

**In-Water Construction Working Group Discussion**  
**February 10, 2011**  
**NMFS Sturgeon Workshop; Alexandria, VA**

**In Water Construction**

**Summary of General Discussion:**

- 1) Dredging and Disposal
  - a. Every harbor wants to deepen/expand—container ships are getting larger
    - i. Savannah Harbor deepening—SNS and ASN effects
    - ii. Hudson etc.
    - iii. Dredging cobble, etc. in up river areas—upstream projects, even small in scope, can pose significant problems in certain habitats (e.g., on spawning grounds)
  - b. Beach nourishment dredging
    - i. could be out in the areas where sturgeon aggregate offshore—effects to prey base could be affected; but recolonization usually occurs quickly with polychaetes etc. so prey base is not always affected
  - c. Time of year/dredging windows—are you interrupting their migration/spawning, etc. , loss of foraging, disruption of use, spatial disruption?
    - i. in Hudson, juveniles use the edges of channels where dredging will occur
    - ii. time windows are not necessarily protective because of overwintering, yoy ASN in the rivers during winter (noted lack of yoy habitat use data)
  - d. Effects of types of dredges clamshell vs. hydraulic
    - i. Injury
    - ii. Mortality
    - iii. Habitat destruction/ecosystem impacts (more significant, potentially, than one-time takes from injury or mortality)
  - e. Flow regimes
    - i. major factor, changing flow in upper river could cause significant impacts; could be impacted in harbor/channel deepening as well
  - f. DO/salinity/salt wedge shifts
    - i. Climate change—salinity pushing up rivers to fall lines and preventing spawning in current habitats
    - ii. Models relative to deepening projects need to factor this in
  - g. Resuspension of contaminants
    - i. Hudson—PCB's
    - ii. Are EPA standards protective?
  - h. Contaminants
    - i. How sensitive are sturgeon? Empirical data on early life stages
    - ii. Highly variable in sensitivity
    - iii. PAH's, PCB's, mercury, TBT, copper, dioxins
    - iv. Research priority—what are the chemicals that could be resuspended from sediments that will affect sturgeon? What the levels that will be harmful?
    - v. What is the bioavailability of chemicals? What is the bioaccumulation?
    - vi. Endocrine disrupting chemicals?

- i. Monitoring
  - i. Monitoring on barges/beaches—difficult to identify if they come through the pipes
  - ii. Net dragging before dredging
  - iii. Moving fish out of area? Fish may be going into freshly dredged areas where food is stirred up
  - iv. Habitat assessments—more important than finding a dead adult fish
    - 1. We also don't have juvenile and yoy habitat pinned down
  - v. Observers assigned on a project by project basis (e.g. Bath Iron Works, ME)
  - vi. How does NMFS/USFWS track where federal actions may be affecting habitat when federal agencies do not consult?
    - 1. Priorities and manpower limit the ability to track
    - 2. Any way to increase awareness of projects?
    - 3. DPS's give NMFS/FWS a little bit more leverage on how to review for jeopardy (at least)
- 2) Acoustics: Blasting/Pile Driving (docks, bridges, etc.)/Sonar
  - a. DOD activities
  - b. Blasting rock out of areas
  - c. Acoustic impacts/pressure waves
    - i. marine mammal thresholds are often use, but not a lot of sturgeon specific work
    - ii. displacement—avoidance of disturbance—making sturgeon more vulnerable to other threats (bycatch)
  - d. pile driving—bridges and wind projects
  - e. research on acoustics
    - i. VA—Norfolk Corps—ERDC (D. Clark)
    - ii. Cape Fear, NC—sound pressure levels (Moser) on ASN and SNS
- 3) Cables/Jet plow/HDD
  - a. Similar to dredging—loss of habitat; may not be affecting larger areas
  - b. Electromagnetic fields in spawning areas?
    - i. Offshore wind projects—networks of cables
    - ii. Hudson—cable from Can to NYC—large portion of cable through SNS and ASN habitat (both EMF and dredging impacts)
    - iii. What are the effects of EMF's? (Steve McCormick/Conte—potential for research)
    - iv. Elasmobranch research for cables (attracted to fields)
- 4) River morphology changes
  - a. Cutting through oxbows
  - b. Reworking river channels and flows
- 5) Water Intakes/outfalls
  - a. Water withdrawal is a huge issue in the SE
  - b. NPDES outfalls
    - i. Water quality study in ME to look at contaminants
- 6) Power plant intake/outfalls
  - a. Temperature effects

## **Research Questions**

1. Ongoing research funded by NMFS to determine the effectiveness of EPA-required WET testing protocols for protection of sturgeon (and salmon). This work should both answer and create many new questions as to water quality impacts to sturgeon.
2. What are the effects of EMF's? (Steve McCormick/Conte—potential for research). With the increasing popularity of offshore wind, impacts from these cables should be researched (both habitat impacts from construction activities and EMFs after installation. Elasmobranch research on cables indicates attraction to fields.
3. What are the impacts to sturgeon of acoustic and pressure waves created by blasting, pile driving, sonar? Currently only marine mammal thresholds are available.
4. Research priority—what are the chemicals that could be resuspended from sediments that will affect sturgeon? What the levels that will be harmful? What is the bioavailability of chemicals? What is the bioaccumulation? Endocrine disrupting chemicals?

### **Action Items**

No specific action items were identified