



Tuesday, December 10, 2019 | Northeast Aquatic Nuisance Species Panel and Mid-Atlantic Panel on Aquatic Invasive Species joint meeting

9:00 AM Welcome and introductions

Kevin Cute, RI Coastal Resources Management Council, US Fish and David Wong, NEANS Panel co-chairs, and

Jay Kilian, Chair, Mid-Atlantic Panel on Aquatic Invasive Species

9:15 AM Marine Rapid Assessment Survey overview

Judy Pederson and Jim Carlton, project leads and principal investigators

9:45 AM A synthesis of the marine live bait trade as a vector for species invasions

Amy Fowler, George Mason University

10:30 AM Vessel Incidental Discharge Act: jurisdictions responsibilities, authorities, and opportunities

Kevin Cute, Rhode Island Coastal Resources Council, discussion lead

10:45 AM US Geological Survey's Non-indigenous Aquatic Species (NAS): tools and information for researchers, managers, and stakeholders

Ian Pflingston, US Geological Survey

11:30 PM Lunch on your own

1:00 PM Highlights from New York State

1:30 PM Update on the Chesapeake Nutria Eradication Partnership: next steps

*Ray Fernald, VA Department of Game and Inland Fisheries
Jonathan McKnight, MD Department of Natural Resources*

- 2:00 PM Working together on the movement of invasive species**
- **Boating vector best management practices**
John McPhedran and Karen Hahnel, ME Department of Environmental Protection
 - **Legal framework and legislative matrix**
Amy Smagula, NH Department of Environmental Services (invited) and Catherine McGlynn, NYS Department of Environmental Conservation
 - **Consistent messaging for boaters**
Catherine McGlynn, NYS Department of Environmental Conservation
- 3:00 PM Aquatic Nuisance Species Task Force and federal program updates**
Don MacLean, US Fish and Wildlife Service
- 4:00 PM Other joint panels business**
- 4:15 PM Public comment period**
- 4:30 PM Decision and action item review with next steps for NEANS Panel and MAPAIS**
- 4:45 PM Supper arrangements and adjourn**

Mid-Atlantic Panel on Aquatic Invasive Species



Mid-Atlantic Panel (MAPAIS) Fall 2019 Meeting

Wednesday, December 11, 2019

Fiver Rivers Environmental Education Center

56 Game Farm Rd

Delmar, NY

9:00 am	Coffee	
9:30 am	Call to Order <ul style="list-style-type: none"> • Welcome/housekeeping • Introductions • Review & approve agenda and Spring 2019 minutes • Spring 2019 meeting action items 	<i>Jay Kilian, Panel Chair</i>
10:00 am	Budget and funded projects update <ul style="list-style-type: none"> • 2020 budget update • Update on 2019 funded grants • Update on ongoing/completed projects 	<i>Mike Allen, MD Sea Grant</i>
10:10 am	New business and decision items: <ul style="list-style-type: none"> • New member request • New MAPAIS recommendations to ANSTF? • Small grant program RFP – Any changes needed? • Next meeting (Fall 2020 MAPAIS) 	<i>Jay Kilian / Edna Stetzar, Panel Vice Chair/ Mike Allen</i>
10:40 am	Break	
11:00 am	Using environmental DNA to look for invasive species in New York	<i>Michael Tessler, American Museum of Natural History</i>

11:30 am	Increasing standardization, efficiency, and timeliness for invasive species data collection, a NY example	<i>Meg Wilkinson, NY Natural Heritage Program</i>
12:00 am	MAPAIS Project Update – Impacts of two functionally distinct invaders in the Gunpowder River, Maryland	<i>Amy Fowler, George Mason University</i>
12:30 pm	Lunch	
1:30 pm	Early detection and eradication program needed for <i>Trapa bispinosa</i> , a new species of water chestnut in the Potomac River watershed.	<i>Nancy Rybicki, USGS Reston, Va</i>
2:00 pm	USGS Chesapeake Bay Science Planning Team	<i>Christine Densmore, USGS Leetown Science Center</i>
2:15 pm	ANS State Plan Implementation Updates	<i>Panel State Representatives</i>
3:00 pm	Member / interested parties updates	<i>Panel Members and Interested Parties</i>
4:00 pm	Public comments	
4:15 pm	Adjourn	

Tuesday, December 10, 2019 | Northeast Aquatic Nuisance Species Panel and MidAtlantic Panel on Aquatic Invasive Species joint meeting

Michele Tremblay	Julianna Greenberg	Jay Kilian	Edna Stetzar
Jonathan McKnight	Amy Fowler	Mike Allen	Kevin Cute
David Wong	Ray Fernald	Steven Pearson	Meg Modley
Sara Whitney	Steve Porter	Mike Vissichelli	Mandy Bromilow
Sandy Kepner	Kim Jensen	Christine Densmore	Chris Smith
Christopher Williams	Gwendolyn Temple	Denise Blanchette	Karen Hahnel
Meg Wilkinson	Kathy McGlynn	Heather Desko	Ian Pfingston
Donald MacLean	Greg Bugsley	Cara Winslow	Katherine Zipfel
Renée Bernier	Audra Martin	Nicole White	John McPhedran

Action Items:

- Solicit greater engagement from governors in aquatic invasive species management
- Forward any information and further discussion at the Spring NENEAS meeting relating to bloodworms to Julianna so that it can be shared with the Mid-Atlantic panel
- Contact Michele Tremblay of the NEANS if you wish to subscribe to the VIDA States Inspection Listserv
- USGS NAS will be holding environmental DNA webinars this spring – the NEANS/MAPAIS webinar is currently scheduled for March 16, 2020. Contact Ian Pfingston of USGS for details.
- MAPAIS and NEANS agreed to complete and share the recreational boating legal matrix discussed during the ‘Working together on movement of Invasive Species’ session.
 - Julianna and Jay will make a Google Docs version of the matrix and share with member states for MAPAIS state representatives to update
 - Updated MAPAIS matrix will be shared with NEANS members

9:00 AM Welcome and introductions Kevin Cute, RI Coastal Resources Management Council, US Fish and David Wong, NEANS Panel co-chairs, and Jay Kilian, Chair, Mid-Atlantic Panel on Aquatic Invasive Species

9:15 AM A synthesis of the marine live bait trade as a vector for species invasions Amy Fowler, George Mason University

- Bloodworms are native up to the Northeast US but are used as live bait throughout the region
 - Especially common in the Chesapeake Bay

- Wormweed, *ascophyllum nodosum* ecad *scorpioidide*, is used to pack the bloodworms for shipping around the US and can serve as a vector for several invasive species
- Maine is the epicenter for the bloodworm trade
 - Pre 1940, >12.5 million pounds/year, 1945-1985, >1 billion/year
- Worm weed harvesters and bloodworm harvesters
 - Maine distributor
 - European, regional, and US retailers
 - Anglers – end user
 - Chesapeake Bay, California, Europe
- Fisherman believe that they need the worm weed for the worms to survive
 - 9 metric tons of algae are imported into San Francisco every year
- Biological characterization study
 - Over 110 taxa found – whole communities are being transported on these algae
 - Find upwards of 50 organisms in a single bag of worms purchased
 - Dominated by crustaceans and gastropods
 - Estimate 1.2 million macroinvertebrates transported by this vector to date
 - Strong patterning by season for functional groups
 - Different patterns of reproduction? Water temp effect? Larval recruitment dynamics?
- How can we lessen the abundance and diversity of hitchhikers?
 - Osmotic shock
 - Control, tap water, hyper salinity, tap + hyper salinity
 - Results:
 - Worms are all in excellent condition
 - Simplest treatment, tap water -- as effective as more complicated treatments in reducing associated biota
- Sharing results with stakeholders
 - Without any laws or incentive, they said they will not make a change
 - Add labor costs, change facility requirements, require dependable source of fresh water
 - Current requests from Europe: Naked in trays
 - Bloodworms are shipped to Europe without worm weed
 - They see the algae in the US as something that the customer needs, and that if they get rid of the algae, customers would stop buying
 - Is it more cost effective to use worm weed or “naked in trays” methods to ship bloodworms?
 - The same cost to send naked in tray or in box with seaweed
 - Monetary cost of prevention is very small if demand for worms stays constant
 - Fisherman survey in the mid-Atlantic
 - 89% purchase worms from bait and tackle stores
 - 86% have worms left after fishing
 - 33% discard into water instead of into trash
 - Most don’t know worm weed was a vector
 - More than half know something about non-native issues

- Only 16% of people have seen invasive species information
 - Most are very concerned about their fishing spot and are worried about non-native species
 - Bait store would be the most trusted source of information, followed by labels on the packaging
 - Appears to be a scope for leveraging fishing concerns about bloodworm packaging materials
 - If the people packaging won't work with us, maybe work with the customers
- Moving forward
 - Currently no regulations on this vector in the US
 - ME distributors can ship bloodworms naked but need buy-in from customers
 - Would consumers still buy the worms without the worm weed?
 - Would consumers be interested in reading information about worm weed as a vector?
- Discussions with Maine DMR
 - Need to show buy-in from other states
- *How did the mid-Atlantic panel select this project?*
 - Initially funded by the National Sea Grant program
 - Simple and manageable issue – can make a difference
 - Started with the vector workshop
- *Do you have a sense of where the boxes are going?*
 - Suppliers won't share the list of where they are specifically shipping
 - Know that some go to Portugal, Spain, and France
 - Mike's Bait in MD – supplies PA, MD, NC
- *Could this be a joint project for our two panels – some sort of joint sponsored legislation to ban worm weed in our states?*
 - Further outreach to Maine suppliers is needed before we come up with a regulation
 - Worm weed collection itself is not a viable income but does add a little bit
- *The weed is also overharvested and there's concern about that continuing and endangering the species, is there a way to get at it from that perspective?*
 - Not previously an angle considered
- *Have you found established invasives from the worm weed outside of Maine?*
 - There are some known invaders that we have found on the worm weed,
 - we don't know the exact way that those invaders were established but it's possible it was from the worm weed
 - Moving new genotypes on worm weed
- **Amy will email MAPAIS list-serv when her most recent paper is published**
- *Do we know of any states that are looking at this as a regulatory initiative?*
 - California has laws but they are not enforced or regulated
 - VA, MD, have nothing about this kind of live bait
 - ND has bait regulations, ME has freshwater regulations, RI has some
 - Bait fish have regulations, but **the bait is not actually the vector** which is hard for the regulators/regulations to cover. The vector here is the packing materials
 - Even though dumping your bait bucket in to the water is illegal, most people still do it

- There's only one big distributor, work at the top of the distribution chain and there are fewer minds you need to change
- If there's no enforcement there's no real incentive

9:45 AM Marine Rapid Assessment Survey overview Judy Pederson and Jim Carlton, project leads and principal investigators

- Started the rapid assessment in 2000
- Initially set up to understand distribution of non-native marine organisms in New England
- Wanted people who has knowledge of both native species and international species to assess who had invaded
- Wanted to get as much done as possible in 1 week
 - Field ID, identification in the lab, archived
- Rapid assessment surveys are every 2-3 in Southern New England
- Understand species expansion
- Correlation with possible climate change (had to show)
- Identified hundreds of species during the assessment
- 100 species that had been seen in LI Sound and were found in new locations
- Some species that were very abundant throughout the whole assessment
- 35 total non-native species in the region
- Smaller organisms less likely to be noticed, potentially underrepresented
- 1/3 of organisms are algae (6-7 non native species), crustaceans are very prevalent, rhizomes
- Have things changed from an environmental perspective?
 - For each region, there is generally a slight increase in temperature each summer
- Took data from buoys in Gulf of Maine and Long Island Sound
 - Plotted data for high and low daily temperature, average temperature, and overlaid the salinity
 - Lot of variability
 - High freshwater inputs
- There are species that thrive in warmer waters and some that thrive in cooler waters
 - Lot of species that have been around for a long time
 - Hard to tell what is just expanding its range due to climate change and what is migrating before the increase in temp
- A lot of invasive species are coming from Europe and the west Pacific
- Outreach
 - Sent posters to marinas
 - Given presentations to general public
 - Asking for advice – what has been effective in terms of reaching out?
- *Work with Sea Grant and other State partners who have larger outreach groups already*

10:30 AM Vessel Incidental Discharge Act (VIDA): jurisdictions responsibilities, authorities, and opportunities Kevin Cute, Rhode Island Coastal Resources Council, discussion lead

- Dec 4, 2018 VIDA was signed in to law

- Some parts of the act are still being developed
- EPA is developing standards
- Ballast water management is one of the most important ways to prevent AIS
 - Commercial vessel will take on ballast water in some port as it leaves, and as it comes closer to shore, the vessel will start to exchange the water in its ballast with ocean water
 - Ocean water kills some of the AIS, but there is usually additional water treatment needed to make sure that all AIS are gone
- EPA draft standards might be out by January 2020
- VIDA and the Clean Water Act
 - States will be authorized to enforce the requirements of VIDA
 - Can develop their own state inspection program for onboard treatment systems
 - Coast guard can not inspect every vessel that comes to US ports
 - Vessel general permits
 - Will no longer be relevant after VIDA is fully rolled out
 - Right now we are in the governor's consultation period
 - State's can comment on the EPA's standard and the final regulations
- Rhode Island water quality certificate
 - Ballast water exchange required even with on-board treatment systems
 - Graywater discharge must meet RI WQ regulations prohibiting further degradation of impaired waters
- Great Lakes and Lake Champlain management plan
- How are we going to find the unique technologies and recommendations for our system?
- Coastal zone starts at the top
- Coastal Aquatic Invasive Species Mitigation Grant Program and Mitigation Fund
 - Funds equal to fines under Sec. 312 (p) of the CWA during the previous fiscal year
 - Additional authorization of 5 mil each fiscal year
- Purpose of mitigation grant program and fund
 - Implement programs, including permissible state ballast water inspection programs, to prevent, detect, control, mitigate, and eradicate AIS in the coastal zone or EEZ
- EPA and USCG held several webinars in spring and summer of 2019
 - Letters to governors solicit state input in the rulemaking process
 - Several states did not respond; USCG presently identifying state contacts
 - Funds not appropriated but there is positive movement
- Working groups are being formed around the 8 VIDA requirements
 - Identifying various representatives
- Together we can cover about half of the Atlantic coast
- National network of state inspection programs
- Would like to see an effective nationwide state inspection program
 - Onboard treatment systems, BMPs, whatever a ship is subject to, would like to see an opportunity for us to be as true as we can be
- VIDA state inspection list serve – Email Michele (mlt@naturesource.net)
- *Is there a danger of creating too many bureaucratic organizations if you start a state by state program?*

- Start by looking at the NE and the mid-Atlantic
- How might the state inspection program do more burden than good?
- Difficult to superimpose a reality on the ports
 - The boats have tracking programs on board now, we know when they're coming
 - The implementation is that I board the boat when it comes to my port and check it out and get a sample
 - This is a relatively common thing on the west coast and abroad
- *The difference between us and the west coast is that there are only 3 states on the west coast. It's hard to get so many states to work on the East Coast. New York has the most ballast water going in and out, so it's important to get a system that works for NY.*
 - The coast guard has been trying to get people to agree to a joint plant and they have not been receptive
 - Each state has their own agency to go and do this on your own. They are encouraged to work towards ballast water regulation on their own and not to wait for a group resolution from several states
- *How much would it cost to operate an inspection facility like this in Baltimore harbor or a similar large port?*
- *Does the bill currently contain information that would grant entry to a vessel for a state inspector or would the states have to come up with this legislation on their own?*
 - In some cases, the states would probably have to come up with it on their own
- *Each state has a different water quality regulation system*
 - Whatever the current standards are, they are going to be pulled up by the uniform national standards under VIDA
 - Now its up to the states to figure out which agency would be affected by that

10:45 AM US Geological Survey's Non-indigenous Aquatic Species (NAS): tools and information for researchers, managers, and stakeholders Ian Pfingston, US Geological Survey

- Nonindigenous aquatic species (NAS) database
 - Take close to 1,300 species that are nonnative
 - Date ranges from 1800 to present
 - Distribution maps, species profiles, literature, actionable maps and tools
- Tracked pathway, population status, association with references
- NAS application programming interface
 - Provides access to specimens and species information on the NAS database through other applications
 - Now compliant with NAISMA mapping standards
- NAS Alert System
 - Emails users of new occurrences
 - Notify state prior to publicizing alerts if requested or if high profile
- Alert Risk Mapper
 - Maps are created for nearly every new alert
 - Excludes marine introductions, private property, or failed introductions
 - Short term risk assessment
 - Assumes anthropogenic movement

- Range extensions, aquarium/pet releases
- Map comes with the alert in your email
- Flood and storm tracker
 - Flood potential across drainage divides in storm prone areas
 - USGS Water Watch, USGS flood event viewer
 - USGS 3DEP – digital elevation and contour models
 - Are there any elevations lower than the high tide/high water mark?
 - Used to create maps
 - Color coded based on sighting of species, used to track potential for movement
 - Review post-hurricane surveys or sightings to identify any species that could have been transported by flooding
 - 2017 saw 18 species and 33 new sightings because of flooding
- Impact tables
 - Identify the known impacts of the 100 biggest priority species for the Gulf and South Atlantic Region
 - Ecological, economic, and health impacts
 - Create a table for each species and show the references used and the different sighting and pieces of evidence
- SEINed Tool
 - Taking information from the public
 - Upload a biological dataset collected anywhere in US that can be screened for native and non-native biodiversity
 - Spatial accuracy
 - Taxonomical accuracy
 - Additional spatial layers
- eDNA in the NAS database
 - Not yet available
 - First efforts to aggregate all aquatic invasive species eDNA data to a single database
 - Collaborate with NOAA, EPA, USFWS, US Forest Service, Department of the Interior
 - Inform state of any eDNA sighting
 - Develop conservative minimum data standards to help guide eDNA monitoring and adding information into the database
 - Townhall webinars planned for every Monday in March
 - NEANs and MAPAIS is 3/16
 - Want to coordinate exchanges annually or biannually with each state rep/agency
 - Get the best most up to date

11:30 PM Lunch on your own

1:00 PM Highlights from New York State

- Hydrilla – high priority species in New York
 - Croton-on-Hudson project
 - No hydrilla found at the end of the treatment season
- Long Island Metro AIS Task force
 - List of focal species, fill knowledge gaps, control efforts, expanding watercraft inspection steward program, collaboration
 - Long Island AID coordinator
 - Part time graduate student
- Aquatic Plant monitoring
 - Collecting data on Mohawk River
 - What control efforts are needed between 2020-2022
 - Repeatable methodology to use on a rotating basis
 - Identified which locations are most likely to facilitate a long-term introduction of an AIS
- Data collection and Analysis
 - iMap Heritage program
 - Downloadable app where you can note presence or not detected
 - iMap Invasives
 - Developed by NatureServe
 - Map centric
 - Available for US and Canada
 - Simple Aquatic Survey (SAS)
 - Survey123 application to collect aquatic survey data
 - For citizen scientists
 - Lake Management Tracker
 - Survey123 form to track management efforts
 - Rake toss abundance for native and key invasive species
 - WISPA
 - Coverage at approximately 200 locations
 - 16 participating organizations
- Outreach and Education
 - Resin Casting
 - Bring invasive species to the public in a way that they can see and handle
 - Different techniques for preservation – desiccation, silica gel, freeze drying
 - Recent Threats
 - Gangetic eel
 - Found several individuals, all dead, first instance in the US
 - Individuals from different size classes, including reproducing females
 - All eels had empty stomachs, so they weren't feeding on anything
 - Religious ceremony release?
 - Eels were sold in fish markets nearby
 - Snakeheads
 - Credible report of snakehead in the Hudson river basin
 - Previous eradication efforts in the area
 - Electrofishing and eDNA effort

- More than 30 species of fish documented
 - No snakeheads
- eDNA lab development
 - Develop capacity in house to run and analyze samples for eDNA analysis
 - Working to develop communication template
 - Want to be able to prep and run samples so multiple species can be tested for at once
 - Want to develop procedures for eDNA across states and jurisdictions
- Relate invasive plant aquatic plant community with community composition of macro invert samples
 - Develop database
 - Develop survey techniques
- Underreported and misidentified species
 - Variable leaved milfoil/broad leaf milfoil
 - Native to mid-Atlantic
 - Hybrid is a prohibited species in NY state
 - Hybrid is difficult to distinguish from natives
 - Are reported sightings the native species of the hybrid?
- *Are there still mitten crabs in the Hudson?*
 - Only one report this year and it was in Long Island
 - Probably persisting but not being reported or sighted
- *Are you trying to develop a new database for invertebrates?*
 - Not creating a new database, working with multiple databases to consolidate
- *How strong is the science on hydrilla being carried by waterfowl?*
 - Haven't been research but seems like a good explanation for how they get to remote locations and unconnected lakes
 - It's possible that the plants are being picked up by birds but that's not believed to be the major route

1:30 PM Update on the Chesapeake Nutria Eradication Partnership: next steps Ray Fernald, VA Department of Game and Inland Fisheries Jonathan McKnight, MD Department of Natural Resources

- There are 6 aquatic invasive species that are in the Chesapeake bay agreement
 - Purple loosestrife, water chestnut, mute swan, phragmites, nutria, zebra mussels
- Nutria population started on Maryland's Eastern shore salt marshes – near Blackwater Wildlife refuge
 - Sightings all over the shore – 25,000 acres of eradication area to remove all animals
- Nutria eat the roots of marsh plants and don't leave part of the plant behind for it to propagate
- Nutria leave behind characteristic fecal pellets
 - Large scale, the complete removal of these plants can be very damaging
 - Difficult for aquatic plants to repopulate these areas
 - Hurts tourism, recreational fishing, etc
 - Economic impact studies helped make the case that they need to be eradicated
- Blackwater refuge – conversion of marshland to open water
 - Nutria played a role, but it was not the ultimate cause of the conversion

- Enclosure of nutria from a marsh section shows a stark difference in plant cover
- Criteria for success
 - Every individual must be put at risk
 - Mortality must exceed reproduction
 - Re-invasion risk must be near zero
 - Techniques must be acceptable to society
 - Need to keep bycatch down
 - Benefits must outweigh costs
 - Institutional support must be declared at outset
- Phases of eradication
 - Survey, knockdown, mop-up, verification, surveillance
- Used traditional tracking and hunting methods along with new technology
 - Ground searches – establish a colony and they generally stay in that area
 - Nutria platforms – they like to get out of the water and sit down on things
- Conservation outcomes
 - Plant recovery following eradication
 - Mostly spartina and similar
- Research and Development
 - Remote cameras gave input in to social dynamics
 - Depositing scat to signal to other nutria
 - “Judas nutria”
 - Took captive nutria, neutered them, and released in to the wild with a GPS collar
 - They would walk miles to find a colony and lead trappers directly to them
 - Dogs trained on nutria scat to scope them out
- May 7, 2015 – last day that a nutria would be caught in the state of MD
- Important to have institutional support and partners aligned
- In order to call this a success, we still have to work to remove the nutria from other Chesapeake Bay states to shrink the probability of reintroduction to 0
- Mute swan program – down

- **Ray Fernald – Virginia**

- No coordinated population monitoring of Nutria in VA until 2011
- Implement standard inter-agency reporting process, delineate distribution, establish panel, publish report, develop a plan
 - Worked with Virginia Tech to come up with a standardized reporting system
 - Developed a map of likely distribution
- “Early Detection Rapid Response” zones are found next to areas where nutria have been eradicated to keep them from reestablishing there
- Detector dogs
 - The issue was training the trainer to trust the dogs
- Having issues getting a project started in NC
 - Nutria are coming up the streams in to Virginia from NC

- Over 980,000 acres of coastal wetland habitat in VA considered to be at risk
 - Want to implement a similar program to the one in MD
 - Move the staff and dogs down south and housed at FWS and staffed at VA UDA
 - Currently in congress – extend program for 5 more years
- *How do you deal with the dead nutria?*
 - Leave the carcass in the marsh
- *When you say move the staff to VA...?*
 - Have some people relocate officially, rehire some seasonal trappers, the MD program is running down so there will not be more work to do there
 - Hopefully a few people might be interested in federal transfer to VA
- *Has there been a coordinated effort at federal level to get states to coordinate?*
 - Federal money and federal staff, trying to generate state support to make next steps
- *How important was it that you had a memorandum establishing nutria as a problem?*
 - Probably not super important. Raised profile of species, but it was the congressional push that got it done
 - In the Chesapeake Bay Nutria eradication program, there is mention of expanding to VA
- *Any insights or thoughts on how to integrate eDNA or drones for future programs?*
 - Using a drone is more effective, you can see the nutria eat outs from above easily. Will be very helpful in the future.
 - Using eDNA for searching for nutria presence will be useful as well

2:30 PM Aquatic Nuisance Species Task Force and federal program updates Don MacLean, US Fish and Wildlife Service

- 43 State management plans approved + 3 specific lake management plans
- Action items – ANS task force meeting, Beltsville MD Nov 6-7, 2019
 - Concise synopsis of key invasive species inter-agency orgs
 - Co-chairs will establish an ad-hoc sub committee to review bylaws
 - USCG and EPA will report on “intergovernmental response framework for vessel discharge risks” and how ANS can engage
 - ABYC will be invited to provide an update on the status of the technical information report marketing at the next meeting
 - Members and regional pannels are invited to provide suggestions on format, content, and layout of next report to congress
 - Subcommittees will refine their work plans and resubmit them to the ANS task force by December 16. Members and panels will provide comments on the work plans by January 13
- New strategic plan approved for 2020-2025
 - Coordination – working on a bylaw document, establish a process for members to respond to recommendations brought forward by regional panels
 - Annually assess ANSTF accomplishments and report progress on the strategic plan
 - Prevention
 - Evaluate and refine task force pathway risk assessment process
 - Work with federal agencies to make important data available online

- Assess new ANS introductions to determine where prevention measures have been lacking
 - Enter in to national prevention practices with responsive industry sectors that consider invasion risks
 - EDRR
 - develop framework for horizon scanning tools to determine hotspots
 - Develop a report describing tools for eDNA detection patterns including findings and recommendations about best practices
 - Guidance on determining appropriate management report describing where emergency response funds are currently in use and providing a model to establish and administer an emergency rapid response fund
 - Control and restoration goal
 - Assess state of each ANS management and control plans
 - Draft guidance for species control plans
 - Survey members and panels for gaps in control and restoration and inform ANS on potential gaps
 - Identify federal and non-federal entities
 - Research
 - Annual priority research list
 - Survey panels and members for a list of research entities that can address various needs
 - Develop a sub committee
 - Education and outreach
 - Conduct assessment of nation campaigns and ANSTF guidelines to evaluate progress of outreach goals and behavior change effectiveness
 - Finish the Stop Aquatic Hitchhikers portal to serve as a clearinghouse for campaign materials
 - Define and identify leaders for an ANS community of practice to provide a forum for dialogue to share ideas, evaluate data, and improve outreach tools and methods
 - Develop templates for ANS task force messaging and briefings to ensure consistency
 - Coming soon – Stop Aquatic Hitchhikers website is being revamped

3:00 PM Working together on the movement of invasive species

- **Boating vector best management practices John McPhedran and Karen Hahnel, ME Department of Environmental Protection**
- State implemented boat inspection program in 2000
 - 11 aquatic plants that are prohibited in ME
 - Established a funding mechanism for the program
 - Annual sale of lake and river protection sticker
 - Required for residents and non residents to use lakes
 - Courtesy boat inspector training
 - Required annually

- Train the trainer
 - Average 600 inspectors every year
- Courtesy boat inspection (CBI) grants
 - Non-profit lake and watershed groups can apply for grants
 - Grants range from \$1000 to \$9000
 - Direct grants for lakes with known infestations
 - DEP collaborates with a large regional lake environmental association to help administer this
 - Clean, drain, and dry as main message for stopping the spread of AIS
 - Do not have a prohibition on carrying bilge water
- Data collection
 - Each grant recipient must enter their own data
 - CBI mobile app
- CBI Saves 2018
 - Eurasian water milfoil with a very small zebra mussel on the stem
 - Inspector saw at St Lawrence River and was able to keep it out
 - *Were boats stopped from entering water while this inspection took place?* No
 - *Is there any required decontamination other than removing visible debris?* Nothing else required, there are wash stations that were put out a while ago but might not be in much use
- Recommendations
 - Involve lake and watershed groups in your efforts
 - Encourage joint grant proposals between regional groups
 - Have a dedicated funding source to continue your program
 - Have grantees enter their own data
- What is Maine not doing?
 - Wash stations are not yet widespread
 - High pressure/hot water stations
 - Requiring inspections in statute (beyond surface use restrictions – when you're in a lake known to be infected with an aquatic invasive plant)
 - Legislating draining bilge and live wells
 - Worried about the impact on bait collectors
- Aquarium trade as a vector
 - Invasive species have been seen in local pet stores
- No use of SAINS on lakes with infestations
- Bass club tournaments
 - Bass clubs need permits from FWS to hold a tournament and a condition of the permits is that two weed inspectors must be present
 - Inspect the boats as they are launched and when they are loaded
 - Enforcement can be hard
 - Pre-fishing where the whole club shows up to a spot beforehand
 - There is a drawing for tournament permits and if you don't go to a training you can't draw a permit

- *Maine's inspection program is for plants only, what could you do if you found a zebra mussel or a similar non-plant invader?*
 - Rather than a list of “prohibited species” Maine has a list of species that it will allow to be transported. If the organism is not on that list, it can not be transported.
 - Zebra mussels are not on that list
 - *Have there ever been prosecutions?*
 - 2 summonses issued that resulted in a fine, to date
- *Are there programs in the Western US that could be scaled down and applied here?*
 - Federal partners have much more influence and are a bigger part of entry and exit from parks/lakes out west
 - Canal ways as a major vector as well, not as big of an issue in the west
 - Reconnecting watersheds
 - Dogs trained to sniff out zebra mussels
- *How do you enforce the dry component of “Clean, drain, dry”? What if someone fishes in the rain, etc?*
 - Not a requirement to dry the boat on site
 - Must leave the boat outside for 5 days in the sun, towel dry, or 3 days in sub-freezing temperatures
 - Having a wet boat on arrival in NY can trigger a decontamination and high-risk vessel listing
 - Have a wet boat on exit will not trigger any additional protocols
- Some states have inspectors employed at night to catch boats that are trying to avoid inspection
- **Legal framework and legislative matrix Amy Smagula, NH Department of Environmental Services (invited) and Catherine McGlynn, NYS Department of Environmental Conservation**
 - NEANS website has legislative summaries of panel member states
 - Matrix sent out to all of the jurisdictions
 - Compares funding, clean drain dry legislation, wish list of future work, etc
 - Recommend annual updating of content in this matrix by each jurisdiction at spring meeting
 - Will send out an updated matrix before too long
 - Last updated in the spring of 2019
 - Create a “dream state” with the best of each category?
 - Give an at-a-glance view of what we can aim for
 - Keep NEANS and MAPAIS separate while collecting data and create an annual joint document with a table for the greater region
 - *Are there any clean, drain, dry mandated inspections?*
 - ME- There could be mandated inspections under very specific surface use restrictions, otherwise no mandated inspections
 - NH – Not mandated
 - Requires draining a ballast
 - Issues with boats that do not have the capacity to drain ballasts and are then automatically uncompliant with state law
- **Consistent messaging for boaters Catherine McGlynn, NYS Department of Environmental Conservation**

- List of prohibited animals and plants
 - Making a standardized score for all these species
 - Will be included in next update of this list
- Clean, drain, dry is mandatory in NY but who will be doing it
 - Current expectation is that the boater shows up clean, dried, and drained. Voluntary inspections are offered
 - Funded through the environmental protection fund
 - Average budget of 13.3 million
 - Hard to enforce
 - First violation is a warning, 2nd -4th is a up to 1k in fines
- Water inspection programs
 - Adirondacks, Hudson-Mohawk Rivers, Catskills
- Funds dedicated to outreach, spread prevention, other grants
- Once you accept money from them, you must become a part of the WISP network
 - Standardized procedure, shared apps, standardized data entry etc
 - Goals of WISP
 - Provide consistent presence at popular launches
 - Create a presence at different events
 - Deploy decontamination at multiple stations
 - Create a standard and central database
- Decontamination stations (Adirondack)
 - Strategically placed at waterbodies containing microscopic AIS
 - High traffic waterbodies
 - Gateways to multiple waterbodies
- Survey
 - Core of standardized questions and some customized questions as well
 - Data can be saved in “outbox” until access to internet allows uploading to cloud
- Boat steward – seasonal worker
 - Average salary is 15k per season
- WISP app is free to download
- Behavior Change
 - Working with a behavior change psychologist
 - Tweaking existing messaging
 - Asking for commitment at the end of WISPA survey
 - Stewards providing a link to a pre-behavior change implementation survey
 - Send out survey again in 2-3 years and look at change
- Enter data in to WISP, send it to GIS online, creates a dashboard and a map
 - Valuable to have near instant access to data
 - Need to have confidence that the inspectors know what they’re doing
 - Considerable training
 - Data entered is not immediately considered an observation
- Data is reviewed in house and can be exported to create maps and look at specific things
- *Can the inspectors do a more thorough inspection is the boat is coming from a high-risk lake?*
 - They can, they’re trained on which lakes are high risk.

- WISPA data analysis: Spider maps
 - Can map where people are coming from
 - Helps visualize potential spread of AIS
 - Helps look at where the highest risk lakes are
- Hits analysis
 - Indicator of where we need to do additional surveying
 - Fill in knowledge gaps and figure out what we don't know

4:30 PM Other joint panels business

- Talked about how we can get governor's more engaged and more behind shared initiatives
 - Keep on our agenda and keep it as a goal we are trying to pursue other things

4:45 PM Public comment period

5:00 PM Decision and action item review with next steps for NEANS Panel and MAPAIS

- Soliciting greater engagement from governors
- Those who want to participate in the pilot for a state inspection plan should email Michele
- Updated the matrix every spring to proceed our spring meeting panel meetings
 - Keep two separate matrixes but share with each other when they're done
 - Give one person per state access to a google doc version of the matrix?
- Forward any information and further discussion at NENEAS relating to bloodworms to the mid-Atlantic panel
 - Discussion anticipated at the next meeting

5:15 PM Supper arrangements and adjourn

Mid-Atlantic Panel on Aquatic Invasive Species



December 11, 2019 9:30am-3:15pm

Five Rivers Environmental Education Center

Delmar, New York

Sarah Mirabilo	Amy Fowler	Tara Whitsel	Edna Stetzar
Jay Kilian	Mike Allen	Ray Fernald	Steve Pearson
Jonathan McKnight	Sarah Whitney	Mandy Bromilow	Don MacLean
Heather Desko	Chris Smith	Julianna Greenberg	Christine Densmore

Action items:

- Jay/Edna will follow up with Susan Pasko on status of the ANSTF Experts Database
- J. McKnight will follow up with Susan Pasko on the MAPAIS nutria recommendation – the end of the Chesapeake Bay effort will be 2021, not 2020
- Jay/Julianna will add the MAPAIS nutria recommendation to the MAPAIS website
- Jay will follow up with Sandy Kepner at USFWS regarding state ANS plan implementation updates
- Jay will ask Sara Stahlman (PA Sea Grant) to give a presentation and update on the PA Field Guide App at the 2020 spring meeting
- Jay will work with Mike to clarify that the small grant proposal plans must meet the ANST criteria
- Julianna will add Bill Jacobs as the NEW alternate member for New York
- Jay will follow up with Susan Pasko to find out when MAPAIS is due to host the ANSTF meeting
- Jay/Mike will alter the MAPAIS RFP – changing ‘Encourage states to implement AIS management plans’ to ‘Encourage states to implement AIS management plans that meet the standards/criteria of the ANSTF’ (or something like that)
- ALL MEMBERS will review the RFP and provide any further suggested edits to Jay, Mike, and Julianna in early January
- Jay will be in contact with Sarah Whitney about the process which PA is using to add things to their prohibited species list
- Julianna will send out a Doodle Poll to members to determine best dates for the 2020 spring meeting in Annapolis, MD
- Jay will extend a written invitation to new panel members Ken Klipstein and Heather Desko (NJ Water Supply Authority) and Christine Densmore (USGS Leetown Science Center)

- Ray Fernald will assist with organizing a meeting of partners to discuss options for Water Chestnut (*Trapa bispinosa*) eradication in the Potomac River drainage. Email Ray Fernald if you wish to participate
- Jay will ask Mandy Bromilow (NOAA) to provide a presentation on the results of a Chesapeake Bay Program Invasive Catfish Workgroup Workshop scheduled for Jan. 29-30 at the 2020 spring meeting
- Jay and Ray will go back to their respective agencies and discuss the issue of invasive water chestnut and set up a meeting with Nancy

9:00 am Coffee

9:30 am Call to Order - Jay Kilian, Panel Chair

- Voted to work through the first break and then consider a working lunch
 - Jonathan McKnight moved to accept agenda and minutes, Edna Stetzar seconded, Motion passed.
 - Status of action items from the April meeting
 - Mike will finalize budget proposal: Completed
 - Margot will send out proposals: Completed
 - Jay experts database – ongoing discussion of necessity
 - Develop a report about how the experts database has been used
 - Jay will contact Susan about the status of the database and present an update at the Spring meeting
 - Susan present latest drafts of ANSTF strategic plan, comments by first week of May – completed
 - Use Jonathan McKnight’s text for recommendations at the ANSTF main meeting – completed
 - We can not directly listen to the ANSTF sub-committee meetings
 - Mike Allen will add recommendation to our website
 - Margot will upload state plans and annual reports on progress to the website
 - State ANS plans are available on the website – completed
 - State annual reports on progress are not on website
 - Want to get a more formal mechanism for state panels to receive feedback on their state plans
 - Regional panel members do not always receive the state plan updates from their states directly
 - Have regional reps reach out to the person/people writing the state plan report before MAPAIS meetings
 - Receive overview of State Annual Reports at each MAPAIS meeting – completed
 - There is a spot on our agenda this afternoon
 - Reporting on what has been done or what has been proposed for the future?
 - Start with what has been done and in later meetings report out on what is proposed

- Decide today if we want this to be a standing agenda item or if we want states to provide updates prior to meeting
 - States might be doing more than what is covered with the money
 - Jay will follow up with Sandy and we will decide on what formats we want to do the updates
- Steve Pearson will forward spotted lantern fly ICS to Susan – Completed
- Follow up with Sarah Stahlman if interested to put the mid Atlantic field guide into a regional app – completed, app if now live
 - \$20,000 to move mid-Atlantic to the app, Ohio wants one
 - Currently only available for iOS not android
 - When you have internet access you can connect and submit data but the app is not an iMap invasives analog
 - Sarah Whitney will present on/lead a discussion on PA’s field guide regional app.
- Jay and Mike will do the final 2020 award - Completed
- Steven will connect with the potential NJ nominees - Completed
- Risk assessment tools for MD - completed
 - Steven provided what NY is doing
- Margot send NY plan to Katie – completed

10:00 am Budget and funded projects update - Mike Allen, MD Sea Grant

- Increase from \$40,000 to \$46,000 annually for the panel
 - Extra 6k went mostly in to funding the grants
- In the second year of the 5yr grant, funded 2 projects during the first year
 - Amy Fowler at George Mason and George Marovich at Juniata
 - Funded 3 new projects with this year’s money
 - We will be putting money from this year’s fiscal year in to a project from last year’s budget
 - Started Sept 1 so they have not billed yet
- Budgeted \$12,000 over 5 years for panel funding (meeting space, food, etc) and travel for the chairs
 - \$8,000 left of the \$12,000
- Mike Allen has a list of every project funded by MAPAIS in the past 6 years
- Annual report due at end of November for the new grant
 - Lists 5 current funded project plus updates from the two that started last year
- Marovich project
 - Funded to quantify multiple ecosystem level threats to the Juniata river system from the invasion of rusty crayfish
 - Working with students from his classes to look for crayfish hybrids between rusty crayfish and local
 - Genetic analysis to determine if there was a genetic basis for the hybridization between the two species
 - Found some purported morphological hybrids and lots of rusty crayfish
 - Final grant report is not currently on the website
 - Mike will put on the website

10:10 am New business and decision items: Jay Kilian / Edna Stetzar, Panel Vice Chair/ Mike Allen

- New membership
 - Voting on members
 - New membership as an at-large member for Christine Densmore at USGS Leetown, WV
 - New membership for Heather Desko at the New Jersey Water Supply as a alternate representative for New Jersey
 - Jonathan McKnight moves to accept all for membership, Sarah Whitney seconds
 - No discussion, accepted unanimously
 - New York's alternate is Luke Gervase who is no longer with the Department of Environmental Conservation
 - Steve Pearson nominates Bill Jacobs as new alternate for NY
 - Steve will send contact info for Bill Jacobs to Julianna to add as our new alternate
- Next ANSTF meeting in May will be hosted by the North East panel
 - Looking at the Adirondacks and at Mystic, Connecticut
- Planning to have spring meeting again in April for MAPAIS so that we can offer recommendations at the next ANSTF meeting if desired
 - Only regional panel to submit a recommendation at the November meeting was Western regional panel
 - Suggested:
 - In order to facilitate the goals of ANSTF, the panel recommends additional funding for all regional panels, the state-interstate plan, and zebra quagga projects
 - Anticipate continuing to have a budget of \$46,000, trying to get back up to \$50,000 but so far that has not been possible
 - Asking the task force to urge EPA to use the best available tech and management practices when adopting VIDA and not to default to existing standards
 - Western regional panel and task force worked with American Boat and Yacht Council to come up with new boat designs that take zebra and quagga mussels in to account
 - Sea Grant Law Office – model state legislation being developed, trying to develop a technological report on creating/designing boats that are less likely to spread AIS. Report is finished, next step is to go out to boat shows and present their findings
 - Plan to put in an increased funding recommendation
 - eDNA recommendation?
 - There was a meeting held last month, session on standardization of eDNA procedures
 - USGS, FWS, USDA are looking to work together to move forward with standardization

- Potential to give a recommendation on standardization for the next ANSTF meeting
- Who is going to host ANSTF meeting next, are we the hosts for next year's meeting?
 - Jay is going to ask Susan about who is on task to host the next ANSTF meeting
- Small grant RFP
 - If we have our spring meeting in April, we will not necessarily have time to review the proposals before our meeting
 - Move our spring meeting to June/July or have a compressed RFP of just 6 weeks?
 - Prevention, control, EDRR, research, individual actions, still how the plan is set up and categorized
 - Don't need to necessarily change our language but it won't hurt
 - Hopefully we eventually will not need to have encouraging states to implement AIS management plans
 - Jay will work with Mike to clarify that the plans must meet the ANST criteria
 - \$8,000-\$15,000 over 1-2 years is the general amount for funding
 - Last year there were 9 proposals and 3 were funded
 - Currently \$10,000 is dedicated to funding future projects, contingent on funding we may have less than \$30,000 available for grants next year
- How much use is the PA app getting?
 - Could the panel decide that it would just fund a project to make an app for the mid Atlantic region?
 - Would require an annual cost integrated in to the budget
 - Sarah present at the spring meeting, tell us something about how much use/downloads the PA app is getting
 - Email Jay if you have any changes to the priorities for the RFP
- Spring meeting time:
 - ANSTF meeting will be in early May
 - April meeting early in the month
 - April 19-21 will be the Northeast Panel's meeting
 - Julianna will send out a poll to determine preferred dates for the Spring 2020 meeting

11:40 am MAPAIS Project Update – Impacts of two functionally distinct invaders in the Gunpowder River, Maryland - Amy Fowler, George Mason University

- When you have two invaders in the same location, how do they interact with each other and change the overall community?
 - Conducted both facilitation and succession experiments
- New Zealand mud snail and didymo are the two focal species of invaders for this project
 - Interested in the functional categories of the individuals as well as the taxonomy
- Mud snails are <7mm
 - High densities of snails change the primary production and colonization of other macroinvertebrates
 - These snails are parthenogenic so they're able to reproduce incredibly quickly
 - Very powerful invaders

- *Didymosphenia geminata*
 - Elongated, hair-like strands up to 2ft long and can create dense mats
 - Not much known about impacts on a community and functional structure as it colonizes
- Both invaders are found in Gunpowder falls in MD
 - *Didymo* has recently invaded NZ, in native populations of the snail the *Didymo* has a negative impact
 - However, in the US, the same pattern is not always observed
 - Both had a relatively recent introduction to gunpowder falls, *Didymo* in 2008, mud snails in 2017
 - Both are abundant in the system
- Trout fish stream
 - Fisherman are moving the invaders on their waders or gear
 - The closest population of NZ mud snails to this population is found in trout streams in PA
 - However, these snails are not genetically similar
 - Most genetically similar population documented is in California
- Gradient of densities of both populations along the gunpowder falls
- Succession experiment
 - Placed tiles in November and look at how much *Didymo* and NZ Mud snails accumulated on the tile over the course of a year
- Facilitation experiment
 - If you have a rock with *Didymo* and you move it to another location, what would colonize that rock?
 - Came back to the rock in March, June, and September after placement in Nov of the previous year
 - Placed bricks in areas without *Didymo* and areas where present
 - Different population densities of Mud snail
 - What recruits to those bricks under each condition?
 - Invasive and native snail distribution and parasite loads
 - Wanted to assess parasite loads in the snails
 - All snails found were females or immature individuals
 - Size correlation between size and brood size
- Outreach
 - 7 citizen scientists participated in field and lab aspects of this study
- Current update
 - 65% of samples completed and anticipate completion in Feb 2020
- Last snail sampling in Feb 2020
 - Likely going to continue this work with a master's student
 - Mesocosm, brood work, responses to climate change
- *Did you see didymo present in the facilitation experiment?*
 - Overall yes, except in the urban site
 - Likely due to warmer water temperatures
- *Who did the identification for the parasites?*
 - Amy Fowler does the parasite identification by eye

- Collaborator April does some of the the identification that requires genetic work
- *In the literature, have other locations of the NZ snail found parasites?*
 - Snails here only undergo asexual reproduction because there are no parasites and there is no pressure to evolve
 - In NZ, there are parasites, so there is documented sexual reproduction
 - Because there has only been documentation of asexual reproduction in the US, there is not believed to be any parasites for the NZ Snail here
 - Native ciliates were found in the snails which might be helping the juvenile snails survive
- *Do you believe that there is some small percentage of males in the system?*
 - We take 100 snails every time we sample and sex them, we have never found a male
 - There have never been any
 - *But you believe that the female is able to clone herself to create an equipped male?*
 - Yes, in NZ there is a close to 50/50 ratio of male/female

11:00 am –Using environmental DNA to look for invasive species in New York- Michael Tessler

- Organisms are always shedding DNA, dying and decomposing, etc
 - You're often finding DNA from protists as well as from entire organisms
- Early detection is our best bet for stopping AIS and there aren't a lot of other ways to do that
- Methods
 - qPCR
 - Look at a single gene for an individual species
 - If you get any amplification of that gene, then you can tell that you have the presence of that species
 - This has been extensively done on a variety of fishes
 - Plants are not as well defined
 - In general, its harder to get DNA out of plants
 - Have less genetic variability and fewer classic markers
 - Not as useful for looking at multiple species or new species
 - Sanger Sequencing
 - Doesn't really work because the sequence you get is consensus
 - You would have overlapping peaks bc multiple species
 - Metabarcoding
 - Instead of looking at one single sequence, you take every individual sequence you get ibn a sample and look at them individually
 - More expensive but can be helpful in getting at a whole community
 - Metagenomics
 - Standard genomics
 - Take all of your sample and sequence random fragments of the genomes of all of the organisms
 - Works well for well studied systems but it not very helpful for invasive species because they are not always well defined

- Sequences are not widely available or available at all to use a reference
- Test site: Croton River and Hydrilla
 - 6 different test sites along the river, looking at an area where there are more active treatments along the reservoir
- Use up to about 1L of water for a given site
 - Generally, don't perform analysis on site
 - DNA extraction
 - Test a variety of different primers
 - Quality control, see what kind of DNA you've actually extracted
- Found that all of the theorized hydrilla markers can effectively tell you when hydrilla are present
- Using a general plant primer, you can find a host of different species, found a mix of native and native plants using it
- Lower Hudson work
 - Wrapping up lower Hudson work, working in the Catskills
 - Methods
 - eDNA was able to pick up on all the organisms
 - eDNA allows you to find things that you wouldn't necessarily be able to find with a physical survey
 - Also get some DNA from terrestrial species
- Able to pick up on several animals in the area too
 - Fish, barnacles, crabs, crayfish, etc
- Things to be aware of
 - Contamination
 - Field and lab
 - Low genetic variability
 - Big problem for plants
 - Low quality database
 - Few species
 - Misidentified species
 - Bad sequence
- How to interpret
 - Presence/absence
 - Abundance
 - Proximity
 - More often than not, things are generally very local
 - Location
 - Upstream
- *Are these techniques broadly applicable across the mid-Atlantic region?*
 - Very applicable anywhere, most applicable where you have a good reference database
 - Mid-Atlantic might be the most applicable region
- Useful for finding problems while they're still small

- *If you're in a river system and you have a positive match in the downstream how far upstream might the source be?*
 - This is one of the big challenges of the technique
 - Generally closer than further away (not km away) but its still tricky
 - Typical surveys suffer from similar problems with limitations in range
 - *Do you need to go back and physically survey for an organism after you detect it?*
 - In a contained system, often not
 - Unfamiliar species or uncontained system?
 - Might be useful to survey to check the accuracy
- Work done on freshwater mussels on smaller, well mixed, streams to find the detection limit
 - 1-2km in this smaller system
- More likely to get a stronger signal if you're closer to the source
- Effect of environmental conditions?
 - DNA does not behave in the same way across all organisms
 - There are conditions that will affect different organisms differently and can change what DNA is well preserved
 - Not able to quantify the difference yet, generally pretty minor but there can be effects.
- If you really care about like 3 species, a qPCR method is your best bet
- If you care about a whole community, a metabarcoding method can be more effective and even highlight new invasives that you weren't aware of before

11:30 am Increasing standardization, efficiency, and timeliness for invasive species data collection, a NY example - Meg Wilkinson

- New York Natural Heritage Program
 - Started in 1985
 - Started an invasive species database in 2007
 - NatureServe is the overarching group that oversee the heritage program
- Common language around species lists
 - Protocol for criteria for different "tiers" of invasive species and what those tiers mean
- Prioritization, early detection, early action
- WISPA data analysis
 - Can not put data from WISPA in to iMap
 - Use WISPA as an early detection tool
 - WISPA data is not an observation
 - Compare information from WISPA to the data in iMap
 - Can use it to warn specific areas that there is a potential invader very early
 - In PA, Sea Grant has received the funding for their version of WISPA and iMap
 - PRISM - Partnership for Regional Invasive Species Management
 - Eight in NY state
- Important to be able to measure and show change over time

- Funders, politicians, and natural resource managers all need to see a change to justify continuing a project
- Data sources for WISPA are from far around
 - Professors, agencies, individuals, etc
- iMap went live in 2010
 - Started to work on mobile integration in 2015
 - iMap is now available in 7 states and provinces
 - Not quite finished yet, but is available now
- Nyimpainvasives.org impainvasives.org
 - Information on trainings
 - Certified trainers network
 - Map centric
 - Limited functionality in areas that are not a part of the network
- Track more than what is regulated by the state
 - Can set up a custom species notification list (if in an area with an administrator)
- Admin can set up projects and organizations
 - Within an organization you can set up projects
 - Way to track data about specific things and download more easily
- Importance of scale
- System has 4 main data types
 - Presence, not detected, treatment type, searched area
- Sharing data with NAS
- Goal of creating a web map service some time next calendar year
- There is an ability to set a species to “confidential”
 - Planning to add “Confidential until confirmed”
- Lasso tool tells you what species, treatments, and the area in selection
- Email alert tool very popular
 - Anything regulated or high priority, alerts are sent out immediately to a specific list
 - After confirmation, the alert is live
- Field data collection on the mobile app
 - Mobile app allows you to do detected and treatment
 - 5679 detected records in the past 3 months, 2000 not detected records in the same time frame
 - iMap mobile Advanced allows you to also look at area and treatment
 - Can set app to only give you the option to only list specific species that you know you can ID
 - Need connectivity to download the app and to upload data. Do not need connectivity to use the app
 - Can save the information to a queue and upload when you have connectivity
- Having access to the app requires that your jurisdiction is a part of the network
- Forest Test app
- Web Map services
 - Nyis.info
 - Confirmed live data from iMap has been integrated in to their website

- Story maps for different lakes
- Goals of standardization, efficiency, timeliness, and sharing
- Potential opportunities
 - WISPA spent a lot of effort to get to a certain level of standardization
 - Encourage MAPAIS to look at a standardized process across states
 - Not in PA or NY, look at NatureServ
- *A state has to pay to have their data put in and have access to the work and only 7 or 8 states do that, right?*
 - That's right, you can do a certain amount without your state participating but for full functionality you need to pay
 - *How much is the annual fee for a state?*
 - In the past it was \$5,000/year and \$10,000 to set it up for the first time. It has increased, but I'm not sure how much
- *Is there a way for a non-participating jurisdiction to access the data that participating jurisdictions have collected?*
 - Not sure
 - Heather has some sort of level where she can access specific data entries without being in a participating jurisdiction
- *What does the active vs inactive designation for jurisdictions mean?*
 - Inactive means the state has records available because it was previously participating but no longer is
- *What is the confirmation process for a record and how often do you have to remove inaccurate records?*
 - High priority records will be confirmed within 24 hours if there is no additional guidance
 - Quality of the records makes it variable
 - No photo with the record means the sighting will likely never be confirmed
 - Known professionals recording their data means they often get batch confirmed
 - Rarely delete records
- *Lake management tracker app for field data collection that you mentioned, they collect native and invasive species?*
 - Lake management trapper app was a pilot done last summer at 6 lakes. We haven't had a time to go through that data yet and will know more later. Native data that has been collected will likely be stored elsewhere
 - *Can people outside of the jurisdictions use this app?*
 - Yes, there is a way to share the code for the back end of the app and open it up to other jurisdictions.

12:45 pm Working Lunch

1:00 pm ANS State Plan Implementation Updates Panel State Representatives

- New York – Steven Pearson
 - Recently not utilizing the funds because of difficulties with dispersal
 - This coming year, the funds are going towards hiring an AIS coordinator on Long Island, NY metro area
 - SUNY Stonybrook grad student working <30hrs to move task force forward

- Expand stewardship program in Long Island
 - List of potential boat launches to monitor both in freshwater and marine
 - Getting a handle on Hydrilla and other high profile AIS that are not found elsewhere in NY state but have potential to be spread
 - Contact Amy Fowler for more information on a crab parasite found on Long Island that has potential for a citizen science project
 - Pennsylvania – Sarah Whitney
 - PA sea grant gets the money
 - Used for participation on regional panels
 - Education and outreach to boaters, anglers, water gardeners
 - Looking at recreation and trade pathways
 - Next year – also want to develop a control plan for round gobies at French Creek (NW PA)
 - Infestation of round gobies to an inland water
 - Not eligible for Great Lakes restoration
 - Will bring several agencies together to develop a control plan with all the other native species that we want to maintain
 - New Jersey – Chris Smith
 - Did not receive funding last year
 - Have an in-house document that they're working on
 - Component of that is an invasive species section
 - Working to integrate document by FWS
 - Maryland – Jay Kilian
 - Invasive Species Management plan approved 2-3 years ago
 - Just completed the first year of funding
 - Attention to state lakes – invasive species signage for boaters
 - Deep Creek lake is a major tourist attraction
 - Pilot with eDNA reconnaissance working with USGS Leetown
 - 8-10 species were targeted
 - Picked sights across the states, mix of where you know you should have detection and sites where there should be confirmed negatives as well as unknown
 - DNR is collecting samples and USGS is processing
 - Acoustic tagging of Blue catfish
 - Big push to develop a market for commercial waterman to take advantage of blue catfish
 - Developing and sustaining through time
 - Patuxent river as a pilot study
 - Partnership between DNR and USGS
 - Doing trophic interaction studies as well
 - Trying to leverage and develop work in collab with VCU to move the work in to some Virginia tributaries as well
 - Fluoridone herbicide at lake Habeeb in Rocky Gap State Park

- Canadian Geese forage in the water chestnut and stick to the feathers
- Determine if this trapa species is morphologically and genetically distinct
 - Collected samples from VA, NE US, South Africa, China, and Japan and did DNA analysis
 - Cryptic invasion in VA of a near extinct type of *t.bispinosa*
 - Found in several parts of Asia but specimens here were from Taiwan
- Management of known colony should occur by July of 2020
- Maryland work with *t.natans*
 - Management through mechanical harvesting
 - Management plan has been developed but it has not been funded or pursued
 - Would call for greater coordination to eradicate
- *How many subsequent years did you have to do mechanical harvesting? Does it come back for several years in a row?*
 - The plant is an annual, if you can get out and harvest it before it drops seed, you can get rid of it in one harvest
 - Need to make sure to harvest early
 - Usually you won't be able to get it all done in one year
- *Based on your experience harvesting water chestnut, if MD and VA were able to find money and put man power in to this, what would it take?*
 - Herbicide treatment is approx. \$4000/pond, Mechanical harvesting is 2x-3x as much
 - Not sure what the overall cost of everything would be
 - Need to get all the right people in the right room at the same time
- A problem VA has been having is that there is no agency in VA that is tasked with dealing with aquatic plants
 - Different agencies have to deal with it as it comes up in their work
 - The invasive species working group is the only group in Virginia that has the task of dealing with invasive weeds
 - Hopeful to get something done between now and next April
- This prism can not receive money
 - There needs to be a sponsor that can receive the money and then distribute it
 - Has to go through an agency
 - Infestation is currently in 5 counties in VA and could easily spread to VA or DC
 - *Have you talked with ICPRB?*
 - Not sure that they can receive/manage money
 - *Metropolitan council of governments?*
 - In the past received money from the state and the federal government to manage an eradication program
 - Issue here is that there are so many organizations involved in so many jurisdictions
 - *Potomac river fisheries commission?*
 - VA Soil and Water has incentives for people to do some sort of private property management
 - **Jay will go back and discuss with Maryland DNR to set up a potential meeting there**

- *Is USACOE a potential partner?*
 - Baltimore Corps – need to have a request before they can do anything, and it should come from a corps engineer reservoir
 - If MD and VA agencies came to ACOE together then maybe there would be some sort of action
 - FWS has a grant for this kind of service
 - State agencies grouped together to ask for help
 - Water chestnut is still at a stage right now where we can actually do something, need to act fast
 - Talk with state conservationist for USDA,
 - Ray will reach out to state conservationist at USDA VA, providers for WIP funds
 - USGS has an RFP out for science behind invasive management
 - Work in some angle for that and that grant could be an option
 - *Water fowl as a vector?*
 - So far not much documentation
 - Ducks unlimited, another NGO, might be interested
 - Need to have a plan before approaching groups like that
 - George Mason is in the center of all the places you're talking about
 - One of the directors of Amy Fowler's lab, Chris Jones, receives money to do plant surveys in the area
 - They have the ability to do some of the smaller scale surveys as a part of yearly proposals
 - Need pilot data for these RFPs? This may be a mechanism to do that
 - Nancy is already working with Chris Jones
- Work with the USGS Science group
 - Christine will follow up with Nancy about including her needs on a white paper
- Hold a planning meeting at GMU?
 - Get all of the major players together
- Ray, Amy, Nancy, Chris, Christine, and Jay will work together to get a list together of the major players involved in their jurisdictions and then set up a meeting at GMU
 - Meeting should occur sometime in January – end of January
 - Everyone who is planning to be involved should email Ray their action items and he will send them along to Nancy

2:00 pm USGS Chesapeake Bay Science Planning Team - Christine Densmore, USGS Leetown Science Center

- Scott Phillips and Ken Heyer are the coordinators for the USGS science team
- USGS 5 year workplan/ 4 Chesapeake Science Themes
 - Stream health, fish habitat and aquatic conditions
 - Coastal habitat and water birds
 - Land change and forecasting
 - Integrate science and inform ecosystem management
- Within the first theme, there are three more areas

- Focal studies looking at animal health with habitat change on a local level
- Looking at larger river systems, general stream health, macro invert communities, etc
 - This is where invasive species comes in
 - We need more information on invasive species issues to get this going
- Status and Trends
- Working with the 6 states in the Chesapeake watershed and figuring out what the needs are for AIS in the Chesapeake bay and its drainage
 - Focus on the headwaters and smaller tributaries
- Want to work on understanding communication of AIS issues for science and management
- Reviewing pertinent documents to figure out what the plans are, follow up with state and federal reps and compile findings in to an assessment/white paper
- Commonalities
 - There ARE priority species from state and feds
 - Fish, plants, invertebrates, algae, pathogens
 - There are several of each that are priorities for everyone
 - Priority science needs were identified
 - Enhanced biosurveillance capabilities
 - Risk assessment, vector/pathway assessment
 - Impacts – life history and biology, trophic interactions, abundance, pathogens, etc.
 - Control mechanisms – genetic
 - Most common science needs
 - Proactive management
 - Development of biosurveillance and risk assessment
 - Investigations of specific invasives and their life history
 - Application of control mechanisms
 - Focus on the ones that are emerging as high priority invasives across the board
 - Support public outreach and engagement needs
 - If you would like to talk further about USGS's Chesapeake Bay science needs, contact Christine
 - Do you further prioritize beyond what the states give you?
 - Just listed out for each state, and then look and see what comes up a bunch of times
 - Not specifically ranked beyond that

2:30 pm Member / interested parties updates Panel Members and Interested Parties

- New York – Steve Pearson
 - Yesterday's presentation covers a lot of the new issues
 - Snakeheads have been moving further north
 - Seen in the fish ladder at Conowingo
 - Potential sighting at the Hudson river
 - Genetic Eel introduction
 - Larger issue than just NY
 - Could be pretty broadly distributed throughout region

- Hydrilla is still an issue
 - Croton river and some privately managed ponds
 - Risk assessment determines if a lot of effort will go in to managing a particular hydrilla infestation
 - Ex) Do not want it getting in to the Hudson but some of the smaller more isolated ponds are a less pressing issue
- Starry Stonewort
 - A lot of surveying has gone on this year
 - More abundant than expected
- Watercress
 - Believed to be underreported
 - Once it was brought up once, more people came forward saying they saw it too
 - Hopefully next year this can come forward more
- PA – Sarah Whitney
 - PA Fish and Boat is hiring an AIS coordinator
 - Committed to including AIS management in their new strategic plan
 - PA Field guide app is now online, only available on IOS
 - Partnered with DCNR
 - Boat stewards' program
 - Expanded to 9 state parks
 - Prevented 5 AIS species from spreading
 - Treated 675 acres of Hydrilla at a state park
 - There is coordination with Ohio, working to bring together state and federal agencies to control the hydrilla
- NJ - Chris Smith and Heather Desko
 - Continue to work with monitoring presence of snakeheads
 - Populations in the Delaware river not being monitored
 - Somewhat frequent reports from anglers
 - Hydrilla is in a similar area
 - 60 mile stretch of tidal river
 - Not doing hydrilla surveys but anecdotally the population has significantly changed in the last 5 years
 - Swamp eels
 - Same abundance as in previous years, do not appear to be migrating
 - Located at a superfund site – Silver lake
 - No fishing
 - Drains to the Delaware but have no records of the eels downstream
 - Small scale cleanup of a pond downstream
 - Planning to drain the pond, interested to see what they find when they drain
- Have been doing some work with the water chestnuts in the wildlife management areas
- 12 hydrilla management projects

- Treating with fluoridone for 3 years
 - Only 1 tuber found this year
 - Pilot project treating 10 acres
 - Manasquan
 - First boat steward program at Manasquan
 - Second in the state
 - Just over 1900 inspections to date
 - Successful eradication of Chinese pond mussel
 - Working to confirm with eDNA that it is out of all pond farms
 - This was the first year that it is believed to have been treated effectively
 - Confirmed NZ mud snail
 - 29 NGOs just sent a letter to the governor requesting a plan for AIS
 - Confirmed Brazilian water weed in some counties
 - Found in the Delaware river
 - Hunterdon County – private farm pond
 - Through NJ Water monitoring council, trying to put together a set of recommendation for water professionals for cleaning their gear to keep from spreading invasive
 - Confirmed parrot feather
- Maryland – Jay Kilian and Mike Allen
 - Hyde’s quarry in Carroll County leased to a dive company
 - Zebra mussel infestation
 - There has been a contractor set for eradication
 - Treatment has been conducted and recently reported as a success
 - Sea Grant is funding a project on phragmites
 - Looking at after you eradicate phragmites, what native species do you need to recover the marshland
 - Take out the phragmites and there can be sediment issues when left alone
 - Sea Grant College Program act was passed yesterday (12/10/2019) by the house and will be going to senate
 - Additional funding
 - AIS is still in the language as a national priority for Congress
- Delaware - Edna Stetzar
 - Snakehead has expanded across Nanticoke and Delaware River systems
 - High spring/fall rainfall the past few years brought the Appoquinimink river level up so far fish can jump dams
 - Increased rainfall also pushed the freshwater/salt water interface in the DE River down the DE Bay and allowed expansion into southern DE tributaries
 - Illegal stocking of snakeheads
 - Golf course ponds
 - Housing development in a marine watershed
 - Red swamp crayfish
 - Showing up everywhere because of the flooding
 - Blue catfish

- State record for blue catfish size 47.75lbs
 - Numbers are expanding in the Nanticoke
 - Two Pacu
 - Beck's pond
 - People are dumping aquariums in this pond
 - Updating invasive species list for the state
 - Final list out by January
 - Virginia – Ray Fernald
 - Aerial gunning of feral hogs in Back Bay national wildlife refuge
 - Lead to near eradication in that region
 - Still present elsewhere in the state
 - Now looking to completely eradicate from VA
 - Nutria – updated yesterday
 - Snakeheads
 - Problem has been mixed messaging in VA
 - Hard to get people in support of eradication
 - Water chestnut is an issue, as Nancy described in her talk
 - Wavy leaf grass
 - Other high profile plant species that they're working on
 - ANWACS
 - Working to develop a list of noxious weeds
 - Nothing can already be in commercial use
 - New list of plants that can not be imported, transported, or sold in the state of VA
 - Program at UVA looking at multispectral aerial photography done by drones to detect invasive species on the ground
 - Finishing up testing phase
 - Pushback from other groups that are touting the benefits of hydrilla
 - Arguing that hydrilla is providing the only fish habitat in the basins where SAV has been pushed out
 - In some areas hydrilla is serving as a nursery plant and as an SAV restoration bed
 - Might want to have further discussion at a later meeting...
 - Email Ray if you have anything to add to Ray's discussion with Nancy about water chestnut
 - International Snakehead association report from latest meeting has been released
 - NC – Rob Emens
 - Attended the Gulf and South Atlantic panel meeting in Charleston SC
 - NC continues to represent there as well
 - Joint meeting with the Gulf and S Atlantic Coast as our next joint meeting?
 - Mandy Bromilow – Contractor at NOAA CBPO
 - Coordinator of the invasive catfish work group
 - Very relevant to the regional panel
 - Lots of different stakeholders

- Fisherman, recreational, sea food processors, sea grant, academics, etc
- In the process of coordinating a large workshop at the end of January
 - Want to bring everyone together and try to come up with some collaborative solutions
 - Work to sustain ecological health of the Chesapeake Bay as well as economic interests
- Working to develop a management strategy and hopefully some individual state plans eventually
- Mandy will come back to the Spring Meeting to discuss the results of the meeting and seek advice on any issues that come up at this meeting

3:00 pm Public comments

3:15 pm Adjourn