North Central Division American Fisheries Society

Esocid Technical Committee

Chair – Jonathan Meerbeek (IA DNR; jonathan.meerbeek@dnr.iowa.gov)
Immediate Past Chair – Jonathan Meerbeek (IA DNR; jonathan.meerbeek@dnr.iowa.gov)
Chair-elect – Dave Woods (MDC; Dave.Woods@mdc.mo.gov)

2012 Summer Business Meeting Minutes

ETC/CTC/WTC Joint meeting at Lac Courte Oreilles Casino Lodge and Convention Center, Hayward, Wisconsin, July 24-26

The following notes highlight discussions from the ETC business meeting held 26 July 2012 at the Lac Courte Oreilles Casino Lodge and Convention Center. ETC members in attendance at the business meeting were J. VanDeHey, Zach Woiak, and J. Meerbeek.

Winter Minutes and Update to North Central Division (NCD): No corrections were made to minutes from the December 2011 ETC meeting in Des Moines and the minutes were unanimously approved. The technical committee chairs and standing committee members were not included on the email list for the NCD annual report for the GB briefing book, thus an annual report for the ETC was not provided.

Sales of the International Pike Symposium: In 2008, the ETC re-published proceedings of the International Pike Symposium (held in Lake Placid, 2006). We published 101 copies at $50.50 each with the intent to sell them at $60 each (US) and $70 ea (CAN). We borrowed $5100.50 from the NCD to pay for publishing. To date, we have sold 32 copies at $60 each ($1,920), 1 copy at $70 ($70), 1 copy at $35 ($35) and 57 copies at $30 ($1710) for a total of $3,735.00 in sales. Therefore, the ETC still owes $1,365.50 to the NCD. Ten copies are still available for purchase @ $30/copy and have been advertised on the ETC website.

Past and Future Leadership: I asked Craig Fuller if he was interested since Missouri will be hosting the 2014 MFWC (January meeting). Craig is the current muskellunge program coordinator for Missouri. That position rotates every three years and Dave Woods (Dave.Woods@mdc.mo.gov) will be the next incoming coordinator beginning in June 2013. Therefore, Dave Woods has been asked and has accepted the responsibility of ETC Chair for 2013-14. Members present at the 2012 summer meeting unanimously voted for Dave as the incoming ETC chair.

Winter Meeting Announcement: Members of the ETC were invited to attend the 73rd Midwest Fish and Wildlife Conference during 9-12 December 2012 in Wichita, Kansas. (http://midwestfw.org/). ETC meeting arrangements are still being planned. Please indicate your intentions to attend the ETC meeting well in advance to ensure adequate turnout. If you know you will be attending, please email J. Meerbeek (jonathan.meerbeek@dnr.iowa.gov).

Themes/Location/Dates for 2013 Summer Meeting: Committee members agreed to continue the joint technical committee meeting format for next year's meeting. Meeting theme was not discussed. Tech Committee members discussed potential locations for the 2013 meeting. It was determined that the 2013 meeting should be held in Wisconsin again. Dan Isermann will be the incoming WTC chair, thus potential locations include Wausau, WI (Stoney Creek) and Stevens Point. Chair elects will discuss location and formulate theme and location by the winter meeting.

Workshop ideas were also discussed. Those suggested were: Fish ID course (J. Lyons, etc.); Age-Growth; molecular techniques/genetic analysis (Sloss; VanDeHey); and broodstock management

Budget: The ETC account (managed by NCD Treasurer Jason Goeckler) had a balance of $2,158.73 through 30 June 2012.

We will continue to market the remaining 10 copies of the pike symposium book. The proceeds from the R Workshop will be used to repay the NCD.

New Items:
Muskies, Inc. will be sponsoring the 2016 Hugh C. Becker International Muskie Symposium in March 2016 in the Twin Cities area. There will be various committees established including a Technical Steering Committee, and an Advisory Committee which will consist of key industry leaders, DNR personnel and managers, noted muskie researchers and educators, and public relations individuals.

Website Items:

Chapter Representatives – Updates

- Dakotas: Steve Chipps
- Illinois: Steve Pallo
- Indiana: Chair (2007-2008), Ed Braun
- Iowa: Chair (2010-2011), Jonathan Meerbeek
- Kansas: Jeff Koch
- Michigan: Chair (2008-2009), Jim Diana
- Michigan: Kregg Smith
- Minnesota: Chair (2009-2010) Rod Pierce
- Missouri: Craig Fuller
- Nebraska: Keith Koupal
- Ohio: Curt Wagner
- Ontario: Steve Kerr
- Wisconsin: Jordan Weeks

New Project Ideas:

J. Meerbeek suggested that State and Provincial Muskellunge Management Plans should be made available online. Currently, 6 of the 12 states/provinces have a management plan for esocids.

State and Provincial Reports:

Dakotas (B. Blackwell)

North Dakota

In 2012 the daily and possession limit for northern pike increased to 5 and 10, respectively. The former limit of 3 fish daily and 6 fish in possession had been in effect since the 1950s. The increased limit is in response to pike fisheries that are currently booming following three consecutive "wet" winters. Regulations run on a two-year cycle, and the liberalized limit will be evaluated to determine whether the increased limit can remain in perpetuity or whether it needs to be reduced once the wave of high water and abundant pike subsides.

Also in 2012, related to the high pike abundance, the entire state was opened to darkhouse spear fishing for northern pike. The only waters not open to darkhouse spearing are waters that have muskies present, and the Red River. The five-fish daily limit also applies to fish speared through the ice (and any other legal means of harvesting fish).

South Dakota

Unseasonable warm weather has contributed to isolated summerkills (northern pike included) in eastern South Dakota. On many lakes the surface water temperature exceeded 80 ^{o}F by early July. There may be further summerkills if the above average heat continues.

South Dakota is currently considering allowing for statewide northern pike darkhouse spearing on inland waters that do not have muskies present.

Southeast Region

- Muskies were introduced into Lake Sinai, Brookings County during the fall 2011.
- Attempts to sample muskies with trap nets in West 81 Lake during spring 2012 were unsuccessful.
- Northern pike abundance in the region is high at this time.

Northeast Region

- Northern pike abundance remains high in many waters because of recent high water levels.
- Thirty muskies were sampled during walleye spawning at Lynn Lake in 2012. The largest musky collected was 45 inches and weighed 23.5 pounds. Muskies were introduced into Lynn Lake in 2001.
- Northern pike aging structure precision study has been completed and a manuscript submitted for peer review.

Western Region

- Preliminary results of northern pike growth/diet study in Lake Pactola indicate that growth may be fastest observed in South Dakota – presumably because of the salmonid diet (smelt, trout).

Illinois (S. Pallo) – No State report provided.

Iowa (J. Meerbeek)

Ten lakes and impoundments are currently being managed as muskellunge fisheries. In lakes where muskellunge are used as broodstock, populations are monitored via annual spring gillnetting and population metrics are estimated using the Jolly-Seber model. In 2012, 388 muskellunge were captured (165 recaptures) ranging from 26-51 inches in these lakes. Adult (≥ 30 inches) muskellunge population estimates for 2011 in the Spirit Lake/Okoboji Chain and Clear Lake were 0.09 and 0.08 fish/acre, respectively. Currently, only spring-stocked, minnow finished yearlings are used in Iowa's muskellunge culture program. Previous research has found that these fish survival much better than fish stocked in the fall or fish stocked in the spring that were fed different diets. However, current research has also indicated variable survival to age-4 for the spring-stocked, minnow-finished yearlings. A population model was developed using yearling and adult survival rates and recruitment patterns and emigration to evaluated the effects of modified stocking rates and frequencies on the adult (≥ 30 inches) muskellunge population. Results of the model were presented at the summer joint technical meeting. Contact J. Meerbeek for more information.

All yearling muskellunge stocked into Iowa's natural lakes are tagged via PIT tags prior to stocking. Information regarding growth, survival and recruitment will help guide stocking rates to maintain desired population levels.

Emigration has been a concern in the past for the Spirit Lake/Okoboji system and Iowa's muskellunge reservoirs. Due to the infestation of silver and big head carp and pressure from local residents and business owners a physical barrier has been constructed in the outlet to prevent additional Asian carp from entering the the Spirit Lake/Okoboji system. Sufficient funds have been raised to construct an electric barrier ($300,000 DNR funds; over $400,000 private funds). Project will be completed by spring 2013. The electric barrier most likely will prevent additional muskellunge emigration. A physical barrier will be constructed in Big Creek reservoir (814 acre), similar to the style and design used in Lake Kinkaid, IL. Emigration has also been a concern for some of our reservoir walleye fisheries. Consequently, a laboratory study has been initiated to evaluate the effectiveness of light, bubbles, and sound as a deterrent for walleye emigration in reservoirs.

Northern pike are propagated and stocked as either fry, 2-3 inch fingerling, or as advanced (late summer/early fall) fingerling in Iowa's lakes, reservoirs and rivers. No formal research project evaluating the contribution of stocked northern pike has been completed in lakes, but recent stocking investigations on a 1,100 lake indicate that fry and 2-inch northern pike survival is very low, whereas the advanced fingerlings survival is high. However, production facilities to raise substantial numbers of advanced northern pike fingerlings is lacking, thus limiting the research potential.

Mississippi River Northern Pike Study - This telemetry study was undertaken in order to indentify and quantify the physical and chemical characteristics of habitat used by northern pike in the Upper Mississippi River. Twenty pike were radio transmittered within the Sny Magill Bottoms complex in Pool 10, in October 2011. Pike overwintered in off-channel backwater lakes with characteristics consistent with those identified as critical for Centrarchid overwintering (depth ≥ 1 m, no flow, O2 > 4 mg/l; Steuck 2010). As river levels rose in the spring and remained high through the early summer many pike moved into shallow flooded terrestrial areas. As water levels have dropped and water temperatures moved into the 80's, pike began to move to areas with cooler water such as areas with springs or into cold water tributaries. We will continue to track these fish for the next couple of years in order to determine seasonal movement patterns. An additional 40 northern pike will be transmittered in Pools 10 and 13 in October 2012. Information gained from this study can be used in the design and construction of future habitat rehabilitation and enhancement projects on the Upper Mississippi River. For more information contact Kirk Hansen (Kirk.Hansen@dnr.iowa.gov)

Iowa's muskellunge management plan is still being developed. A comprehensive literature search has been conducted and the plan is nearing completion.

Indiana (D. Kittaka)

Indiana Division of Fish and Wildlife, Clear Lake and Hamilton Lake Fisheries Activities in 2012. Steve Donabauer, Fisheries Research Biologist, Indiana Department of Natural Resources

Northern pike were sampled in March 2012 at Hamilton and Clear lakes by the Indiana Division of Fish and Wildlife (DFW). The purpose of the project was to determine if trap nets would be an effective technique to capture pre-spawn pike and to summarize pike population statistics.

From March 5-15, 2012 the DFW captured, marked, and released 935 pike at Hamilton and 66 pike from Clear. Hamilton Lake pike averaged 23.6 inches (range: 18.0 to 33.5 inches) while Clear Lake pike averaged 25.4 inches (range: 11.3 to 40.4 inches).

Hamilton and Clear lakes were chosen for this project since they have traditionally supported two very different pike populations. Hamilton is known for abundant pike while Clear is known for the large pike it produces.

DFW biologists also set several gill nets in Hamilton Lake from April 9-11, 2012 to estimate the size of the pike population based on the number of marked pike collected in March. The population estimate suggested that there are approximately 5,500 legally harvestable-size (20 inch minimum length limit) pike in Hamilton Lake, or 7 pike per acre. Not enough pike were collected at Clear to estimate the population.

In the laboratory later this year, DFW biologists will estimate age and growth rates of pike by analyzing small cross sections of fin ray samples that were also collected during the survey. Over the next three years, DFW biologists will compare the Hamilton and Clear lakes pike population statistics to pike populations among several other lakes in Steuben, LaGrange, and Kosciusko counties.

A 2012 summary report will be completed by the end of the year. Steve Donabauer, DFW fisheries research biologist, can be reached at sdonabauer@dnr.IN.gov or 260-244-6805 for pike related questions or concerns.

Indiana Muskie Broodstock collection and spawning 2012 Randy Lang, Hatchery Supervisor, Indiana Department of Natural Resources

In 2012, muskie broodstock collection and spawning was about 2-3 weeks ahead of the normal schedule. Egg quality and hatchery performance of muskie from the 2012 spawn has been normal and stocking goals are expected to be met.

Ball State University to study a new Muskie lake in Indianapolis, IN.

Predator Interactions in Eagle Creek Reservoir, 2011-2016, A Research Proposal, Thomas E. Lauer, PhD Ball State University, Muncie, IN 47306 TX: 765-285-8825
Email: tlauer@bsu.edu

The goal of this study is to determine whether muskellunge will have an impact on the fishery. The specific objectives include:

1. Determine whether changes in predators, panfish and gizzard shad abundance and length frequency distributions are observed following muskellunge stockings. Our hypothesis is that the community structure of Eagle Creek will be positively affected by muskellunge due to a reduction in gizzard shad biomass through predation, promoting panfish growth and abundance.
2. Determine whether changes in largemouth bass abundances, ages and length frequency distributions are observed following muskellunge stockings. Our hypothesis is that muskellunge will share the role as a predator with largemouth bass, rather than replacing or inhibiting this fish in Eagle Creek Reservoir.
3. Determine whether net size and type, and sampling times influence ages-0 to 4 muskellunge catch rates. With this objective, we hypothesize that type of gear or time of deployment may influence the size or age of muskellunge captured.
4. Determine the age, size structure, and abundance of muskellunge in the lake for the period 2012-2016. We hypothesize that each year class will be represented with annual, consistent stocking efforts and that by year 2016, the earliest stocked fish may be entering the fishery.

Indiana DNR proposes to host Muskie Summit in 2013
Bill James, Chief of Fisheries, Indiana Department of Natural Resources

There are two chapters of Muskies, Inc. in Indiana and an excellent working relationship exists between these chapters and the Division of Fish and Wildlife (DFW). The DFW would like to further enhance this partnership and also provide additional opportunity for public involvement

regarding Indiana's muskie management. To this end, the DFW is exploring possibilities for a "Muskie Summit" in early 2013.

The meeting purpose would be to:

1. Maintain cooperative partnerships with muskie anglers, guides, and muskie organizations by fostering effective communications with anglers.
2. Provide updates on Indiana's muskie management/research and hatchery programs.
3. Provide a facilitated forum to discuss topics, questions, and issues of interest among anglers.
4. Prepare a summary of comments and suggested action items.

Kansas (J. Koch) – No State report provided.

Michigan (K. Smith) –

1. A management plan for northern pike and muskellunge in Michigan has been completed and will be available by electronic form in our Special Report Series this year.
2. The MDNR initiated a study on the genetic structure of remnant and naturalized populations of Great Lakes muskellunge and the introgression between stocked northern and Great Lakes strain muskellunge. There is concern that stocking efforts may not be compatible with maintenance of the genetic integrity or sustainability of remnant populations of a native muskellunge subspecies. Presently, little information is available on the genetic characteristics of suspected remnant Great Lakes muskellunge populations, evidence for spatial genetic structure among these populations, or evidence for mixing and inter-breeding between resident and stocked muskellunge. The general objective is to characterize levels of diversity within and among populations of Great Lakes muskellunge and to quantify evidence for mixing and introgression between native Great Lakes and stocked Northern muskellunge. For more information, please contact Kregg Smith (smithk34@michigan.gov).
3. Michigan Department of Natural Resources has completed its second year of obtaining gametes for the Great Lakes strain of muskellunge. A summary of this year's broodstock egg collection shows a more successful year than 2011. Electrofishing proved to be a more useful tool to capture adult muskellunge than previously using entrapment nets.

- Collection effort occurred from 08 May to 22 May, 2012 on the Detroit River between Belle Isle and Grassy Island.
- 183 muskellunge captured; 157 (86%) males, 6 green females, 17 ripe females, and one spent female during the collection period.
- 17 females were spawned with 26 males that resulted in collecting 27.62 Liters of eggs. On average a female muskellunge had 82,082 eggs per lot.
- Approximately 1.2 million eggs were transferred to Wolf Lake SFH with 554,505 fry transferred to rearing tanks.

- Overall survival was higher than 2011 with only one female muskellunge not contributing to this years lot production.
- Fingerlings will be transferred to three lined rearing ponds when they reach 4.0-4.5 in (late August)
- Fall fingerlings will be PIT tagged and stocked in November to two established inland broodstock lakes. Surplus fish will be available for stocking other lakes in the state.
- Wisconsin will receive fingerling muskellunge for their broodstock lake to establish a Great Lakes source.

Minnesota (R. Pierce) –

A study of habitat overlap among species in a coolwater fish community was continued in Elk Lake, Itasca State Park, in spring 2012. Ultrasonic transmitters were implanted in muskellunge, northern pike, walleye, and ciscoes, whose temperatures and depths will be transmitted to an array of automated hydrophones in the lake. Fish movement in relation to light levels in the water column is one interesting aspect of the work being conducted this summer. Researchers are Andy Carlson, Jerry Younk, and Peter Jacobson. Elk Lake is also the site of a long-term muskellunge PIT tagging study by Jerry Younk.

Archival tags recording fish temperatures and depths were recovered from 19 northern pike during spring 2012 in Shingobee Lake. Thirty six pike were originally implanted with the archival tags in spring 2011. In addition, a long-term tagging study focusing on northern pike growth and angling vulnerability is being conducted out of a USGS research station at Shingobee Lake. Researchers are Bruce Carlson, Dallas Hudson, and Rod Pierce.

A new book titled "Northern Pike Ecology, Conservation, and Management History" by Rodney B. Pierce will soon be available from the University of Minnesota Press (advance copies have already been received). The new book summarizes historical and current scientific literature on the ecology and sampling of northern pike populations, documents the long history of northern pike management, and describes the latest efforts to manage recreational fisheries for the species.

Missouri (C. Fuller)
Currently, five lakes in Missouri are now managed for muskies: Pomme de Terre Lake (7,820 ac.), Fellows Lake (820 ac.), Hazel Creek Lake (530 ac.), Henry Sever Lake (158 ac.) and Lake 35, Busch Conservation Area (62 ac.). Henry Sever Lake was removed from the Missouri muskie program in 2010 due to lack of angler interest. However, with an increase in muskie fishing activity documented in 2011 and encouragement from the Pomme de Terre Chapter of Muskies Inc., Henry Sever Lake was included back in the program and designated as a surplus stocking location.

Although efforts were made to conduct standardized fyke net surveys this spring (2012) at Pomme de Terre Lake, Hazel Creek Lake, Fellows Lake, and Lake 35; unusual early warm-up and warm water temperatures makes this year's data difficult to compare to long-term trends. Sampling results are as follows:

Pomme de Terre Lake: 20 net-days resulting in a total catch of 23 muskies or a catch rate of 1.2 fish/net-day. Proportional Stock Density was 100%, RSD36 = 37% and RSD40 = 5%.

Hazel Creek Lake: 10 net-days resulting in a total catch of 37 muskies or a catch rate of 3.7 fish/net-day. Proportional Stock Density was 95%, RSD36 = 11% and RSD40 = 5%.

Fellows Lake: 24 net-days resulting in a total catch of 94 muskies or a catch rate of 3.9 fish/net-day. The highest reported catch rate since 1999. Proportional Stock Density was 87%,RSD36 = 26% and RSD40 = 9%.

Lake35, Busch CA: 20 net-days resulting in a total catch of 13 muskies or a catch rate of 0.7 fish/net-day. Proportional Stock Density was 85%, RSD36 and RSD40 = 0%.

→ As outlined in the Missouri Muskie Management Plan (2008 - 2017) (http://mdc.mo.gov/sites/default/files/resources/2010/05/6207_4073.pdf); this fall, 12-14 inch muskie fingerlings will be stocked at a rate of 1 fish/acre at Fellows 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). If surplus muskie are available, Henry Sever Lake will be stocked up to a maximum rate of 1 fish/acre.

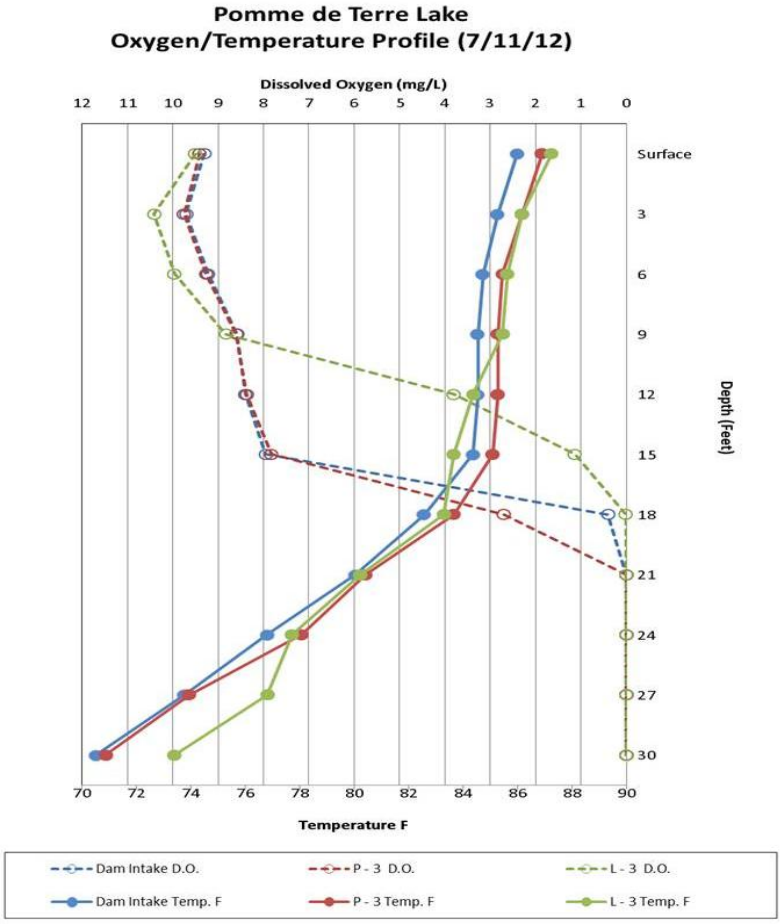
→ We are still working on summarizing data to complete a report on a "Northern vs. Kentucky" strain evaluation. We were hoping to collect a few more marked muskie during the 2012 spring sampling efforts to add to our data sets of this ten year long project. Our plan is to complete the strain evaluation report by the end of the year.

→ Missouri has a voluntary angler diary program known as the "Show-Me Muskie Project". We seek a wide cross-section of muskie anglers at all levels of skill and experience. Missouri's muskie management plan outlines an objective to "Maintain density and size structure of muskie populations that result in average annual angler catch rates of one muskie at least 36 inches long per 20 to 40 hours of muskie fishing effort (as reported by Show-Me Muskie Project cooperators). The following are 2011 results:

SHOW-ME MUSKIE PROJECT RESULTS 2011

Lake	No. of Trips	No. of Anglers	Total Hours	No. of Encounters	Hrs. per Encounter	No. Caught	Hrs. per Catch	No. Caught ≥36"	Hrs. per Catch ≥36"	Avg. Length
Pomme de Terre	201	17	1,139	159	7.2	68	16.7	24	47.4	30.9
Fellows	103	8	533	119	4.5	59	9.0	35	15.3	36.8
Henry Sever	63	13	409	36	11.3	26	15.7	13	25.5	33.1
Hazel Creek	48	10	291	43	6.8	25	11.6	3	97.0	33.4
Lake 35, Busch	2	1	15	1	15	1	15	0	N/A	16.0

→ In an effort to collect information on regional environmental stressors that may play a role in limiting factors to muskie management potential in Missouri, we have begun collecting oxygen and water temperature profiles from all five lakes managed for muskie. Oxygen/temperature data is being collected during the months of June, July, August and September. As an example, the following graph depicts oxygen/temperature data collected from Pomme de Terre Lake in July:



→ Worth noting – on May 30, 2012, a muskie angler caught a 51 inch (35 lbs., 7oz.) muskie on Fellows Lake. The angler reportedly released the fish immediately after catching it. However, the fish was stressed from being caught and surface water temperatures were in the upper 70's. To no avail, the angler spent 4 hours trying to revive the fish, including pumping oxygenated water over her gills as a last resort, a testament to the angler's commitment to the fishery and to catch-and-release muskie angling given the possibility of a state record. The current Missouri state record muskie is 49.5 inches (41lbs., 2 oz.) caught from Lake of the Ozarks in 1981. Arrangements have been made with the taxidermist to obtain the cleithra for aging.

Nebraska (K. Koupal)
Nebraska has limited use of esocids within our systems. We are managing to stock both muskie and northern pike in the requested systems at 2-3 year intervals. Space to culture esocids to a desirable size and the expense involved with raising them to this size are limiting factors for increased production and stocking. Many waters seem unable to successfully recruit these species. Thus, a statewide 40 inch minimum is in effect for muskie and many stocked waters have a 30" minimum on northern pike. Two main items are being investigated concerning esocids in Nebraska.

Northern pike production has hit a snag. There has been a decline in hatch percentage of broodstock spawned from our National Refuge lakes near Valentine Nebraska. Our hatchery staff has tried multiple combinations to try and isolate the specific problem and this past year they used a new buffer solution technique (10.1 pH) that was suggested by Wisconsin. The new buffer produced mean eye up of 64.5 and 69.3% with various broodstock sources as compared to 49.1 and 36.8% eye up with the more traditional 9.3 pH regular buffer. Using a 0.6% saline solution pre-mixed with regular buffer produced a mean eye up of 59.4%. Our staff plans to continue trying various combinations to produce more consistent and higher percent eye-up.

A northern pike tagging project was started at Lake Wanahoo in March 2012 to determine angler exploitation by biologist Jordan Katt (questions can be referred to him). Lake Wanahoo recently opened to the public, but the dam has been holding water since 2010. Before the project began, there were no length limit regulations on northern pike in the reservoir. Northern pike were captured with trap nets and electrofishing. Electrofishing proved to be ineffective and was only used two days. A total of 718 northern pike were floy tagged over 7 days during the spawning run. The population estimate was 2,109 pike in the reservoir (3/acre). Following the end of tagging, an emergency catch-and-release regulation was put on the reservoir for northern pike.

This complicated the study somewhat since it was designed to measure angler exploitation which is now illegal. Pending approval by the board of commissioners, a 30" minimum size limit on the northern pike will begin January 1, 2013. The University of Nebraska-Lincoln Coop Unit is conducting a creel survey on the reservoir and will continue through 2013. Tag returns have been minimal in 2012, most likely due to the catch-and-release regulation and the creel clerks asking for any tag numbers from anglers. When some harvest becomes legal, creel clerks will no longer be asking for tag numbers, and will record any tag numbers they see from harvested fish.

Ohio (C. Wagner) –

The Ohio Division of Wildlife (ODOW) plans on undertaking a 10 year project aimed at understanding spillway escapement rates and patterns for muskellunge in Ohio reservoirs. ODOW plans on PIT tagging all fingerling muskellunge stocked into three reservoirs for 10 consecutive years. These fish, along with all other program fingerlings stocked in the state's muskellunge waters over these same years will also be tagged with t-bar style external tags. Directly below the spillway area of the three PIT-tagged reservoirs, ODOW will install fixed antenna receivers operating continuously. In addition, select avid anglers on each of these three systems will be provided PIT tag readers to report catches each year. These data, along with biologist recaptures, will provide the necessary data to analyze cohort survival and escapement using Program Mark, along with growth and recycling of individual fish among anglers. Relationships between frequency and timing of spillway escapement and fish characteristics and environmental conditions will be examined. Further, muskellunge anglers fishing all program lakes throughout the state will be encouraged to report the external t-bar tag number online when their entering their catches into the ODOW Muskie Angler Log (http://www.ohiodnr.com/muskielog/welcome.aspx). This information is vital for identifying opportunities for improving muskellunge fishing by understanding the population dynamics and emigration of muskellunge from these reservoirs.

Ontario (S. Kerr) – No report provided.

Washington (B. Bolding) – No State report provided.

Wisconsin (J. Weeks; J. VanDeHey) –

Muskellunge Team Meeting Notes
South District HQ – Fitchburg
Wednesday, February 29, 2012

In attendance: Bob Haase, Jordan Weeks, Mark Luehring, Steve Hogler, Terry Margenau, Martin Jennings, Gary Lindenberger, Joe Weiss, Justin Van De Hey, Brian Sloss, Dan Isermann, John

Aschenbrenner, Steve Gilbert, Dave Rowe, Tom Penniston, Doug Welch, Scot Stewart, Tim Simonson.

1. The charge to the committee was reviewed, discussed and revised at the August, 2011 meeting and forwarded to the FM Board for review and approval. The final version that was modified by the FM Board was sent out previously, along with the "Teams Handbook, which provides guidance to team members and leaders. We briefly reviewed the current charge (http://dnr.wi.gov/fish/musky/muskymanteam.html). There were no comments or concerns.

2. RULES Update: The statewide default 40" minimum length limit will take effect this spring for most waters that do not already have special regulations. We will get the word out to anglers with a couple of press releases as the season gets closer. As goes for the quick-strike rig requirement, which also takes effect this season. We reviewed proposed regulations that will be presented at the 2012 spring hearings (http://dnr.wi.gov/org/nrboard/congress/spring_hearings/2012/2012%20Spring%20Questionnaire%20FINAL40pg.pdf). This spring, all questions will be advisory in nature, and are more or less general concept questions that do not get into specific rule changes. However, there are two specific advisory questions on allowing motor trolling statewide. The first is from the FM Board. There are 3 parts to the question, based on the number of lines that would be allowed per angler (favor motor trolling with 3 lines, 2 lines or 1 line). The second is from the Conservation Congress and simply asks whether attendees favor motor trolling statewide. The Conservation Congress also has a question aimed at allowing "trolling" with live bait, when musky anglers are pulling live suckers behind the boat while casting an artificial lure. Pursuant to our discussions of this issue in August 2011, we developed a specific rule change proposal to allow motor trolling statewide (see below). Simonson also drafted a memo for FM to LE seeking clarification on the enforcement of trolling with the use of life bait. We are asking the LE allow the use of live bait while the boat is positioned along structure, etc. For the 2013 spring hearings, there are 2 musky-related proposals in the "hopper" that have been approved: The first is a placeholder for a rule change to allow motor trolling statewide (3 lines/angler). We will likely examine the results of the 2012 votes to refine this question for 2013. The second is a proposal to increase the minimum length limit to 54" on the outlying waters of Lake Michigan (including Green Bay and the Lower Fox River).

3. Propagation/Stocking - We reviewed the stocking guidance, as drafted for inclusion in the newly revised version of the muskellunge management chapter for the FM Handbook (http://dnr.wi.gov/fish/musky/Chap20_%20MuskellungeManagement_tds.pdf). One suggestion was to include a map of the basin boundaries used for brood stocks. We also discussed the need for criteria and specific stocking rates for larger fall fingerlings. There are some biologists that feel that a larger product may be needed in certain waters with high predator densities. There was a general feeling that the current products, which typically exceed 10", are large enough for most

applications. Simonson will work with Margenau to develop a specific paired stocking project to evaluate the use larger fingerings in a few specific waters that seem to have poor success with the current product (e.g., Big McKenzie, Shell, others?). This project (the forage costs) would be funded by a gift from the Musky Clubs Alliance. This led to a general discussion about increasing costs to produce large fingerling muskies (high forage costs and issues with the health status of the minnows). We discussed two options to address this issue. The first was raising muskies on dry (pelleted) feed. The second was stocking fewer, high quality fish. There is a long list of studies that have shown poor survival in the wild of pellet-reared muskies. However, some suggest that the newer formulations better meet the nutritional needs of specific cool-water fishes. The advantage is that the cost tends to be lower for dry feed than for live minnows, and there are fewer concerns with bio-security in the hatcheries. Size at stocking seems to be the critical factor, with about 10" being the minimum length for good survival. Other factors may influence survival of fish raised on dry foods. We discussed a study proposed by Justin VanDeHey, UWSP, to compare muskies raised on minnows, dry feed, and a combination of minnows and dry food. We endorsed the study and, while some felt that the study would be stronger and more direct with 2 treatments (live versus dry), we left it up to Justin and a select group of advisors to determine the final design of the study. Justin also described another proposed study to evaluate the efficacy or our current brood stock management plan for muskies. The study would analyze much of the existing tissue samples, and it would also involve a more intensive, targeted analysis of genetic diversity at several stages within the hatchery. We also endorsed this project. We also discussed other options to address a decrease in production fish due to increasing costs: Namely, stocking fewer fish while maintaining the quality. There were several suggestions, including reduced stocking rates (0.25/acre was mentioned), higher frequencies (every 3 years was mentioned), focusing on higher profile waters (large trophy waters and important action waters), eliminating smaller waters from the quotas, etc. This was a general discussion and nothing was set in stone. It was concluded that the individual biologist would be in the best position to respond to reductions in quotas at this point in time. We also discussed the FM Board charge of determining "cost to creel". We have previously developed estimates for cost per survivor to 18 months for fry, fingerlings and yearlings. There are limited data on survival of stocked fish to adult ages. We do have some older estimates available, so we were able to come up with some numbers. Martin Jennings will have some more solid data on survival of stocked fish to adulthood within the next couple of years, so we can refine our estimates at that time. We also had a difficult time figuring out why the costs for yearling fish have increased so much between 1999 ($5.86) and 2003-06 ($421.34). Also, we wonder why spotted muskies would be so much cheaper to raise as yearlings ($59.29 versus $421.34) than inland muskies. Gary Lindenberger suggested that there may be some problems with the cost estimates for yearlings. We need to check in with the Fish Culture Section on the validity of/confidence in these cost estimates. Based on the increased costs of fall fingerlings from 1999 to 2006, in reality, yearlings are likely no more that $10-15 per fish.

4. We reviewed the rest of the Muskellunge Management chapter, developed as a draft for the FM Handbook (Chapter 20) (http://dnr.wi.gov/fish/musky/Chap20_%20MuskellungeManagement_tds.pdf). Under Goal I.B., we want to insure that the landscape-scale model developed from the Nohner thesis becomes part of our management "tool box". There was some discussion regarding our goal of increasing the number of 50" and larger muskies in Class A1 waters (Goal II.A). We agreed that anglers clearly consider 50" fish as a "trophy", but that we are generally trying to increase the number of 45" and larger fish in these populations. It is difficult to establish an index for 50 inch and larger fish, because they are uncommon in our sampling gears. We agreed to reword the goal as follows: Manage Class A1 waters to increase the catch of 45" and larger muskies, with some fish over 50". As part of this discussion, we also talked about some issues related to conducting population estimates, as it relates to behavior of spawning fish, and specifics concerning recommendations for aging muskies. We plan to have Dan Isermann and the "Fish aging Task Group" provide input on aging methods. Simonson will update the chapter as appropriate. There was discussion and general agreement suggesting that all muskellunge sampled in the state be PIT tagged. We need to work on this idea some more to define the purpose and develop a plan to get all biologists the gear and tags they would need to accomplish this. Also, we need to look into how we would import/upload tag numbers from stocked fish into the database so they would be available in the future when these fish are recaptured.

5. We finalized our review and approval of the Great Lakes Muskellunge management plan. All members have had ample opportunity to review and provide comments to Steve Hogler. Steve has addressed all the comments and the latest version is available (http://dnr.wi.gov/fish/musky/muskymanteam_products.html). We also briefly updated the team on the status of the 3,000 spotted muskies imported from Michigan. These fish were spawned from Lake St. Clair, reared by the state of Michigan to 3-4", tested for diseases, transported to Wild Rose Hatchery, and due a variety of problems, almost all were lost to predation, columnaris, nematode infestations, heavy bacterial infection (Aeromonus), and fathead minnow nidovirus. We will try again this spring to obtain these fish from Michigan. They will be closely monitoring the hatchery environment this coming season and can hopefully figure out what happened with these fish.

Information items:

6. North Central Division, AFS, Esocid Technical Committee Report (http://www.ncd-afs.org/Default.asp?mid=23&sid=32)

"Effect of harvest mortality on muskellunge size-structure in Wisconsin's Ceded Territory". 2012. Matt Faust – UWSP, Final Thesis (http://dnr.wi.gov/fish/musky/muskymanteam_products.html)

Musky Angler Survey – Dan Isermann – UWSP (http://dnr.wi.gov/fish/musky/documents/muskellungeanglersurvey.pdf)

7. Annual Meeting, American Fisheries Society, Twin Cities, August, 2012 (http://www.afs2012.org/)

8. Musky symposium, Twin Cities, Spring 2016 – Muskies Inc., details to come.

9. NEXT MEETING - Musky Team, September 5, 2012 – KEMP BIOLOGICAL STATION, Minocqua

These minutes are respectfully submitted by J. Meerbeek