Winter 2014 MAPAIS Meeting
Dec 10th and 11th
VA Aquarium

Participants:
Sarah Whitney, PA Sea Grant (Panel Chair)
Steve Minkkinen, USFWS (Vice Chair)
Hannah Martin, CRC (Staff)
Ray Fernald, VDGIF
Jonathan McKnight, MD DNR
Mike Allen, MD Sea Grant
Gloria Putnam, NC Sea Grant
Susan Pasko, NOAA
Edna Stetzar, DNREC
Laura Norcutt, FWS
Marian Norris, NPS
Jay Kilian, MD DNR
Tom Smith, VA DCR
Carrie Wu, University Richmond
Rob Emens, NC DENR
Becky Fernald
James R. Powell, USDA APHIS Wildlife Services
Caitlin Carey, Conservation Management Institute-Virginia Tech
Michael St. Germain, Conservation Management Institute-Virginia Tech
Marnie Pepper, USDA-WS-Nutria Project
Dean Hopkin, USDA-WS-Nutria Project
Rachel Metz, VA Aquarium
William 'Chip' Harshaw, VA Aquarium
Dustie Bourgeois, VA Aquarium
Beth Firchau, VA Aquarium
Bill Tanger, Friends of the Rivers of VA
Wendy Stuart, Wide Net Project
Anne Timm, USDA Forest Service, Baltimore Field Station
Bob Greenlee, VDGIF
Greg Garman, VCU
Darren Loomis, VA DCR
Aaron Proctor, VDGIF
Glen Askins, VDGIF
John Odenkirk, VDGIF

Actions:

- Continue working on web update for MAP website
- PA Sea Grant is working on creating a Mid-Atlantic AIS Field Guide. A list of potential species was shared, send any comments to Sara Stahlman by end of January 30, 2015.

- Send Martin updates to include in minutes
- Whitney will update the Experts database
- Update and release RFP before Spring meeting

Decisions:

- New Chair and Vice Chair, Ray Fernald and Mike Allen
- Spring 2014 Minutes approved

Minutes:

Overview of Spring 2014 Meeting Action Items

1. Election of new Chair
    a. McKnight led search committee—two nominees for chair and vice chair.
    b. Current chair Whitney and current Vice Chair Minkkinen
    c. NEW Chair: Ray Fernald
    d. NEW Vice Chair: Mike Allen
    e. Vote: All in favor of Fernald and Allen
2. Whitney sent letters to award grant funding and all accepted
3. Field Guide information
    a. PA sea grant received funding for Mid-Atlantic field guide
    b. List of species, draft list of potential species to include in the field guide.
    c. Action Send Stahlman any revisions/comments by January

Funded Projects Update

1. 10 projects currently under funding and 2 finished up this summer. The completed projects are the Strategic Plan for Nutria Eradication and the development of the West Virginia AIS Plan (documents finalized and sent to ANSTF)
2. Updates
    a. Invasive species Toolkit, MDNR
        i. Developing revised lesson plans for invasive issues in MD. Pulled together 16 fact sheets, over 40 lesson plans for K-12 students (field tested and revised). The plan is to continue field testing through Spring 2014. Once finalized it will be put on web with supporting webpage by Aug 2015. July 2015 trainings and toolkits will be shared.
    b. Bushkill Township Project, Hanover Associates
        i. This project was funded Aug 2013 and funding ends this month. Made a mobile app for mapping invasives in Bushkill Township. Variety of species have been mapped. It is a GIS based application—currently finalizing mgmt. plan for the invasive species in the township and will be made available at the end of the grant and published in township newsletter.
    c. MD *Didymo* eDNA
        i. Water samples were collected over state of MD through the Maryland Biological Stream Survey (n=76 sites). Found 4 positive results for *Didymo* using eDNA techniques and those locations were already known to be positive. The survey results provides baseline for *Didymo* distribution in MD streams and provides

documentation of absence as well for research and monitoring going forward. All data are collected, archived and available for use.

3. Discussion: none

ANSTF Update—Laura Norcutt, FWS

1. Norcutt is acting Executive Secretary for the ANSTF since Susan retired. Don Maclean will be next acting Executive Secretary.
2. Last meeting was in Falls Church, VA on Nov 5-6. Presentations are posted on ANSTF website.
    a. Minutes will be posted soon
    b. American boat and yachting council summit, Feb 2015. Bringing together engineers and AIS coordinators to talk about boat design and construction to prevent spread of AIS. Las Vegas.
    c. National AIS hotline being shut down to non-use
3. All panel meeting
    a. Sustainable panel funding, decrease from $50K to $40K in each panel. At the meeting it was discussed how will you get additional money and maintain work and talked about interesting possibilities for funding. One is the Wildlife and Sport Fish funding (tax money collected from sport fishing and hunting, comes to FWS and that funding is distributed). Presentation from FWS who runs that program. List of questions and answers distributed by Norcutt. You contact local FWS field office and someone there works with the grant program and talk to them about it. Talk to your state person too. Some states are not using all of these funds (PA does). Watercraft inspection stations and other things. VA uses that money for invasive species work too.
    b. USGS database—maintain/increase support for ANS database/alert system. ANSTF is sending letter of need to USGS to support the database.
4. Nutria Project
    a. Recommendation to the taskforce that funding needs to be maintained for this project. There's a memo that will be provides to FWS to address this. Heard informally that the funding is set for invasive species and other priorities, so nutria probably won't be funded.
    b. Discussion:
        i. McKnight: panel can't write to congress, but certain agencies within the panel could send to support the continuation of funding this important project
5. Spring ANSTF meeting in Florida on May 6-7, 2015
    a. Lionfish plan and WV AIS MGMT plan will be approved there.
6. Billboard issue, Summer 2014, Wisconsin dept. transportation saw Stop Aquatic Hitchhikers on a billboard and claimed it was against state regulations to have stop signs or traffic regulation signs within a certain distance from highways. Talked to ANSTF with dept. transportation representative. She said that dept. transportation is not excited posted to highways and for the purpose it was fine.
7. Discussion
    a. Fernald: is there a review of how effective these billboards are? It's been proposed but it's never made it by a budget. Information would be helpful

i. Norcutt: Doug in Minnesota has done outreach work and has data on that. Norcutt should have information on it. He says billboards are one of the more effective methods.
ii. Whitney: Doug's research—billboards are cited by anglers and boaters as one of the ways they like to get info but there is less research on whether billboards are actually able to change behavior.
iii. Check with state DOT before doing billboards.

Report to Congress-Susan Pasko, NOAA

1. The last time a report was submitted was in 2004. Currently working to pull together information from panels and other groups and a final draft is coming soon with a call scheduled to vet through agencies. Needs to be approved by leadership at NOAA and FWS as well as OMB clearance in order to release to congress. Working with NOAA communications for layout. Hoping final product by end of Feb.
2. Whitney: The report has a section for each panel and we already provided an update and language MAP section.

Presentation: "*Hydrilla verticillata* A Newcomer to Eastern North Carolina"- Gloria Putnam, NC Sea Grant

Hydrilla is an AIS that is present in eastern United States and most recently now in flowing waters in North Carolina. *Hydrilla verticillata* was located in the Chowan River Basin and there is major concern with how it can spread in the system to the Albemarle Sound and the potential impacts. Local communities are working with the state to treat *Hydrilla* on site by site basis. In 2010, there was a regional meeting to update everyone about issue but afterwards nothing was done.

In order to promote education and awareness while increasing efforts to prevent the spread of *Hydrilla*, a citizen science survey and youtube video were developed.

Citizen Science Survey: online database using CyberTracker (free software online). The survey was conducted with assistance from environmental group and the County Soil Office to get a better understanding of the extent of *Hydrilla* in the Chowan River. $1,200 from Seagrant extension funds were used to buy 12 garden rakes (used as sampling rakes) and developed an application to put on tablets. The volunteers could take their sample and use the app to download pictures and GPS lat/long data. Hoping to expand the survey.

Youtube video for education and awareness: https://www.youtube.com/watch?v=QkxRONTWvQg

Contact via email with questions

Gloria_putnam@ncsu.edu

Discussion:

- How long did the volunteers have the tablets in their possession?
    - There was a check-in and check-out spot, usually no longer than a week. No problems with lost data.
- Cybertracker has option of emailing the data file?
    - Yes, you can do that.
- Ability to use the app on people's smartphone?

    - Yes on a droid, not iPhone. Way to expand beyond just the tablets. Use this technology in January for ghost crab pots survey
- When you created app, how did you get it to only your people? Secure server?
    - Not sure how to download to another device.
- Good idea to take pictures, good way to verify or with physical samples.
    - Photos are key and the tablets have a camera and so do smart phones. Great way to engage the community.
- Could tell from the video how different sectors of the community were involved and active which is great. Broader public awareness is usually a missing component.

Presentation: "Invasion and hybridization of the highly aggressive introduced reed, *Phragmites australis*, in Virginia's York River watershed"- Dr. Carrie Wu, Department of Biology, University of Richmond

Developed an introductory biology course-BIOL199 Introduction to Biological Thinking- to study *Phragmites* that included intensive student-directed investigation, approaches from diverse biological disciplines, and first-hand experience. This class started in 2011 as a freshman level course to immerse the students immediately into the process of biology; how scientists come up with questions, how they address, how they communicate.

Phragmites are an aggressive monoculture wetland plan that require drastic measures for eradication. However, there is a native lineage of *Phragmites* that has been documented. The topic of the class was "biological invasions" and Wu partnered with Kevin Heffernan (Stewardship Biologist, Division of Natural Heritage) who was involved with *Phragmites*. The partnership focused on the York River watershed in VA with the goal of identifying remnant native stands of *Phragmites* that warrant conservation and to quantify the extent to which non-native *Phragmites* have expanded.

Initial Results: Mapping of results, no mixed populations but both lineages occur in York River.
Next question; are they staying distinct? Do we need to be concerned about hybrid vigor?
Manual cross-pollination was done and there was successful artificial hybridization (only if introduced lineage was the pollen donor and seed parent was native) but the opposite was shown in newly published paper in NY.

Conclusions: Relic native stands of *Phragmites* persist upstream in VA's York River Watershed, we identified one of the first documented natural *Phragmites* hybrids in the field along the mid-Atlantic coast, and genetic analyses can inform more nuanced management strategies.

This is important information for management practices because relic native stands persist upstream in VA's York River watershed. The plan is to continue monitoring for persistent hybridization.

Discussion:

- Current status of the program/class, this year was Hog Island. Structural analysis was done with 300 level course. Ongoing prospects for this class because there are more areas to explore as well as population genetic analysis on other species.
- Are you looking for active interaction between two different haplotypes? Native upstream (geographically preferable).
    - After reading literature and talking to people, the native species has been in the area for a long time but not extremely common and tend to be in freshwater tidal areas. Not within range to be further saline areas. The introduced species has wider tolerance and

there is also evidence that it's a superior competitor. May be matter of time for upstream dispersal. New populations upstream should be the focus of mgmt. efforts.

- Considered mgmt. recommendations for the two powerline stands?
    - Not formally, just verbally talked with kevin about it. Don't know immediate steps

Presentation: "Update of Nutrial Management in Virginia"- Michael St. Germain, CMI at Virginia Tech

Received MAPAIS funding in 2012 to establish multi agency working group for discussing nutria management in VA with additional funding in 2013 to draft a strategic plan for nutria management in Virginia focusing on early detection/rapid response procedures to stop nutria expansion.

It was known that nutria were in VA Beach/Chesapeake area but new reports about expansion into James River. Three zones of endemic, delineation, early detection-rapid response and did not want anything to cross the James River.

Built a spatial model of potential nutria habitat using available data from Chesapeake Bay nutria eradication program to identify and summarize at risk wetlands. Worked with trappers to record where they had been trapping and if they captured nutria send a sample because people have a hard time correctly identifying nutria (log book with incentives to send capture records). Location, date, tissue samples. These records and samples were used to verify the spatial model.

Floating platforms study. Back Bay NWR and False Cape SP. 60 platforms, 90 sites. Spring 2014. Cameras on subset to determine/document if an animal approaches and whether it gets on the platform. Four students and 1 biologist going through blind hair samples to identify species.

Next Steps: Increase platform visitation (scents—preferable option, baits).

Discussion:

- Landsets vs watersets; the landsets had more visits in MD.
- The Platforms were placed in drain/creek junctions, anywhere there are travel areas (MD). Used video on MD platforms. Determined that watersets may be too small and they don't always use the opening.
- Skewing data with revisits?
    - Set up 5 min interval from camera data—same visitation. We can't tell individuals. Change the wires every time visited.
- Riverbanks/stormwater pond damage from nutria. What are the other impacts of nutria??
    - Tried taking damage photos from MD and presenting to other states that this is what is coming in the future if it's left unchecked? Yes, especially the exclusion study with marsh.

Presentation: "Chesapeake Bay Nutria Eradication Project: Nutria Detector Dog Program"- Marnie Pepper, USDA

Nutria hunting dogs have been used since 2004 to aid in 867 captures, however as the nutria are being eradicated there are limited training opportunites because of the limited reward (fewer nutria for the dogs to successfully catch). Now training the dogs in the Nutria Detector Dog Program to identify the presence of nutria. The newly trained dogs are trained to respond to scat instead of an actual nutria. This allows the handler to control the reward system (nutria scat is readily available and storable) and the dogs are government owned.

Next Steps: Canines still in training but building proficiency and stamina and handlers will complete the trainer course in order to train additional handlers/canines.

Presentation: "Feral Hogs in Virginia"- Aaron Proctor/Glen Askins, VDGIF

Feral Hogs are a growing problem in Virginia but not in the high densities that are seen in the more Southern states. These animals are a threat to other wildlife, impose high ecological and crop damage and have concern for the spread of disease.

2010: Increased reports/sightings of new populations
2011: Formation of inter-agency feral hog committee
2013: Feral Hog Action Team formed

There are current management issues surrounding feral hogs that include it being defined as livestock in VA law yet feral hogs are declared as a nuisance species. DGIF is currently exploring transport and release issues, control methods for landowners and aerial control operations and legality.

Created hotline to report feral hog sightings. It is important to remove the entire group/sounder of hogs at one time and recreational hunting should not be promoted or encouraged. Aerial Control and trapping are the more effective eradications measures, however aerial control is illegal in Virginia.

Discussion:

- Just targeting ag sector?
    - Small producers and large industrial farmers as well. Big push in organic/free range pork
- Would it be beneficial to DGIF to have an exhibit at the aquarium to educate the wide and captive audience?
    - That's a possibility

Presentation: "Invasion at the Aquarium: Managing Invasive Species at the Virginia Aquarium" -Beth Firchau, VAMSC

There are 260 species of plants managed within the 45 acre Path campus of the aquarium. The Path extends 0.5 miles between buildings and includes 8 focused botanical gardens. Invasive plants have been identified on campus and staff has focused energy on protecting natives by minimizing invasives. The aquarium also has exhibits to educate about invasives.

- Japanese Stiltgrass (Microstegium vimineum)
- Fig Buttercup (Ficaria verna)
- Japanese Honeysuckle (Lonicera japonica)
- English Ivy (Hedera helix)
- Olive (Eleangus spp.)
- Privet (Ligustrum spp.)
- Rapa Whelk
- Snakehead
- Lionfish
    - Developed a Non-Exhibit Lionfish Handling and Disposal Plan with the first confirmed observation off the coast in Summer 2014. The plan includes removal techniques, euthanasia and transfer guidelines and capture documentation.

Discussion:

- Is there someone the general public should notify if seen in wild when boating?

    - No—no one has been identified in VA.
- Fernald has a copy of the digital lionfish plan. VMRC and VIMS need to be the point person (out of authority from DGIF)
- There is a larger lionfish plan for NOAA, drafted and will be federal register for comment on Friday. Once comments are incorporated, the May task force meeting will approve that as a national guide.
- USGS has a section to report new sightings to update their maps. NAS database.
- Think of VAMSC for outreach or share information with public. AZA has grant funding as well.

Presentation: "Invasive Species: Can we eat our way out of a crisis?"-Susan Pasko, NOAA

Recently evaluated invasive incentive programs. Examples of invasive incentive programs include: bounty programs, contract operation, recreation harvest and creating a commercial market. Incentivized harvest may support other management options and lower the overall cost of invasive species control while generating significant public awareness and engagement but it may be a perverse incentive, create opportunities for additional spread or create long-term markets and demand for the product.

Biological Considerations

1. Understand the population dynamics of the target species
2. Prevent re-introduction

Ecological Considerations

1. Understand potential ecological outcomes
2. Restore native ecosystems

Human Health and Safety (also risks to environment by untrained public)

1. Determine potential risk to human health and safety
2. Ensure people are properly trained in capture methods

Socioeconomic Considerations

1. Monitor for unintended consequences
2. Employ adaptive mgmt.
3. Determine appropriate points for government intervention

When you develop your control program:

1. Define mgmt. objectives
2. Understand the costs

Discussion:

- Generally good approach, or case by case?
    - Case by case, there is value in the derbies but recreational hunting won't be valuable for all cases.

Presentation: "Playing with Pythons: Invasive Species Legislative Proposals"- Bill Tanger, VISAC

Wildlife has severely decreased, most likely due to Burmese pythons down in everglades.

A TNC newsletter included an article about Florida and invasives and mentioned there's an invasive species bill going to Congress that will be an update of lacy act (very old act) and seems ineffective because it takes 4 years to list a species.

Contacted TNC in Arlington with no feedback from FWS and TNC.

- Hoping the panel will contact congressmen

Discussion:

- Number of the Bill HR996, 1157.
- Jason Goldburg FWS knows more about this. Working with people in FWS office to discuss issues with the bill that will repurpose in the spring (senator from NY).
- What do you like about the bill?
    - The fact that it authorizes FWS to do more than it's able to do now. They can act faster.
- Gloria: not aware of the comment, thanks for bringing it to our attention

Presentation: "Update on Northern Snakehead (a potentially invasive species) Fish in Virginia" -John Odenkirk, VDGIF

Snakehead has become the poster-species for invasive species with the first documentation in 2004 May. Known Northern Snakehead (NSF) in VA in 2014 includes River: Potomac, Rappahannock and Piankatank and Reservoirs: Burke, Hunting Run, Ruffin's Mill, Abel, Occoquan, Smith and numerous stormwater/flood plain ponds.

NSH EF Catch Rate—shot up in 2012/2013. It was determined that NSF spawn in late May-early June but probably twice a year around august.

Getting relative abundance estimates, so took a specific creek and did two year study. 2013-2014. Tagged, trips, recaps, population estimates were similar. Also accounted for harvest numbers (reported).

Diet Study: Banded Killifish (largest percent. #1 food item), pumpkin seed, white perch, yellow perch, American eel. But if you look at percent, pumpkinseed and bluegill fish are larger than killifish and more important. 19 species of fish, plus crayfish, turtles and frogs.

NSF are good food and good game fish. Restaurants are serving snakehead and make more money compared to blue cats. VA hasn't commercialized to prevent incentivize movement.

VA laws and regulation states that you cannot possess NSF unless it's dead and reported. Removal and killing is encouraged.

<u>Discussion:</u>

- Data on acidic conditions?
    - No—region in Rappahannock, that habitat is more prevalent so it will be interesting to see if that's a limiting factor with distribution.

Presentation: "Status of Blue Catfish in the Chesapeake Bay Watershed"-Greg Garman, Rice Rivers Center, Virginia Commonwealth University

The blue catfish has recently been classified as 'invasive' in the Chesapeake region by some fishery management agencies. There has been significant range expansion since 2008 into upper and middle Bay, several MD systems and VA eastern shore. A recent rough estimate is 100 million Blue Catfish in the Bay.

Possible ecological/economic effects of invasive catfishes in Chesapeake Bay include compromised long-term recovery efforts for anadromous fishes, contribute to declines in native fishes, contribute to top-down trophic cascades, increase contaminant body burdens in fish-eating birds and impacts to commercially important fisheries. There hae been declines in native catfishes in Virginia rivers and conventional dietary analyses have documented predation on American Shad and Blueback Herring adults and juveniles.

Salinity tolerance is higher than what people expected (17ppt) but don't know if they are able to reproduce in those conditions.

Discussion:

- Blue cats, oldest 30 years. Opportunistic eaters.
- PCBs concern, what about mercury?
    - More of an issue in the acidic regions, not mainstem James. Picking up some mercury, can't say whether it's enough for potential concern.

Presentation: "Searching for Equilibrium in an Irrational World: Blue Catfish in the Chesapeake Bay Watershed"-Bob Greenlee, VDGIF

The Sustainable Fisheries Goal Implementation Team with the Chesapeake Bay Program has formed an Invasive Catfish Taskforce that just released a report. The report recommends several management actions that include the development of a large-scale commercial fishery, targeted fishery-independent removals in places of significant ecological value, electrofishing for commercial harvest purposes, and cross-jurisdictional review of current fishing policies and regulations. The Bay Program's Scientific Technical Advisory Committee (STAC) reviewed the report and commended the taskforce for their determination to think outside the box but noted that many of the strategies are new/minimally tested and all uncertainties must first be addressed by further scientific studies. The reviewers advocated for the development of a comprehensive management plan prior to the implementation of recommendations. The plan would provide a framework to full evaluate control technique and prioritize actions and research needs.

VDGIF work to address science needs include;

- Initial assessments using LF EF in the James
- monitoring Status and trends
- Surveillance
- Food habits and diet
- Modeling of population demographics, potential impacts and assessment of the efficacy of various management options

The impact blue catfish have on these systems in unknown and may be hard to define because populations have yet to reach equilibrium, diet is variable and abundance estimates are lacking.

Discussion:

- No identified mechanism of control
- A lot of work on biomass of James. This is based on electroshocking and gillnets—no good estimate of biomass for pelagic species like gizzard shad. Biomass of bluecats is through the roof. Food web, there are a lot of gizzard shad.
- Dragon Run—undisturbed watershed. Small watershed, fairly unproductive. There is catfish from the riprap to 2 miles.
- Nontidal streams?
    - Nowhere outside coastal plain streams associated with that. James and York and Rappahannock—declining growth, succeeded carrying capacity and crashing down to that level but we don't know the ecological impacts. But they are moving above dams. Angler anecdotal evidence of movement.
- Anyone working on larval/YOY long-term monitoring?

- No. not a focus on that. Looking at recruitment variability too but environmental drivers haven't been determined for bluecats or snakehead.

Member/Interested Parties Updates

1. Panel Member Update for Delaware

Department of Natural Resources and Environmental Control (DNREC), Division of Fish and Wildlife
Nutria: A new regulation passed in 2014 makes it unlawful to possess, buy, sell, barter, trade or transfer live nutria to or from another person unless permitted by the Director of the Division of Fish and Wildlife. Nutria may only be trapped during the lawful season to trap muskrats and any nutria captured must be killed and not released back into the wild. Also, anyone capturing nutria must notify the Division of Fish and Wildlife within 24 hours of the capture.

No nutria were reported in Delaware during 2014, so past eradication efforts may have been effective. Delaware appreciates the efforts by surrounding states to control nutria!

Hydrilla: The Division of Fish and Wildlife spent nearly $230,000 in 2014 to control hydrilla and nuisance aquatic plants/algae in public ponds. Delaware is interested in how other states address invasive aquatic vegetation in their non-tidal areas, as no control method is without issues. Chemical control is costly and mechanical control (i.e. weed harvester), results in the mortality of fish and aquatic invertebrates that utilize the plants for shelter, although population level impacts are unknown. Past use of grass carp in one of the state ponds to control hydrilla resulted in removal of *all* vegetation causing a decline in the game fish population. Research evaluating the potential for grass carp to partially control vegetation is needed (various stocking rates, size at stocking, timing, exclusion areas, etc.)

Northern Snakehead: No major range expansion of Northern Snakehead (NSH) was noted in 2014, although new occurrences in two more impoundments have been documented since the spring 2014 MAP-AIS meeting. Both ponds are within proximity to rivers with documented occurrences. One pond has a very high dam structure and no known NSH occurrences upstream. It's in the same general area where illegal stocking has occurred. The Division of Fish and Wildlife collected biological and genetic samples from 30 NSH in 2014.

Blue catfish: Currently there are no confirmed reports of blue catfish in the Delaware portion of the Nanticoke River (Chesapeake Bay drainage); however, blue catfish tagged with sonic transmitters (by Matt Ogburn-Smithsonian Environmental Research Center) have been detected in the river just downstream of the DE/MD line. The Division is going to place receivers in 5 areas in the upper Nanticoke River system as part of an American shad restoration project. These receivers will also pick up signals from tagged blue catfish if they migrate into the area.