**MAPAIS Fall 2020 Meeting**

**Wednesday, November 18, 2020**

Click for [Meeting Link](https://umces.webex.com/umces/j.php?MTID=md859b48f384b63e34b4872a5cf375ab5)

Password: MAPAIS

Join by phone: +1-408-418-9388

Access code: 120 941 6254

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| **9:00 am****9:10 am** | **Call to Order** * Welcome/housekeeping
* Introductions

**New business and decision items*** Review & approve agenda and Spring 2020 minutes
* Spring 2020 meeting action items
* New member request
* New panel recommendations to ANSTF?
* RFP 2021 – Any changes needed?
* Next meeting (Spring 2021)
 | *Jay Kilian, Panel Chair**Julianna Greenberg, Panel Coordinator**Jay Kilian / Edna Stetzar, Panel Vice Chair* |
| **9:30 am** | **Budget and funded projects update*** 2020 budget update
* Update on ongoing/completed projects
 | *Mike Allen, MD Sea Grant*  |
|  |  |  |
| **9:45 am** | **Aquatic Nuisance Species Task Force update** | *Susan Pasko, USFWS* |
| **10:15 am** | **Break** |  |
| **10:30 am** | **USGS NAS updates and new Mid-Atlantic species alerts**  | *Ian Pfingsten, USGS NAS Program* |

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| **11:00 am** | **MAPAIS Project Update – Assessing the potential impact of Dominion Cove Point LNG export facility on ballast mediated invasions in Chesapeake Bay** | *Jenny Carney, Smithsonian Environmental Research Center* |
| **11:30 pm** | **Lunch**  |  |
| **12:00 pm** | **Adaptive management and monitoring of Northern Snakehead in the Susquehanna River basin**  | *Aaron Henning, SRBC* |
| **12:30 pm****1:00 pm****1:30 pm****1:45 pm** | **MAPAIS Project Update – Aquatic invasive species outreach and education to Delawareans****Carbon dioxide as a new tool in the battle against AIS****Break****MAPAIS Election** | *Kate Fleming, DE Sea Grant**Jon Amberg, USGS - Upper Midwest Environmental Sciences Center**Panel Members* |
| **2:00 pm**  | **MAPAIS Project Update – Mapping forest edge *Phragmites* using LiDAR data** | *Keryn Gedan, George Washington University* |
| **2:30 pm** | **State ANS plan implementation updates**  | *State Panel Representatives* |
| **3:30 pm****3:45 pm** | **Break****Member / interested parties updates**  | *Panel Members and Interested Parties* |
| **4:45** **pm** | **Adjourn** |  |

**MAPAIS Fall 2020 Meeting**

**Wednesday, November 18, 2020**

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| Jay Kilian | Edna Stetzar | Julianna Greenberg | Tara Whitsel |
| Heather Desko | Ellyn Campbell | Mike Allen | Sean Hartzell |
| Steve Pearson | Katie Zipfel | Sara Stahlman | Kate Fleming |
| Kevin Heffernan | Christine Densmore | Matt Shank | Chris Smith |
| Gary Walters | Ian Pfingsten | Jonathan McKnight | Ken Klipstein |
| Jon Amberg | Sara Mirabilio | Sarah Whitney | Ben Hummel |
| Mark Lewandowski | Dewayne Fox | Ray Fernald | Sandra Keppner |
| Nancy Rybicki | Mandy Bromilow | Aaron Henning | Alana Keating |
| Kierstin Carlson | Kris Abell | Keryn Gedan |  |

**Call to Order -** *Jay Kilian, Panel Chair and Julianna Greenberg, Panel Coordinator*

* Welcome/housekeeping
* Introductions
	+ Jonathan McKnight requested to hold the new chair election before noon

**New business and decision items -** *Jay Kilian / Edna Stetzar, Panel Vice Chair*

* Review & approve agenda and Spring 2020 minutes
	+ Motion to approve meeting minutes by Edna Stetzar
		- Motion seconded by Ian Pfingsten
* Spring 2020 meeting action items
	+ Representatives from PA, VA and WV will reach out to Jay Kilian after the meeting with information to fill out the recreational boating matrix
	+ ANSTF experts database update
		- Two tiers on the ANSTF experts database
			* Tier one people can access the database to see the tier two experts
				+ Need to find out the username and password to access
			* Need to decide who from the panel will be the editor
		- Not a well publicized database, could be a useful resource but many don’t know to use it
		- All states will check the ANSTF Experts Database to ensure that the contacts listed are up to date.
	+ Chesapeake Bay Nutria Eradication Effort
		- Funding now in place through 2021
	+ Access to ANS Plan implementation reports
		- States are not yet on the same reporting period for their plans
			* Starting in 2021 everyone will be on the same schedule
		- If we, the panel, want to make the reports more accessible, states must agree to distribution and posting of any plans
			* States will email annual reports to panel chair/coordinator when reporting out to ANSTF and give permission for the report to be available on the MAPAIS website
	+ Updates on control of water chestnut in VA
		- No meeting among states, but have had a meeting within Northern VA with some outreach to Secretary of Natural Resources
		- Ian Pfingsten will contact Nancy Rybicki and Lynde Dodd about potential funding through USGS
		- Use of amphibious harvesters for water chestnut
			* Edna will send Ray a contact who has knowledge about use of amphibious harvesters for water chestnut
			* Panel members will reach out to Ray Fernald with comments and questions regarding amphibious harvesters
	+ Notice of appreciation for the ANS Task Force regarding increased funding
		- ANSTF was not the entity that allocated funding, it was Congress
			* Per guidance from USFWS, the most appropriate place to put acknowledgement would be in the next Report to Congress
* New member request
	+ Welcoming Sean Hartzell from PA Fish and Boat Commission and Aaron Henning from Susquehanna River Basin Commission
* New panel recommendations to ANSTF?
	+ ANS Task Force meeting Dec 8-10, 2020
	+ *Edna Stetzar: is the ANS Task Force the appropriate place to seek guidance regarding additional support from governors?*
		- Follow up at a later date with more discussion
	+ New nutria eradication act gives opportunities for new funding but does not prioritize VA
		- Jonathan McKnight and Ray Fernald would like to recommend that Virginia be prioritized to receive funding to continue nutria eradication efforts
			* Nutria have been eradicated from MD and are moving north in VA which could bring them back to MD and into important VA natural resources
		- Jay will send Jonathan McKnight and Ray Fernald the panel recommendation template for them to complete a recommendation for the panel
* MAPAIS Small Grants Request For Proposals 2021
	+ Email any final edits to Julianna Greenberg, Jay Kilian, Mike Allen, and Edna Stetzar
	+ Steven Pearson will draft initial language to add more description to the research requests in the RFP
	+ RFP will be released in January 2021
* Next meeting will take place in Spring 2021
	+ More information to come

**Budget and funded projects update –** *Mike Allen, MD Sea Grant*

* 2020 budget update
	+ Administrative budget
		- $3000 left in travel budget for panel chair to go to ANSTF
		- $3000 left in meeting expenses
	+ Eight projects funded during current grant cycle
		- In 2018 funded 2 projects
			* Projects have ended and spent out their balances
		- In 2019 funded 3 projects
			* Expected to end in Summer 2021
		- In 2020 funded 3 projects
		- Most projects still have funding available from 2019 and 2020
* Expecting $35,000-40,000 to fund research projects in 2021

**Aquatic Nuisance Species Task Force update –** *Susan Pasko, USFWS*

* ANS Task Force Overview
* ANS Task Force Structure
* ANS Task Force meets bi-annually
	+ Next meeting scheduled for December 8-10, 2020 and will be virtually
		- Updates:
			* DOI Invasive Species Task Force, National Invasive Species Council
			* Asian Carp management, VIDA, and EDRR Framework
		- Two State ANS Management Plans will be considered for approval: Indiana and Colorado
		- Five standing subcommittees: 2020 Workplans and proposed work for 2021
* ANS Task Force Strategic Plan Goals
	+ Coordination, Control and Restoration, Prevention, Research, Early Detection and Rapid Response, and Education and Outreach
	+ Each have a standing committee that will be providing updates at the December meeting
* December 8-10 meeting is open to the public, join if interested
* Contact Susan Pasko at Susan\_Pasko@fws.gov for more information

**Break**

**USGS NAS updates and new Mid-Atlantic species alerts -** *Ian Pfingsten, USGS NAS Program*

* 80 New Alerts about new introductions since April 29, 2020
	+ 61 Plants, 14 fish, 2 crustaceans, 3 mollusks
	+ Most come from literature
* Data sharing efforts ongoing with iMapInvasives and EDDMapS
* NAS staff personally verifying iNaturalist observations to fill in gaps in distribution
	+ Citizen science can help to fill in distribution gaps
* NAS Alert Risk Mapper (ARM)
	+ Sent out when:
		- Population has not been deemed “failed”
		- Does not fall on private property
		- Has exact location
* *Trapa bispinosa*
	+ Range is expanding west and north
	+ Most northern point in range is 2km away from Potomac River
	+ 64 verified colonies
		- 57% are privately owned
		- 45% have no history of management
		- Average size of 1 acre
	+ Dispersal of *Trapa*
		- Dispersal mechanisms and impacts may be similar to *Trapa natans*
			* Zoochory observed on plumage of Canada geese
			* Hydrochory observed along spillways
		- Dispersal Risk Assessment
			* Used USGS National Hydrography dataset and USGS National Anthropogenic Barrier dataset to determine dams that would impede downstream flow
			* Assessments were conducted separately for waterfowl dispersal and flood water dispersal
				+ Dispersal by waterfowl:

Assigned a radius of 1, 2, 3km and determine how many waterbodies were in the radius of a colony and assigned them a level of risk

There were 520 waterbodies are at risk within the 3km radius of active colonies

Currently only found in waterbodies in Virginia

* + - * + Dispersal by water:

Reaches selected that were known to be connected to established colonies

Shortest distance to the Potomac River is less than 1.5km and does not have a strong impediment to invasion

* + Isaias FaST map
		- Showcase where there is potential movement of species after a storm
		- Prioritized species on the interactive maps
			* Prioritized in state management plans and likely to disperse during flood events
	+ SEINeD Tool was released
	+ North American native fish ranges updated
		- Mapped to HUC8
		- Will soon be available though NAS API
* Contact Ian Pfingsten at ipfingsten@usgs.gov
	+ *Jay Kilian – Is the goal of the* Trapa *risk assessment to guide where management should be directed?*
		- *Ian Pfingsten: Yes. And as a part of that we are trying to use history to get an idea of the seedbank. Many areas don’t have any history of it. Including the coverage of each colony annually too.*
	+ *Edna Stetzar – DE has some new invasions that we got over the summer that we have not yet reported. I will get those to you.*

**MAPAIS Project Update – Assessing the potential impact of Dominion Cove Point LNG export facility on ballast mediated invasions in Chesapeake Bay –** *Dr.**Jenny Carney, Smithsonian Environmental Research Center*

* Project aims
	+ Assess ballast water and vessel activity at the Dominion Cove Point LNG facility
	+ Compare taxonomic zooplankton data from two points near export terminal
	+ Use data to answer two main questions:
		- How does ballast water activity at Cove Point alter ballast water in Chesapeake Bay as a whole?
		- Can we detect introduced species where significant ballast water has just arrived?
* Strong link between trade and ballast water discharge volumes
* LNG export creates new trade markets, connecting previously unconnected ports
	+ New LNG export terminals receive high volumes of ballast water discharge
		- Provides new opportunity for invasions
		- Provides new pool of source organisms
* Data from national ballast information clearinghouse – Coast Guard reports
* Patterns and changes in arrival numbers and vessel types to Cove Point and Chesapeake Bay Port
	+ Coastwise vs overseas arrivals
	+ Changes in ship type
* Patterns and changes in ballast water discharge
	+ Coastwise vs overseas discharges
	+ Cove Point v Chesapeake as a whole
	+ How is discharged BW managed?
	+ How many novel source ports are represented at Cove Point? Is LNG increasing global connectivity to the Chesapeake Bay?
* Preliminary data
	+ Arrivals to Chesapeake Bay and Cove Point
		- No coastwise arrivals at Cove Point, all overseas
		- Export of LNG began in April 2018
	+ Ballast Water discharge to Chesapeake Bay and Cove Point
		- Cove Point discharge started in 2018
	+ Signal from Cove Point steadily increasing
		- Becoming a greater proportion of Chesapeake Bay as a whole
	+ Increase in treated water using onboard systems
	+ Source of ballast water
		- 63 total sources at cove point
		- 17 novel sources
* Take Homes
	+ Ballast water discharge at Cove Point has substantially increased since 2018
	+ 17 novel sources represented by discharge at Cove Point
	+ Majority of ballast discharged at Cove Point is treated using onboard ballast Water Management Systems
	+ When compared to ballast water discharge in the Chesapeake Bay, Cove Point is emerging as a new recipient location for significant volumes of ballast water discharge
* Sample collection
	+ Sampling: October 2019, June 2020, August 2020, and October 2020
	+ Taxonomic analysis will be completed in winter 2020/2021
	+ Ballast water and vessel data study will be completed in Spring 2021
* *Jay Kilian – Is taxonomy done in house?*
	+ *Jenny Carney – No, we use taxonomists in California.*
* *Jay Kilian – What was the farthest distance from the source that you found an organism traveled?*
	+ *Jenny Carney: Not sure the actual length, but we have several from south east Asian, the Middle East, etc. We will be looking geographically as we analyze.*

**MAPAIS Election –** *Facilitated by Jonathan McKnight, MD DNR*

* Edna Stetzar is nominated by the Nomination Committee for the position of Panel Chair
	+ Edna accepted the nomination
	+ No other nominations for the position were put forward
		- **Edna Stetzar was elected panel chair by consensus vote**
* The Nomination Committee did not put forward a nomination for the position of Panel Vice Chair
	+ No nominations were put forward for the position of Panel Vice Chair
	+ Nomination Committee will bring forward a vice chair recommendation at the Spring 2021 meeting
* Jonathan McKnight read aloud draft text for his recommendation of prioritization of support for Virginia under the Nutria Eradication Act
	+ It was approved by consensus by the Panel

**Lunch**

**Adaptive management and monitoring of Northern Snakehead in the Susquehanna River basin --** *Aaron Henning, SRBC*

* Northern Snakehead (NSH)
	+ Invaded many North American waterways already and has suitable habitat nationwide
* Snakehead in the Susquehanna
	+ Late 2000s – present and expanding through the upper Chesapeake Bay
		- By 2019 – 81 NSH removed from Conowingo West Fish lift
* eDNA as a monitoring tool
	+ Started collecting samples in July 2019
	+ Confirmed known locations
* Spring 2020 – 21 Individuals passing into Conowingo Pond via East Fish Lift
	+ Only the second time that they were sighted at the lift
	+ Shut down the lift at after only 3 days on May 15, 2020
		- Negative impact on American shad passage at this location
* Summer 2020
	+ Targeted electrofishing surveys to remove individuals
	+ 6 confirmed removed from Conowingo Pond
	+ Reproducing population at Lake Redman
		- Upstream of Holtwood Dam
* Monitoring Plan
	+ Continue eDNA sampling in June 2020 in lower basin
	+ Revised sampling to include more sites upriver beyond Holtwood Dam
	+ Support PFBC with targeted electrofishing surveys
* Interpretation
	+ Dams acting as the most effective barrier to limit spread
		- But NSH quite capable of utilizing fish lifts
	+ Additional new records reveal anglers are moving fish throughout the region
		- Track down and validate reports
		- More eDNA monitoring
		- More electrofishing surveys
* Management Implications
	+ Although distribution is expanding abundance remains low
		- Impacts to existing fish communities remain uncertain
		- Proactive measures such as information campaigns, enforcement could be effective
		- Management and operations of fish passage facilities
	+ Managing fish lift operations to reflect current distribution
		- Not so simple: multiple states, jurisdictions, licenses, and agreements in place or pending
	+ Cease seasonal operations at Holtwood
	+ Operational changes to Conowingo (EFL v WFL)
* Adaptive Management/Monitoring
	+ Continue monitoring
	+ Go investigate all incoming reports
		- eDNA and electrofishing
	+ Continue working with basin state managers to limit spread and educate the public
* *Edna Stetzar – We have some fishways that we open in the spring as well as in the winter for outmigration. Are these dams also open for outmigration?*
	+ *Aaron Henning – Most of these dams are only operational for upstream migration. Right now, once the fish are up the ladder, you can’t stop them. We do see that Snakehead dispersal seems to align with American shad so it’s mostly in the spring*
* *Jay Kilian – Holtwood won’t be operating in the spring, what about Conowingo East?*
	+ *Aaron Henning: It won’t be open either. Shad will be trapped and driven upstream and invasives will be sorted out and frozen for research use. Going to be a big part of the shad strategy going forward*

**MAPAIS Project Update – Aquatic invasive species outreach and education to Delawareans -** *Kate Fleming, DE Sea Grant*

* Historically, invasive species groups in DE tend to be terrestrially focused
* Delaware Invasive Fish Tracker
	+ Outreach and education
		- Build awareness in DE anglers around three invasive fishes
		- Build awareness around DE general public around what AIS are and their impacts
		- Middle/High School students and teachers developing a lesson plan around DE invasive crabs
* Designed an information card that summarizes invasive fish that the project will focus on
	+ - Includes link to reporting tool
		- Can fit in a tackle box
		- Printed 3,000 with expectation of a reprint
		- Wanted to couple the distribution of this card with presentations to fishing clubs
			* Recorded a presentation that is available on DE Sea Grant’s page
	+ Updated distribution plan
		- Lot of interest from DE state parks
		- Fishing clubs
		- Tournament
		- Bait and Tackle Shops
* “15 second science” video series
	+ 14 episodes talking about invasive species
* Focus on the Coast Workshop
	+ Series of presentations to an adult learning class
* Development of lesson plan
	+ DE association of environmental educators
	+ Newark charter High School project-learning session
* Created a lesson plan and story map with interactive components
* New teacher workshops – “75 minute science”
	+ Talk about scientific information, Q&A , and how it can be applied in the classroom
* Invasive Species Watch
	+ Chinese Mitten Crab alert for field scientists
* Reports
	+ 45 confirmed report of northern snakehead, blue catfish and flathead catfish since June 2020
		- Would have captured the first blast of presentations
		- Most were through DNREC website, but some were bc they saw the invasive species presentation at a fishing club
* *Jay Kilian – Will be interesting to see if reports go up*
	+ *Kate Fleming– Yes, we are hoping to have these distributed before the beginning of the fishing season*
* *Mike Allen – When will the story maps be posted?*
	+ *Kate Fleming– By the end of January*

**Carbon dioxide as a new tool in the battle against AIS -** *Jon Amberg, USGS - Upper Midwest Environmental Sciences Center*

* Development of Carbon Dioxide-Carp
	+ Partnership between USGS, Army Corps of Engineers, USFWS
* Why CO2?
	+ Non-physical, inexpensive, widely available, repurposed, low risks to humans, non-proprietary, used as a deterrent or lethal control
* More than 25 studies and reports are currently available on CO2 for Asian carp control
	+ CO2 can deter fish and can also immobilize fish
	+ Non-selective by species
	+ Do not seem to acclimate to CO2 exposure
* Behavioral Efficacy
	+ Compared behavior before and during CO2 treatment
		- Fish avoided CO2
		- Return to normal behavior after application
* Lethal Control Efficacy
	+ Proof-of-concept
	+ 9 ponds stocked with 5 fish species
	+ Subset of ponds injected with CO2
		- Harvested in spring after ice melt to assess and compare survival
		- High mortality in CO2 treated, low mortality in control ponds
			* All silver carp and bighead carp killed at highest concentrations
			* More info in *Cupp et al. (2017) Biological Invasions*
* USEPA approved as a piscicide
	+ Section 3 registration
	+ Two approved uses:
		- Behavioral deterrent
		- Lethal Control under ice
	+ Approved users: USGS, USFWS, USACE, State resource managers, anyone under their supervision
	+ Want to remove “remove under ice” and “for Asian carps” to open this up to other uses
* Application in open waters
	+ Project evaluated CO2 for invasive crayfish control
	+ Reached targeted CO2 level for more than 3 days
		- Very high mortality with fathead minnows
		- Crayfish effectiveness was inconclusive (low sample size)
		- Being used as data to show that you can use CO2 as a lethal control mechanism for fish in non-ice covered ponds
* Application for invasive mussels
	+ Effect of temperature
	+ Native mussels tend to be more resilient and feel less of an impact from CO2
	+ Prevent settlement of invasive mussels
		- Targeted concentration of 50 and 100mg/L CO2 in a flow through system
			* No settlement at 50mg/L and 100% survival of native mussels but macroinvertebrate community composition was altered
			* Control saw settlement of thousands of mussels
* Obtaining a label:
	+ Contact: UMESC Kim Fredericks (kfredericks@usgs.gov) or Jon Amberg (jamberg@usgs.gov)
	+ Moving to Online: ePermits.fws.gov
		- Similar to CITES and Migratory Birds type of permits
			* Teresa Lewis teresa\_lewis@fws.gov
* *Kierstin Carlson: Is there any data on the effect of CO2 on benthic macroinvertebrates? Are they resilient?*
	+ *Jon Amberg: Have not looked at that. Clams seem to be pretty resilient but aquatic insect studies have not been done.*
* *Matt Shank: Can you give an overview of how to acquire and treat the waterbody with CO2?*
	+ *Jon Amberg: Typically, we have used a venturi system and a pump. Draw water out of the area and put it through a pressurized system that injects CO2 and then pumps back into pond. Can be purchased form any aquaculture supplier. Planning to evaluate the use of dry ice for frozen-pond management*
* *Matt Shank: How are you monitoring CO2 in real time?*
	+ *Jon Amberg: We are not, we are using pH as a surrogate.*
* *Jay Kilian: How do you deliver the CO2 to the system? If you are trying to create a wall of CO2 as a barrier to movement, how would you do that?*
	+ *Jon Amberg: Likely you would set up a system where there is a manifold along the bottom and large intake pipe. It would suck up water from one area, inject with CO2, and eject back into the water.*
* *Jay Kilian: So to clarify, your agency has used it successfully in the field?*
	+ *Jon Amberg: Yes. Here today because a lot of people don’t know it’s available. In terms of getting the permits in to place, we are happy to help out and help to expand the label. There was a study that was supposed to be conducted this fall, but was postponed.*
* *Matt Shank: Do you have any idea for what length of time/distance it would take for a stream to return to its previous CO2 concertation?*
	+ *Jon: Initial project indicated that, in a system like the Mississippi River, you would be back to a normal level of Co2 concentration within a few hundred meters from the application site. But this was specifically to create a barrier rather than a lethal removal. Safer for people than electric barrier.*

**Break**

**MAPAIS Project Update – Mapping forest edge *Phragmites* using LiDAR data -** *Keryn Gedan, George Washington University*

* Phragmites expansion at the marsh-forest ecotone
	+ Marshes migrating into upland and a lot of that new area is phragmites dominated
		- Smith 2013: In Delaware Bay, nearly 70% of the observed land change between 1930 to 2006 was phragmites marsh
	+ Phragmites colonizing forest understory in up to 88% canopy cover
		- Prior to forest retreat
		- Easier to manage at this stage
	+ More rapid growth of phragmites in forest than in high marsh edge habitat
* Need to understand where phragmites is colonizing forest understory
* Existing maps of phragmites are done by aerial imagery and remote sensing and does not account for forest understory
* Validation using ground surveys
	+ Ground surveys to document phragmites and then use LiDAR to see if it can be detected
		- Easy to detect canopy level, but sub-canopy level can be more difficult
		- Surveyed 6 different sites, documented over 1000 different survey spots
* Using drone data to bridge small and large scales
	+ To overcome some issues related to scaling and horizontal precision field data, we could use drone data as an intermediate step
* Input LiDAR data and normalize to ground
	+ Tile and process the LiDAR data
* High density phragmites returns at 2m, low density has little to no returns at 2m
* LiDAR data has not become available on the schedule we expected
	+ Have to use older LiDAR data – 2012 and 2015
		- Adds significant uncertainty since phragmites can change very quickly
	+ Added additional sites in response to lack of available data
* To correctly validate the model and quantify error we need more recent data
* Minimum patch size of detectable Phragmites strands
* Interference from shrubs
	+ Decision matrix approach
	+ High vegetation, middle vegetation, low vegetation
		- High accuracy decision matrix
* Results forthcoming
* *Jay Kilian: What were the incorrectly ID’ed samples on the decision matrix? How did you determine?*
	+ *Keryn Gedan: None of them are incorrectly IDed. We ground-truthed each of these samples. Each of the ones on the phragmites decision tree are phragmites, the computer just mis-predicted the density at individual sites*
* *Jay Kilian: Is there a native plant or shrub that could mimic the LiDAR returns that you are getting for phragmites? Could there be potential to misclassify?*
	+ *Keryn Gedan: That’s a problem that we want to do more work on. Wax myrtle is very common on the Eastern Shore and could be confused with phragmites, what we need to do now is target areas where we know there are shrubs but no phragmites to tease it out.*
* *Jay Kilian – With sea level rise, marshes are pushing inwards, phragmites is invading new areas before the forest retreats. In areas without phragmites, do we see native marsh species retreating at the same rate?*
	+ *Keryn – The native grasses are also migrating, but phragmites can colonize farther into the forest. If phragmites gets there first, it outcompetes native species and will become dominant*
* Please contact Keryn Gedan with further questions: kgedan@gwu.edu

**State ANS plan implementation updates –** *State Panel Representatives*

* **New York – Steven Pearson (NY Department of Environmental Quality)**
	+ Stony Brook University is hiring a regional AIS coordinator – part time, filled by a graduate student
		- Working out of regional CDC office
	+ Boat Stewards internship program was canceled
		- Coordinator was able to do some of the program herself
		- Held one or two survey and management activities about water chestnut
	+ Increase in funds for this year
		- Planning to expand boat stewardship program
		- AIS coordinator will be continuing
		- Pending COVID, would hire two part time seasonal interns to work with boat stewardship program as well as with the Long Island Invasive Species Management Areas
			* Respond to early detection work throughout the region
			* Hope to grow the program
* **Pennsylvania – Sarah Whitney (PA Sea Grant)**
	+ AIS funding goes to Pennsylvania Fish and Boat Commission
		- Education and Outreach across the state
		- Participation in MAPAIS and Great Lakes Regional Council
	+ Shifting some funds for Round Goby control plan
		- Introduced at French Creek
			* High biodiversity area
		- Because of the native mussel population, it will be hard to control the gobies. Need to make sure that we’re stopping the source too
* **New Jersey – Chris Smith (NJ DFW) & Heather Desko (NJ Water Supply Authority)**
	+ Don’t have an AIS plan and do not have a time frame for when they will have one
	+ FWS is working on updating fisheries management plans which includes a section on invasive species
		- Fish section will be completed early summer
	+ There was some interest in working on New England Mudsnail by NJ DEP
* **Maryland – Mark Lewandowski (MD DNR) & Jay Kilian (MD DNR)**
	+ None of the AIS funding is being used for permanent staff
	+ Implementing greater signage
		- Focus on Deep Creek Lake
	+ Year 2 of a pilot study using eDNA across MD
	+ Year 2 of using animal risk assessment tools
		- Adopted two for use, doing risk assessment on two species
	+ Just put in a proposal in May for refining rapid response plan
		- More signage
		- Possible funding of launch stewards
	+ Start a pathway analysis for live bait
		- Who are the stakeholders that we will have to engage and what are the best points to manage to prevent introductions?
* **Delaware – Edna Stetzar (DNREC)**
	+ DE does not have an AIS plan
	+ Sent a plan to the department secretary to check out their level of support
	+ Will likely have to hire someone to work on development of the plan
	+ Want to make sure there are funds to support staff that can implement the actions of the plan too
* **Virginia – Ray Fernald (VA DWR)**
	+ Funding goes to VA Department of Conservation and Recreation
		- They provided staffing to the VA invasive species working group
		- A lot of the funding went to development and redevelopment of the state implementation plan
	+ Funding being increased and now there is desire for the money to be redistributed
		- Money that will be available in July 2021, 20-25k has been set aside for work on *Trapa bispinosa*
		- Putting together a plan for external funding as well
	+ Kevin Heffernan would need to provide any additional updates
* **West Virginia – Katie Zipfel (DNR)**
	+ Do not have an implementation plan in place
	+ Potential for a part time position to help write the AIS plan
		- After that maybe hire a full-time position
		- Plan ideally finished by end of 2021
* **North Carolina – Sara Mirabilio (NC Sea Grant)**
	+ Revisited the plan and are working to update things that have become outdated
	+ North Carolina Division of Fisheries representative has moved jobs
		- Sara will be planning to follow up about the state plan and try to make some movement
* Action Item: Include a section on the website’s State Management Plan page for state AIS reports, posted with each state’s permission

**Break**

**Member / interested parties updates -** *Panel Members and Interested Parties*

**U.S. Army Corps of Engineers**

* Tara Whitsel (US Army Corps of Engineers)–
	+ The Corps' Invasive Species Leadership Team is working through Title VII of the Dingell Act (12 Mar 2019) as it has amended the Fish and Wildlife Coordination Act to require specific federal agencies (including the Corps) to take the following actions specific to invasive species: develop a strategic plan and comparative economic assessment, implement funding restrictions, and provide a report to Congress. Additionally, the Corps' Invasive Species Leadership Team just recently partnered with the Aquatic Plant Management Society to host a fall webinar series that summarized the latest research and technical information on management strategies for a variety of invasive aquatic plants and harmful algal blooms over the course of six educational webinars. The webinars were recorded and are available on USACE’s Natural Resources Management Gateway by using the following link: <https://corpslakes.erdc.dren.mil/employees/news.cfm?Id=invasive>

**West Virginia**

* Katie Zipfel (WV DNR) –
	+ There have been some recent invasions of Asian carp and silver carp in the Ohio River near the WV and OH line

**Maryland**

* Mark Lewandowski (MD DNR) –
	+ Zebra mussels in Hyde’s quarry
		- Found them about two years ago
		- County that owns the reservoir hired a contractor
		- Treatment was a success – no live mussels found last spring
	+ $1 million set aside annually for State Lakes Protection Fund
		- Six herbicide treatments in six different lakes with hydrilla or smartweed
		- All implemented summer 2020 by an external contractor
		- 5/6 were successful – achieved positive control or total eradication
	+ *Jay Kilian – Are you doing follow up surveys of the lakes?*
		- *Mark Lewandowski: We are going to go ahead and assume that all need a second treatment, without doing a survey. Generally, we have found that if we wait until the hydrilla is visible, it’s too late to use the herbicide treatments*
* Jay Kilian (MD DNR) –
	+ Seventh year of treatment for hydrilla at Deep Creek Lake
		- One new bed was discovered but none were identified at previous treatment sites
	+ Deep Creek Lake is the site of the only launch steward program in Maryland
		- State park use went way up
		- Over 5,000 boats inspected, 29 had invasive species (20 had hydrilla and 9 had zebra mussels)
* Mike Allen (MD Sea Grant) -
	+ Sea Grant is funding a marsh regrowth after phragmites removal project at SERC
		- Univ MD, Sea Grant, SERC, and Univ. Utah
		- Looking at what species are best suited to colonize after phragmites removal
		- Looking at salty/brackish water marshes

**New York**

* Steve Pearson (NY DEQ) –
	+ Started to develop Long Island-New York City metro area AIS task force
		- Develop priority water bodies for survey, monitoring, control, across the metro area
		- Currently being chaired by DEQ
		- Both freshwater and marine environments
	+ Working to update prohibited and regulated species list
		- Last updated in 2015
		- Hope to have new update complete by end of 2021
	+ Watercraft inspection stewardship program
		- Across the state there were over 350,000 inspections performed
		- Included 19,000 interceptions including 1,200 invasive species
	+ New York has developed an invasive species curriculum
		- Contact Steve Pearson to receive a virtual copy
	+ Aquatic gardeners guide
		- Guides in the selection of native plants over invasive
	+ Working to develop an aquarium release information guide
	+ New York has documented live Northern Snakehead in the upper Delaware River
		- Large dispersal upstream at major trout fishery
		- Documentation in the Hudson
	+ Hydrilla projects ongoing
		- Successful reduction of hydrilla at many sites
	+ Pilot study on the Peconic River for Ludwigia palustris
* *Jay Kilian – Tim Campbell of the Mississippi River Basin Panel did some work on prayer release pathway. Did some outreach specifically for that target audience. Would suggest reaching out to them.*

**Pennsylvania**

* Sean Hartzell (PA FBC) –
	+ Pennsylvania invasive species council
		- Risk Assessment ranking system
		- Aquatic invasive and terrestrial animals and plants
	+ Updating the invasive species control plans
		- Creating more for some specific high-profile species
	+ Lots of new occurances of snakeheads this year
		- Upper York had several juveniles
	+ New occurances records for didymo
	+ European frogbit in lake in Northwest PA
	+ Lot of new records of New Zealand mud snails
* Aaron Henning (Susquehanna River Basin Coalition) –
	+ Recently got blue catfish eDNA surveys
		- Still need to do report and presentation but will try to get it out soon
	+ Sampled the upper Susquehanna sub-basin for Round Goby
		- A few old records have been found
		- Sampled 50-60 sites, should get results this winter

**New Jersey**

* Chris Smith (NJ DFW)-
	+ Snakeheads are continuing to spread within established reach
	+ Had one record in Musconetcong River
		- Pushing limit on salt tolerance
	+ Blue catfish juvenile was caught in June
		- Will be in the fish component of the invasive plan that we are looking to get underway
	+ Fish exclusion regulations for NJ DFW
		- Two year rotational cycle
		- Just submitted list of fish of concern for 2022
			* Round goby
			* Blue catfish
			* Microptera sp. Other than large mouth and small mouth bass
	+ Wildlife management area heavily infested with hydrilla
* Heather Desko (NJ Water Supply authority) –
	+ Fourth year of treatment in the canal for hydrilla
		- Plan to treat for at least two more years
	+ Suspended Manasquan pilot treatments
	+ Manasquan had lake steward inspection program
		- 1,300 boat inspections in 2020, intercepted 89 boats coming in and over 100 leaving
	+ Planned a second boat steward program but it was canceled due to Covid
	+ Confirmed detection of chinese mystery snail

**Delaware**

* Edna Stetzar (DE DNREC) –
	+ A few new documentations of red swamp crayfish
		- Chesapeake Bay and Delaware Bay
		- Fill dirt as a vector?
	+ Seven new locations of snakeheads
		- Likely natural expansion due to flooding
	+ Found a goldfish recently – trying to document occurrences better
	+ No new expansion of Blue catfish
		- Had a fish kill, hundreds of blue catfish died
		- Connected to Nanticoke river
	+ Sprayed over 500 acres for phragmites control
	+ Sportfishing tournament program
		- Breaking blue catfish out of the “catfish” category
			* Listed as invasive now
			* Much higher minimum size than other catfish
				+ Disincentive to kill?
	+ Trying to inform anglers of the difference between all catfish species that occur in Delaware by providing identification cards
	+ *Matt Shank – Request that Edna send out the cards being given out to anglers*
* Kate Fleming (DE Sea Grant) -
	+ DE Invasive Species Council just updated their website to include animals as well as plants

**Virginia**

* Ray Fernald (VA DWR) -
	+ Continue to deal with feral hogs in Southeast VA
		- Original population has been eradicated
	+ Snakeheads expanded south of the James River
		- Expect to see more populations
	+ Concerned about Alabama Bass
		- Seeking to prevent movement of that group of bass
	+ Invasive species advisory group
		- No single agency is in charge of invasive species in VA
	+ Noxious weed advisory committee
		- Can add species to this list and prevents commercialization
		- Can’t put it on the list if it’s already being sold commercially
	+ UVA Drone research program
		- Invasive species ID through multi-spectral drone imaging interpretation
* *Jay Kilian – Is there a chance that feral hogs could recolonize from southern states?*
	+ - *Ray Fernald – Absolutely, but the biggest issues we’re seeing right now are released domestic or hunting stock*
		- *Variety of fence-in vs fence-out counties for hogs*
* *Nancy Rybicki – Is it possible to get an invasive species card for Trapa bispinosa and add it to the other cards? The Trapa natans card is also inaccurate. Who can I talk to about revising and addition of cards?*
	+ *Edna Stetzar - I gave your contact information to Bruce Cole, he developed the catfish identification cards. Conversely if you want to reach out to him:* *Bruce.Cole@delaware.gov*

**North Carolina**

* Sara Mirabilio (NC Sea Grant)–
	+ Continue to receive reports of tiger shrimp
	+ Blue catfish are so plentiful that the information is not being tracked by NC Sea Grant
	+ Actively working on hydrilla mitigation
		- People can report hydrilla on NC Sea Grant website
	+ Partnering with North Carolina Estuarine Research Reserve
		- Fund a grad student to look at invasive species impact on coast communities and ecosystems
	+ Educational resources related to bait worms and packaging as vectors for ANS. <https://www.mdsg.umd.edu/topics/aquatic-invasive-species/bait-worm-study>
	+ All that I can report on NC's ANS Management Plan can be found here. I will reach out to Tim Ellis of APNEP after this meeting to find out more. <https://apnep.nc.gov/our-work/identification-and-research/nc-aquatic-nuisance-species-management-plan-coordination>

NOAA

* Mandy Bromilow (NOAA) –
	+ Invasive catfish management strategy is out
	+ Developing sub-committee for each of the potential strategies
	+ Management strategy is available on the Bay Program’s website
	+ If anyone has interest in participating on the Bay Program's Invasive Catfish Workgroup, please feel free to reach out to me at mandy.bromilow@noaa.gov
	+ Here is a link to the Invasive Catfish Management Strategy that was developed by the Invasive Catfish Workgroup: <https://www.chesapeakebay.net/documents/Invasive_Catfish_Management_Strategy_Aug_2020_final.pdf>

USGS

* Christine Densmore (USGS) –
	+ Blue catfish research is becoming a priority
		- Working with three different tributaries to do an assessment of impacts
	+ Trying to look at trophic interactions of blue cats as well

Adjourn

 Motion to adjourn by Matt Shank

 Seconded by Ray Fernald