



North Central Division American Fisheries Society



Esocid Technical Committee

Chair – Dave Kittaka (IN DNR; dkittaka@dnr.IN.gov)
Immediate Past Chair – Dave Woods (MDC; Dave.Woods@mdc.mo.gov)
Chair-elect – TBD

2014 Winter Business Meeting Minutes

*74th Midwest Fish and Wildlife Conference, Kansas City, Missouri
January 26th, 2014*

The following notes highlight discussions from the ETC business meeting held on the 26th of January, 2014 at the Sheraton Hotel in Kansas City, Missouri. In attendance at the business meeting were Steve Gilbert, Dave Kittaka, Andrew Jansen and Dave Woods. In addition, various members of the Walleye Technical Committee were in attendance due to the cancellation of the WTC business meeting.

Summer Meeting Minutes: No corrections were made to minutes from the July 2013 ETC summer business meeting. Those meeting minutes were provided to ETC members on August 5th, 2013 and are posted on the ETC website.

Sales of the International Pike Symposium: Since the ETC Winter Business meeting in 2012, there has been ten copies available for purchase @ \$30/copy, which has been advertised on the ETC website. The group discussed lowering the price again to sell the remaining copies. If no copies are sold before the 2014 summer business meeting, the price should be reduced.

Past and Future Leadership: Typically, the representative from the state hosting the upcoming Midwest Fish and Wildlife Conference becomes chair of the Esocid Technical Committee one year prior to that conference. As the 2015 Midwest Fish and Wildlife Conference will be held in Indianapolis, Indiana, Dave Woods turned over the ETC chair responsibilities to Dave Kittaka from the Indiana Department of Natural Resources.

Summer Meeting Announcement: The 2014 ETC Summer Business Meeting will be held during the WTC/ETC/CTC Joint Summer Meeting in La Crosse, Wisconsin at the Radisson Hotel July 22-24th of 2014. Please let Dave Kittaka know if you plan on attending (dkittaka@dnr.IN.gov).

Budget: As of December 31st, 2013, the ETC account (managed by NCD Treasurer Andrew Jansen) had a balance of \$2,521.48. Deposits in 2013 included \$58.79 from the Joint Summer Meeting and \$11.31 in interest.

New Items:

The ETC briefly discussed the 2016 Hugh C. Becker International Muskie Symposium in March 2016 in the Twin Cities area, which is sponsored by Muskies Inc. The consensus was that many members may not have out of state travel approval to attend the symposium; however the committee will need to discuss if the ETC will play a role in this symposium at the summer meeting in La Crosse.

Chapter Representatives – Updates

- Dakotas: Steve Chipps
- Illinois: Vacant
- Indiana: Current Chair (2014) Dave Kittaka
- Iowa: Chair (2010-2012), Jonathan Meerbeek
- Kansas: Jeff Koch
- Michigan: Chair (2008-2009), Jim Diana
- Michigan: Kregg Smith
- Minnesota: Mike Habrat
- Missouri: Chair (2012-2014) Dave Woods
- Nebraska: Keith Koupal
- Ohio: Curt Wagner
- Ontario: Vacant (Steve Kerr retired in 2012)
- Wisconsin: Jordan Weeks

New Project Ideas:

None discussed.

State and Provincial Reports:

Dakotas (B. Blackwell)

North Dakota – No state report provided

South Dakota –

Blue Dog State Fish Hatchery received 1,100 muskellunge fingerlings through Iowa from Indiana. These fish were held throughout the summer and were then stocked into Lake Sinai in the fall.

Northern pike populations remain strong across eastern South Dakota. Northern pike sampling catch rates for 2013 can be viewed at <http://gfp.sd.gov/fishing-boating/tacklebox/lake-surveys/default.aspx>.

Darkhouse spearing for northern pike became legal last winter for all inland waters. Participation appears to be good and no significant issues have come forward.

Pactola Reservoir Northern Pike Assessment

South Dakota State University Graduate Student Natalie Scheibel under the direction of Steve Chipps recently completed an assessment of northern pike in Pactola Reservoir, located in the Black Hills of South Dakota. The population resulted from an illegal introduction into a water traditionally managed as a trout fishery. The objectives of this study were to: (1) determine age and growth of Northern Pike in Pactola Reservoir, (2) assess growth differences among Northern Pike that consume varying amounts of Rainbow Trout, (3) and compare Pactola Reservoir Northern Pike growth rates to growth rates of other Northern Pike populations. Northern Pike were collected in 2012 and 2013. Cleithra were collected from all Northern Pike and used to calculate mean lengths-at-age. Von Bertalanffy growth models were developed for the overall northern pike population, as well as for males and females separately. Northern Pike larger than 600 mm tended to consume primarily Rainbow Trout (56%) and had the highest relative weights within the population ($P < 0.05$). Females grew faster and larger than males, and they also tended to live longer. The Pactola Reservoir Northern Pike exhibited slower growth than the other populations it was compared to, but had longer lifespans, with some individuals living to at least to age-12. Pactola Reservoir Northern Pike reached comparable lengths, equivocal to or greater than those from faster growing populations. Cooler water temperatures and lake morphology may slow growth but allow

Northern Pike to have longer lifespans. However, the combination of abundant resource availability and water clarity of Pactola Reservoir allow northern pike to efficiently prey upon rainbow trout. Once Rainbow Trout become the main dietary item for these northern pike growth and condition were improved.

Muskellunge vs. Standard Fyke Net Evaluation

Since the initial introduction of muskellunge into South Dakota, these fish have proven difficult to sample with SDGFP standard fish sampling gears (e.g., fyke nets, gill nets and electrofishing). Sampling of muskellunge is imperative to gauging the success of stockings and to collecting information on various metrics (e.g., growth, fish condition, relative abundance). The Minnesota Department of Natural Resources (DNR) has recommended the use of large fyke nets (5 x 6 ft. frames, 5 ft. diameter hoops, 100 ft. lead, double throated and 0.75 in. knotless mesh) set at specific locations during the spring to collect muskellunge. The SDGFP is interested in adopting the Minnesota DNR methodology for sampling muskellunge, but first must determine if it will work in South Dakota waters.

During the 2013 spring, the SDGFP compared the catches of muskellunge collected in the standard SDGFP fyke nets (3 x 5 ft. frames, 3 ft. diameter hoops, 50 ft. lead, single throated and 0.75 in. knotted mesh) and the Minnesota DNR muskellunge fyke nets. Three lakes (Amsden Dam, Lynn Lake and West 81) were included in the 2013 evaluation. At each lake, 10 subjective sites were selected for net placement and five standard fyke nets and five muskellunge fyke nets were randomly placed at the 10 sites and checked daily. Sampling occurred at or shortly after ice-out on each water and continued for a minimum of five nights. All collected muskellunge were implanted with a passive integrated transponder (PIT) tag for future identification.

Results in 2013 showed that more muskellunge were collected in the larger fyke nets. However, because of the limited number of nets used the sample size remained small. In 2014, the comparison study will be repeated with an increased number of nets (10 standard and 10 muskellunge fyke nets).

Illinois (vacant) – No State report provided.

Iowa (J. Meerbeek) –

The muskellunge program was expanded in Iowa this year to include a 729-acre natural lake located in West-Central Iowa (Black Hawk Lake) and a newly constructed 400-acre reservoir (Lost Grove Lake) in South-Western Iowa. Black Hawk Lake was renovated (drawdown with rotenone application) in the fall of 2012 to remove common carp and reestablish aquatic vegetation. In June of 2013, 400 yearling muskellunge (mean length of 11.7 in) were stocked and by October, some individuals were 18 in. Lost Grove Lake was stocked with 200 of the same sized yearling muskellunge. These fisheries were stocked with muskellunge primarily to provide anglers with trophy fishing opportunities. With these additions, twelve lakes and impoundments are currently being managed as muskellunge fisheries in Iowa.

Emigration of muskellunge (and walleye) from reservoirs or lakes to rivers continues to be a topic of concern in Iowa. The Iowa AFS Chapter sponsored a continuing education course this past July entitled “PIT Tag Use in Fisheries” that was presented by Oregon RFID. The affordability of this technology has improved substantially in recent years, and the potential for installing remote reader arrays at reservoir spillways and outlets is now much more practical. In response, Iowa DNR and Iowa State staff have been investigating the effects (survival and tag retention) of implanting three different sizes of PIT tags in two locations (body cavity and dorsal musculature) of small (6-7 in) muskellunge. We observed no mortality three weeks post-implanting; however, tag retention rates did differ among tag sizes (Figure 1). These results will be used to guide fisheries managers as they design projects to evaluate emigration.

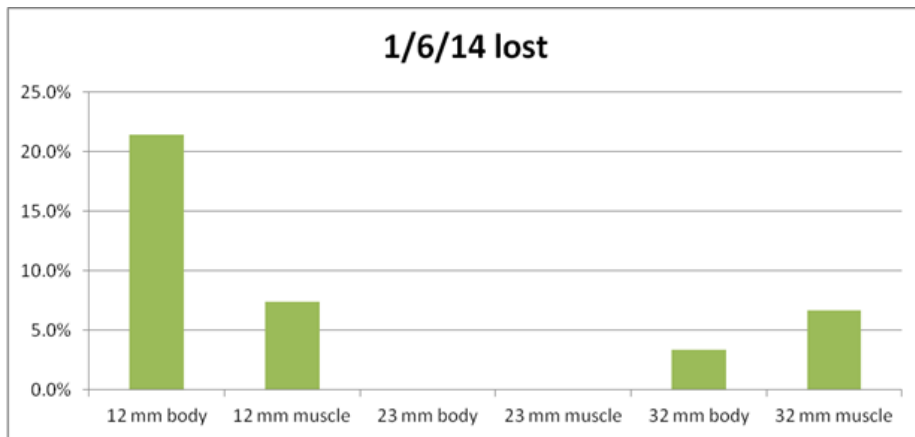


Figure 1. Percent tag loss of age-0 muskellunge after three weeks of being injected with three sizes of PIT tags in two anatomical locations.

Mississippi River Northern Pike Study - This telemetry study was undertaken in order to identify and quantify the physical and chemical characteristics of habitat used by northern pike in the Upper Mississippi River. Twenty pike were radio transmitted 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). 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 transmitted 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).

Indiana (Dave Kittaka) –

August 24, 2013 the Indiana Department of Natural Resources, Division of Fish and Wildlife held the first musky summit, with the goal of providing a forum for managers, anglers, and guides to share information to make the muskie fishing better. Eight fish and wildlife biologists were in attendance and 4 of them gave presentations representing their role in the statewide muskie program.

Highlights from the meeting were;

- The presentation of a new PIT tag reader from the Webster Lake Muskie Club. The previous reader was donated in 2005 by the Hoosier Muskie Hunters org. The PIT tag reader will be used to track incremental growth of muskies that have been PIT tagged during broodstock collections at Webster Lake since 2005. IDNR greatly appreciates this donation and the history of cooperation with the clubs.

- Muskie hatchery manager Dylan Sickles, East Fork State Fish Hatchery, Montgomery, IN, gave a presentation on the muskie hatchery process from broodstock collection to fall stocking.

- Ball State University, Muncie, IN will be conducting a Muskie study at a new muskie stocking site in Indianapolis, IN. This will be a cooperative research project with DNR to look at impacts of MUE stocking on

the Eagle Creek Reservoir fish community. Other aspects of MUE life history will be also be studied. One portion of the study will involve implanting radio transmitters in age-1 MUE fingerlings and tracking movement.

The 2014 Muskie summit was held in central Indiana (Fishers, IN) on January 18, 2014. The states muskie groups along with DNR fisheries professionals discussed a proposed size limit change at the state's primary broodstock lake. The proposed size limit increase will go from 36 inches to 44 inches at Webster Lake and two other lakes in the system (Backwater and Kiser Lakes) in Kosciusko County. More restrictive aquatic vegetation control was also discussed for muskie program lakes.

Kansas (J. Koch) – No state report provided

Michigan (K. Smith) – No state report provided

Minnesota (M. Habrat) –

Rodney B. Pierce retired in August from MNDNR after twenty-seven plus years as a research biologist and was undoubtedly the Department's northern pike expert. Don Periera, former Research Unit Supervisor, takes over as Fisheries Chief for the retired Dirk Peterson.

MNDNR is exploring options for management of northern pike fisheries with the intent of increasing harvest yield on some select waters. These fisheries would likely be centered in southern MN. Water bodies in this region are very productive and northern pike exhibit fast growth, poor recruitment, and high exploitation. Quality northern pike do not remain in the system for very long, despite stocking programs in some of these waters. Management actions being discussed include regulations, stocking, winter rescue (adult stocking), or some combination. The management challenges in these waters are nearly opposite to those in central and northern MN where the over-abundance on small northern pike continues to be a topic of concern by stakeholder groups. Because of the vast differences in pike population dynamics there may be advantages to dividing the state into management zones.

Opinion questions were asked during routine creel surveys on four lakes containing muskellunge. Questions were only asked to those anglers who said they fished for muskies. Preliminary analysis of the data suggests anglers were generally split when asked if the minimum size limit should be 50 or 52 inches, with slight favor to 52 inches when all lakes were combined. A similar trend was observed when asked if a higher size limit on select waters should be 54, 55 or 56 inches. 54 and 56 inches were similarly represented while 55 inches was selected least.

Windom Area Fisheries has an ongoing muskellunge marking project on Fox Lake muskie (southernmost MN muskellunge water). The project consists of PIT tagging muskellunge over the course of 3 springs assessments (2011-2013) and then assessments every other year beginning in 2015. In addition, all fingerling stocked muskie will be PIT tagged indefinitely. Age, growth, mortality and population estimates will be collected for the Fox Lake population.

A new project on Elk Lake will attempt to describe the ecological niches of walleye, northern pike, and muskellunge using stable isotope analysis. We (Brian Herwig, MNDNR et. al) hypothesize that this should work because a fish's isotope composition (the ratio of heavy and light forms of elements that form fish tissues – carbon, hydrogen, nitrogen, and sulfur) should reflect what each of the major predator species in the lake is eating "on average" over a period of time. This work will hinge on prey fish also being different in isotopic composition, depending on the mix of foods they eat. In this way, we then expect that perch should differ from cisco, and both of these should differ from suckers, and so on. Putting this all together, we should be able to

determine fundamental diet differences among the major predator species in the lake (for example, we should be able to ask questions like: Do muskie eat mainly cisco in Elk Lake? Are white sucker also important? Are perch the most important prey item for walleye?).

Walker Area Fisheries Staff (MNDNR) and Dr. Loren Miller (MNDNR and UMN) assessed a muskellunge population in two connected lakes in north-central Minnesota. Baby Lake (750 acres) was stocked annually from 1971-1979 with Shoepack fingerlings, while Man Lake (445 acres) was not directly stocked. Baby Lake is eutrophic/mesotrophic, while Man Lake is oligotrophic. Their objectives were to 1) compare traditional (fin-clip marking during spring trapping, re-capture effort using electrofishing) to non-traditional (genetic fingerprinting of trapped individuals, angler-supplied scale samples served as the recapture effort) mark-recapture techniques; 2) estimate the catch frequency and exploitation potential of the population by anglers; 3) describe seasonal movement between lakes; and, 4) describe residual Shoepack ancestry in both lakes and its effect on population statistics, specifically growth, age- and size-structure, and L_{∞} . Preliminary results suggested that anglers can supply adequate recapture sample sizes in mark-recapture studies provided the marking sample size is sufficient, and this method can yield population estimates similar to traditional mark-recapture techniques. Overall, L_{∞} and growth rate decreased with increasing levels of Shoepack ancestry.

Thor Tackett (UMN-Mankato) is midway through a graduate project looking into sperm quality in Minnesota northern pike via computer assisted sperm analysis (CASA). This past spring he found some correlations between ice-out date and the percentage of motile sperm. Work was also begun looking at agricultural row cropping in relation to sperm motility. Future research will focus on changes in northern pike sperm during the spawning season and what may be influencing these changes.

In 2013, the “genetic diversity” of the North Star Lake muskellunge population was investigated because the population was established with three stockings of 314 fall fingerlings each (1989, 1991, and 1994). Although a quality population has been maintained by natural reproduction, we wondered if the low number of stocked fish that “founded” the population was sufficient to maintain a “healthy” population long-term. (Healthy - continue to see good natural reproduction with some fish exceeding 50 inches) We looked at the measures of genetic diversity expressed as expected and observed heterozygosity and allelic richness in muskellunge populations based on 13 microsatellite DNA loci. North Star Lake data was compared to that from Leech Lake, the source population, and several other lakes stocked with Leech Lake progeny. The North Star muskellunge population ranked lowest in genetic diversity based on these methods. Currently, we are considering if additional fish should be stocked for genetic reasons. If we choose to move forward with stocking, we need to identify the number, frequency, and size of fish to be stocked, as well as, a method for tracking these fish and monitoring if we have been successful in improving genetic diversity to levels comparable with the healthy source population. Investigators Steve Mero and Dr. Loren Miller (MNDNR).

Legislative news:

- Northern pike darkhouse spearing bans were removed from twelve waters, five of these waters currently have a protected slot limit of 24-26 inches. Spearing bans remain on fourteen waters.
- Length based northern pike regulations continue to be legislatively restricted to the current 100 waters with length based regulations.
- MNDNR is recommending two Esocid related regulation changes and will be open for public input sometime in January 2014. These include increasing the statewide muskellunge minimum length limit to 50 inches (from 48), and establishing a darkhouse spearing season on border waters.
- Muskellunge angling season closing dates on MN/WI border waters do not match either states inland season. Both agencies recently met and agreed the existing closing dates should be changed. Change would likely occur in 2015.

Missouri (D. Woods) –

Show-Me-Muskie Project

The Show-Me-Muskie Project is a volunteer reporting program in which the Missouri Department of Conservation invites conservation-minded muskie anglers to help evaluate Missouri's muskellunge management program. Volunteers include a wide cross-section of muskie anglers at all levels of skill and experience. Missouri's Muskellunge Plan sets muskie angler catch-rate objectives, which can be documented most efficiently by anglers themselves. The 2013 Show-Me Muskie Project data is currently being received from anglers across the state. That data will be summarized and a report will be available in the spring of 2014.

2013 Muskellunge stocking

Since 2006, Missouri has obtained four inch muskie fingerlings from Spirit Lake Fish Hatchery, Iowa. Due to some extra-ordinary environmental conditions, Iowa's muskie production was unsuccessful this year. Fortunately, Iowa was able to acquire some muskie fingerlings from Indiana, and in turn provided a number of those fingerlings to Missouri. Those fish were six inches in total length when they arrived in Missouri hatcheries in September and were stocked in program lakes in early November. Mean total length at stocking was 10.3 inches. Despite the late acquisition, Missouri was only able to meet 37% of their stocking commitment. Lake biologists plan to request increased stocking rates for 2014 to compensate for the shortage.

New signage

MDC staff created and posted new signage at muskellunge program lakes outlining proper catch and release handling methods for muskellunge. Muskellunge are not native in Missouri and are stocked in only five water bodies across the state. In many instances, anglers fishing on program lakes are unaware muskies are present and do not know proper handling methods for releasing one. This signage makes anglers aware that muskies are present in the lake and how to properly release one if caught.

Hatchery netting

The Pomme de Terre Chapter of Muskies, Inc. donated two rolls of bird netting to MDC's Lost Valley Hatchery, the rearing facility for all muskie fingerlings stocked in Missouri. Piscivorous birds are a constant nuisance for hatchery staff and can significantly reduce success rates if not addressed. The Pomme de Terre Chapter of Muskies, Inc. continues to be a valuable partner in muskie management in Missouri.

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. The recently appointed director seems to have an interest in prioritizing northern pike in our systems so more pond space is being allocated to minnow production to feed esocids. 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 on-going and have occurred since the last report.

Northern pike production is still inconsistent. 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

employed 2 variable trials to get replication that would assist in determining if better eye-up and survivability results from the “hot buffer” as they refer to it (10.1 pH). Results have not been shared at this time.

Lake Wanahoo Pike Study

This study began in 2012 to measure angler exploitation of northern pike. However, the proposed regulations to allow limited harvest were not well received by the public and were taken out of consideration for our two year regulation cycle (2013-2014). This study has now shifted to explore northern pike growth and survival in the reservoir. Northern pike are being collected with trap nets in the spring and are floy tagged. The 2013 population estimate was 1,745 (3/acre), which was a 17% decrease from 2012. The mode of male northern pike increased from 540 mm in 2012 to 620 mm in 2013 and for females increased from 590 mm to 720. Tagging is scheduled to continue in 2014.

Ohio (C. Wagner) – No state report provided

Ontario (Vacant) – No state report provided.

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

Wisconsin (J. Weeks) –

Wisconsin Muskellunge Standing Team Notes

1. Attendance/Membership – New members Jeff Kampa (SS) and Roger Sabota (Congress) were introduced; also in attendance were John Aschenbrenner (Congress), Aaron Cole (NAD-Barron), Bob Hasse (Musky Clubs Alliance), Gary Lindenberger (CO), Mark Luehring (GLIFWC), Greg Matzke (NAD-Florence), Dave Rowe (SAD-Fitchburg), Dennis Scholl (Treaty Unit), Tim Simonson (CO), Scot Stewart (SAD- Fitchburg), Jordan Weeks (WAD-Lacrosse), Doug Welch (SAD-Sturtevant), Steve Gilbert (NAD-Woodruff), Steve Hewett (CO), Dan Isemann (UWSP), Mike Preul (Mole Lake), Jon Pyatskowitz (Treaty Unit).
2. Status of the muskellunge fishery in Wisconsin – A brief presentation was provided that tracks the status of the musky fishery in WI over the last 20 years or so, based mostly on data from the statewide database. This presentation was put together at the request of the Wisconsin Chapters of Muskies, Inc. This program contains many slides of long-term trends in the musky fishery and is available from Tim Simonson (or on the “MUSKY TEAM” folder of FHCOMMON under “2013 Meeting – Kemp”).
3. Team Charge:

Develop/review regulation guidance and proposals. Specifically, we want to explore the idea of lengthening the musky season to allow anglers to fish when open water exists in the fall (in the northern zone). We also agreed to explore the idea of changing the 28” minimum lakes to “no minimum” and to consider a protected slot proposal if accompanied by a convincing modeling effort.

Develop/review stocking guidance and stocking plan. We resolved to specifically consider the idea of removing the 2500 cap on selected lakes to allow for more efficient management of these fisheries. One idea was to cap small lakes to provide enough fish for larger lakes. We will examine the implications of this idea and discuss further at the next meeting. We agreed to add a habitat element to our general charge, and to specifically look at the weed control issue as it relates to fish mortality and to develop some more specific research topics related to bulrushes, critical habitat designation/sensitive area designations, etc.

Develop/review assessment metrics and sampling protocol, we specifically want to pursue the issues of the mark/recapture periods for population estimates, net dimensions as it relates excluding certain sized fish, development of the use of fin rays for aging fish (including validation of fin rays from known-age fish), and exploring the idea of PIT tagging every musky handled in our surveys. If this does end up as a recommendation, we will probably need to seek external funding for this initiative.

4. Habitat Protection and Improvement.

Dan Isermann provided an update on a Midwest Glacial lakes Partnership project that he is proposing, related to identification of musky spawning and rearing habitat in lakes. The Musky Spawning Habitat Model project (Simonson) is currently stalled due to issues with running the newest version of the MAXENT Model. We hope to get it up and running soon.

5. Musky Fishing Regulations

- a. We reviewed and discussed the following 2013 Conservation Congress Resolutions and deferred action at this time:
 - i. 640113 - Motor trolling with 1 line using live bait in Vilas and Oneida counties
 - ii. 640413 – Motor trolling with 1 line per angler in Vilas Co
 - iii. 640613 - Allow Trolling while positioning when fishing
- b. We reviewed and discussed the following 2013 Conservation Congress Advisory Questions:
 - i. Increase the musky size limit on Petenwell and Castle Rock from 45” to 50” in Adams, Juneau, and Wood Counties
 - ii. 40” minimum on Spider Lake, Sawyer County
- c. We reviewed and discussed the following 2014/15 FM Advisory Questions/Proposals
 - i. Allow motor trolling/clarify position fishing – Congress Compromise – this proposal will be presented at the 2014 Spring hearings. We discussed other alternatives but we were unable to reach consensus on a preferred alternative. Generally, most people were supportive of a statewide one-line per angler, with some exceptions for 3-lines in specific areas/waters.
 - ii. Eliminate 28” minimum - Spider Lake Chain, Tiger Cat Chain, Mud/Callahan Lakes, Chief River (Sawyer County); Solberg Lake (Price County).

6. Propagation/Stocking

- a. We reviewed the updated “cost” estimates for production of fingerling muskellunge (\$10.03 - \$11.29 total – \$4.51 to \$7.87 minnows). The total included infrastructure costs for projects that are spread out across all fish produced statewide.
- b. We reviewed and discussed current issues with musky propagation (forage costs/quality) and implications for management – specifically, we reviewed the details of the planned evaluation of pellet-reared muskellunge survival. We reviewed the production progress to date and discussed the details of the fall shocking protocol. We recommended that fall sampling can commence 2 weeks from the stocking data regardless of the water temperature at that time. We also confirmed that standard shocking practices with 2 dippers at normal speed should be used because several people are using these surveys for other purposes, as well. We also recommend that fingerling muskies be marked with a small Top Caudal fin clip to promote identification of recaptures within the fall sampling period.
- c. GL Spotted Musky Update – MI egg take/fingerlings from Lake St. Clair – 2013 – Steve Hogler provided a written update that was distributed to the musky team members.

Summary:

2012- We imported musky from Michigan in 2011 but an outbreak of fathead minnow virus caused high mortality. It was decided to euthanize the survivors rather than stock brood stock lakes.

We again imported musky from Michigan in 2012. They were received in early fall and were raised at Wild Rose. Hatchery staff noted some mortality of these fish as well, but not to the level of the previous year.

We raised and stocked about 5100 musky which were progeny of musky collected from the Fox River. They were stocked back into the Fox River and other locations around Green Bay. This was the 3rd year of using Fox River fish with eggs raised at Kewaunee. To date we stocked in round numbers, 2500 in 2010, 5200 in 2011 and 5100 in 2012.

2013

We again set nets in the Fox River. Despite an odd spring and the lack of ripe fish during normal spawning dates we were able to send eggs to Kewaunee. The musky will be stocked this September. It is hoped we will get 3000-5000 musky again this year.

Musky received from Michigan in 2012 were pit tagged and stocked in August. They were progeny of 4 females and multiple males. We collected biological data on 224 of the 605 musky that we stocked. The average musky was 339 mm (13.3”) in length and weighed 208.9 g (0.46 pounds). They were stocked into the brood lakes at slightly less than 1 per acre. Each lake received fish from each female.

Once again in 2013 we are importing musky from Michigan, This year Michigan had great success in capturing musky and we will get about 10000 small fingerling representing more parents than in the past. The plan is to raise them at Wild Rose until August 2014. Each brood lake will get stocked at 2 per acre and will get a representative mix of each parent. Any additional fish above the musky needed for brood lakes will be stocked into Green Bay. The brood lake fish will be pit tagged and the bay fish will be fin clipped.

7. Research Update – Jeff Kampa/Dan Isermann. Jeff will be taking over Martin Jennings’ projects since Martin left for the MN DNR. We reviewed and discussed our research needs and priorities. The only new initiative we recommend adding is the anal fin ray aging validation analysis. We have yet to assign this to specific staff/researchers, but feel it is a high priority objective for the next two years. Dan also reviewed his ongoing research projects with us.
8. Muskellunge Cost-to-Creel Estimates -2012
 1. Identified 12 stocked (Category 3) lakes with creel surveys (2000-2011).
 2. Computed the annual average number of fish stocked in each lake (1995-2011);
 3. Computed annual average cost to stock each lake (number stocked x production cost per fish);
 4. Assumed estimated Catch (and harvest) was annual average “snapshot”;
 5. Computed the average annual cost/fish-caught (and kept) for each lake;
 6. Averaged the cost/fish-caught across lakes.
 7. Also had creel surveys (2005-2010), fish stocked (1995-2006) and production costs for Green Bay (GL Spotted Muskellunge).