



**NCDENR Green Square Office Complex  
Room 5001  
217 West Jones Street  
Raleigh, NC 27603  
(919)707-8101**

2012 Fall Meeting Agenda  
Wednesday, November 7, 2012

8:45 Registration & Light Continental Breakfast

9:00 Call to Order – *Steve Minkinen, Vice Panel Chair, FWS*

- Introductions
- Housekeeping & Announcements
- Review & Approve Agenda

9:15 Update on the Live Bait Vector Project – *Jenny Allen, MD Sea Grant*

9:45 Aquatic Weed Issues in NC – *Rob Emens, NC DENR*

10:15 Break

10:30 Monoecious Hydrilla: Biology & Continued Spread – *Rob Richardson, Ph.D. & Justin Nawrocki, NC State University*

11:00 The Landscape Approach to EDRR – A Common Sense and Cost Effective Method for Preventing the Establishment and Spread of New Invasive Species at all Levels of the Landscape- Local to National – *Randy Westbrooks, Ph.D., Invasive Plant Control, Inc.*

12:00 Lunch – *on your own*

1:15 MAP Ongoing Projects Progress Report – *Lisa Moss, Panel Coordinator, FWS*

1:30 Members Forum – *All*

2:00 Where the ANS Hits the Road: stakeholder implications, costs and potential solutions – *Bill Frazier, B.A.S.S.*

2:30 Break

2:45 Panel Business

- Status of 2012 MAP Budget & Grant Agreements – *Mike Allen, Ph.D., MD Sea Grant*
- Status & Discussion of Outstanding Action Items – *Lisa Moss, Panel Coordinator*
  - Membership
  - MAP Standard Operating Procedures
  - MAP Species of Interest List
- Tentative date & location for 2013 Spring MAP Meeting
- 2013 MAP Coordination
- Other

4:30 Adjourn



## 2012 MAPAIS Fall Meeting November 7, 2012

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Room 5001  
217 West Jones Street  
Raleigh, NC 27603

### Attendees

Jonathan McKnight	Interim Panel Chair, MD DNR	jmcknight@dnr.state.md.us
Lisa Moss	Panel Coordinator, FWS	lisa_moss@fws.gov
Ann Faulds	PA Sea Grant	amf12@psu.edu
Barbara Doll	NC Sea Grant	bdoll@ncsu.edu
Bill Frazier	Bass Anglers Sportsman Society	bill.frazier@highpointnc.gov
Chris Powell	USACE	Christopher.c.powell@usace.army.mil
Ed Corey	NC Division of Parks & Rec	ed.corey@ncparks.gov
Hannah Martin	CRC, Chesapeake Bay Program	martin.hannah@epa.gov
Jenny Allen	MD Sea Grant	allen@mdsg.umd.edu
John Copeland	VA DGIF	john.copeland@dgif.virginia.gov
Martha Diaz	Duke University	Martha.diaz@duke.edu
Mike Allen, PhD	MD Sea Grant	mallen@mdsg.umd.edu
Randy Westbrook, PhD	Invasive Plant Control, INC	rwestbrooks@intrstar.net
Ray Fernald	VA DGIF	ray.fernald@dgif.virginia.gov
Rebecca Thomson	USACE	Rebecca.g.thomson@usace.army.mil
Rob Emens	NCDENR	rob.emens@ncdenr.gov
Rob Nichols	NC Wildlife Resources Commission	rob.nichols@ncwildlife.org
Rob Richardson, PhD	NC State University	rob_richardson@ncsu.edu
Sara Grise´	PA Sea Grant	sng121@psu.edu
Sarah Miller	SePro Corporation	sarahm@sepro.com
Susan Pasko, PhD	NOAA	susan.pasko@noaa.gov
Tom Warmuth	Cygnnet Enterprises	twarmuth@cygnetenterprises.com

### Action Items

- ✓ Meeting [presentations](#) will be made available online.
- All contact Martha Diaz, Duke University, if interested in participating on expert directory for identifying species for rapid assessment protocol.
- Membership to be discussed at next meeting regarding who is active -
  - Present to committee for vote on notion of establishing “advisor category” (suggested by Ann Faulds)
- Look into webinar support for next meeting for those people who cannot travel out of state.
- Panel to leave SOP open for review and comment for next 3 months with vote at the spring 2013 meeting to ratify SOP.

- Remove region and database columns from Species of Interest List to alleviate confusion-
  - Include critical vector list (shipping, pet trade, bait, boats, human, animals, etc) and inventory of what are the invasive species by state/region to have a comparative analysis of vectors by region.
- 2013 spring MAP Meeting—Jonathan McKnight proposed Pennsylvania as tentative location.
- 2013 MAP Coordination—find replacement coordinator.

### **Welcome/Call to Order, *Jonathan McKnight, MD DNR***

Jonathan McKnight served as Vice-Panel Chair and facilitator of the meeting as Steve Minkinen was unwell and unable to attend the meeting. Special thanks were given to Lisa Moss, Rob Emens, and Barbara Doll for coordinating the Raleigh efforts in planning the meeting.

### **Live Bait Vector Project Update, *Jenny Allen, MD Sea Grant***

The Mid-Atlantic Live Bait Vector Project was originally introduced by Fredrika Moser, PhD, MD Sea Grant, to the Mid-Atlantic Live Vector Management Project to the Panel during the fall 2011 Meeting. The project is to serve as a model for preventing aquatic invasive species through vector management. The purpose of the project is to indentify points of intervention within the blood worm industry (harvesters, packagers, distributors, and anglers) to prevent the transportation and introduction of aquatic, potentially invasive, organisms. The project has coupled 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.

Blood worms are harvested, processed, and packaged in Maine and then distributed along the Mid-Atlantic Coast as well as the West Coast and even to Europe. The bloodworms are packaged in algae that contain aquatic organisms and the abundance and diversity of the organisms traveling in the algae are being studied. The organisms in the algae are introduced into other ecosystems when anglers purchase a container of blood worms in algae, travel to a fishing site and fish with the blood worms, and proceed to incorrectly dispose the algae by dumping the contents into the water rather than a trash receptacle.

The project has focused on ways to affect packaging to reduce the abundance of aquatic organisms in the algae (rinsing and shaking the algae), as well as using outreach to inform and train anglers on proper bait disposal (warning labels on containers, outreach to bring awareness). Online questionnaires to anglers on proper bait disposal have been sent out to DE, MD, NJ, NC, PA and VA anglers and the project managers are currently waiting for responses.

Several meeting attendees asked if alternative packing (paper or other material) had been looked at instead of algae. Alga was determined to be the best material with many meeting attendees agreeing that it seemed the worms had a higher survival rate in algae vs. alternative materials. Most distributors were willing to look into methods that would decrease transport of aquatic invasive species.

Next steps involve a workshop in 2013 to plan intervention strategies.

## **Aquatic Weed Issues in North Carolina, Rob Emens, NC DENR**

Rob Emens presented the history and current status of the Aquatic Weed Control Program, which is part of the North Carolina Department of Environment and Natural Resources.

Hydrilla was first found in Wake County, NC in 1980 and a task force was formed for the management and control of aquatic weeds. The program managed Hydrilla through herbicide trials, fluridone, and triploid grass carp. Only triploid (sterile) grass carp are allowed in NC and a permit is required. Stocking rate for control is 15 fish per acre of Hydrilla. Grass carp proved to be the most effective management method, however recent events have led to difficulty in obtaining new permits to stock grass carp. Infestation in coastal plain impoundments increased dramatically over 2005-2008. NC is currently forced to manage Hydrilla in open water areas without the use of grass carp.

Management of Phragmites began in 2008 in NC State Parks with backpack sprayers. The herbicides proved to be effective when multiple treatments were applied over several years due to rhizomes existing after initial treatments. Controlled burning coupled with herbicide treatments was most effective, in that eliminating the dead stalks allowed the herbicide treatment to reach the rhizomes without being intercepted by standing dead stalks. Herbicide treatment used was Imazapyr (Habitat) applied at 1.5% with a good surfactant such as Sun Energy or Sun Wet (both MSO).

*Salvinia molesta* is a floating aquatic fern and it appeared in NC ponds around 2000 as a result of contaminated nursery stock. The management program used sale records from nurseries to track the contaminated stock for treatment (fluridone). A monitoring program was put into place and no *Salvinia* has been observed since 2009.

Commentary from members in attendance addressed hydrilla dynamics in an ecosystem and ecological impacts in flowing versus still waters.

## **Monoecious *Hydrilla*: Biology and Continued Spread, Rob Richardson, Ph.D.**

Rob Richardson presented the biology of monoecious *Hydrilla* species and explained the current management issues. *Hydrilla verticillata* is a monoecious species that is becoming wide-spread from Florida to NC and NY to the Ohio River. The monoecious species produces tubers more than the dioecious species and in turn can withstand disturbance and creates a challenge for management. Monoecious hydrilla produce subterranean turions, overwintering bud structures that act like seeds. Tuber longevity is estimated to be 5+ years so these species require long term management for an end goal of eradication. Fluridone is used as a herbicidal treatment but water quality conditions (>12 ppt salinity) influence any significant mortality. Winter water drawdown is unlikely to affect monoecious hydrilla unless sediment freezes to disrupt its life cycle. Management takes about 5 years to see a 97.4% decrease in tuber numbers and effort must be made every year; every lost year of management efforts results in 0.7-2 years gained in management time needed.

Most effective management method involves triploid grass carp as they are a species that lives 16+ years and persistent feeding depletes tuber bank. Grass carp are only considered a good option in areas with no native SAV. Florida studies are showing some resistance to herbicides, however FL differs from NC efforts in that they have large lakes and are able to treat entire lake. Florida is showing some resistance, however FL is different in that the state has large lakes that are treated and NC does not treat whole lakes.

Hydrilla is also shown to be associated with Avian Vacuolar Myelinopathy, which is a disease complex associated with Hydrilla that kills coots, bald eagles, and other birds that feed on dead birds. The biotoxin accumulates in the birds after consumption of Hydrilla plants that are covered in stigonematales – cyanobacterial organisms that cling to the rough leaves of the plant. Coots die within five days of contracting AVM.

**The Landscape Approach to Early Detection and Rapid Response-A Common Sense and Cost Effective method for Preventing the Establishment and Spread of New Invasive Species at all Levels of the Landscape-Local to National, *Randy Westbrooks, Ph.D., Invasive Plant Control Inc.***

There are 750,000 plant species worldwide; 5,000 plants introduced to the U.S. have resulted in an estimated 24 billion dollars a year for control. Budget cuts to APHIS negatively impacted the Noxious Weeds Program. Dr. Westbrooks presented his seven step process for building Early Detection and Rapid Response (EDRR) capacity to engage stakeholders and educate landowners, boaters, etc. on how to prevent the spread of new invasive species. There are federal and state programs but to have the greatest success private landowners and citizens need to be educated and aware and play a part in having a positive effect by preventing the spread of invasive species. The seven step EDRR process is intended to be used alongside manual, chemical, and biological strategies.

1. Get organized, identify and engage stakeholders—organize stakeholder meeting to discuss current and emerging IVS issues and management options, develop a workplan with a coordinating committee and list of target species
2. Early detection network development—put more eyes on the ground, identify EDRR members, conduct training, create listserv
3. Look around—conduct surveys of high value resource areas, detection surveys, delimiting surveys
4. Manage field data—use of iphone apps (EDD MapS) that will update reports
5. Tell somebody—report suspected new or regulated species to state and federal officials
6. Assess the problem—conduct rapid assessment to assess the problem and determine an appropriate response
7. Take action—control and eradicate incipient infestations, involve all stakeholders, prevent movement from eradication zone (cleaning of vehicles and equipment)

Next steps involve training the next generation of managers for professional development through 2012 IPC Invasive Species Management Training Programs taught by Dr. Westbrooks. The current online courses are through Southeastern Community College, however program expansion is being sought through NC State and York University as well. The classes are currently focused on invasive plant species and will hopefully include animal and insect control in the future. Visit [www.invasiveplantcontrol.com](http://www.invasiveplantcontrol.com) for more information.

Grants programs and granting agencies should consider looking at the stakeholder's potential impact and involve them in the process. Ann Faulds suggested maybe successful completion of online coursework could be considered a mandatory component of the MAP small grants program as a condition of the award. There are several fact sheets about the classes online.

**MAP Small Grants Program Progress Report, *Lisa Moss, Panel Coordinator, FWS***

Lisa gave updates on active MAP projects. The 2012 projects have been added to project inventory table. The MAP Small Grants Program Final Reports (2007-2011) booklet she

created was distributed to MAP members in attendance. As reports are submitted, they will be added to existing document.

1. Invasive Sedge Control and native in New Jersey—Asiatic sand sedge is spreading rapidly in coastal NJ. Island Beach State Park, NJ serves as the treatment area for the project. Treatment is a spray application of rodeo solution with surfactant and dye, which was found to increase mortality but still not all dead after two applications on dunes. Goal is to spray two applications in the total area of about 2 acres, finishing multiple spray applications in summer and fall of 2013.
2. Creating Water Gardening AIS Prevention Training in PA—Created materials-Mid-Atlantic water garden species guide and a plant cleaning and inspection video. A shorter version of the presentation for master gardeners has been developed to use with general public. Materials have been enthusiastically received by Master Gardener group.
3. Beach Vitex Eradication Action—This project has garnered real interest from landowners to get on board and get affected areas treated. They would like to continue to do beach vitex work to train in disposal of treated, dead beach vitex.
4. Mapping Invasive Species Distribution in selected areas of the Ohio River Basin—This project has been completed.

### **Members Forum, All**

- Jonathan McKnight—MD DNR is focusing on numerous species, specifically eradication programs on mute swans and nutria and focusing on ridding the rivers and streams of Didymo.
- Ray Fernald—VA is dealing with Phragmites, Hydrilla, mute swans, nutria, blue catfish (undergoing angst on what exactly to do), snakeheads, and submitting a first 5 year “re-do” of invasive species management plans.
- Rob Nichols—North Carolina Wildlife Resources Commission is focusing on a mystery snail that seem to go hand in hand with *Hydrilla* populations. Proposed prohibition on asian carp as an example of NC species by species approach as they are observed. GIS project completed on AIS to overlay with aquaculture permitting and working on state wide live bait survey.
- Barbara Doll—North Carolina Sea Grant is focusing on general education on beach vitex on areas that are becoming established to get eradicated. Last funding from NC sea grants went to lion fish to focus on range and potential eradication method and teaching chefs on how to prepare the fish to create a market.
- Sara Grise—Pennsylvania Sea Grant has completed an ID guide and it has been sent away for review comments. The final draft will hopefully get to the printer in December 2012 for distribution in early 2013. It will be available in hard copy as well as online and possibly a smart phone application.
- Ann Faulds—Pennsylvania Sea Grant, Chinese mystery snail has been found in Susquehanna and could be spread by water gardening company.
- U.S. Army Corps of Engineers—passing aquatic vegetation management plan with public review soon to move on to treat Hydrilla. Getting some economy rolling around the blue catfish through tournaments. Working with Dr. Westbrook's company to help move exotic plants around the dam as surveys are being conducted and observing Hydrilla and creeping primrose.
- Susan Pasko—NOAA research and restoration activities focusing on great lakes, Mid-Atlantic lionfish, Chesapeake Bay catfish. Held the first invasive species symposium in 2012 to figure out how to do things more efficiently through working teams, frameworks, communication. [Taskforce meeting](#) Nov 14<sup>th</sup> and 15<sup>th</sup> in Arlington, VA to plan awareness about species that showed up from Japanese tsunami.

- Martha Diaz—developing rapid assessment protocol with expert directory on identifying species.
- Rob Emens—Two public awareness materials are being distributed (1. *Hydrilla* hunt card with explanation on how to send samples of suspicious plants 2. How to stop aquatic hitchhikers brochure). He provided an update on the Gulf and Southeast Regional Panel also representing NC:

Aquatic Nuisance Species Plan

Staff from North Carolina Division of Marine Fisheries (NCDMF), North Carolina Wildlife Resources Commission (NCWRC), and the North Carolina Division of Water Resources (NCDWR) have been working together to determine the best route for developing a NC Aquatic Nuisance Species Plan. As NC does not have a nuisance species coordinator we have come into difficulties as to who is responsible for the development of a plan. The three agencies have discussed options such as writing and organizing the plan ourselves or hiring a consultant to develop the plan. Time commitments have made writing the plan ourselves not feasible. Time commitment and agency jurisdictions have also made identifying a lead agency difficult. We are continuing discussions as to who would be responsible for a NC ANS plan as well as if it would be more feasible to sub divide the plan into smaller regions of NC and potentially combining them in the future to make a state plan.

Tiger Shrimp

NC has seen an increase in the number of tiger shrimp since 2008 (Table 1). In 2011, 257 tiger shrimp were reported to NCDMF (54 were confirmed by NCDMF and Coastal Federation staff) which were in turn reported to USGS. The reason for this increase is unclear, however the majority of those shrimp reported occurred in the shrimp trawling in the southern region of NC after Hurricane Irene (August 2012). This increase may be a result of local news stories after Irene or a potential spawning offshore community. We are interested in hearing the results of the USGS study looking at the potential reasons for an increase in tiger shrimp observations. NCDMF has been providing the USGS with samples from NC.

**Table 1. NC reported observations of tiger shrimp since 2008.**

Year	Confirmed <sup>1</sup>		Total Number of reported tiger shrimp
	Yes	No	
2008	12	4	16
2009	10	10	20
2010	1	4	5
2011	54	203	257

Reported tiger shrimp not confirmed may still be tiger shrimp.

<sup>1</sup>Confirmed by NCDMF and NC Coastal Federation staff.

## Hydrilla

NC has seen an increase in the presence of *Hydrilla*, specifically in the Albemarle Sound and the associated tributaries and in water withdrawal impoundments. NC has been treating for *Hydrilla* with pesticides but through the NCWRC, the NCDMF has had 5 requests for the stocking of triploid grass carp to reduce the impacts from *Hydrilla*. The NCDMF has worked with the applicants to design and construct containment barriers to minimize the potential impacts to native aquatic vegetation outside of the impoundments.

*Hydrilla* has been spreading in NC. The NC Division of Water Resources (DWR) confirmed the presence of hydrilla in Lake Santeetlah this summer. This is the furthest west of known Hydrilla infestations within NC. This is a severe infestation and Hydrilla has already spread out of Lake Santeetlah with established colonies in the Cheoah River. All of the shoreline DWR was able to survey had dense Hydrilla beds growing down to 15' deep. Prior to this the furthest west infestation had been the one in Lake James. Lake Santeetah is over 100 miles further west than Lake James.

## Box Jellyfish

NC has one report of a box jellyfish in Bogue Sound this summer.

### **Where the ANS Hits the Road: Stakeholder Implications, Costs and Potential Solutions, Bill Frazier, B.A.S.S.**

B.A.S.S. has been reaching out to the competitive fisherman community in hopes of changing their mindset that all aquatic vegetation is a good thing (fish will be larger=\$\$). BASS has been getting good exposure with STOP AQUATIC HITCHHIKERS stickers (however they were found to be not waterproof so they did not stay on boats) as well as inventory signs at boat ramps. Bill stated that he is really seeking some help with moving forward to seek draft legislation that could tax import/exports etc to aid in education and management of aquatic invasive species. Better communication is needed with the angling community about catfish and other species. Hold those trafficking invasive species accountable in the form of excise tax.

There was discussion concerning draft legislation, however it is unclear if boats are the primary vector. There should be an incentive to prevent the transport of invasive species with legislation to back it up. Big corporations such as Petsmart and Walmart sell tropical fish, but it is unknown how many species are introduced as a result. Smithsonian has information on vectors that are responsible for the introduction of certain species.

### **Hydrilla Management in Virginia: Do the Costs Outweigh the Benefits? John Copeland, VDGIF**

Hydrilla is present in every small impoundment in Northern Virginia and throughout the Piedmont regions, north and south of the James River. User conflicts, ecosystem impacts, and vague agency roles are challenges to Hydrilla management. Claytor Lake is a New River impoundment that originates in NC and flows into VA. A large Hydrilla bed was restricting navigational channel at the upper end of the lake. The county approached Copeland to address the Hydrilla issue as it was creating boat safety and increased sedimentation issues. VA faced management challenges as Hydrilla does hold federal noxious weed status in VA and agency responsibilities are not well defined. There are no dedicated funding sources and DGIF is responsible for the protection of boating access and habitat. Claytor Lake Technical Advisory

Committee was formed and met bi-weekly from November to February 2011 to explore biological, chemical and mechanical control options. The goal was to reduce Hydrilla to less than 100 acres and Appalachian Power put money toward chemical control in public use areas and through landowner treatment rebate programs. Pulaski County also purchased triploid grass carp to stock with Virginia Tech research project assistants track the carp for research. The research was to determine long range movements, develop stocking model, radio tags released in 2011 and 2012, and to observe the carp's effect on Hydrilla density. Outreach materials (rack cards, postcards, boat access signs) were also produced. Based on the Claytor Lake case study, VA determined the benefits outweigh the costs needed to eradicate and manage Hydrilla.

Carp were tested to prove triploid status and there has been no observation of increase in carp population.

### **Panel Business**

- Status of 2012 MAP Budget and Grant Agreements—Mike Allen, Ph.D., MD Sea Grant As of January 4, 2013, MDSG received the FY 2012 MAP funds. It is anticipated 2012 grantees will receive their awards by February.
- MAP Standard Operating Procedures—cannot ratify SOP because of lack of executive members in attendance. Termination of individual working group committees (V) in SOP with ability to still do adhoc committees. It was well received to have a doodle poll to plan this meeting. Panel is unclear as to how many representatives can be from one agency.
- MAP Species of Interest List—No new proposed species. Include critical vector list (shipping, pet trade, bait, boats, human, animals, etc) and inventory of what are the invasive species by state/region to have a comparative analysis of vectors by region.
- 2013 Spring MAP Meeting—Jonathan McKnight proposed Pennsylvania as tentative location; Sarah Whitney will look into the PA Fish & Boat Commission to host spring meeting.
- 2013 MAP Coordination—Lisa Moss will no longer serve as the coordinator for the panel. A new coordinator will need to be assigned.