

## **AIS Vector Workshop December 2, 2009 Admiral Fell Inn, Baltimore**

### **Workshop Registrants' Questions or Concerns Regarding Vector Science and Management**

To help focus discussions at the workshop registrants were asked what their primary concerns or questions were regarding vector management. Below are their responses roughly grouped into categories of research, education/public engagement, public policy, specific vectors and measurements of outcomes.

#### **Research**

- What is the most important non-ship based vector and can we rank the other important vectors?
- What is the number one vector threat facing the Chesapeake Bay today?
- What tools are already available to help us manage vectors/pathways?
- For each vector (ballast, hull fouling, live trade), what are the top priority science/research gaps and data needs to better manage vectors/pathways?
- Are molecular probes in use currently and will they be in the future?
- How do species traits differ among species introduced by different vectors?
- Vectors as conduits of new or emerging diseases.

#### **Education / Public Engagement**

- As not all vectors can be covered by enforcement, I assume, education and outreach are optimal strategies. What are other states doing and what amount of outreach is enough to successfully cover the vectors?
- How can we better educate the public with how they can prevent aquatic invasive species? (2)
- How can C&O Canal as a linear park help to prevent aquatic introductions other than education?
- What is the best method to educate the angling public about bait issues?
- How can Mid Atlantic states best coordinate their efforts to reach recreational water users and prevent them from accidentally spreading aquatic invasive species?
- What are the best regulatory and/or public outreach ideas for management of established invasives?

#### **Public Policy**

- How well does law enforcement and federal, state and regional legislation and policies for vector management coincide and cover all gaps needed for prevention? (5)
- What are the top most influential changes that could be made in vector management from the perspective of 1) industry, 2) legislation, and 3) recreation?
- What impediments do state agencies see as limiting their ability to address these vectors and how can we improve communication between Mid Atlantic states in managing vectors? (2)
- What resources are needed and what barriers must be overcome for participants and the organizations they represent to begin implementing vector management vs. species-specific approaches? (2)

### **Public Policy (cont.)**

- In 2009, NOAA received the President's requested funding for Aquatic Invasive Species Research of \$988,000, which is administered by Sea Grant. These funds were for the Nation, not just for the Mid-Atlantic. What other funding sources contribute to invasive species activities in Chesapeake Bay?
- How can vectors be included in quantitative risk assessments for future invaders?
- What can vector management strategies for aquatic species learn from similar approaches to forest and plant pests (ISPM15 for solid wood packing + proposed international standards for plants for planting)?
- Can the costs and benefits of vector-based management be evaluated and compared with those for species-based approaches?
- Discuss the NAS threat to the south shore of Long Island and what we can do to stop the threat.
- What do you see as the role of a non-profit conservation organization in prevention?
- Concerned about communicating issue to politicians to gain their support.
- We need to bring resource economists into the management process.

### **Specific Vectors**

- **Hull Fouling**
  - Development and adoption of global standard on bio-fouling.
  - Fouling as an unregulated vector.
  - How is the hull fouling vector best evaluated and managed?
- **Live Bait**
  - Can live bait regulations be developed and applied consistently for water bodies shared by Mid-Atlantic states?
  - How will live trade animals be screened?
  - How to convince state agencies to move to a "clean list" regulatory concept for live trade?
  - How do we contact, educate, and monitor regional live bait wholesalers effectively with limited resources?
- **Aquaculture**
  - Are there any state or federal regulations that apply to species import for aquaculture?
  - Screening of live animals in international trade with potential impacts on aquatic systems
- **Ballast Water**
  - How effective is ballast water regulation?
  - Will ballast water exchange or sterilization techniques adequately deal with plant propagules? (2)
  - As a vessel operator, I am concerned with implementation of ballast treatment and the effect on trade.
  - How are scientists and testing facilities going to test for the new proposed U.S. Coast Guard mandates for ballast water regulation? (2)
- **Others**
  - With all of the different species threatening us how can we ever succeed if we focus on species management?

### **Specific Vectors**

- **Others (cont.)**
  - What are vectors of transport for water chestnut? water lettuce?
  - Control methods for aquatic invasive species.
  - Are any biocontrols proposed for *Ranunculus ficaria*?
  - Eurasian Watermilfoil - replacing native species.
  - How long do seeds from *Trapa natans* last, and can they withstand cold exposure?

### **Measurements of Outcomes**

- How will we know if regulations to prevent invasions via any vector have a significant effect on invasion rates?
- How will the merits of managing the pathways for invasion be measured?
- What are the best methods and outcomes to measure effectiveness in AIS management? (2)
- What are our early warning mechanisms/possibilities?