

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

Research and Information Needs

Dorsal Fin Group

Information Gaps

Early life history - larval drift to yearling stage
Early habitat requirements
Nursery requirements
Factors influencing egg mortality
Potential for allee effects at low population densities
Imprinting - mechanism or life stage (test with streamside rearing facilities?)
Juvenile migration patterns
Sturgeon passage at barriers
Paired-plant assessment stocking life stages (survival, imprinting, etc)
Natural straying rates vs stocked straying rates
Impacts of climate change
Invasive species, diets changes, growth, etc.
Bioenergetics and invasive forage base (compare with natural food sources)
Thiaminase high in invasive mussels...is this a problem?
Fluctuating water levels / flows
Determination of sustainable exploitation rates
Investigation of minimum population sizes
Investigate carrying capacity
How do you measure impact/success of outreach activities?
Determine which outreach activities get the biggest impact?
Habitat availability and requirements for all life stages
Role of hatcheries in recovery
Disease (botulism, VHS) investigations
Contaminant effects on growth, survival, reproduction
Potential lampricide impacts, sea lamprey predation effects

Upper Caudal Fin Group

Research needs

- Refining and expanding genetic research on LS
- Critical habitat char. Based on biological and geophysical parameters
- Fish passage and other engineered mitigations
- New technology in movement studies
- Social research on marketability of LS recreational fisheries
- Determine socio-economic solution to caviar issue
- Impact of catch and release on LS
- Determine pre-European settlement LS abundance and range
- HSI Model
- Complete toxicological compendium

Lower Caudal Fin Group

Remaining Needs

- Funding
- Establish schedule for standardized surveys of populations: important streams surveyed every year and other streams surveyed on a 5 year cycle (similar to what the sea lamprey program does for lamprey).
- Definitions need to be clearly defined for things like: sustainable, distinct population, healthy population.
- Education (needed for varied audience; could/should include children, managers, congress, etc...)
- Creating an iconic figure for the great lakes (sturgeon could be the icon for Great Lakes restoration - just like the panda for the WWF or the blue goose for the Refuges).

Anal Fin Group

Research Needs:

- Describe age structure and size of each lake sturgeon population
- Identify juvenile habitat
- Develop an index of recruitment and variability of recruitment, e.g. basin-wide juvenile index survey
- Identify ecological role lake sturgeon play in their aquatic community
- Document role lake sturgeon play in human communities

Ventral Fin Group

Research and Assessment Needs:

- **Standardization of techniques**
- **Testing of fish passage devices**
- **Post-stocking evaluations**
- **Determine habitat characteristics (at high resolution) important for sturgeon spawning**
- **Continue determining status of sturgeon rivers**
- **Strategic approach to dam building**
 - o **What is the cost?**
- **Development of criteria for evaluating populations**
- **Identify and understand disease issues facing sturgeon**
- **Determine recommended stocking rates**
- **Determine relative survival of fish after stocking**
- **Understanding ecological role of sturgeon**
 - o **Feeding studies**
 - o **Species interactions at varying abundance of sturgeon**
 - o **Contaminant affects**
 - o **Potential for suppression of mussels, gobies, lamprey, carp, mayfly**
 - o **Compatibility with other introduces species (salmonids, etc.)**
- **Determine role of sturgeon that public foresees: pre- and post- education**
- **What is public value of sturgeon**
- **what % increase in abundance is needed and at what level might conflicts occur?**

Pectoral Fin Group

Remaining needs/Questions

- **1. How do we define “population”? Adults mix in lakes but return to specific rivers to spawn.**
- **2. Objectives/goals etc. will depend on the scale of problem (Great Lakes wide vs. single population)**
- **3. How do we define restored/healthy versus remnant and in need of help?**
- **4. How do we know when to stop “enhancing” or “restoring” populations?**
- **5. We need to know what we don’t know.**
- **6. Imprinting**
- **7. Genetics**
- **8. Standardized survey techniques and effort.**
- **9. More money!!!**
- **10. Education and Outreach!!!!**