Great Lakes Lake Sturgeon Coordination Meeting, December 3-4, 2008
Management Plan Breakout Group Reporting – DRAFT

Example GOALS

Dorsal Fin Group:
Foster connections between people and lake sturgeon to maintain enhance and rehabilitate self sustaining populations where they historically occurred.

Re-establish lake sturgeon as the primary benthivore in nearshore areas to stabilize ecosystem integrity.

Upper Caudal Fin Group:
To promote self sustaining lake sturgeon populations by maintaining intact and rehabilitating degraded ecosystems while instituting a societal eco-ethic.

To promote self sustaining lake sturgeon populations by maintaining intact and rehabilitating degraded ecosystems while incorporating responsible stewardship, traditional native values and ownership of the resource.

Lower Caudal Fin Group:
To protect, enhance, and rehabilitate lake sturgeon to achieve self sustaining populations and their habitats to historic range for the benefit of the Great Lakes ecosystem and all its interested parties.

To promote research to fill data gaps.

Anal Fin Group:
To establish abundant self sustaining populations in the area of interest relative to historic baseline that ensures ecological integrity and the continued benefit and uses of the public.

For sturgeon to become a value to our future generations through increased public education and awareness.

Ventral Fin Group:
To maintain and establish self sustaining populations that can support limited recreational harvest and cultural significance (presence, use, or harvest) and provides compatibility between social and ecological roles.

To recognize the multi-cultural components of society in development of goals so they are understood and accepted by all groups.

Pectoral Fin Group:
Develop economically valuable and sustainable fisheries and recreational opportunities (charter services, recreational viewing, catch and release fishery).

Delist lake sturgeon.

Plan Example (Dorsal Fin Group)

GOAL: Foster connections between people and lake sturgeon to maintain enhance and rehabilitate self sustaining populations where they historically occurred

OBJECTIVE: Determine current status of existing populations
OBJECTIVE: Maintain and protect and where necessary enhance current populations
OBJECTIVE: Increase understanding of the species and its habitat
OBJECTIVE: Increase awareness and opportunities for interaction with lake sturgeon
OBJECTIVE: Promote inter-jurisdictional and interagency cooperation

OBJECTIVE: Determine current status of existing populations
- **Strategy: Maintain abundance indicators, using partnership opportunities where possible**
- **Strategy: Develop and maintain a long-term monitoring program**

Abundance, distribution, life history data, habitat availability, genetic profile, recruitment, mortality rates and sources

OBJECTIVE: Maintain and protect and where necessary enhance current populations
- **Strategy: Ensure regulatory compliance**
  - **Action: Establish and increase sturgeon watch programs**
- **Strategy: Develop suitable protection regulations**

- **Strategy: Continually update and follow genetic stocking guidelines**

OBJECTIVE: Increase understanding of the species and its habitat
- **Strategy: Address knowledge gaps that limit conservation of lake sturgeon**
  - **Actions: Identify habitat requirements and availability**
  - **Actions: Assess key life history information**
  - **Actions: Identify limiting factors to population growth**
- **Strategy: Identify and mitigate threats to survival (predation, habitat, invasive species)**
  - **Actions: Investigate inter-species dynamics with invasive species**

OBJECTIVE: Increase awareness and opportunities for interaction with lake sturgeon
- **Strategy: Develop additional outreach opportunities**
  - **Action: Develop multi-media presentations, fish cameras, aquarium exhibits, presentation to school groups, developing web sites, museums**
  - **Action: Develop and implement 'sturgeon in the classroom' program**
  - **Action: Streamline permitting system for allowing outreach**

OBJECTIVE: Promote inter-jurisdictional and interagency cooperation
- **Strategy: Increase stakeholder engagement in recovery planning**

OBJECTIVE: Increase awareness and opportunities for interaction with lake sturgeon

Strategy: Enhance ability of public to interact with lake sturgeon

Action: Develop angling, viewing and interpretative initiatives

Strategy: Facilitate liaison and information exchange

Action: Engage tribal elders to explain their connection with sturgeon

Action: Engage all interested parties (regulators, stakeholders, conservation groups, local communities, etc.)

MANAGEMENT ACTIONS:

Action 1. Quantify number of people reached with outreach program

Action 2. Measure impact of outreach activities by monitoring media sources, using questionnaires / surveys to monitor public attitudes

Action 3. Develop leadership in others; encourage action

FOLLOW UP:

Establish lake sturgeon outreach goals by 2010

Ensure interested stakeholders are engaged in recovery initiatives

Plan Example (Upper Caudal Group)

GOAL: To promote self sustaining lake sturgeon populations by maintaining intact and rehabilitating degraded ecosystems while incorporating responsible stewardship, traditional native values and ownership of the resource.

<u>Outreach / Education -</u>

OBJECTIVE 1: Increase the number of groups involved in LS Advocacy

- **S1: Communication plan**
  - **A1: Create a plan to educate local community groups**
- **S2: Integrate LS advocacy into school curriculum**
  - **A1: Create presentation/products which meet curriculum for school age kids**
  - **A2: Deliver presentation to all local schools**

OBJECTIVE 2: Create new information sharing outlets

- **S1: Establish information sharing arrangements**
  - **A1: Create a web site**
  - **A2: Contemporary media outlets (You-tube, video, newsletter, etc)**
  - **A3: Community meetings (face to face)**

OBJECTIVE 3: Create volunteer opportunities

- **S1: Provide opportunities for donations of time or funds from interested stakeholders and other parties**

OBJECTIVE 4: Provide activity coordination

- **S1: Establish an activity unit/outreach program**

OBJECTIVE 5: Educate senior bureaucrats and politicians LS advocacy

- **S1: Ensure information flows up**
  - **A1: Create fact sheet**

<u>Traditional Values -</u>

OBJECTIVE 1: Promote the historical and current importance of LS to native groups

- **S1: Create educational materials**
  - **A1: Working with native groups to produce educational materials for both the bands and the general public**

Habitat/Ecosystems -

OBJECTIVE 1: Identify intact LS habitats for all life stages

- **S1: Apply risk Mgt to existing LS habitats**
  - **A1: Implement GIS mapping to inventory LS habitats**
  - **A2: Rank impact potential and vulnerability**

OBJECTIVE 2: Identify degraded LS habitats for all life stages

- **S1: Apply risk Mgt to existing LS habitats**
  - **A1: Implement GIS mapping to inventory LS habitats**
  - **A2: Rank recovery potential**

OBJECTIVE 3: Determine stressors on watersheds where LS exist or existed

- **S1: Summarize ecological impediments to healthy ecosystem for LS**
  - **A1: Measure water quality**
  - **A2: Measure water hydrology**
  - **A3: Identify point source stressors**
  - **A4: Identify non-point source stressors**

Population Mgt -

OBJECTIVE 1: Identify critical life history stages

OBJECTIVE 2: Identify all source of mortality

OBJECTIVE 3: Determine the health of LS

OBJECTIVE 4: Develop suitable population models

Plan Example (Lower Caudal Group)

GOAL: To protect, enhance, and rehabilitate lake sturgeon to achieve self sustaining populations and their habitats to historic range for the benefit of the Great Lakes ecosystem and all its interested parties.

OBJECTIVE: Maintain and Achieve at least X self sustaining populations in the Great Lakes
Strategy 1. Define the minimum # of populations (X)/abundance to achieve a self-sustaining population
Action 1. Model recovery targets of Annual Spawning Females (ASF)
Action 2. Model population abundances to support sustainable use of populations
Strategy 2. Identifying the status of existing populations
Action 2a. Surveying for significant population metrics
Strategy 3. Prioritize populations for management action
Action 3a. Use the genetic information, cultural, and life history to identify important populations
Action 3b. Connectivity of spawning locations
Action 3c. Estimate population sizes

OBJECTIVE: Maintain genetic and phenotypic diversity
Strategy 1. Characterize the genetic and phenotypic structure
Action 1. Collect and analyze data across the historic range
Strategy 2. Develop best management practices for culturing and stocking.
Action 2a. Implement best management practices
Action 2b. Educate managers about best management practices

OBJECTIVE: Restore and maintain access to quality habitat for all life stages
Strategy 1. Identifying quality habitats for all life stages and key populations
Action 1.
Strategy 2. Identification of barriers to access
Action 2.
Strategy 3. Restore degraded habitats
Action 3.

OBJECTIVE: Develop an outreach and education program to establish lake sturgeon as an iconic species for the promotion of great lakes ecosystem health.
Strategy 1. Promote angler education
Action 1.
Strategy 2. Develop and provide educational materials for K-12 and general public
Action 2.
Strategy 3. Provide media materials for 'public relations'
Action 3.
Strategy 3. Create ICON

Action 3.

OBJECTIVE: Establish legal protection for all existing populations
Strategy 1. Listing
Action 1.
Strategy 2. Enforcement
Action 2.
Strategy 3. Habitat regulations
Action 3.
Strategy 3. Harvest
Action 3.
Strategy 3. Fish passage
Action 3.
Strategy 3. Instream flow needs
Action 3.

OBJECTIVE: Restore key historical population(s)
Strategy 1. Identify causes of loss
Action 1.
Strategy 2. Remediate the causes of loss when feasible
Action 2.
Strategy 3. Reintroduce using best management practices
Action 3.

FOLLOW UP:
Assess key population status annually.
Assess population status every 5 years.

Plan Example (Anal Fin Group)

GOAL: Establish self sustaining lake sturgeon populations in the _____ relative to a historic baseline that ensures ecological integrity and the continued benefit and uses by the public.

OBJECTIVE 1. Focus recovery efforts to meet predetermined abundance and distribution targets

Strategy 1. compare different approaches to determine targets

Strategy 2. determine appropriate timeframe for recovery

OBJECTIVE 2: Restore, enhance, protect habitat for all life stages of lake sturgeon necessary to support self sustaining populations

Strategy 1. Inventory quality and quantity of habitat for each life stage, include assessment of access

Strategy 2 : Develop and implement a list of priority habitat restoration projects

Strategy 3: Monitor habitat use by lake sturgeon in restoration projects

Strategy 4: use law enforcement for protection

OBJECTIVE 3: Maintain genetic diversity

Strategy 1. Complete the baseline study of genetic diversity of spawning stocks

Strategy 2. Use appropriate hatchery practices to maximize genetic diversity. "match the hatch"

OBJECTIVE 4: Enhance or re-establish historic spawning stocks to a self sustaining level

Strategy 1. Review historic spawning sites, and develop a priority list for restoration

Action 1. develop a list of criteria for evaluating historic spawning sites, including access to the site

Strategy 2. Identify appropriate donor stocks

Strategy 3. Remove impediments to access

Strategy 4. Identify life stages more appropriate for translocation

Strategy 5. Apply/Develop suitability index models

Strategy 6. Use law enforcement

OBJECTIVE 5: Increase public awareness and appreciation of the lake sturgeon

Strategy 1, Increase public education and outreach efforts

Strategy 2. Provide volunteer opportunities

Strategy 3. Educate the legislators (establish dedicated funding source for management/research)

Plan Example (Ventral Fin Group)

GOAL: Protect, enhance, and rehabilitate lake sturgeon by establishing and maintaining self sustaining populations of cultural and ecological significance that can support appropriate fishing opportunities, compatible with social and economic needs.

<u>Social -</u>

OBJECTIVE: Increase recognition of lake sturgeon as a heritage species with game, subsistence, commercial, and recreational benefits/uses. (note that "commercial" and "recreational" have many components)

Strategy 1. Implement comprehensive educational program that contact all components of the public (Adopt a sturgeon program: "Why eat caviar when you can own your own sturgeon").

Action 1. Implement policy

Strategy 2. Get it to the media (nature deficit syndrome, fill the hole that Cathy was talking about).

Strategy 3. Include all parts of the public in decision making process

OBJECTIVE: Establish lake sturgeon as a symbol of ecological integrity

Strategy 1. Increase and develop opportunities for viewing

<u>Scientific -</u>

OBJECTIVE: Restore access to historical spawning and rearing habitats where impediments to migrations exist.

Strategy 1. Promote removal of dams where possible and appropriate.

Action 1. Implement policy

Strategy 2. Promote use of effective lake sturgeon up and downstream passage Techniques in non-free flowing rivers (particularly needed where hydro is still being developed/expanded).

Action 1. Implement policy for regulatory process
Action 2. Test prototypes in River A,B,C
Action 3. Install in River X,Y,Z

OBJECTIVE: Re-establish lake sturgeon as a primary benthivore

Strategy: protection
Strategy: habitat
Strategy: increase survival/recruitment (streamside rearing)
Strategy: stock fish

OBJECTIVE: Maintain genetic integrity

Strategy: Protection
Strategy: Reintroduce populations where needed

OBJECTIVE: Population abundance at levels that help stabilize ecosystem integrity or at carrying capacity.

OBJECTIVE: Increase availability of lake sturgeon as a game, subsistence, and recreational fish

OBJECTIVE: Maintain existing and increase free flowing river habitat
A: Promote removal of dams where possible and appropriate (socially acceptable)

Plan Example (Pectoral Fin Group)

GOAL: To protect, enhance, and restore lake sturgeon to achieve self sustaining populations and their habitats throughout historic range where practicable for the benefit of the Great Lakes ecosystem and all its interested parties.

OBJECTIVE: By 2019 identify and quantify status of existing populations for each of the management units in Lake Superior to determine baseline conditions.

Strategy 1. Survey professionals around L. Superior to assemble existing data.

Strategy 2. Review existing data to identify data gaps.

Strategy 3. Conduct field surveys where data are currently lacking to fill in data gaps.

OBJECTIVE: By 2019 identify and quantify status of existing spawning and nursery habitats for each of the management units in Lake Superior to determine baseline conditions.

Strategy 1. Survey professionals around L. Superior to assemble existing data.

Strategy 2. Review existing data to identify data gaps.

Strategy 3. Conduct field surveys where data are currently lacking to fill in data gaps.

OBJECTIVE: By 2024 mitigate/eliminate top three threats for each discrete population as determined by previous objectives.

Strategy 1. Develop plan to mitigate threats.

Strategy 2. Implement plan.

Strategy 3. Monitor plan progress and make course corrections as needed.

OBJECTIVE: Enhance existing remnant populations.

Strategy 1. Stock when deemed appropriate.

Strategy 2. Improve habitat when deemed appropriate.

Strategy 3. Eliminate harvest when deemed appropriate.

Strategy 4. Monitor population to track success.

OBJECTIVE: By 2024 identify sites where sturgeon reintroduction and establishment of self-sustaining populations is possible.

Strategy 1. Review historical records to determine pre-settlement distribution.

Strategy 2. Design criteria for determining site suitability for reintroduction.

Strategy 3. Based on criteria from Strategy 2, evaluate sites identified in Strategy 1. Quantify habitat availability and suitability from existing HSI data.