



# **PREVENTING AQUATIC INVASIVE SPECIES THROUGH LIVE BAIT VECTOR MANAGEMENT: A MODEL IN THE MID-ATLANTIC REGION**

**Mid-Atlantic Panel AIS Fall Meeting 2011**

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**Maryland SeaGrant**

# NOAA FUNDED PROJECT RFP OUTLINE

- **Objective:** Couple research and outreach to study the ecological and social science aspects of managing the live bait vector from supplier to user in the Mid-Atlantic region
  - Determine and describe live bait vector from its beginning bait sources through to its use in fishing and final disposal
  - Explore the biology and ecology of live bait organisms and their packing materials to help develop management opportunities for reducing introductions of unwanted aquatic species during harvesting, transport, sale and disposal of live bait
  - Engage with users and providers of live bait through surveys and interviews
  - Develop the findings from this research into a potential model for management of other sub-vectors of the live trade vector



# TIMELINE FOR PROJECT

- NOAA project funding start date: *October 2010*
- Request for Proposals due: *December 2010*
- External mail reviews: *January - February 2011*
- Technical review panel: *March 2011*
- Project award: *April 2011*
  - Award given to SERC: ***Importation of Baitworms and their Live Algal Packing Materials to the Mid-Atlantic: Vector Characterization and Management***
  - Project focus on both biology and social science
  - Two year research project
  - One year intervention and follow up for social science in addition to understanding user groups
  - Completion date: *September 30, 2012* (up to one year no-cost extension available)



# PARTNERS

## ○ Biological Component

- Smithsonian Environmental Research Center:
  - *PI*: Whitman Miller
  - *Co-PI's*: April Blakeslee, Jim Carlton, Joao Canning-Clode, Fred Dobbs, Greg Ruiz

## ○ Social Science Component

- University of Maryland College Park
  - *PI*: Michael Paolisso
  - *Graduate student*: Jeremy Trombley
- University of California, Davis
  - *Co-PI*: Ted Grozholz

## ○ Mid-Atlantic Sea Grant Personnel

- *PI*: Fredrika Moser
- *Co-PI's*: Mike Danko, John Ewart, Sara Mirabillo, Susan Park, Amanda Rockler, Sarah Whitney



# ECOLOGICAL COMPONENT

- Smithsonian Environmental Research Center

## Goals

Seek to understand the biology and ecology of live bait organisms and their packing materials to help develop management opportunities for reducing introductions of unwanted aquatic species during harvesting, transport, sale and disposal of live bait



# Maine Baitworms and Algae



Live marine sand worms (*Nereis virens*) are packed with a brown seaweed called wormweed (*Ascophyllum nodosum*) to keep them cool and moist during transport to retail operations where they are sold for bait. (Photo: T. Getchis, CT Sea Grant)



# SOCIAL SCIENCE COMPONENT

- University of Maryland, College Park
- University of California, Davis

## Goals

- Seek to understand cultural knowledge that exists about AIS as well as how anglers choose to dispose of live marine bait through surveys, interviews with key players in baitworm industry, and on the ground observations
- Intervention strategies and behavior change through education and outreach.



# WHAT'S BEEN DONE...

## ○ SERC

- Field sampling in Maine
- Bait-box sampling throughout Mid-Atlantic
- Baitworm giveaway

## ○ University of Maryland

- “First look” into Baitworm Industry
- Formal interviews with distributors, Maine Department of Marine Resources, and Sea Grant extension throughout Mid-Atlantic
- Informal interviews with bloodworm harvesters, worm weed harvesters, and anglers

## ○ Sea Grant

- Compiling information on bait distributors, bait dealers, angler locations for outreach and surveys



# BAIT WORM SAMPLING

- Field Sampling in Maine
  - Assessment of species richness, abundance, and diversity of organisms found in wormweed habitats (*A. nodosum*)
  - 5 sites (actively harvested), 3 replicates/site
- Bait-box Sampling in Mid-Atlantic & Maine
  - Assessment of species richness, abundance, and diversity of organisms found in bait boxes and bags
  - Maine:
    - 5 Distributors, 3 Boxes/Distributor
  - Mid-Atlantic:
    - Boxes: 1 Store/State (MD, DE, NJ, VA, NC), 3 boxes/store
    - Bags: 2 Stores/State, 3 bags/store
  - 3 sampling events in summer 2011



## BAIT WORM GIVE-AWAY

- SERC sponsored a series of baitworm give-away days during the summer of 2011 as a public outreach effort.
- Provided an educational opportunity to talk to anglers about invasive species and proper disposal of bait and bait packing material
- Baitworms were also given away with SERC prepared educational materials to fisherman in the field by a Star Scout working toward a merit badge in environmental education.



# WHAT'S NEXT...

## ○ SERC

- Sampling in the field in Maine and bait-boxes from distributors, *Fall 2011, Spring 2012*
- Experimentation with algal rinsing and packing material, *Spring 2012*
- Continued public educational outreach

## ○ University of Maryland

- Further understanding of distribution chain through interviews with anglers and bait shops
- Gather information on harvesting and processing of wormweed through interviews with distributors and harvesters

## ○ Sea Grant Extension

- Collaboration of outreach efforts to advocate prevention



# HELP NEEDED FROM MID-ATLANTIC AIS PANEL...

## ○ State Agency Staff

- Information on live bait regulations
- Input on managing live bait and agency needs
- Application of prevention techniques effective at the state level

## ○ Sea Grant Staff

- Complete inventory of dealers, distributors and angler access locations
- In person surveys of anglers, dealers and distributors
- Develop educational materials with social science and biological science researchers
- Provide logistical support for education, intervention and evaluation of bait management information

