The answer is quite obvious—the lack of angler interest. From 2000 through 2008, only 17 anglers reported fishing for muskies at Henry Sever Lake, and only one angler from 2005 through 2008 according to Show-Me Muskie Project Trip records. The local conservation agent and other local MDC staff had not observed anyone fishing for muskies at Henry Sever Lake in the past three years. We have tried to promote the muskie fishery at Henry Sever Lake though numerous media outlets and by sending letters to prospective muskie anglers. Again, we observed no increase in fishing pressure. Some of you have told me that the lack of a large town nearby with hotels and restaurants deterred traveling a great distance. Henry Sever Lake is located in rural southeast Knox County, approximately one hour in either direction from Kirksville or Hannibal. Undoubtedly, the economy and high gasoline prices are also factors that kept muskie anglers from fishing Henry Sever Lake. After reviewing objectives and strategies listed in the current muskie plan (http://mdc4.mdc.mo.gov/Documents/14422.pdf), Show-Me Muskie Project results, local staff observations, MDC muskie committee member's opinions and a response from the Pomme de Terre Chapter Muskies Inc., and MDC's Fisheries Division Management Team decided to forego further muskie stocking at Henry

Sever Lake. This was a very tough decision for all involved and was not made hastily".

Currently, four lakes in Missouri are now managed for muskies: Pomme de Terre Lake (7,820 ac.), Fellows Lake (820 ac.), Hazel Creek Lake (530 ac.) and Lake 35, Busch Conservation Area (62 ac.). Standard fyke netting surveys were conducted at Pomme de Terre, Fellows and Hazel Creek this spring and the results are as follows:

Pomme de Terre Lake: 27 net-days resulting in a total catch of 122 muskies or a catch rate of 4.5 fish/net-day. Proportional Stock Density was 90% and RSD36 = 53%. Twelve percent were greater than 42 inches long.

Fellow Lake: 25 net-days resulting in a total catch of 90 muskies or a catch rate of 3.6 fish/net-day. Proportional Stock Density was 83% and RSD36 = 41%. The largest fish captured was 46.8 inches and weighed 28 pounds.

Hazel Creek Lake: 12 net-days resulting in a total catch of 50 muskies or a catch rate of 4.2 fish/net-day. Proportional Stock Density was 100% and RSD36 = 66%. The largest fish captured was 45.5 inches long and weighed 31 pounds.

This fall, 12-14 inch muskie fingerlings will be stocked at a rate of 1 fish/acre at Fellow Lake, Hazel Creek Lake and Lake 35, Busch CA. Pomme de Terre Lake will be stocked with 4000, 12-14 inch fingerlings (0.5 muskies/acre).

Nebraska (K. Koupal)

Nebraska has limited use of esocids within our systems. Even this limited use has come with some headaches. The following issues were provided for this technical committee report in hopes that the experience of other states may shed some light on these issues.

Northern pike management – we have instituted a 28-34" protective size limit on northern in Box Butte Reservoir (NW Nebraska 1600 SA). The bag limit is 10 fish with only 1 fish allowed to be over the protective slot. The history in this lake is a lot of smaller 20-28" northern that most people were not harvesting and managers felt these fish were limiting recruitment of yellow perch. We are entering our 3rd year for this regulation and anecdotally are seeing some increased harvest for pickling smaller northern and the light reduction has allowed some increased presence of 6" or greater yellow perch. Increased water

levels this spring have created a strong northern year-class. The regulation is kind of working but not as well as we hoped …. Do we need to let it go a few more years to see a greater impact; what have other states found over time to be successful (Minnesota reported 2 of 3 lakes were successful); are there alternative regulations or methods to reduce small pike numbers that others would suggest?

Muskie stocking – low water levels and uncertain reservoir future had suspended stocking of muskie at Elwood Reservoir (had been producing an incredible catch rate for muskie). The recent wet years have put water back into the reservoir as part of the delivery system for CNPPID, so we will begin stocking again providing we can get and grow the muskies.

Northern pike production – the last 3 years we have had a difficult time getting sufficient eye-up from northern spawned in our Sandhill lakes district. In 2008 Dewey Lake produced 0-8% eye-up; 2009 found 0-44% eye-up from Dewey and Pelican lakes; 2010 had a mean eye-up of 8% on first efforts and 7% on the second efforts from Pelican Lake. The same Pelican females were mixed with males from Merritt and 88% eye-up was produced, while males and females from Merritt Reservoir produced 72% eye-up. The milt appears to be discolored from the Sandhill lakes (compared to Merritt) and does not distribute well in the mixing bowl. Also, the eggs become more clumpy when using Sandhill lake only broodstock. Does anyone have ideas as to what might be going on?

Northern pike production has been somewhat limited in our production ponds as far as number return. We used to set aside a pond but now must use it for other species throughout the year. The lack of vegetation development might be hampering productivity. Does anyone use artificial substrates or know of a good surrogate habitat approach for these ponds?

Washington (B. Bolding)

The Washington Department of Fish and Wildlife continues to stock seven lakes across the state, yearly, with tiger muskies. The target number for stocking statewide is 6,000 1-year-old fish. The program also continues to increase in popularity and use every year. According to the last two angler preference surveys (2003 and 2008), three percent of licensed anglers (16,000) said they

fished for tiger muskies in Washington. Another measure of popularity is the formation of a third tiger muskie club in Washington this June. It is the second Muskie Inc. chapter in the state (Chapter 60). State Fish and Wildlife should be completing an eight-year diet study of tiger muskies this year.

Washington faces a new esocid challenge in the form of a relatively new and rapidly expanding population of northern pike. This population is the product of illegal stockings in western Montana. From the Clark Fork River in Montana, they traveled downstream into Lake Pend Oreille in Idaho and then out and down the Pend Oreille River into Northeast Washington. Pike are an unwanted species in Washington and have the potential to negatively impact native Westslope cutthroat and bull trout in the Pend Oreille River system. Another important concern is the further spread of pike to other nearby waters and/or possible movement downstream from the Pend Oreille River into the Columbia River.

Wisconsin (D. Rowe)

Jordan Weeks will be new Wisconsin chapter Rep replacing Tim Simonson.

WDNR Musky Management Policy Team is working on moving the statewide size limit to 40 inch minimum length limit. Several biological and social criteria support increasing the minimum length limit in Wisconsin. This was proposed in 2009 rules cycle but several local fish managers felt that there was no option for lakes that didn't benefit from a higher size limit. The WDNR musky management team identified 4 criteria describing reproduction, density, and growth that would allow local managers to exempt a lake from the 40 inch minimum:

1) Population sustained through natural reproduction; and
2) Density > 0.6 muskellunge/acre (75th percentile); and
3) Mean length at age 6 < 30" (lower 25th percentile; scales ages acceptable); or
4) PSD38 < 5% (10th percentile); PSD40 or PSD42 = 0.

If the first 2 and either 3 or 4 are met then the population would be considered high density and slow growing and could be exempted from the 40"minimum length. We applied these criteria to lakes where we had some data available and came up with a proposed list of about 40 waters for exemption. We are in the

process of reviewing that list with biologists and coming up with a final version for inclusion in the rule proposal, which we anticipate will go out for public hearing in spring 2011. The management team is still collecting preferences on alternative regulations for high density slow growth populations. So far including; no min, 28" min length (current regulation), a 30-40 inch protected slot, and 40 inch maximum length. For regulation simplicity we are hoping to have only one high density slow growth alternative reg.

University of Wisconsin-Stevens Point and WDNR acquired funding from Muskies Inc. to conduct a survey of muskellunge anglers in Wisconsin. The survey has been conducted at approximately 10-year intervals since 1990. The survey is largely complete with the exception of 5-6 new questions that will address currently relevant questions regarding muskellunge management and fishing in the state. These questions will be discussed at the Musky Standing Team Meeting in late August. The survey will be administered on-line to a randomly-selected sample of anglers who purchased a Wisconsin fishing license and a sample of members of organizations focused on muskellunge. The survey will be administered during January-March of 2011 and a final report will be available by early summer 2011.

WDNR is fine tuning their Musky propagation and stocking practices which were recently published in Fisheries, "Implementation of Genetic Conservation Practices in a Muskellunge Propagation and Stocking Program". Jennings etal**.** *Fisheries* 2010; 35: 388-395.

Both Art Oehmke (AOH) and Governor Thompson (GTH) State Fish Hatcheries completed another year where we almost carried-out all the parts of the policy. In both cases, we fell just short of utilizing the number of spawning individuals that the policy recommends. In both cases, also, we have had the greatest difficulty coming up with the specified number of males. While in 2009, GTH and AOH filled all of their statewide quotas, at the current time this year, it looks like we will be short (at least at GTH). We are now looking at adjusting the brood stock policy somewhat, to make up for what is looking to be insufficient numbers of lakes with naturally reproducing populations that have sufficient populations to meet pairing goals, in both AOH's and GTH's part of the northern region. We developed several recommendations for refinement or our brood

stock management guidelines: 1) Drop back to a 4-lake (versus 5-lake) rotation, with each lake being spawned for two consecutive years, due to difficulty in finding enough large NR lakes. This will effectively allow for an 8-yr rotation on recipient waters. OR Drop back to a 3-lake rotation, allowing for a 6-yr effective rotation among recipient waters (Brian Sloss will analyze these options and provide a final recommendation). The 4-lake option seems better from a genetic standpoint, but a 3-lake option will be more acceptable to biologists. 2) Spawn 25 to 36 pairs at 1 female : 1 male (versus 26 females at 1 female : 3 males). 3) PIT tag adults used for spawning in order to document the proportion spawned more that once. 4) Allow stocking-back of large fingerlings in brood lakes during the years that eggs are taken (only in one of the years if a two consecutive year option is chosen). The stocking rate is TBD. 5) Take genetic samples from production fish for the next 1 or 2 years. 6) Evaluate Pelican Lake and Rhinelander Flowage as potential brood lakes in the Upper WI River basin. Obtain genetic samples and document fyke net catches. 7) Evaluate Sand/Sissabagama Lakes (these lakes are connected), in the Upper Chippewa Basin. Obtain genetic samples and document fyke net catches. 8) Retain the following lakes in the rotation: UPPER WI – Minocqua Chain, Big and Little Arbor Vitae, Pelican (potential), and Rhinelander Chain (potential); UPPER CHIP – LCO, Lost Land/Teal, Chippewa Flowage (West), Chippewa Flowage (East), Sand/Sissabagama (potential?). DROP North/South Twin, Moen Chain, and Plum lakes. 9) Pursue 50” minimum length limits on all brood lakes (Lost Land/Teal, Big/Little Arb, Minocqua Chain, Rhinelander Chain (if suited), Sand/Siss (if suited).

The Green Bay Great Lakes spotted musky project is continuing, and in 2009 WDNR established 3 inland brood lakes for fish that are being imported from Georgian Bay, Lake Huron with the Ontario Ministry of Natural Resources and Sir Sanford Fleming College. So far 2 year classes of fish (2008 and 2009) have been stocked into the lakes. These fish have been marked (Fin Clips or PIT tags) to differentiate family groups to prevent inbreeding when gametes are collected in the future. The fish should begin maturing by 2015 allowing collection and production of offspring for Green Bay.

In 2009 and 2010 we used oviduct radio transmitters to study spawning behavior and location selection of muskies in Green Bay. At identified spawning

sites habitat characteristics were quantified at the time of deposition and twice more throughout the summer as well as fish community composition. We have documented natural reproduction now for the last three years. This study is funded by a FWS Great Lakes Fish and Wildlife Restoration Act grant. We are also doing some genetic sampling to evaluate the genetic make-up and diversity of the re-established population and compare with the new and original source populations.

Spawning Habitat Model - WDNR is fully funded to complete the application of Joe Nohner's model to the natural reproduction lakes of the state. The result will be development of a layer of "sensitive habitat" for use by regional teams in the development of Critical Habitat Designations. We are waiting for a few refinements to the model from Joe Nohner. Otherwise, we just need to free up some of Steve Bolssen's time to do the GIS work and run the model.

These minutes are respectfully submitted by R. Pierce.