CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: April 16, 2004 FILE REF: [Click **here** and type file ref.]

TO: Rest Lake Dam/Manitowish River Work Group

FROM: Jim Kreitlow

SUBJECT: Minutes of our March 24th, 2004 meeting.

I want to thank all the group members who attended our third meeting on March 24th, 2004. The purpose of the meeting was to provide additional background information to work group members so they can gain a better understanding of the issues and have their questions answered. Ultimately this information presented and discussed at this meeting and future meetings will help us determine/evaluate options or proposals for operational change that we all can agree to.

I will summarize the meeting following the three information items that were presented.

1. Walleye and Muskellunge Movement in the Manitowish Chain-Jordan Weeks, UW Stevens Point Graduate Student.
2. History of Sturgeon in the Manitowish River/Chain-Les Jacobson-Friends of the Manitowish River.
3. Presentation on the relationship between water levels/flows and aquatic habitat/community structure from both upstream and downstream perspectives-Jeff Scheirer, WDNR.

I want to thank Jordan, Les and Jeff for their excellent presentations and taking the time to speak to the group.

Participants

1. Jim Kreitlow, WDNR, 107 Sutliff Avenue, Rhinelander, WI. 54501, Kreitj@dnr.state.wi.us 365-8947.
2. Bob Martini, WDNR, 107 Sutliff Avenue, Rhinelander WI. 54501 martire@dnr.state.wi.us 365-8969.
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4. Jeff Scheirer, WDNR, Park Falls, WI. Scheij@dnr.state,wi.us 762-4684 (extension 131).
5. Jordan Weeks, UW Stevens Point, Jordan.g.weeks@uwsp.edu
6. Jim Cox, WDNR, 5291 Statehouse Circle, Mercer, WI. Coxj@dnr.state.wi.us
7. John Hansen, Town Chairman, 217 Spider Lake Road, Manitowish Waters, WI. 54545 Jlhmjh@centurytel.net 543-2438.
8. Les Jacobson, Friends of the Manitowish River, PO Box 202, Manitowish Waters, WI. 54545. 543-2501
9. Bob and Helen Townsend, Friends of the Manitowish River, 73 River Access Road, Manitowish Waters, WI. 54545. Bhtownsend@yahoo.com 543-2166.
10. John Bates, Friends of the Manitowish River, 4245 North Highway 47, Mercer WI. 54547 476-2828.
11. Greg Holt, Friends of the Manitowish River, holthorse@centurytel.net
12. Rob Olson, Xcel Energy, 1414 West Hamilton Avenue, PO Box 8, Eau Claire, WI. Robert.w.olson@xcelenergy.com 839-1353.
13. Mary Sinkus, Manitowish Waters Lakes Association, PO Box 458, Manitowish Waters, WI. Pinebarons@centurytel.net 543-8464.

14. Rita Mazer, Manitowish Waters Lakes Association, 288 Highway 51, Manitowish Waters WI. 54545 543-2538.
15. Harland Klagos, Manitowish Waters Alliance, 40 West Bay Road, Manitowish Waters, WI. 54545. Klagos@centurytel.net 543-8246.
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20. Joe Stengele, 321 Point O' Pines Road Manitowish Waters WI. 54545.
21. Lloyd Bonech, Manitowish Waters Alliance, fatnbarb@yahoo.com 543-2511.
22. Mark Charon, Friends of the Manitowish River, parasustema@hotmail.com
23. Tom Mowbray, Turtle Flambeau-Trude Lake Property Owners Association, TFTLKassoc@aol.com
24. Calvin LaPorte, PO Box 58, Manitowish Waters, WI.
25. Carl Sevey, Alder Lake.

Members Absent

1. Pete Rasey, Manitowish Waters Lakes Association, 543-2176.
2. Ronald Gaa, Manitowish Waters Alliance PO Box 9, Manitowish Waters, 54545. 543-2505 Fax 543-2188.
3. Judi Schmidt Arnold, Manitowish Waters Alliance, PO Box 98, Manitowish Waters, 54545. Judisa@shrealty.com 543-2300.
4. Mona Weichmann, Manitowish Waters Lakes Association, 543-2562.
5. Jack King, Manitowish Waters Lakes Association, PO Box 286, Manitowish Waters WI. 54545. Jgroveking@aol.com or jgrovking@yahoo.com
6. Gayle Strand, Manitowish Waters Lakes Association, 10081 W. Ives Street, Marshfield, WI. 54449.
7. Tom Feldkamp, tfeldkamp@centurytel.net 543-2149 Fax 543-2150.
8. Arlen Wanta, Turtle Flambeau-Trude Lake Property Owners Association, 2795 North Flowage Road, Park Falls, WI.
9. Jim Leever, Turtle Flambeau-Trude Lake Property Owners Association, 4792 West Franks Lane, Park Falls, WI.
10. Jeff Roth, WDNR. 5291 Statehouse Circle, Mercer, WI. Rothj@dnr.state.wi.us 476-7847.

Informational Items

Walleye and Muskellunge Movement in the Manitowish Chain

Background

Jordan provided an overview of his graduate project that begins this spring. Understanding lake chains has been an item of interest to the DNR for many years. The main goal is to prevent over harvest of walleye and muskellunge by manipulating spearing and angling quotas. This study will provide information about daily and seasonal movement of fish within a chain, to better manage our lake chains in Wisconsin.

Project Objectives

The objectives of this study are:
1. Determine if walleye and muskellunge spawn in the same lake in successive years.
2. Determine if fish use different lakes in the chain in different seasons.

Methods

Fish will be marked by:
1. Netting and electrofishing known spawning locations throughout the chain in early spring.
2. Marking all walleye and muskellunge captured with uniquely colored and numbered t-bar anchor tags specific to the lake of capture.
3. Fit a sub-sample of each species with radio transmitters to track movement (GPS coordinates) and collect data on preferred water depth, temperature, substrate and habitat types.

Movement

The recapture time frame will be in the summers of 2004-2005. Supplemental electrofishing and trap netting will be the gear types used. This will allow tracking of the movement of fish within or between different lakes by identifying the tag number of the fish and color. Movement will also be tracked by conducting creel surveys, radio tracking and angler tag return information.

Expected Results

The existing literature review indicated that the following project results are expected:
1. Fish spawn in the same lakes each year.
2. Fish wander throughout the chain the rest of the season.
3. Muskellunge have unique home range.
4. Fish use important spawning sites.

Ramifications of this study

1. If fish spawn in one lake and move to another lake during the course of the year, spearing quotas would be managed on spawning populations and angling bag limits managed on a chain-wide basis. Therefore, spear harvest quotas would be set lake by lake and angling bag limits would be set based on the entire chain.
2. If fish spawn in one lake and stay in that lake for the course of a year, spear harvest quotas would be based on spawning locations and angling bag limits would be set lake by lake (current management). Therefore, spear harvest quotas would be set lake by lake as would angling bag limits.
3. If fish spawn randomly throughout the chain and have random movement throughout the year, spearing harvest would be managed on a chain-wide basis and angling also managed on a chain-wide basis. Therefore, spear harvest quotas would be based on the entire chain as would angling bag limits.

Although not directly a part of Jordan's study objectives, we hope his work will provide some information to help us consider if proposed operational changes would impact the Manitowish Chain fishery. Some questions that could be answered by tying water level in the chain to fish movement include:

1. Do spring filling rates play a role? Can this be delayed to provide flows downstream or is it important to fill the chain as soon as possible (even before 75% ice out on Rest Lake)?
2. Where are the major spawning areas and at what water depth?
3. Would reduced winter draw down favor establishing more of a littoral zone for fish habitat?
4. Do current winter draw down levels impact fish movement?

History of Sturgeon in the Manitowish River/Chain

Les Jacobson provided his insight on the history of sturgeon. Les has witnessed the decline in the sturgeon fishery over the last 50 years. There used to be a fishable population in both the river and chain. The season is now closed. Les can remember when the Benson Lake area used to attract a number of sturgeon anglers. Back in 1971 Les counted 28-sturgeon fisherman on Benson Lake and 51 total (Vance, Sturgeon and Benson Lakes area). Since then the number of fisherman has declined. Les is an advocate for sturgeon and would like to see the sturgeon rebound. It could be an economic boom to the area like it is on the Wolf River and Lake Winnebago. He mentioned that maintaining and enhancing sturgeon populations is a priority for the state DNR and federal government (US Fish and Wildlife Service). Les also posted information (i.e. newspaper articles) about sturgeon that the work group members could read.

Les also narrated a video that he put together of Jeff Roth's work with sturgeon on the Manitowish River in 1998. The video covers:
1. Capturing of fish moving into the spawning area.
2. The taking eggs and sperm from one female and 3 males.
3. Implanting radio-transmitters surgically into sturgeon (for radio tracking of movement).
4. Artificially fertilizing sturgeon eggs.
5. Incubating and hatching of sturgeon eggs at the Lake Mills State Fish Hatchery.
6. Restocking sturgeon in the Manitowish River and Turtle Flambeau Flowage.

This video is available from Jim Kreitlow for others who would like to view it.

The Relationship between Water Levels/Flows and Aquatic Habitat/Community Structure from Both Upstream and Downstream Perspectives

Jeff Scheirer provided a good overview of the contrast between a riverine and lake environment, and the ecological principals governing both.

Placement of the dam created two different environments, a reservoir chain and the river below. Lakes and rivers are distinctly different. The following list provides the contrast:

- Still water (lentic) vs. Flowing water (lotic)
- Volume constant (unless it is a storage reservoir) vs. Volume changes (flow)
- Distinct shoreline vs. Linear corridor
- Slow evolution (changes) vs. Rapid evolution
- Autochthonous (energy derived within) vs. Allochthonous (energy derived from outside sources)
- Littoral zone vs. Riparian zone
- Basin vs. Thalweg (meandering river channel)
- Lacustrine vs. Riverine
- Limnology vs. Fluvial

The dam created a barrier to fish movement. An example of the barrier effect is shown on the Wisconsin River where 18 species of fish are not found above the lower most dams at Prairie du Sac. Fish instinctively move upstream to take advantage of multiple habitats for growth, refuge and spawning. Fish are a major mechanism for moving energy from large downstream systems to smaller upstream systems in the form of carcasses, eggs and young of the year fish. Fish act as hosts to the parasitic stage of freshwater mussels and aid in their distribution.

The Manitowish Chain is operated as a storage reservoir. In the fall the chain is drawn down so winter water levels are 3'. 6" below summer pool elevation. The 3'. 6" draw down has occurred dating back to the time of the 1937 order and before. This operating practice is not a recent one. The only value Chippewa Flambeau Improvement Company (CFIC) gets out of the dam is the fall draw down. CFIC is able to put 1.0 foot of storage back into Turtle Flambeau Flowage that can be used for augmenting flows for hydropower production at downstream hydropower facilities during the winter months. The original intent of the Rest Lake Dam was to provide uniform flows for log driving. Historically it was probably operated this way to capture spring runoff to provide uniform flow for log driving.

Winter draw down can have an impact on the establishment of the littoral zone. The littoral zone is defined as the near shore environment where light (photic zone) penetrates to the lake bottom allowing the colonization of aquatic plants. With winter draw down the littoral area changes. Areas where aquatic plants were established are now subjected to freezing because the water does not insulate them. This leads to:

1. Less vegetation in the littoral zone/less habitat for aquatic life.
2. Species composition shifts to species tolerant of drawdowns.
3. Aquatic plant community becomes simplified with less diversity.

In riverine systems the flood plain is built and recycled by the river. Periodic high river flows are needed to re-suspend and distribute sediment and scour river channels. This benefits instream habitat. Aquatic organisms rely on instream habitat, which consists of water depth, water velocity, substrate and cover. Suitability curves can be developed for fish which identify the most suitable conditions in terms of velocity, depth and substrate for spawning and juvenile life stages. For example, optimal conditions for adult sturgeon spawning populations is:
1. Water velocities of 0.5-1.5 meters per second (1.0-1.5 optimal).
2. Water depths of 18 inches to 18 feet.
3. Substrate of cobble and boulder.

The quality of habitat, the availability of food, competition and human interaction, all influences the fishery of the chain and river. All of these system components are intertwined and do not act alone. A system with greater diversity (number of different species) is more stable and resistant to change. Interactions between the system components are complex and increases with system diversity. These interactions are not well understood. It is best to mimic natural systems as much as possible when applying management strategies.

Please send me any other requests for agenda items.

Next Meeting
Sometime in June.

Tentative Agenda (Subject to change)

1. Presentation on Lake Sturgeon Management (Fox/Winnebago System)-Ron Bruch, DNR , Oshkosh.
2. What have we learned so far (results of some of the data we have collected)?-Jim Kreitlow
3. Proposed study on evaluation of reduced winter draw down impacts (are structures at risk and at what water level?). We need your feedback and help in designing a study-Jim Kreitlow, Bob Martini.
4. Are the upstream user groups (Manitowish Waters Lakes Association and Manitowish Waters Alliance) interested in presenting information to the work group? What are your interests? What are your concerns about changing dam operation? Let me know if your groups want to present.

Thank You