

MAPAIS Spring 2023 Meeting
April 19th & April 20th, 2023

DAY 1- Wednesday, April 19th

<u>In-Person Meeting Location:</u>	<u>Virtual Meeting:</u> Webex Meeting Link
EPA's Chesapeake Bay Program Office Joint Oyster/Blue Crab Conference Room (rm. 106 & 107)	Meeting ID: 2620 748 6515 Meeting password: JtaHjA38C3n
1750 Forest Drive, Suite 130 Annapolis, MD 21401	Join by phone: +1-408-418-9388 Access code: 2620 748 6515

TIME	TOPIC	SPEAKER
10:00 AM	Call to Order <ul style="list-style-type: none"> • Welcome • Virtual format housekeeping • Introductions – New members? 	<i>Steven Pearson, Panel Chair</i> <i>Katlyn Fuentes, Panel Coordinator</i>
10:10 AM	Old Business <ul style="list-style-type: none"> • Review and approve agenda • Review and approve Fall Meeting Minutes • Status of annual reports from states with active plans • Fiscal agent search • Priority species list update • Regional Research Priorities Update • International Conference on Marine Bioinvasions • Panel membership - Suggestions to fill vacancies 	<i>Steven Pearson</i> <i>Rob Emens, Vice Chair</i> <i>Matt Shank</i> <i>Mike Allen, Panel Fiscal Agent</i>
10:30 AM	Budget and funded project updates	<i>Mike Allen</i>
10:45 AM	New Business <ul style="list-style-type: none"> • Recommendations for ANSTF • Fall 2023 Meeting <ul style="list-style-type: none"> • Panel Representation (fed, state, academic) • MAPAIS Field Guide printing 	<i>Steven Pearson</i> <i>Sara Stahlman</i>

11:10 AM	ANSTF Update	<i>Susan Pasko</i>
11:30 AM	Update: <i>Mid-Atlantic Region AIS introductions and NAS program updates</i>	<i>Ian Pfingsten</i>
11:50 AM	Break/Lunch - provided by MAPAIS	
1:15 PM	Presentation: <i>Development of an Aquatic Invasive Species Management Plan for Delaware</i>	<i>Michael Steiger</i>
1:35 PM	Presentation: <i>Early detection of invasive Phragmites australis at the tidal marsh-forest ecotone with airborne LiDAR</i>	<i>Man Qi</i>
1:55 PM	Presentation: <i>Test an environmental DNA assay to detect nutria in the Mid-Atlantic and explore how activity patterns impact detection</i>	<i>Stephanie Coster</i>
2:15 PM	Presentation: <i>A Successful Hydrilla Control Story in New Jersey's Delaware & Raritan Canal</i>	<i>Heather Desko</i>
2:35 PM	Field Trip: <i>Visit to SERC invasive species management and native restoration</i>	<i>SERC Researchers</i>
6:00 PM	Wrap up and adjourn	

DAY 2 – Thursday, April 20th

<u>In-Person Meeting Location:</u>	<u>Virtual Meeting:</u> Webex Meeting Link
EPA's Chesapeake Bay Program Office Joint Oyster/Blue Crab Conference Room (rm. 106 & 107)	Meeting ID: 2621 212 2973 Meeting password: egJrpx434qv
1750 Forest Drive, Suite 130 Annapolis, MD 21401	Join by phone: +1-408-418-9388 Access code: 2621 212 2973

TIME	TOPIC	SPEAKER
9:00 AM	Call to Order <ul style="list-style-type: none"> • Welcome/Introductions • Follow up from Day 1 	<i>Steven Pearson, Panel Chair</i>

9:10 AM	Review of 2023 MAPAIS Grant Proposals	<i>Mike Allen, Panel Fiscal Manager</i>
11:00 AM	Break	
11:30 AM	Panel Member and Interested Party updates <i>(Or continue grant review if needed and send updates via email)</i>	<i>Steven Pearson, Panel Chair</i>
01:30 PM	Adjourn	

MAPAIS Spring 2023 Meeting

EPA's Chesapeake Bay Program Office
1750 Forest Drive, Suite 130, Annapolis, MD 21401

DAY 1- Wednesday, April 19th; Hybrid Meeting - ATTENDEES

Aaron Henning, SRBC	Alex Voznitza, NPS	Chris Smith, NJDEP, Fish & Wildlife	Christine Densmore, USFWS
Dede Lawal, CRC	Edna Stetzar, DNREC-DFW	Heather Desko, NJ WSA	Ian Pfungsten, USGS
Jay Kilian, MDNR	Jennifer Starr, Alliance for the Chesapeake Bay	Joyce Bolton, USDA	Julie Lockwood, Rutgers University
Katie Zipfel, WV DNR	Katlyn Fuentes, CRC	Kevin Heffernan, VA DCR	Kristopher Abell, PDA
Man Qi, University of Cincinnati	Mark Lewandowski, MDNR	Matt Shank, PA DEP	Michael Steiger, DE DFW
Mike Allen, MD Sea Grant	Rob Emens, NC DENR	Sara Mirabilio, NC Sea Grant	Sara Stahlman, PA Sea Grant
Sarah Whitney, PennState University	Sean Hartzell, PFBC	Stephanie Coster, Randolph-Mason College	Steve Minkkinen, USFWS
Steven Pearson, NY DEC	Tara Whitsel, USACE		Timothy Ellis, NC DENR

10:00 – CALL TO ORDER

Presenters: Steven Pearson (Panel Chair) and Katlyn Fuentes (Panel Coordinator)

- Roll call and technological reminders about virtual meetings.

10:10 – OLD BUSINESS

Presenters: Steven Pearson, Rob Emens (Panel Vice Chair), Matt Shank, and Mike Allen (Panel Fiscal Agent)

- **APPROVED OF SPRING MEETING AGENDA:**
 - **Motion made:** Edna Stetzar
 - **Seconded:** Steve Minkkinen
- **REVIEW AND APPROVE FALL 2022 MEETING MINUTES:** *No follow-up action items from the Fall 2022 Meeting.*
 - **MOTION TO APPROVE THE MEETING MINUTES:**
 - **Motion made:** Mike Allen
 - **Seconded:** Ian Pfungsten
 - **The combined Fall 2022 Agenda & Meeting Minutes have been posted to the [MAPAIS website](#).**
- **STATUS OF ANNUAL REPORTS FROM STATES WITH ACTIVE PLANS:** Reports will be provided to Panel Leadership and will be uploaded to the webpage.
 - **ACTION:** Jay Killian and Mark Lewandowski will look into the Maryland reports.
 - **ACTION:** Sean Hartzell will get the reports from Pennsylvania
- **FISCAL AGENT SEARCH:**

- Maryland Sea Grant will be stepping down later this year as the Panel's fiscal officer.
- Outreach has been done and at this time, two organizations are interested in this position. Mike Allen provided a description of each group interested in acting as the fiscal agent.
 - **UPDATE:** *During day 2 of the Spring Meeting, a quorum was established, and a contractor was elected by majority vote as the next Fiscal Agent for the panel. More details on this transition will be shared at the next meeting.*
- **PRIORITY SPECIES LIST UPDATE:** This list was last discussed at the Fall 2022 meeting, where errors in taxonomic nomenclature were noted and corrected. After the Fall Meeting, Matt Shank reviewed the list, and the updated list and html was presented at today's meeting. This list will eventually be incorporated into the MAPAIS website.
 - **PLANTS OF THE WORLD** (a large, international database of plant names that's run by the Royal Botanic Gardens): <https://powo.science.kew.org/>
- **INTERNATIONAL CONFERENCE ON MARINE BIOINVASIONS: in Baltimore, MD from May 15th-19th, 2023**
 - The Panel is providing funding for two student scholarships.
 - **Julie Lockwood** will be providing a keynote presentation, and **Katlyn Fuentes** and **Mike Allen** will be in attendance.
 - **LINK TO MORE INFORMATION:** <https://marinebioinvasions.info/>
- **PANEL MEMBERSHIP – CURRENT MEMBERSHIP VACANCIES:**
 - **WASHINGTON D.C.**
 - **ACTION: Steve Minkennen will talk to DC Fisheries folks to see if anyone is interested.**
 - **FEDERAL: NOAA, USFS**
 - **ACTION: Chris Smiths will reach out to Jonathan Watson (NOAA).**
 - **ACTION: Aaron Henning will reach out to a NOAA AIS contact.**
 - **ACADEMIA: DE, NY, VA, WV**
 - Previously reached out to DE Sea Grant and no word yet.
 - **ACTION: Julie Lockwood and Steven Pearson will reach out to their colleagues in academia to see if folks are interested in being members.**
 - **QUESTIONS/COMMENTS: If you have any additional membership suggestions, please send them to the Panel Leadership.**
 - **Man Qi:** Professor Keryn Gedan (kgedan@email.gwu.edu) is from the DC Area and may be interested in this role. She is a PI for a MAPAIS grant awarded in 2019.
 - **Steven Pearson** is in contact with Virginia folks – the Primary Member still wants to be active but is looking into an Alternate Member.

10:30 – BUDGET & FUNDED PROJECT UPDATES

Presenter: Mike Allen

- The current MAPAIS grant will end in August 2023 and a no-cost extension will allow for fall meeting cost-coverage. There is \$5k remaining in direct cost expenses (includes cost of meeting, travelling for panel chairs to visit ANSTF, etc.).
- Three projects started in Fall 2022, and two of them will be presented on today.

10:45 – NEW BUSINESS

Presenters: Steven Pearson, and Sara Stahlman

- **RECOMMENDATIONS FOR ANSTF:** After the Fall 2022 Meeting, the panel submitted recommendations on Nutria work in Virginia and southern Maryland.

- **Heather Desko** recommended the Chinese Pond Mussel (esp. in the aquaculture community)
 - Those in attendance were in support of this recommendation.
- **ACTION: Heather will draft a proposal and will send this recommendation to Susan Pasko and the Task Force prior to the July 1st deadline.**
- **FALL 2023 MEETING:** During the Fall 2022 Meeting, it was recommended that the Fall 2023 meeting be held in either West Virginia or North Carolina. This would be a hybrid meeting with both in-person and virtual attendance options available.
 - **GSARP:** Prior to COVID, the Gulf & South Atlantic Panel (GSARP) was interested in holding a joint meeting. Since the last MAPAIS joint-meeting was with the NE Panel in 2019, there is great interest from both MAPAIS and GSARP to coordinate another joint-meeting soon.
 - **ACTION: GSARP will be meeting next week in Georgia. Rob Emens (also a member of GSARP) will be in attendance and will discuss with GSARP leadership if they'd be interested in having a joint meeting in Fall 2023 or 2024.**
 - **If we do not have a joint meeting in Fall 2023, we will plan on meeting in West Virginia.**
 - The USGS Ecological Science Center was recommended as a possible meeting venue.
 - **ACTION: Christine Densmore will reach out to USGS to confirm availability.**
- **MAPAIS FIELD GUIDE PRINTING:** At this time, we will not pursue a reprint of the field guide booklets. However, there is interest in pursuing the creation of an app-version of the MAPAIS Field Guide.
 - **BENEFITS OF THE APP:** More accessible so can target a wider audience and can be updated regularly.
- **SUGGESTIONS:**
 - Incorporating photo identification capabilities into the app (like iNaturalist)
 - Connect app with the [National EDRR Information System](#)
- PA Sea Grant recently created a similar app which took approximately 1.5 years to build.
 - **ACTION: Sara Stahlman will put together a cost-estimate of the app and will share this information tomorrow.**
- **QUESTIONS/COMMENTS:**
 - **Alex Voznitza:** NCR PRISM (Partnership for Regional Invasive Species Management) is using iNaturalist to collect observations of species deemed as EDRR. The verification process is done by members of PRISM, including invasive species professionals and trained volunteers known as Invader Detectives. Volunteers help us in monitoring both terrestrial and aquatic species. Overall, the review process for each species can take a long time (not per observation). For us, the review process includes species verification, noting phenology based on photos, verifying that observations are "Wild", and/or communicating with observers if we cannot answer any of the questions listed above based on the uploaded photos. If you are trying to create and further develop another app, you may want to make sure that the data you are collecting will feed into the National EDRR Information System.

11:30 – UPDATE: MID-ATLANTIC REGION AIS INTRODUCTIONS AND NAS PROGRAM UPDATES:

Presenter: Ian Pflingsten

- **NAS DATABASE ENHANCEMENT MEETINGS:** Two meetings were held last month. For more details, contact Wes Daniel (wdaniel@usgs.gov).
 - **NAS Alert System:** <http://nas.er.usgs.gov/AlertSystem>
- **NEW INTRODUCTIONS:** 29 NAS alerts since December 2022 (9 plants, 2 fishes, 7 mollusks, 7 herps, 3

crustaceans, 1 cnidarian)

- **FLATHEAD CATFISH (*Pylodictis olivaris*):** Two fish were captured and identified by PFBC staff during a fish management survey. Individuals were found in Raystown Lake in Huntingdon Co., PA, March and April 2022. This is the first observation in the Raystown Lake drainage and Huntingdon County.
- **FRESHWATER DRUM (*Aplodinotus grunniens*):** Found in the Delaware R. at the mouth of Buck Creek, Bucks County, PA in September 2022. PFBC biologists captured specimen during Smallmouth Bass surveys.
- **POND LOACH (*Misgurnus anguillicaudatus*):** Found in Holland Brook, downstream of Hillcrest Road in Readington, Hunterdon Co., NJ in July 2022. This species is new to the Raritan R. drainage and Hunterdon Co. A private citizen reported more are present on Holland Brook.
- **RUSTY CRAYFISH (*Faxonius rusticus*):** Two sightings!
 - One deceased specimen found in Lake Wallenpaupack in Pike Co., PA in July 2022.
 - Also found in Briar Creek Lake in Columbia Co., PA in September 2022, and have been present since 2020.
- **ZEBRA MUSSEL (*Dreissena polymorpha*):** Found in Brady's Run Lake Boat Launch in Beaver Co., PA in October 2022. Has been present in the Ohio R. since at least 1993, but this is the first siting in the Beaver R. drainage.
- **CHINESE MYSTERY SNAIL (*Cipangopaludina chinensis*):** Found in Brady's Run Lake Boat Launch in Beaver Co., PA in October 2022. This is the first siting in the Beaver R. drainage and Beaver Co.
- **JAPANESE MYSTERY SNAIL (*Cipangopaludina japonica*):** Several empty shells were observed in the North River reference station in Rockingham Co., VA in March 2023. The shells likely washed up onto the gravel bar during the high-water event.
- **NEW ZEALAND MUDSNAIL (*Potamopyrgus antipodarum*):** Found in Falling Spring Branch in Chambersburg, Franklin Co., PA in September 2022. This species is new to the Potomac River drainage and Franklin Co. PFBC will conduct outreach such as placing signs at this location alerting anglers to clean gear to reduce the risk of spread.
- **WATERHYACINTH (*Eichhornia crassipes*):** Found in a private retention pond (Forest Hills Lake) in Hanover Co., VA in October 2022. New to the Pamunkey River drainage and Hanover Co. Also new to the Lower James River drainage at Joseph Bryan Park in September 2022.
- **PARROTFEATHER MILFOIL (*Myriophyllum aquaticum*):** Found in a private retention pond in Penn Township near Raystown Lake in Huntingdon Co., PA in October 2022. New to the Raystown Lake drainage and Huntingdon Co.
- **SIX-PETAL WATER PRIMROSE (*Ludwigia hexapetala*):** Found at Tar River Reservoir in Nash Co., NC in June 2022. New to Nash Co.
- **QUESTIONS/COMMENTS:** **If you have additional questions, please contact Ian Pfingsten (ipfingsten@usgs.gov).**

11:50 – BREAK/LUNCH

1:15 – DEVELOPMENT OF AN AQUATIC INVASIVE SPECIES MANAGEMENT PLAN FOR DELAWARE:

Presenter: Michael Steiger

- **TIMELINE:**
 - **03/26/2021:** DDFW applied for MAPAIS grant to develop an AIS Management Plan for DE.
 - **02/27/2022:** Invasive Species Biologist hired to manage Delaware's Invasive Species

- Management Program to begin to draft plan.
- **03/14/2022**: no-cost extension until January 2023
- **01/18/2023**: no-cost extension until March 2023
- **02/27/2022-03/31/2023**: plan drafted
- **03/31/2023**: draft management plan sent to USFWS for initial plan review
- **04/2023-05/2023**: present plan to DE Advisory Council on Wildlife & Freshwater Fish, Advisory Council on Tidal Finfisheries, and MAPAIS
- **05/2023-06/2023**: Public Comment Period on plan development/draft plan
- **06/2023-07/2023**: address comments received
- **08/2023**: submit plan for approval by Secretary of DNREC
- **09/2023**: submit plan for signature by Governor
- **10/2023**: submit plan to ANSTF for review ahead of fall meeting
- **11/2023-12/2023**: apply for funds for FY2024
- **AIS SPECIES LIST**: State of Delaware's Aquatic Invasive Species list is comprised of all species on the Delaware Invasive Species Council (DISC) list of AIS as well as any species currently listed in regulations
- **DELAWARE INVASIVE SPECIES COUNCIL (DISC)**: a 501(c)(3) non-profit, non-regulatory organization comprised of nearly 100 scientists, botanists, and ecologists with government, academia, and nonprofit organizations whose mission is to protect Delaware's ecosystems by preventing the introduction and reducing the impact of non-native species.
- **DELAWARE NATIVE SPECIES COMMISSION**: Formed by the Delaware General Assembly, their goal is to
- reverse the trend of decline and extinction of Delaware's local plant and animal native species; implement the recommendations of the Statewide Ecological Extinction Task Force; and provide expertise and assistance to state and local lawmakers, policy makers, educators, and other stakeholders.
 - State Senator Stephanie Hansen generated Senate Bill 22, which became law on July 1st, 2022 and prohibits invasive plant species at their point of sale or delivery into Delaware.
- **HIGH PRIORITY NEEDS**: northern snakehead, blue catfish, flathead catfish, grass carp, hydrilla, creeping water primrose, and phragmites.
- **PRIORITIES FOR ACTION**: 24 total actions were outlined in the State Management Plan and were boiled down to 10 priority actions based on available funds, time, and impact. Overall, there are 4 objectives:
 - Early prevention of new AIS introductions into Delaware waters and detect introductions
 - Rapid Response to an Introduction
 - Control and Management of AIS
 - Research and Restoration
- **10 PRIORITIES FOR ACTION**:
 1. Foster stronger relationships with MAPAIS, ANSTF, surrounding states, and interested parties within Delaware. (Action 1.A.1).
 2. Continue to suggest species suitable for vetting through DISC's invasive species matrix to assess their potential for listing by DISC. The aquatic invasive species list in Delaware's AIS management plan should match DISC's Invasive Species List, but also include species listed in State or Federal regulations (1.A.2).
 3. Assess current laws and regulations to determine effectiveness at stopping the introduction and spread of AIS. Input should be gathered from the Advisory Council on Tidal Finfisheries, the Advisory Council on Wildlife and Freshwater Fish, the Council on Shell Fisheries, and DNREC's Natural Resources Police to ensure laws and regulations are easily understood by the public as well as enforceable (1.B.1).

4. Develop a detailed rapid response plan for Delaware. The plan will include names and phone numbers of response staff as well as an organizational structure. Supplies needed to launch a response will be kept in specified locations to ease retrieval. The plan will be updated on an annual basis to ensure all names and contact information is current (2.A.1).
 5. Develop and conduct personnel training, inventory equipment needs, and identify storage locations to support implementing the rapid response plan (2.A.2).
 6. Develop a list of strategies to control high priority AIS. Cost effectiveness, and practicality should be taken into consideration when developing these strategies (3.A.2).
 7. Continue to monitor and control invasive aquatic plants such as Hydrilla and Creeping Water-Primrose that occur in Delaware's public ponds (3.A.6).
 8. Continue to use various methods to control Phragmites in Delaware's public waterways and wetlands (3.A.7).
 9. Establish long-term studies that determine biomass or estimate population abundance. The results of these studies can be used to assess if control methods are impacting AIS populations (4.A.1).
 10. Support research necessary to control, manage, and assess the status of AIS in Delaware by providing funding and dedicated staff (4.A.4).
- **QUESTIONS/COMMENTS:** **If you have additional questions, please contact Michael Steiger (michael.steiger@delaware.gov).**
 - **Sean Hartzell:** Do you allow stocking of Diploid Grass Carp in Delaware or just triploid?
 - **Mike Steiger:** Just triploid.

1:35 – EARLY DETECTION OF INVASIVE PHRAGMITES AUSTRALIS AT THE TIDAL MARSH-FOREST ECOTONE WITH AIRBORNE LiDAR:

Presenter: Man Qi

- **SURVEY:** Conducted a field survey in 2019 at several sites in the Chesapeake Bay where they recorded the Phragmites density along transects from the marshes into the forests.
 - **RESULTS:** Results found that Phragmites can invade inland into the forests, even in areas before the tree canopy opens up. Some instances showed that phragmites could occupy forested area where the tree canopy coverage was 84%.
- Analyzed the LiDAR data to explore the impact between elevation differences, looked at canopy heights, etc.
- **STUDY SITES:** 4 locations in Maryland and 4 in Virginia
 - **DATA COLLECTION AT BROWNSVILLE:** total of 2,470 samples
 - 584 positive samples (54 in marsh, 534 in forest)
 - 1886 negative samples (781 in marsh, 1,105 in forest)
- **DETECTED AND GROUND TRUTH DATA COMPARISON:** Most of the misdetection samples were those with phragmites, and their distribution was within a certain range outside the boundary of the area identified as phragmites. It may be that the spread of phragmites causes a decrease in accuracy.
- **QUESTIONS/COMMENTS:** **If you have any additional questions, please contact Man Qi (man.qi@biology.ox.ac.uk).**
 - **Steven Pearson:** How far does phragmites go into the forest?
 - **Man Qi:** At some points, it's 100m into the forest, but this depends on the landscape and tree canopy density.

1:55 – TEST AN ENVIRONMENTAL DNA ASSAY TO DETECT NUTRIA IN THE MID-ATLANTIC AND EXPLORE HOW ACTIVITY PATTERNS IMPACT DETECTION

Presenter: Stephanie Coster

- Project focuses on lab and field verification of eDNA assay to determine presence or absence of nutria (*Myocaster coypus*) in Virginia
- **METHODS:**
 - Water Sampling: 500 mL water capture using a peristaltic pump with nitrocellulose filters and silica beads
 - DNA Extraction: Dneasy blood & tissue, CTAB & magnetic bead extraction, and a Maxwell Prep using a PureFood isolation kit
 - qPCR: single species, TaqMan probe, using internal positive control with 6 replicates (C_T value <38)
- Tissue samples from tails (instead of ears) of Virginia-caught specimens were used to confirm primers
- Field verification was done at a small pond and a water treatment outflow, where there was evidence of nutria presence
- **CONCLUSIONS**: eDNA can detect nutria presence and can confirm absence. → Best results were collected January-May
- **NEXT STEPS**: monitoring; testing in larger water body systems; and forensic assay to detect individuals
- **QUESTIONS/COMMENTS**: **If you have additional questions, please contact Stephanie Coster (stephaniecoster@rmc.edu).**

2:15 – A SUCCESSFUL HYDRILLA CONTROL STORY IN NEW JERSEY’S DELAWARE & RARITAN CANAL

Presenter: Heather Desko

- The New Jersey Water Supply Authority is responsible for the Raritan Basin Surface Water Supply System and the Manasquan Surface Water Supply System → Water for approx. \$2M residents!
- **2016 MANAGEMENT**: water flow restriction due to excessive plant growth; canal water level below intake; hydro-raking in July through August
- **HYDRILLA VERTICILLATA (monoecious)**: native to Korea & Japan and was introduced to the Mid-Atlantic in the 1980’s as an aquarium plant. They can grow up to 1 foot per day and can reach lengths of up to 25 feet. They reproduce via fragmentation, tubers, and turions, and tubers can remain viable for more than 6 years.
- **HYDRILLA – “THE PERFECT WEED”**:
 - Adapts to variety of conditions:
 - Water depths several inches to 20+ feet
 - Lakes, ponds & rivers
 - Salinity 0-9ppt (possibly up to 13ppt?)
 - Low light tolerance
 - Impacts: Native SAV & other biota, water chemistry, water flow, and recreation
- **2016 SAV SURVEY**: Surveyed 597 sites across 18.31 miles.
- **HYDRILLA MANAGEMENT**: 26 options were evaluated in the 2017 Canal SAV Management Plan (www.njwsa.org/hydrilla). Methods of control include the following:
 - **Mechanical**: cutting, harvesting, dredging
 - **Physical**: benthic mats, hand-pulling, drawdowns
 - **Biological**: grass carp, insects, pathogens
 - **Chemical**: selective vs. broad spectrum, systemic vs. contact
- **2017**: management prep & herbicide application

- **D&R CANAL MANAGEMENT IN REVIEW:** Herbicide (Sonar Genesis – ai fluridone) was applied late May-late September (60-120 days) with a target dose rate of 2-3 ppb.
 - Treated 2017-2022 and the herbicide application will occur 2 years beyond the last hydrilla plant/tuber finding, after which will shift towards monitoring (instead of treatment).
- **MONITORING EFFORTS:** Weekly fluridone concentration monitoring; treatment area SAV survey (18 mi), Tuber survey (5 sites); other SAV monitoring.
- **HYDRILLA TUBER MONITORING:** conducted in late October for the purpose of monitoring tuber bank depletion for treatment efficacy. 5 stations have been monitored annually since 2016. Increased to 50 cores per site.
 - *No tubers were found in 2021 or 2022!*
- **QUESTIONS/COMMENTS:** **If you have additional questions, please contact Heather Desko (hdesko@njwsa.org).**

2:35 – FIELD TRIP: SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER

- Optional field trip to the Smithsonian Environmental Research Center (SERC) in Edgewater, MD
- Those who attended the field trip got a tour of the Global Change Research Wetland (GCREW) and the ongoing research that's being done on the effects of elevated CO₂ and Nitrogen on plant communities, carbon exchange, and phragmites, as well as a presentation on a new autonomous vessel that will eventually be used to capture water samples and other environmental data.

6:00 – DAY 1 ADJOURNED

DAY 2 – Thursday, April 20th; Hybrid Meeting - ATTENDEES

Aaron Henning, SRBC	Chris Guy, USFWS	Chris Smith, NJ DEP	Christine Densmore, USFWS
Heather Desko, NJ WSA	Ian Pfungsten, USGS	Jay Kilian, MDNR	Julie Lockwood, Rutgers University
Katie Zipfel, WV DNR	Katlyn Fuentes, Chesapeake Research Consortium	Kristopher Abell, PDA	Matt Shank, PA DEP
Mike Allen, MD Sea Grant	Rob Emens, NC DENR	Sandra Keppner, USFWS	Sarah Whitney, PennState University
Sean Hartzell, PFBC	Steve Minkkinen, USFWS	Steven Pearson, NY DEC	Susan Pasko, USFWS
Tara Whitsel, USACE		Timothy Ellis, NC DENR	

9:00 – CALL TO ORDER:

Presenter: Steven Pearson

- Roll call and technological reminders about virtual meetings.
- **FOLLOW-UP FROM DAY 1 PANEL FISCAL AGENT SEARCH DISCUSSION:** A quorum was established, and a

contractor was elected by majority vote as the next Fiscal Agent for the panel. More details on this transition will be shared at the next meeting.

9:10 – REVIEW OF 2023 MAPAIS GRANT PROPOSALS:

Presenter: Mike Allen

- In 2022, MAPAIS offered a small grants competition. The call for proposals was distributed via email and posted to the [MAPAIS website](#), and [the full solicitation can be viewed here](#). Proposals were due March 20, 2023.
- **PROGRAM PRIORITIES:** the following elements are of high priority to MAPAIS and were considered in proposal reviews:
 - Activities that will increase public understanding of and compliance with the prevention and control of AIS
 - Clear description of proposed actions, products, and other deliverables
 - Relevance to the mission and priorities of MAPAIS
 - Regional significance
 - Leveraging of other funding sources
- **MAPAIS Membership additionally identified the following as high priorities for the 2023 grant competition:**
 - Develop outreach and educational materials for classrooms and specific populations (K-Gray) to prevent the introduction and spread of AIS.
 - Conduct research on AIS issues in the region such as prevention, early detection, rapid response, emerging invasions, and how climate change may influence AIS.
 - Conduct innovative approaches to AIS control/eradication, or control/eradicate a high priority AIS population.
 - Continue to develop vector management strategies for states and the region.
 - Encourage states to develop and implement AIS management plans meeting the standards set by the Aquatic Nuisance Species Task Force
- **COMPETITION:** The Panel received four proposals for the 2023 small grants competition.
- **PROPOSAL REVIEW:** Each proposal was reviewed and scored by 4 reviewers. Reviewers were not permitted to review proposals from their own organizations and proposals were scored and ranked on the following criteria:
 - Technical Merit and Feasibility (40%)
 - Relevance, Outreach, and Impact (40%)
 - Applicant's Qualifications (20%)
- **DISCUSSION:** During this discussion, proposal summaries and reviewer comments were provided to Panel Members for consideration. Those in attendance who were not Panel Members or had conflicts of interest with the proposed projects were asked to leave the meeting and enter a "waiting room" while this discussion occurred. **Members voted and approved funding for two of the four proposals. Panel Leadership has reached out to the project Technical Leads and will be moving forward with funding these projects. More details on these projects will become available soon.**

11:00 – BREAK

11:30 – PANEL MEMBER & INTERESTED PARTY UPDATES:

Presenter: Steven Pearson

- **DELAWARE:** *Update provided by Edna Stetzar. Mike Steiger provided updates yesterday.*
 - **FLATHEAD CATFISH:** Species established in Brandywine River, a tributary of the Delaware River. Research is being conducted on how many to remove from population to have an effect. So far, have removed 32 fish and electrofishing will commence this month. Stomach content analyses indicate diet of white perch, bluegill, and other species.
 - **SOCIAL MEDIA:** Majority of public comments indicate desire to put fish back in pond and open a sports fishery.
 - **BLUE CATFISH:** Big expansion in the Delaware River. There is a monthly trawl survey and acoustic tags are placed in a couple fish with results showing that they are not moving greatly. Perhaps interacting with sturgeon in the river?
 - **SNAKEHEAD:** Normal expansion. Folks aren't reporting as frequently, and the public is increasingly pro-angler/catch & release.
 - **DE MONITORING COUNCIL:** This is a new council made up of DNREC, Dept. of Health, Dept. of Agriculture, etc. This may be a good opportunity to share information on AIS and get them involved.
 - **DE INVASIVE SPECIES LIST:** 9 new species will be added to the Delaware Invasive Species List.
 - **Ian:** Has there been a precedent of birds being included on this list?
 - **Steven:** Adding birds isn't unheard of - in NY, Monk Parakeets and Mute Swans are on the list.
 - **TOURNAMENTS:** There is currently no law preventing the practice of bringing fish from one river system to another during angling tournaments. There is a push for legislation as DE wants to prevent further Alabama Bass spread.
 - **WATER LETTUCE:** Found being sold at a pond store. Will continue to follow-up with them.
- **MARYLAND:** *Update provided by Jay Killian and Christine Densmore.*
 - Governor Wes Moore has requested that the federal government declare a fisheries disaster due to invasive species such as blue catfish among others that are found in the Chesapeake Bay. Folks are working to connect with waterman and other stakeholders regarding this concern.
 - **NORTHERN SNAKEHEAD:** There has been an increased harvest of Northern Snakehead to determine the effects of exploitation on the population.
 - **BLUE CATFISH:** Salisbury University is conducting research to understand the trophic level conditions of blue cats on rivers.
 - **eDNA RESEARCH:** eDNA work is being continued in the state on several species including blue catfish, snakeheads, and Alabama bass.
 - **BAIT TRADE SURVEYS:** Completed a survey of the Maryland bait trade, modeled by one completed in the Mississippi River Basin several years ago. This survey was sent to approximately 70 bait shops and the results generated a list of wholesalers selling live bait to these shops. These wholesalers were also surveyed. *The final report for this project is being drafted and the completed report will be made available to MAPAIS.*
 - **ACTION: The final report will be sent to MAPAIS leadership to distribute to the panel.**
 - **TRAPA BISPINOSA:** There are two populations of this species documented in Maryland, both in Prince George's County. Mike Nailer (MDNR) and Mark Lewandowski are looking to secure funding to contract the removal of these two populations.
 - **INVASIVE CRAYFISH:** There are continuing "hitchhiker" situations in retail pet stores - invasive crayfish are being sent among feeder fish shipments. There have been contaminated shipments in several states including Maryland, and USFWS has reached out to Petco, PetSmart, etc. and their suppliers (including one in Arkansas) to halt further introductions of crayfish. Kerry Wixted

has been working with USFWS on this.

- **NEW JERSEY:** *Update provided by Heather Desko and Chris Smith.*
 - **NO NEW AIS SITINGS:** No new confirmations of additional species over the last six months. Fieldwork season has started, and invasive species and electrofishing work will begin soon on the Delaware River and other localities.
 - **LEGISLATION:** New Jersey is increasing awareness of invasive species and is starting to take action! Pending legislation on Invasive Species Council and for prohibition, sale, and propagation of several invasive species. Examples of aquatic invasive species including Eurasian water milfoil, and water chestnut.
 - **MANAGEMENT PLAN:** Working on the development of an AIS Management Plan. A species list has been developed and have identified a Top 20 (out of approx. 264 on list) to focus efforts on.
 - **BOAT STEWARD:** There is a third boat steward at Round Valley Reservoir, in partnership with NJ Fish & Wildlife.
 - **BOAT CLEANING STATIONS:** Additional funding has been secured from NJ DEP to create two new water boat cleaning stations.
 - **CHINESE POND MUSSEL:** Lots of work planned for surveys in 2023 in Raritan Basin and Wickecheoke Creek. Found live mussels that looked like Chinese Pond Mussels but were determined to be Eastern Floater instead. Currently trying to get additional funding for more work.
 - **NJ Freshwater Mussel ID Guide:**
http://www.conservewildlifenj.org/downloads/cwnj_657.pdf
- **NEW YORK:** *Update provided by Steven Pearson.*
 - **WATERCRAFT INSPECTION:** Next season, the Watercraft Steward Inspection Program will be active at over 200 boat launches across the state.
 - **eDNA:** Many regions are increasingly using eDNA in early IS detection
 - **WATER CHESTNUT:** Found in western and central NY and continues to be a problem in the state. There is a regional effort to work together to utilize shared resources.
 - **REGION 1:** New AIS Coordinator is starting part time and will build same capacity as Region 3.
 - **REGION 3:** A new AIS Coordinator just started and will be focusing on water chestnut management. Will begin to have additional watercraft stewards concentrated on this effort.
 - **HYDRILLA:** As of 2022, eradication effort within the Croton R. has been a success.
 - There is a hydrilla genetic study in NY and samples will be taken from neighboring states/regions where there are source populations.
 - **ACTION: If you are interested in participating in this study and obtaining a collection kit, please contact Steven (Steven.Pearson@dec.ny.gov).**
 - **VALLISNERIA:** Restoration in the Hudson R. Several biotypes harvested from the mouth of the Croton R. prior to Fluridone treatment and have been growing for 5+ years and are now ready for reintroductions.
 - **ROUND GOBY:** Species was found in the Hudson R. in 2021. Can be found all the way down the river, but upstream is still an issue in Lake Champlain.
 - **SNAKEHEAD:** Continues to be an issue in the DE Basin. In 2021, they were documented in the Delaware R. found in mainstem Easter branch in 2022 and also a connected wetland complex. In 2022, documented juveniles, YOY, and guarding adults. Actively pursuing installing a temporary barrier (then permanent barrier) to separate these two watersheds.
- **NORTH CAROLINA:** *Update provided by Rob Emens.*
 - Four agencies are involved with AIS. NC DEQ has an Aquatic Weeds Program that Rob manages.

- **LIONFISH MITIGATION:** Species has been found in NC and is moving north. Removal has been done using divers. More details on this will be included in the report.
 - **ACTION: Rob is putting together a report and will send it to the Panel soon.**
- **GIANT SALVINIA:** One of the major projects right now is Giant Salvinia. Found in 2020, in a small swamp site (250 acres) 1 mile from the South Carolina border. Estimated to have been there 5-8 years prior to being recorded.
- **PENNSYLVANIA:** *Update provided by Kris Abel and Sean Hartzell.*
 - **INVASIVE SPECIES COUNCIL:** Sea Grant is forming a committee/workgroup whose purpose is to establish a statewide education & outreach program on AIS. For a second year in a row, promoting the council & Native Species Day (promoting protection from IS species).
 - **PFBC:** Working on agency AIS communication and outreach plans.
 - Still in process of updating PFBC regulations (re: AIS in PA Code Ch. 71 & 73).
 - Trying to get a stocking authorization system
 - Increased focus on fish health and inspections and waterman inspections
 - Drain boat law
 - Enhanced regulations on bait fish, including language that “baitfish must not be released unless they’re on a hook”.
 - **NORTHERN SNAKEHEAD CONTROL PLAN:** Finalized and posted on AIS websites.
 - **AIS DISPOSAL STATIONS:** Working towards installing stations at select areas in the state. These are intended to be places where folks can clean off plant debris and dispose of unwanted live bait.
 - **STARRY STONEWART:** Listed as a CLASS A Noxious Weed (can’t be sold nor possessed). This decision was passed at the January 2023 meeting.
 - **PET STORE AIS:** Found crayfish in stores in PA in early March 2023, when a biologist noticed a crayfish in a feeder fish tank at a pet store. PFBC was alerted of five difference stores in the state with this problem. This is a widespread problem in PA and staff inspected many pet stores. Crayfish were confiscated and the majority appear to be White River Crayfish. There are regulations in place that they must not be sold nor transported as pets from stores. Currently working on outreach to pet stores in PA.
- **WEST VIRGINIA:** *Update provided by Katie Zipfel.*
 - West Virginia still doesn’t have an approved AIS Management Plan but some staff position vacancies have recent been filled, so there are plans to reconvene the Invasive Species Working Group in the near future.
 - **INVASIVE CARP:** In 2022, Bigheads and Silver Carp were observed. Two telemetry-tagged silver carp were left in the pool. Just secured additional funding to hire two seasonals, buy a truck, and have a dedicated carp removal/monitoring group. This will go into effect in January 2024. Part of this funding will also be for a new garage to house equipment.
 - **BASS:** There is a contract with WV University for genetics work on small mouth bass populations in the state. Testing has not yet indicated the presence of Alabama Bass genes.
- **USFWS:** *Update provided by Steve Minkkinen and Sandra Keppner.*
 - State Management Plans are ahead of schedule.
 - The Chesapeake Bay Snakehead Plan will be finalized soon.
 - **ACTION: Steve Minkkinen will send this plan out to the Panel Listserv when it’s complete and the document will be added to the MAPAIS website.**
- **USGS:** *Update provided yesterday by Ian Pfingsten.*
- **USACE:** *Update provided by Tara Whitsel.*
 - Invasive Species Leadership Team is very active.

- The USACE Strategic Plan is entering the final review stages and will be sent to Congress soon.

1:30 – MEETING ADJOURNED.

- **Motion made:** Edna Stetzar
- **Seconded:** Mike Allen