Mid-Atlantic Panel on Aquatic Invasive Species

Spring 2025 Meeting Minutes

Prepared by:
Nick Staten
MAPAIS Coordinator

Mid-Atlantic Panel on Aquatic Invasive Species

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MAPAIS – 2025 Spring Meeting

Wednesday, April 9, 2025 9:00am - 4:00pm

Meeting's Actions Items and Decisions:

Panel Activities (Fall 2025 Meeting):

1. **Decision**: The Fall 2025 MAPAIS meeting will be help online during the month of November.
    a. **Action Item**: Send a poll to define which 2 days in November 2025 the meeting will be held.

Panel Activities (Website):

1. **Action Item** (Coordinator): Make edits to membership page:
    b. NY needs to name a new alternate since Bill Jacobs is retiring.
    c. MD needs to name an alternate.
    d. NJ Samantha MacQuesten will take Chris Smith's role as NJ Rep and Chris Smith will move into the Alternate Member role. (same address for them both)
    e. Sara Mirabilio, NC Sea Grant Northeast Coastal Office, Coastal Studies Institute, 850 NC Highway 345, Wanchese, NC 27981
    f. Healther Desko's Email has changed to hdesko@njwsa.org
2. **Action item** (Coordinator): Ensure each member has a photo and their information is up to date.
3. **Action item** (Coordinator): Reformat website where states are listed once and each type of member is specified under the state
4. **Action item** (Coordinator): Add explanation text to the AIS Management Page to make its contents more intuitive to those exploring the page.
5. **Action item** (Coordinator): Standardize naming of documents on AIS Page.

Panel Activities (Membership):

1. **Action Item** (Chair / Vice Chair): Send a letter to the jurisdiction of DC to request representation on the panel.

2. **Decision**: The Panel will vote on Albemarle-Pamlico National Estuary Partnership becoming a member of the panel in the Fall 2025 MAPAIS meeting.
    a. **Action Item** (Coordinator): Dedicate time to the Fall 2025 meeting agenda for the Panel to vote.

Panel Activities (Budget):

1. **Decision**: Changes to the Panel's budget allocations that were presented by MAPAIS's Fiscal Agent were accepted by the Panel.

2. **Decision**: The Panel will allocate $500 to support App and Field Guide expenses starting October 1st.
    a. **Action**: Amend budget allocations.

Panel Activities (Other):

1. **Decision**: MAPAIS has no objection to archive the Ruffe Management Plan.
    a. **Action Item**: Panel Chair will notify ANSTF of the Mid-Atlantic Panels decision.
2. **Decision**: Projects from Maryland DNR, Allegheny College, and Delaware Riverkeeper Network were decided to fund in MAPAIS's Small Grant Program.
3. **Action Item**: Consider capping overhead expenses for future proposals to the panel.

VA's Actions:

1. **Action Item**: Define State Rep for Virginia

NJ's Actions:

1. **Action Item**: Heather Desko suggested that New Jersey Fish and Wildlife was involved in the Delaware Riverkeeper Network's project that was decided to be funded by the Panel: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River.

DE's Actions:

1. **Action Item**: Michael Steiger will send Delaware's Plan once revisions have been made.

USACE's Actions:

1. **Action Item**: USACE will continue to update MAPAIS about their Watercraft and Decontamination Program as new information becomes available.

9:00 Welcome, Roll Call, & Introductions

Rob Emens (Panel Chair), Sean Hartzell (Panel Vice Chair), Nick Staten (Panel Coordinator)

Attendees:

1. **Mike Allen,** Maryland Sea Grant (academic member)
2. **Sara Mirabilio,** fisheries specialist, NC Sea Grant, NC academic voting rep to the MAPAIS.
3. **Christine Densmore,** USFWS, panel member-at-large
4. **Julie Lockwood,** Professor in Ecology at Rutgers. NJ Academic Rep
5. **Matt Shank,** PA DEP, PA state rep
6. **Jonathan McKnight,** Maryland DNR Wildlife Service - DNR REP
7. **Sara Stahlman,** Pennsylvania Sea Grant, alternate member
8. **Tara Whitsel,** US Army Corps of Engineers
9. **Steven Pearson,** NYSDEC, NY State rep
10. **Samantha MacQuesten,** NJ Fish & Wildlife AIS Coordinator/Fisheries Biologist
11. **Tim Ellis,** Albemarle-Pamlico National Estuary Partnership
12. **Bryan Brown,** Virginia Tech, Academic Rep
13. **Heather Desko,** New Jersey Water Supply Authority, NJ state rep
14. **Aaron Henning,** Fisheries Biologist, Susquehanna River Basin Commission
15. **Abby Marino,** LIISMA (NY)
16. **Chris Smith,** Fisheries Biologist, NJ DEP Fish and Wildlife, NJ state rep.
17. **Mike Steiger,** Delaware Div Fish and Wildlife-state rep.
18. **Rob Emens,** NC Department of Environmental Quality, NC Rep
19. **Kristopher Abell,** Department of AG at State of Pennsylvania, Coordinator for the governor;s Invasive Species Council.
20. **Branson Williams,** Maryland DNR Invasive Fishes Program Manager
21. **Robert Corbett,** Biologist for the North Carolina Division of Marine Fisheries and Species Lead for Invasive Species
22. **Shawn Harper,** North Carolina Aquariums
23. **Matthew Trommatter,** Chesapeake Research Consortium, Fiscal Agent for MAPAIS
24. **Jay Killian,** Maryland Invasive Species Council
25. **Ian Pfingsten,** USGS
26. **Mark Lewandowski,** Representative for Chesapeake Bay Program, Ex Officio Member
27. **Nick Staten,** Chesapeake Research Consortium, MAPAIS Coordinator
28. **Michael Steiger,** Delaware Division of Fish and Wildlife, AIS Scientist
29. **Alex Voznitza,** National Park Service's National Capital Region Invasive Plant Management Team based in Washington, DC
30. **Auston Smith,** EPA
31. **Christopher Smith**, NJ DEP
32. **Jenny Carney,** Marine Invasions Research Lab, SERC
33. **Sarah Whitney,** Pennsylvania Sea Grant
34. **Susan Pasko,** USFWS, ANSWTF Coordinator
35. **Byron Madigan,** Carroll County MD

9:10 Old Business

Rob Emens (Panel Chair), Sean Hartzell (Panel Vice Chair)

- *Review and approve agenda*

  Rob Emens added Albemarle-Pamlico National Estuary Partnership, or APNEP as an agenda item.

  Agenda Approved.

- *Review and approve Fall 2024 Meeting Minutes*

  Mike Allen had a correction for his affiliation being MD Sea Grant rather than MD DNR

  Minutes approved with correction.

- *Follow up from Fall meeting*
  - *RFP 2025 committee update*

  Steven Pearson: Met multiple times in the fall to formulate RFP and sent it out in early 2025.

  Nick Staten: Request for reviewers was sent nearing the end of the RFP period. Volunteers then reviewed each of the proposals and scored them based on a set of criteria. Scores were averaged and will be presented later in today's meeting accompanying a summary of each proposal to inform discussion about which projects the panel will fund.

- *Website*
  - *Agency representatives (up to date?)*
  - *Photos (still missing some)*
  - *State Management Plans & Programs*
    - *Missing annual reports*

  Action Item: Make edits to membership page:

  NY needs to name a new alternate since Bill Jacobs is retiring.

  MD needs to name an alternate.

  NJ Samantha MacQuesten will take Chris Smith's role as NJ Rep and Chris Smith will move into the Alternate Member role. (same address for them both)

  Sara Mirabilio, NC Sea Grant Northeast Coastal Office, Coastal Studies Institute, 850 NC Highway 345, Wanchese, NC 27981

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  Action item: Ensure each member has a photo and their information is up to date.

  Action item: Reformat website where states are listed once and each type of member is specified under the state

Action item: Add explanation text to the AIS Management Page to make its contents more intuitive to those exploring the page.

Action item: Standardize naming of documents on AIS Page.

Michael Steiger (Chat): I will send Delaware's Plan. A new Secretary of DNREC was put in place, and they are requiring me to reformat the aesthetics of the plan.

- *Membership*
    - *DC Update*

      Outstanding Action Item
    - *Representation from VA*

      Bryan Brown: No agency rep volunteered when I sent a request.

      Sara Mirabilio (Chat): What about someone from VIMS? Folks doing all the blue catfish work?

      Christine Densmore (Chat): VCU blue catfish folks could also be options…

- *APNEP? member* ; Timothy Ellis

  About Page: https://apnep.nc.gov/about-apnep

  Albemarle-Pamlico National Estuary Partnership expressed desire to be a Regional NGO Member of the Panel.

  The request was received positively however it was unclear whether APNEP would be considered a voting member or a non-voting member. The SOPs were consulted.

  The SOP states members can recommend additional agencies or organizations for membership. Recommendation should be submitted in writing to the panel chair and the Chair will call for a vote at the next regularly scheduled panel meeting.

  Jonathan McKnight proposed a recommendation to admit this entity as a member. Steven Pearson Seconded that recommendation.

  Action Item: Fall 2025 agenda item for voting to bring APNEP into the Panel membership.

9:35 Fiscal Agent Updates

Matthew Trommatter (CRC)

- *Funded projects*

See Appendix I: Slides - Fiscal Agent Updates; Matthew Trommatter (CRC)

Note:

- Budget was adjusted slightly including funds to cover the Mid-Atlantic Field Guide upkeep expenses. Adjusted the "Travel" and "Operational Costs" for current year funds to address this need.
- Panel Operational Costs were increased due to the potential for losing the current MAPAIS coordinator that is provided by Chesapeake Research Consortium.

Changes to the budget were accepted by the Panel.

9:45 New Business

Rob Emens (Panel Chair), Sean Hartzell (Panel Vice-Chair)

- Recommendations for ANSTF
  - Ruffe Management Plan (consider for archive)

  Ruffe Management Plan is a national panel and ANSTF is seeking input from the panels on whether to archive that plan.

  Action Item: Rob will tell ANSTF that there is no objection from the Mid-Atlantic Panel.

- Discuss Fall 2025 meeting (format/location, date)

  Agreed to have a virtual Fall meeting due to uncertain travel limitations.

  Discussion on platform change from teams to zoom.
  Sara Mirabilio (Chat): Teams can be wonky when joining outside a team, and I think Zoom has more features like being able to do live polls. Academia pretty much uses Zoom, government Teams, so I guess, in part, it's what you're used to.

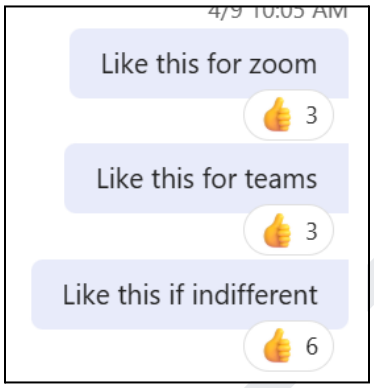


Figure 1. Poll on preference for meeting software. No consensus was made.

It was agreed that November would be when the Fall meeting will be held.

Action: Follow up with a poll on November availability for the Fall 2025 MAPAIS Meeting.

10:00 AIS Field Guide Project Update

Sara Stahlman (PA Sea Grant)

See Appendix II: Slides-AIS Field Guide Project Update; Sara Stahlman (PA Sea Grant)

Action: Budget will reflect a $500 line item to support app and field guide expenses starting October 1st.

10:10 NAS Program update for Mid-Atlantic Region

Ian Pfingsten (USGS - Gainesville, FL)

See Appendix III: Slides - NAS Program update for Mid-Atlantic Region; Ian Pfingsten (USGS - Gainesville, FL) for

- New Introductions
- New publications
  - Vertebrates in trade that pose high invasion risk to the United States
  - Don't move a mussel: The role of key environmental drivers and management scale in assessing spatial variation in dreissenid spread risk in the Missouri River basin
  - Combining storm flood water level and topography to prioritize inter-basin transfer of non-native aquatic species in the United States

10:30 Break

10:45 ANS Task Force update

Susan Pasko (ANSTF Coordinator); Rob Emens (Panel Chair)

- *Regional Panel Principal meeting*
- *Guidance for Aquatic Nuisance Species Control and Management Plans*
- *Delaware's Aquatic Invasive Species Management Plan*

See Appendix IV: Slides - ANS Task Force update; Susan Pasko (ANSTF Coordinator)

11:00 Small Grant Program - Proposal Summaries (Lightning Round)

Nick Staten (MAPAIS Coordinator)

- *7 proposals*
- *For each proposal - 5 minute summary plus 2-3 minutes for questions*

See Appendix V: Slides - Small Grant Program - Proposal Summaries (Lightning Round); Nick Staten (MAPAIS Coordinator)

12:00 Break for lunch

1:00 Small Grant Program - Panel Discussion

Rob Emens (Panel Chair), Sean Hartzell (Panel Vice-Chair)

- *Consider proposals for award and panel vote*

Proposal B was decided to fund.

Proposal G was decided to fund.

- *Action: Heather Desko - I don't believe that New Jersey Fish and Wildlife was included in their proposal as a partnering organization, but think that that should be recommended as this is the Delaware River between New Jersey and Pennsylvania. Not that they have to be a formal partner, but just making sure that they are involved.*

Proposal D was decided to fund.

Action: Consider capping overhead for future proposals to the panel.

2:30 Break

2:45 Federal agency and State updates

- *USACE Watercraft and Decontamination Program?*

  Tara Whitsel (USACE): This effort is still ongoing - primarily coordinating in the

western states. As the effort shifts to the Northeast (PA & NY) I will make sure to reach out to applicable states.

Action: Continue to follow USACE's Watercraft and Decontamination Program

NC Update: (Rob Emens)

- No major changes since the last meeting. Dealing with Giant Salvinia, a floating fern, it is in the southeast, populations in south carolina. Probably not a concern to other mid-atlantic states because it is freezing sensitive.
- NC received a $15,000 grant award from MAPAIS to get North Carolina's ANS Management Plan updated and submitted to ANSTF. Currently in the process to hire a temporary position to facilitate this effort.
- Shawn Harper (North Carolina Aquariums): Lionfish numbers have gone down significantly. Not sure if it is due to interventions or environmental changes.
- Tim Ellis: Lionfish invasive plan will be reported at GSARP about changes in lionfish populations since 2015.

NY Update: (Steven Pearson)

- Water Soldier update is that we have found it in an isolated pond near the Hudson River, but not connected to it besides being in the floodplain. It is in an atypical habitat for this plant. NY is monitoring it and waiting to see if it comes back in the drier, more shallow conditions in the winter, and if so we are prepared to do manual removals working with the landowner.

MD Update: (Jonathan McKnight)

- See Appendix VI: Maryland State Spring 2025 Update to MAPAIS

DE Update: (Michael Steiger)

- DE State AIS Management Plan was approved by ANSTF.
- Looking to do eDNA studies to identify leading edges of aquatic invasive species such as Flathead Catfish, Blue Catfish, and Northern Snakehead. Looking for Quagga and Zebra Mussels because there have been unconfirmed reports.
- Acoustic telemetry of blue catfish. Tagging near the Delaware side of the C&D Canal, and most of them spend a lot of the fall on the DE side then in the colder months they all swam through the C&D Canal and went over to Maryland.
- Snake Head Outreach was done at the DE State Fair through showing off a 12 pound Snake Head and explaining why these fish are a problem.
- Removed over 150 flathead catfish from 80 acre Lums Pond in DE. The average length and weight of flathead catfish is declining possibly due to removal efforts.

NJ: Samatha MacQuesten

- I have recently been hired to work with NJ's new ANS Management plan. Currently working on the new AIS reporting form and working with the GIS department with Fish and Wildlife to create a survey123 form that people in the public or professionals are gonna be able to report any aquatic invasive species.

PA Update:

- No Update

WV Update:

- No Update

VA Update:

- No Update

3:45 Public comments

- No Comments

4:00 Adjourn meeting

Appendix I:
Slides - Fiscal Agent Updates; Matthew Trommatter (CRC)

Current State of MAPAIS finances

Mid-Atlantic Panel on Aquatic Invasive Species

1. Award F25AP00126-00 received 11/26/2024 for $50,000.
2. Subcontracts have been set up to the following, none fully spent:
   a. Juniata College issued $2,162
   b. Research Foundation of CUNY issued $3,105.50
   c. Research Foundation for the State University of New York $9,330
   d. The Pennsylvania State University issued $24,468
3. Next round of funding requested by June 20th to avoid delays.

Budget of current year funds

Mid-Atlantic Panel on Aquatic Invasive Species

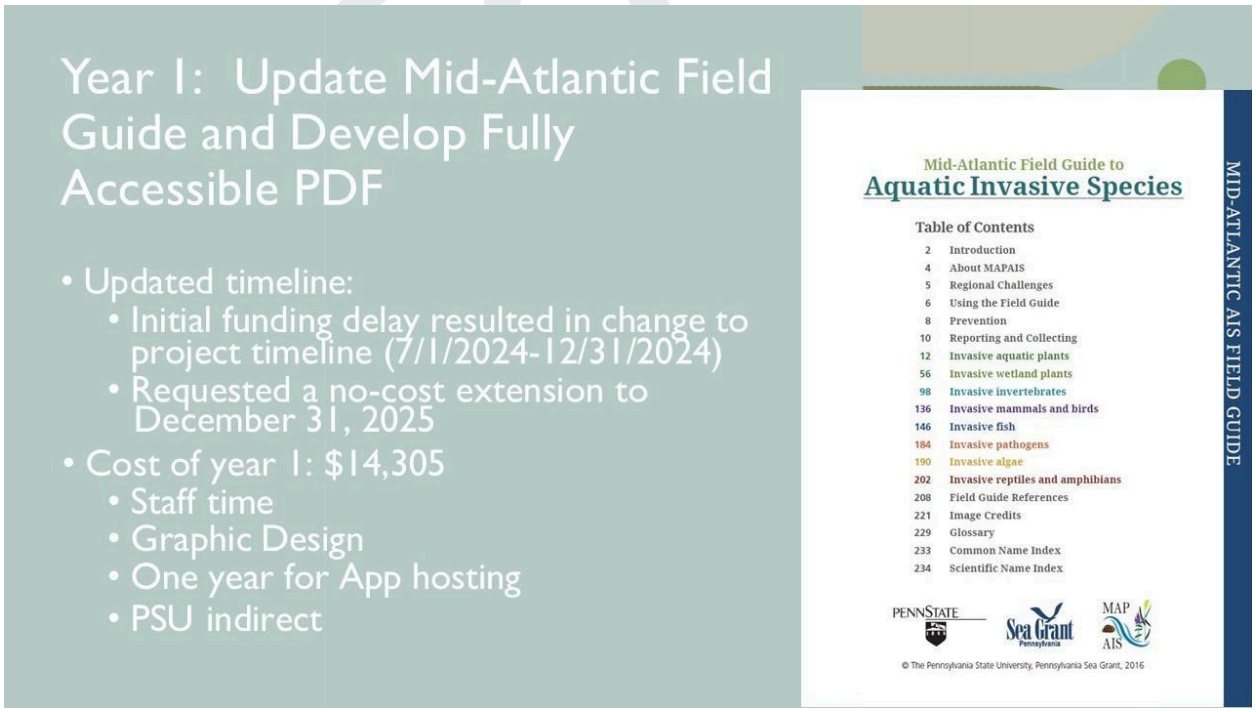
Juniata College	$ 2,162.00
Research Foundation of CUNY	$ 3,105.50
State University of New York	$ 9,330.00
Pennsylvania State University	$ 24,468.00
Travel	$ 750.00
Operational costs	$ 981.50
Indirect cost	$ 9,203.00
Total	$ 50,000.00

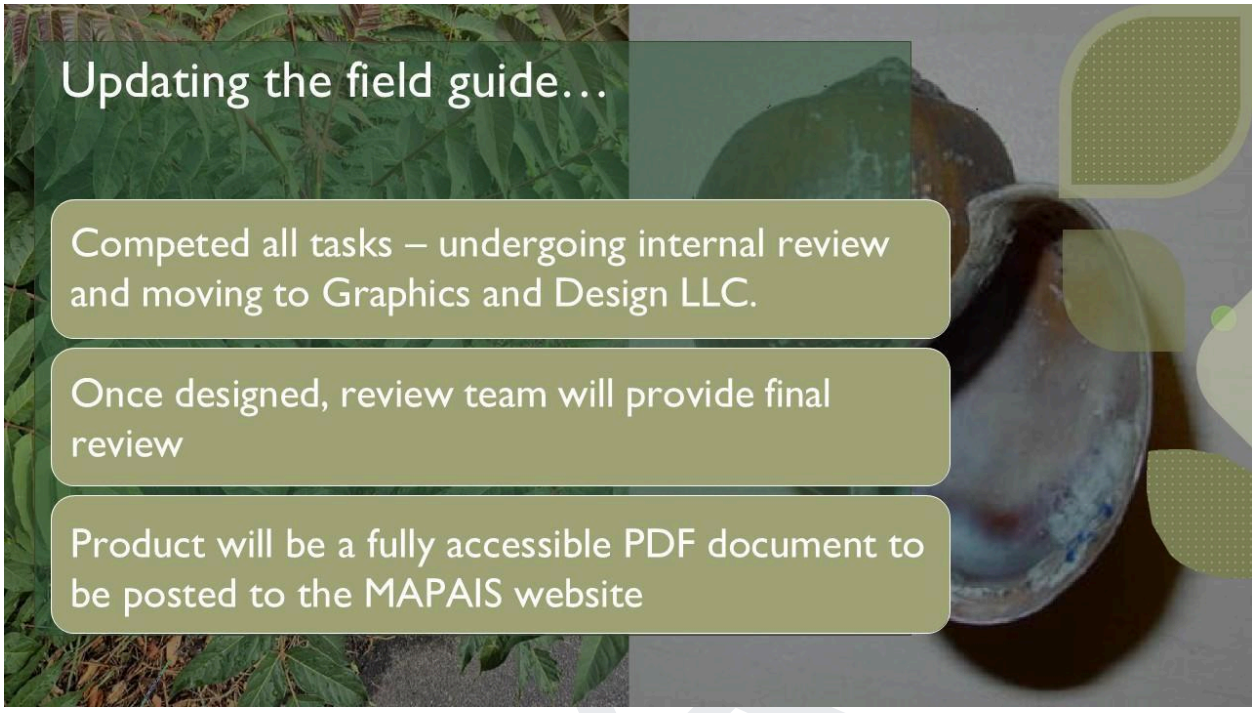
Proposed budget for upcoming year

Mid-Atlantic Panel on Aquatic Invasive Species

Travel	$ 1,000
Panel operational costs	$ 2,500
Contractual for awards	$37,202
Offsite rate of 23.42%	$ 9,298
Total	$50,000

Appendix II:
Slides - AIS Field Guide Project update; Sara Stahlman (PA Sea Grant)





Thank you to the update and review team:

- Sean Hartzell, Pennsylvania Fish and Boat Commission
- Rob Emens, North Carolina Department of Environmental Quality
- Matt Neilson, US Geologic Survey
- Mark Lewandowski, Maryland Department of Natural Resources
- John Odenkirk, Virginia Department of Game and Inland Fisheries

Year 2: Development of Android and iOS mobile Apps

- In the process of Year 2 contract of $24, 468
  - $20,000 Skyward
  - Staff Salary
  - PSU indirect
- Completion within the next six months
- App building on their end…
- Data input on our end…

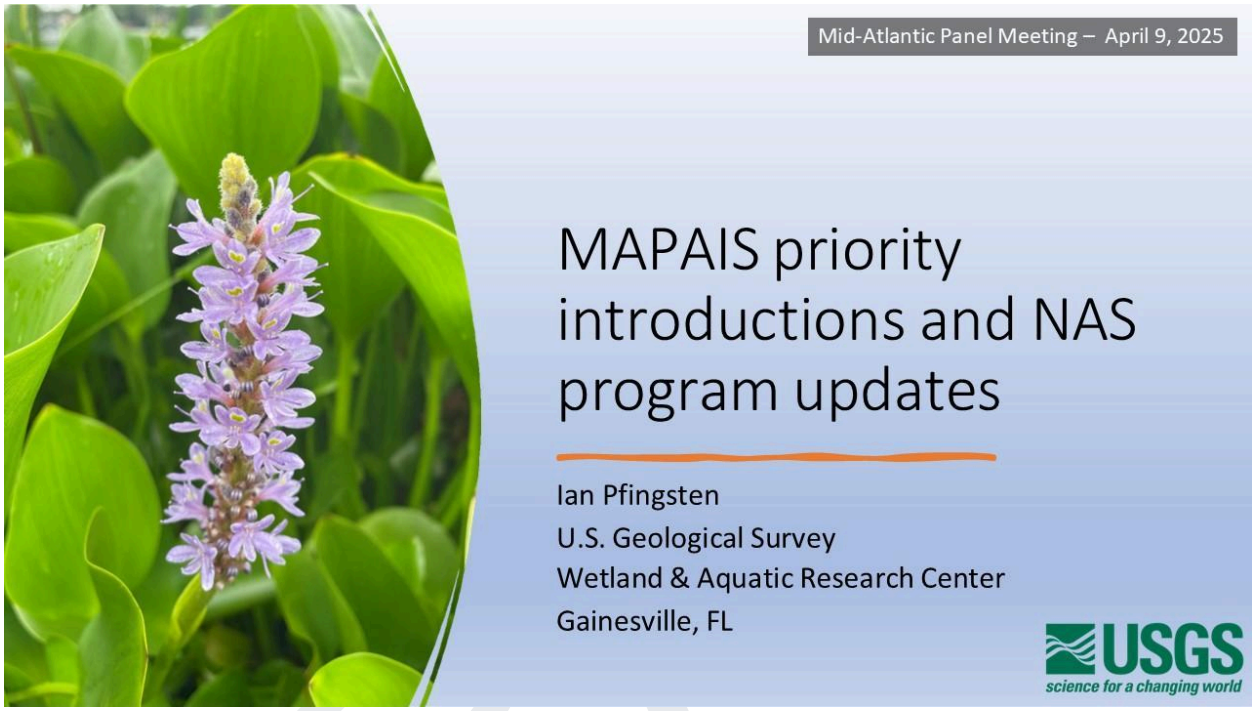
Mid-Atlantic Field Guide App Maintenance and Management

- Nick Staten will be the primary contact for App maintenance
- Nick will work with USGS NAS to update species U.S. distributions on a regular basis


Maintenance costs
• Hosting fees- PA Sea Grant pays $880 every 3 years ($293/year)
• looking into cheaper options for MAPAIS
• Domain fee - $60 every 3 years ($20/year)
• Regular maintenance
• PA Sea Grant sets aside ~$500 per year "just in case"

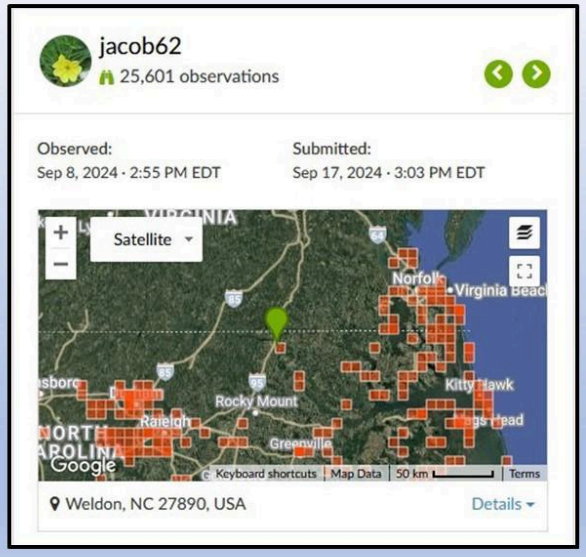

Questions
Sara Stahlman
Sstahlman@psu.edu
814-898-7083
Sea Grant
PENNSYLVANIA

Appendix III:
Slides - NAS Program update for Mid-Atlantic Region; Ian Pfingsten (USGS - Gainesville, FL)



North Carolina

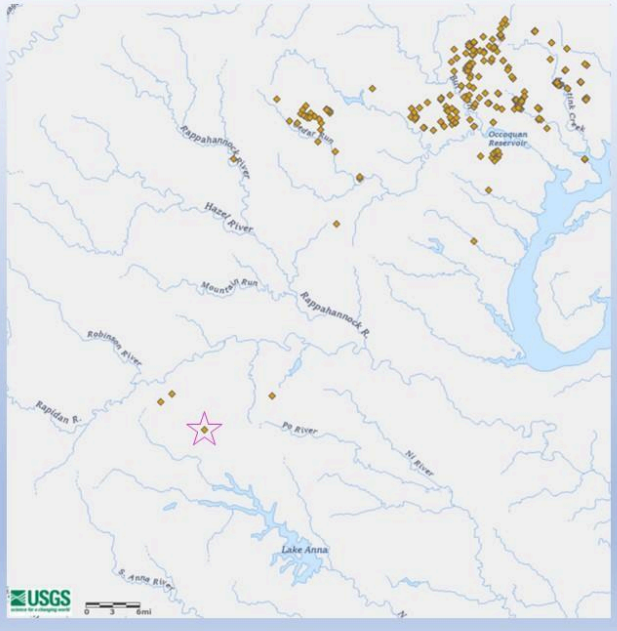
- ***Alternanthera philoxeroides***
  - Alligatorweed
  - River Falls Park Trailhead, Roanoke River at Weldon
  - Sept 8, 2024
  - From iNaturalist



USGS

Virginia

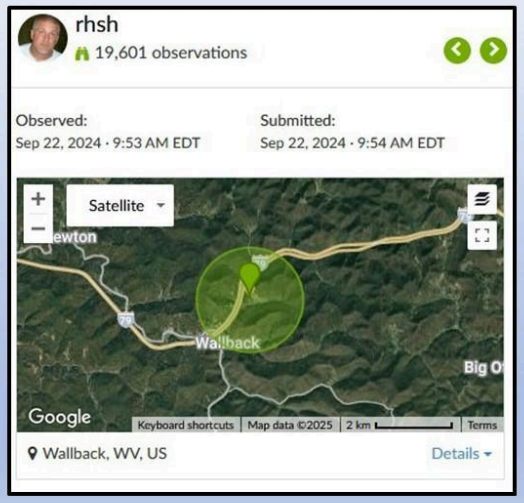
- ***Trapa bispinosa***
  - Two-spined water chestnut
  - Shropshire Lane private pond near tributary to Lake Anna
  - Aug 31, 2024
  - From NAS sighting report
  - 0.8-acre pond approximately 20 percent covered. Plants were in bloom at the time of survey.



USGS

West Virginia

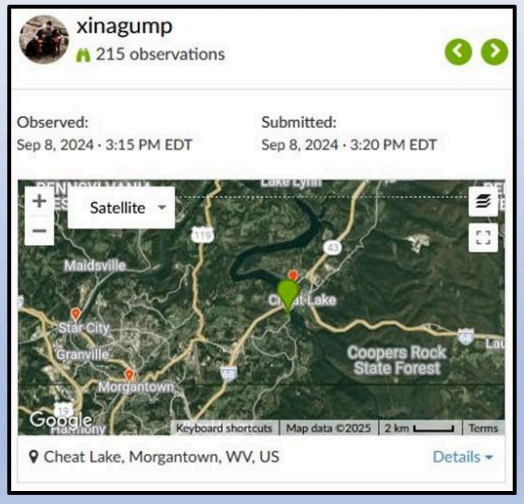
- ***Hydrilla verticillata peregrina***
  - **Wandering hydrilla**
  - **Bee Run at Cookman Fork north of Wallback**
  - **Sept 22, 2024**
  - **From iNaturalist**



USGS

West Virginia

- ***Hydrilla verticillata peregrina***
  - **Wandering hydrilla**
  - **Cheat Lake northeast of Morgantown**
  - **Sept 8, 2024**
  - **From iNaturalist**

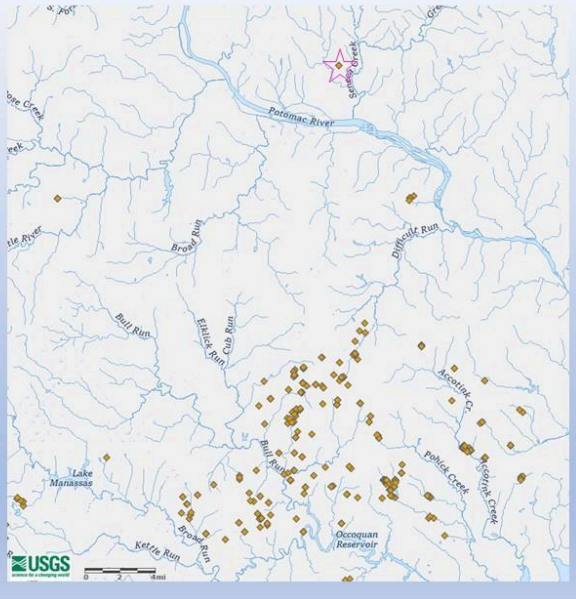


USGS

Maryland

- ***Trapa bispinosa***
  - Two-spined water chestnut
  - Homestead Farms private pond
  - June 12, 2024
  - From Mark Lewandowski
  - 1.5-acre irrigation pond more than 50% covered. Farmer excavated perimeter and removed seed bank.

USGS



Maryland

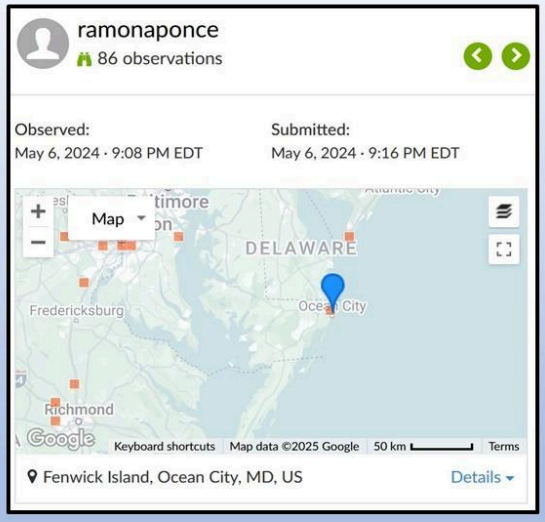
- ***Myocastor coypus***
  - Nutria
  - Golf Club Shores at Newport Bay
  - Nov 25, 2024
  - From NAS sighting report
  - Reporter witnessed the nutria swimming in the creek that abuts their home. It was acting very strangely - running in circles on the shore, and they were able to get very close to it.

USGS

Alex Bobeczko, 2024

Maryland

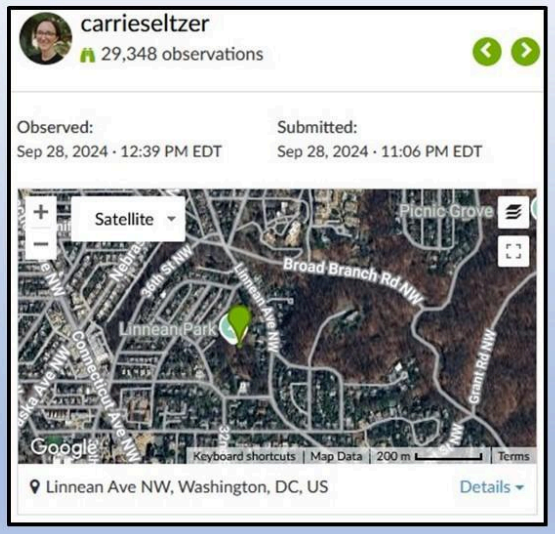
- ***Osteopilus septentrionalis***
  - **Cuban treefrog**
  - **Fenwick Island, Ocean City**
  - **May 6, 2024**
  - **From iNaturalist**



USGS

District of Columbia

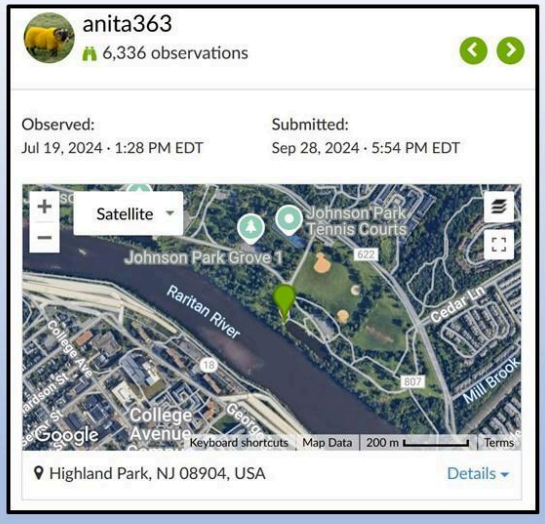
- ***Egeria densa***
  - **Brazilian waterweed**
  - **Linnean Park south of Broad Branch**
  - **Sept 28, 2024**
  - **From iNaturalist**



USGS

New Jersey

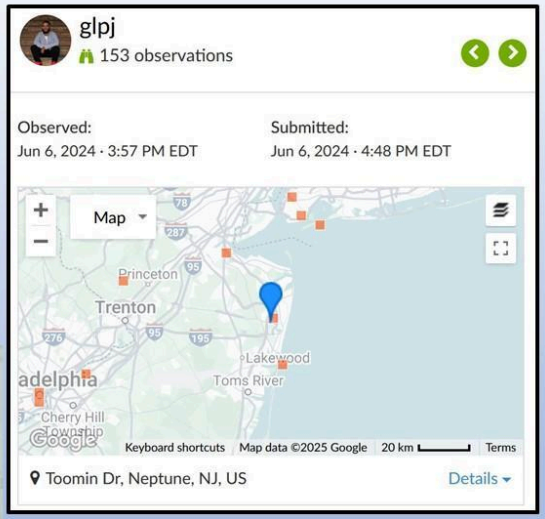
- ***Hydrilla verticillata peregrina***
  - **Wandering hydrilla**
  - **Johnson Park pond near Raritan River**
  - **July 19, 2024**
  - **From iNaturalist**



USGS

New Jersey

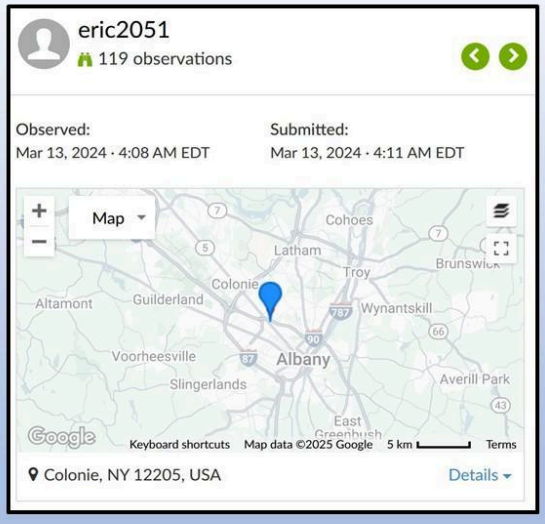
- ***Osteopilus septentrionalis***
  - **Cuban treefrog**
  - **Neptune**
  - **June 6, 2024**
  - **From iNaturalist**



USGS

New York

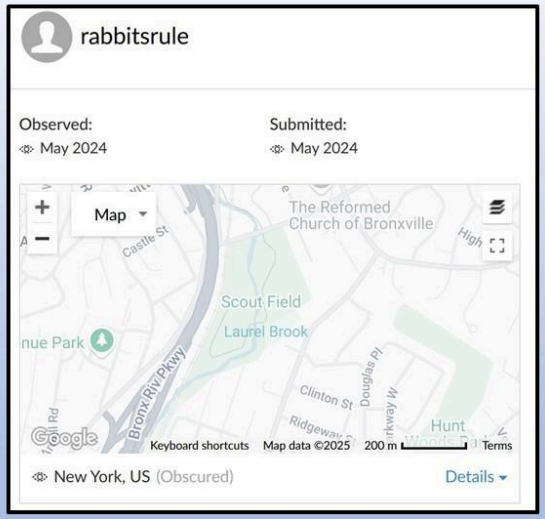
- ***Osteopilus septentrionalis***
  - **Cuban treefrog**
  - **Greater Albany, near gardening retailer**
  - **Mar 13, 2024**
  - **From iNaturalist**



USGS

New York

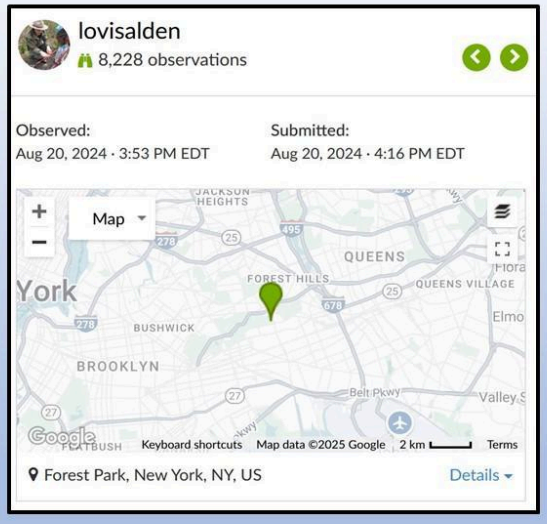
- ***Kinosternon leucostomum***
  - **White-lipped mud turtle**
  - **Scout Field near Bronx River**
  - **May 23, 2024**
  - **From iNaturalist**



USGS

New York

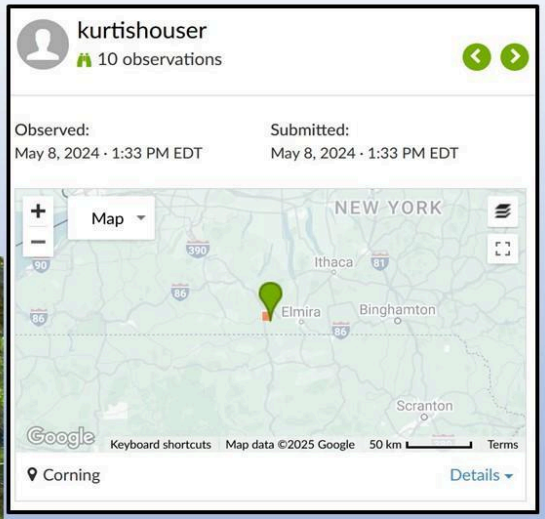
- ***Phyllanthus fluitans***
  - **Red root floater**
  - **Strack Pond in Forest Park, Long Island**
  - **Aug 20, 2024**
  - **From iNaturalist**



USGS

New York

- ***Hottonia palustris***
  - **Water violet**
  - **Private pond in Corning**
  - **May 8, 2024**
  - **From iNaturalist**



USGS

New York

- ***Stratiotes aloides***
  - Water soldier
  - Private pond on the Hudson River at Manitou
  - July 2024
  - From personal communication with iNaturalist user

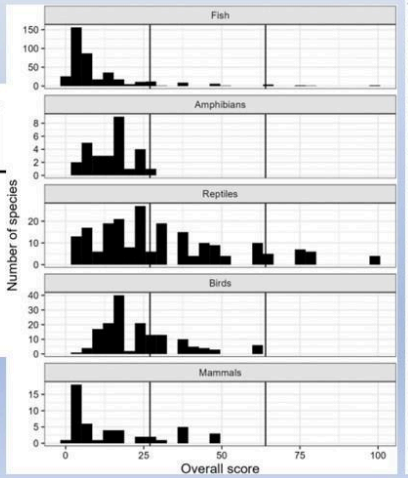
USGS

Andrew Cannon, 2024

Ne
• St
USGS

Andrew Cannon, 2024

Vertebrates in trade that pose high invasion risk to the United States



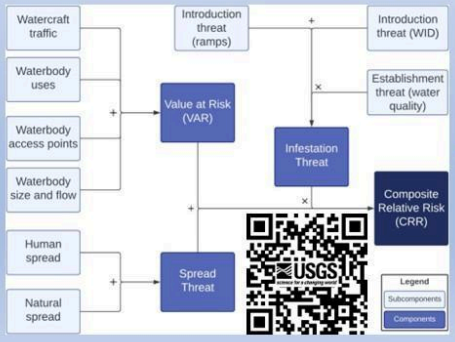
Overall	Establishment	Spread	Impacts	
100	5	4	5	Puff adder *Bitis arietans*
100	4	5	5	Sharptooth catfish *Clarias gariepinus*
100	4	5	5	Beauty rat snake *Orthriophis taeniurus*
100	5	4	5	Water monitor *Varanus salvator*
100	5	4	5	Lace monitor *Varanus varius*
100	5	5	4	Common bream *Abramis brama*
100	5	5	4	Common bleak *Alburnus alburnus*
80	4	4	5	Zebra spitting cobra *Naja nigricincta*
80	4	4	5	South European nase *Protochondrostoma genei*
80	4	4	5	Argas monitor *Varanus panoptes*
80	5	4	4	Amazon tree boa *Corallus hortulanus*
80	5	4	4	Common tree snake *Dendrelaphis punctulatus*
80	5	4	4	Carpet python *Morelia spilota*
80	5	4	4	Viperine water snake *Natrix maura*
75	5	3	5	Woma python *Aspidites ramsayi*
75	5	3	5	Solomon island boa *Candoia bibroni*
75	5	3	5	Common nase *Chondrostoma nasus*
75	3	5	5	Forest cobra *Naja melanoleuca*
75	3	5	5	Rock monitor *Varanus albigularis*
75	5	5	3	Frilled dragon *Chlamydosaurus kingii*
75	5	5	3	Weatherfish *Misgurnus fossilis*
75	5	5	3	Elliot's chameleon *Trioceros ellioti*
75	5	5	3	Savannah monitor *Varanus exanthematicus*
64	4	4	4	Common barbel *Barbus barbus*
64	4	4	4	Jacare caiman *Caiman yacare*
64	4	4	4	Egyptian sand boa *Eryx colubrinus*
64	4	4	4	Blood-red jewel cichlid *Hemichromis lifalili*
64	4	4	4	African helmeted turtle *Pelomedusa subrufa*
64	4	4	4	Streaked prochilod *Prochilodus lineatus*
64	4	4	4	North Italian roach *Leucos aula*
64	4	4	4	Mangrove monitor *Varanus indicus*
64	4	4	4	Black-headed monitor *Varanus tristis*

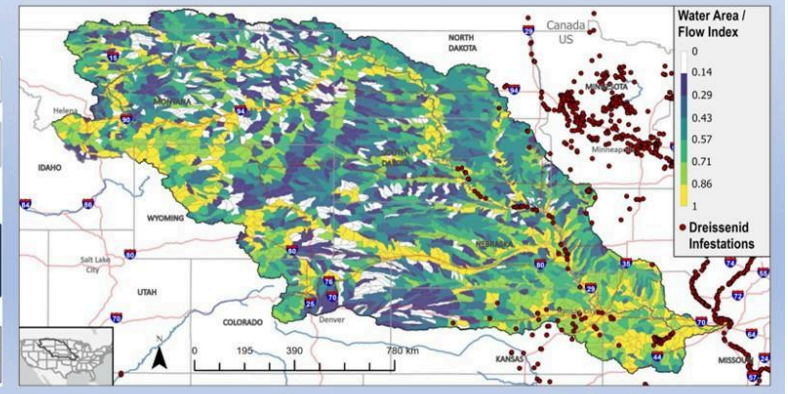
Taxonomic group: Fish, Reptiles

Confidence: Low, Medium, High

USGS

Don't move a mussel: The role of key environmental drivers and management scale in assessing spatial variation in dreissenid spread risk in the Missouri River basin





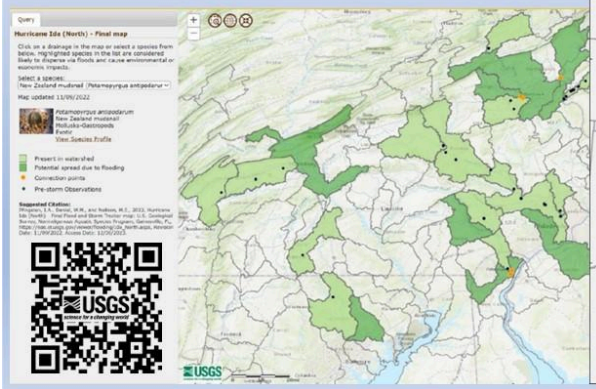
Combining storm flood water level and topography to prioritize inter-basin transfer of non-native aquatic species in the United States

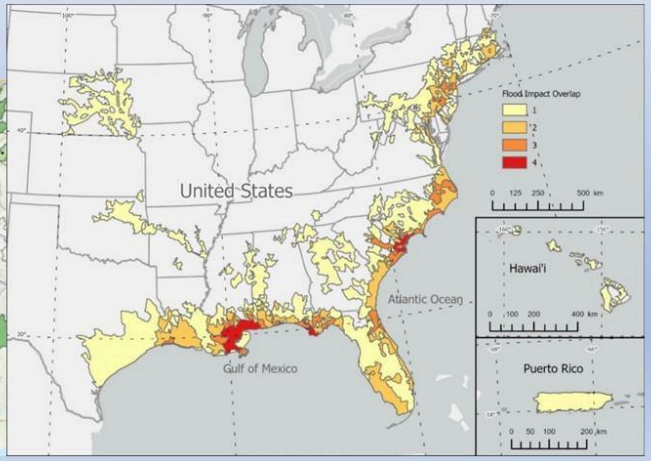
Biol Invasions (2024) 26:4105–4120
https://doi.org/10.1007/s10530-024-03430-2

ORIGINAL PAPER

Combining storm flood water level and topography to prioritize inter-basin transfer of non-native aquatic species in the United States

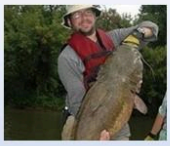
Ian A. Pfingsten · Kristen M. Reaver · E. M. Dean · Matthew E. Neilson · Bogdan Chivoiu · Wesley M. Daniel





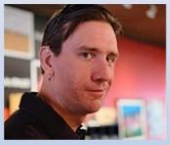
Dr. Wesley Daniel

Dr. Jonathan Freedman



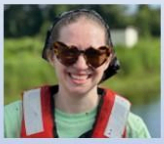
Audrey Jordon

Dr. Matthew Neilson

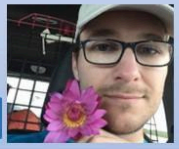


Kristen Reaver

Arden Williams



Ian Pfingsten
ipfingsten@usgs.gov



Mary Brown

Logan Stratton

Cayla Morningstar

Dr. Emily Dean

USGS

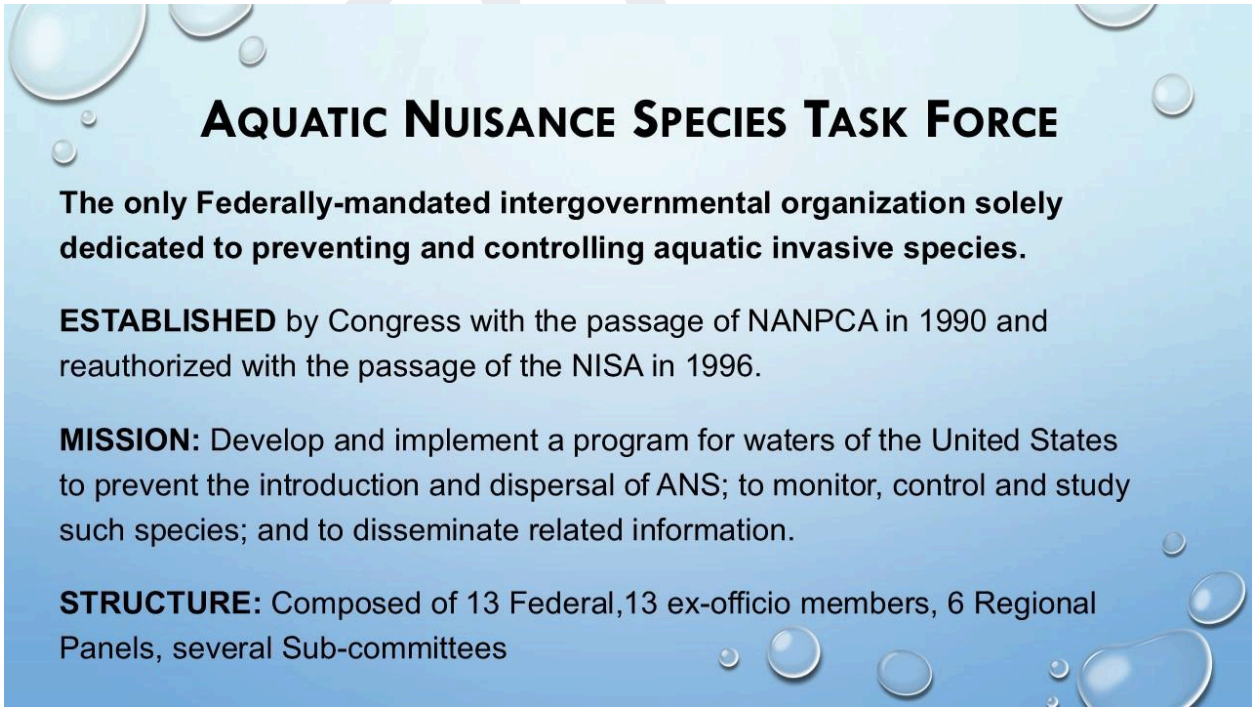
Nonindigenous Aquatic Species Database
nas.er.usgs.gov

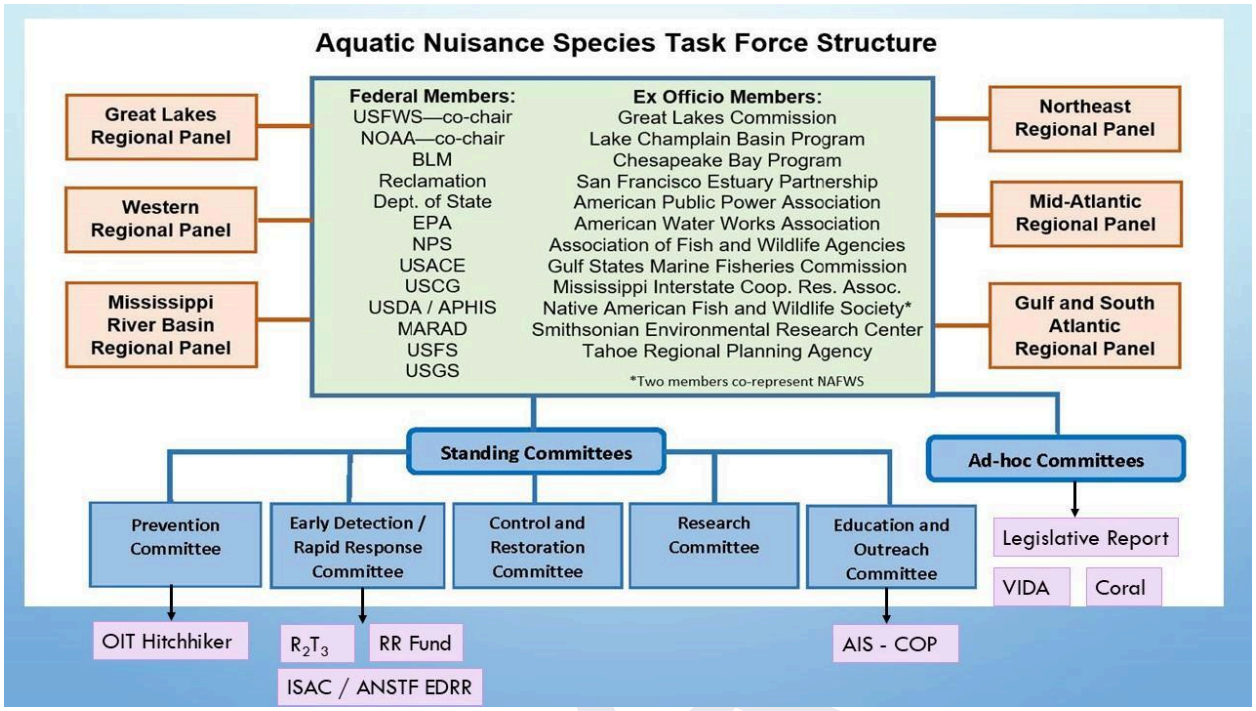
@USGSAquaticLife
@USGS_NAS

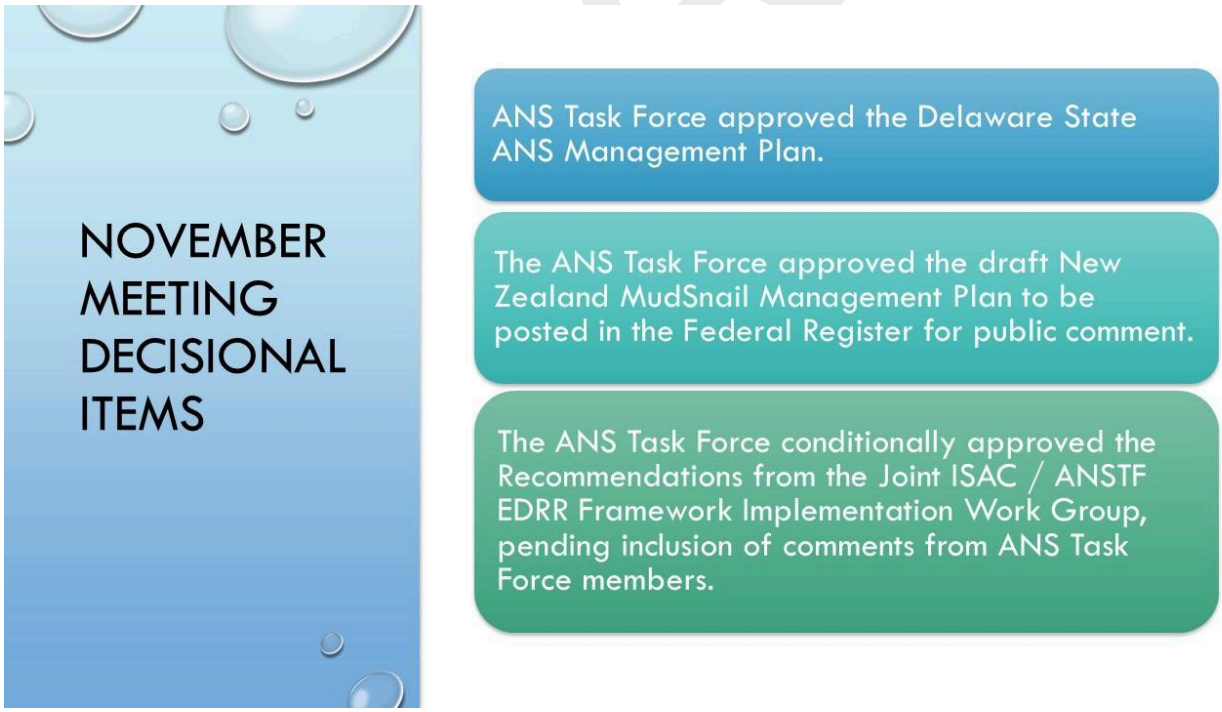
WARC Advanced Applications Team
Christina Hunnicutt Joey Richard

WARC Leadership
Dr. Lynn Copeland Dr. Deborah Epperson
Danielle Kitchen Craig Conzelmann
Melissa Chavis Dr. Scott Wilson

Appendix IV:
Slides - ANS Task Force update; Susan Pasko (ANSTF Coordinator)




Aquatic Nuisance Species Task Force Structure
Great Lakes Regional Panel
Western Regional Panel
Mississippi River Basin Regional Panel
Federal Members:
USFWS—co-chair
NOAA—co-chair
BLM
Reclamation
Dept. of State
EPA
NPS
USACE
USCG
USDA / APHIS
MARAD
USFS
USGS
Ex Officio Members:
Great Lakes Commission
Lake Champlain Basin Program
Chesapeake Bay Program
San Francisco Estuary Partnership
American Public Power Association
American Water Works Association
Association of Fish and Wildlife Agencies
Gulf States Marine Fisheries Commission
Mississippi Interstate Coop. Res. Assoc.
Native American Fish and Wildlife Society*
Smithsonian Environmental Research Center
Tahoe Regional Planning Agency
*Two members co-represent NAFWS
Northeast Regional Panel
Mid-Atlantic Regional Panel
Gulf and South Atlantic Regional Panel
Standing Committees
Ad-hoc Committees
Prevention Committee
Early Detection / Rapid Response Committee
Control and Restoration Committee
Research Committee
Education and Outreach Committee
Legislative Report
VIDA
Coral
OIT Hitchhiker
R_2T_3
RR Fund
ISAC / ANSTF EDRR
AIS - COP


NOVEMBER MEETING DECISIONAL ITEMS
ANS Task Force approved the Delaware State ANS Management Plan.
The ANS Task Force approved the draft New Zealand MudSnail Management Plan to be posted in the Federal Register for public comment.
The ANS Task Force conditionally approved the Recommendations from the Joint ISAC / ANSTF EDRR Framework Implementation Work Group, pending inclusion of comments from ANS Task Force members.

NOVEMBER ANSTF MEETING ACTION ITEMS

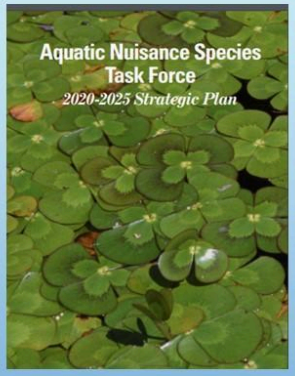
The Early Detection Rapid Response Subcommittee Chair will distribute the Rapid Response Template to ANS Task Force members and regional panels for comment.

The Executive Secretary will work with Moss Ball After Action Report leads to complete a summary of the comprehensive report and distribute it for ANS Task Force Review.

The Executive Secretary will schedule a regional panel principal meeting to discuss the Northeast panel recommendation on multi-state coordination and potential next steps for the Ruffe Management Plan.

The Control Subcommittee will distribute the Combined Plan Decision Making Guidance to the ANS Task Force and Regional Panels for review.

ANS TASK FORCE STRATEGIC PLAN



COORDINATION
Coordinate a national ANS program for waters of the United States

CONTROL & RESTORATION
Contain and control established ANS and restore native species and ecosystems

PREVENTION
Prevent the establishment and spread of existing ANS

RESEARCH
Facilitate research on ANS threats, impacts, and controls

EARLY DETECTION & RAPID RESPONSE
Identify and respond to new species detections in a timely manner to prevent their establishment and spread

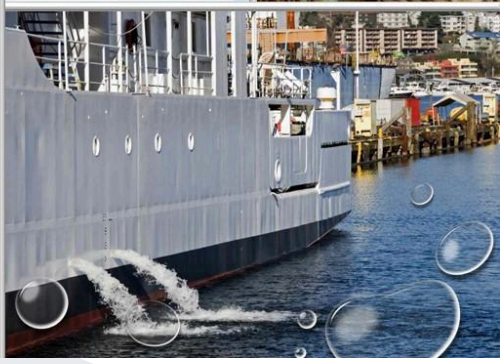
OUTREACH & EDUCATION
Conduct outreach and education to increase awareness concerning the threats of ANS

https://www.fws.gov/media/aquatic-nuisance-species-task-force-strategic-plan-2020-2025

ANSTF ACTIVITIES HIGHLIGHTS

Implementation of Subcommittee Work Plans (Prevention, EDRR, Control, Outreach, Research)

- **National Outreach Workshop Report and Recommendations**
- **Managing SAH Website / Outreach CoP**
- **Modernizing and expanding the utility of the Invasive Species Experts Database**
- **Assisting USCG in developing a Framework for ANS introduction resulting from Ballast Water discharge**
- **Invasive Coral Working Group**
- **Develop process to better support and track existing species plans**
- **Updating the National AIS Research Priorities List**
- **Habitattitude MOU (PAN / USFWS/ NOAA)**
- **Begin Strategic Planning Process**



Ruffe Control Program

2023-2024
Partner Engagement – Summary of Actions Report

November 1996

RECOMMENDATION CONSIDERATIONS…

- Are agencies utilizing the Program to guide Ruffe-specific work?…**NO**
- Is there current funding attached to the Program?…**NO**
- Have all objectives been addressed?…**YES**
- Are laws, initiatives, regulations, surveillance, education in place? …**YES**

WHAT IS THE LOGICAL NEXT STEP FOR THIS 28-YEAR-OLD PROGRAM?

FWS Recommendation

1) Archive the *Ruffe Control Program* plan.
2) Continue monitoring Ruffe in the Great Lakes
3) Continue to engage on Ruffe in established forums such as Regional Panels, Great Lakes Fishery Commission Lake Committees, and the Interstate Early Detection and Rapid Response Coordination meeting.
4) Jurisdictions encouraged to manage and research Ruffe as their resources allow.

Great Lakes Panel members did not reach consensus regarding a recommendation for or against Ruffe Control Program archival…. **Action Item to get input from other Regional Panels to inform ANSTF Decision.**

THANK YOU!

ANS TASK FORCE

SUSAN PASKO
ANS TASK FORCE EXECUTIVE SECRETARY
57725 LEESBURG PIKE FALLS CHURCH, VA 22041
PHONE: 703-358-2466
EMAIL: SUSAN_PASKO@FWS.GOV

FOR MORE INFORMATION, VISIT THE ANS TASK FORCE WEBSITE –
WWW.ANSTASKFORCE.GOV

Appendix V:
Slides - Small Grant Program - Proposal Summaries (Lightning Round); Nick Staten (MAPAIS Coordinator)

A. Technical Merit and Feasibility (40%)
Objectives: Are the objectives clearly stated and justified?
Background and Approach: Is the background of the problem given sufficient and does it justify the work?
Technical Approach: Are the methods appropriate and technically sound? Will they address the objectives and lead to valid conclusions or a strong final end product(s)?
Time Schedule: Can the PI complete the project in the allotted time frame of this RFP?
Budget: Is the budget reasonable with respect to the goals, objectives, and deliverables of the project? Is there sufficient time budgeted for the PI and associated staff?
B. Relevance, Outreach and Impact (40%)
Significance: Is the proposal relevant to the mission & program priorities of MAPAIS? Is it a regional or local effort? Is there any linkage with new or existing AIS management plans?
Anticipated Utility & Practical Application: How easily or quickly can the project results be put to practical use?
Outreach Potential: Are there potential opportunities to link the project to an outreach effort over short or long-term time frames? Does the research have a potential to impact public perceptions, management decisions or forge a link with industry? Alternatively, if this is an outreach project is it technically sound? Is it consistent with the relevant science? Has it defined its audience clearly? Are the outcomes clearly defined? Is it clear how the outreach effort intends to change public perception or management decisions?
C. Applicant's Qualifications (20%)
Knowledge of the Field: Does the applicant demonstrate a clear, well-grounded knowledge of the field of study? Are the appropriate references acknowledged?
Previous Contributions: Based upon the brief CV provided, does the applicant appear to possess the background and technical foundation needed to complete the project?

Proposal A:
North Branch Land Trust

Slide 1/3
Amount Requested: $5,000
Reviewer Average Score: 2.84 / 5

Project Title: Invasive Species Management for Watershed Restoration

This project aims to enhance the conservation of wetland habitats in Luzerne County by **focusing on the management of invasive species** in two critical sanctuaries:

- Hanover Crossings Marsh Sanctuary and Forest Echo Bird Sanctuary.

Funds will support

- professional treatment of **Phragmites, Japanese Barberry, and Mile-a-minute**.
- biological inventories, and
- cleanup efforts.
- **community education, with resources and events** designed to raise awareness about the impact of invasive species.
  - **Educational hikes** led by NBLT's staff, along with
  - **Targeted outreach to local businesses and landowners**, will promote awareness, native habitat protection and invasive species management.

Photo credit

Proposal A:
North Branch Land Trust

Slide 2/3
Amount Requested: $5,000
Reviewer Average Score: 2.84 / 5

Project Title: Invasive Species Management for Watershed Restoration

Summary of reviewer comments:

- Phragmites mentioned but other invasive species are **terrestrial**. Significant matching funds but unclear if those funds are secured (or pending award of separate grant).
- A localized control project. **Unsure about any broader applicability**. Seems well suited to do the project and it is reasonable for the amount of funding with **great match**. Outreach matches the project needs, but again, doesn't seem to have broadly applicable results.
- Project outlines outreach methods including signage and local engagement. **It is unclear if this will impact public perception because of the lack of evidence provided in the proposal for previous outreach's success.**

Photo credit ; Photo credit

Proposal A:
North Branch Land Trust

Slide 3/3
Amount Requested: $5,000
Reviewer Average Score: 2.84 / 5

Project Title: Invasive Species Management for Watershed Restoration

Summary of reviewer comments:

- From RFP: "**MAPAIS is not interested in funding routine control projects**. However, MAPAIS will consider funding control/eradication projects that can provide innovative tools and lessons to other groups looking to tackle similar issues. MAPAIS will also consider projects targeting unique AIS populations in the region, where eradicating that specific population will have a significant impact on the species distribution (e.g., by removing it from the region)."
  - This project does **not provide innovative tools or lessons to other groups looking to tackle similar issues.**
  - **The AIS population is not specified as unique or of having significant impact on the species distribution.**

Photo credit

Proposal A:
North Branch Land Trust

Questions
Amount Requested: $5,000
Reviewer Average Score: 2.84 / 5

Project Title: Invasive Species Management for Watershed Restoration

Questions:

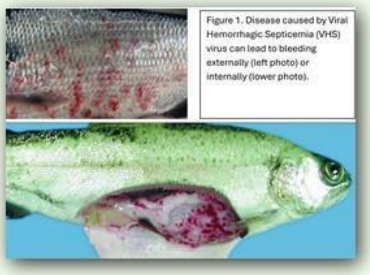
- …

Photo credit

Proposal B: Maryland Department of Natural Resources

Slide 1/4
Amount Requested: $2,310
Reviewer Average Score: 4.31 / 5

Project Title: Assessing the bait pathway risk for introducing Viral Hemorrhagic Septicemia in Maryland waters. (Testing fish bait for Viral Hemorrhagic Septicemia to prevent its introduction to Maryland)



This project aims to

- **Identify if Viral Hemorrhagic Septicemia has entered maryland bait fish supply chain.**
- A recent report provided by Upstream Aquatic Institute indicated that bait fish from **seven of nine stores in Delaware, tested positive** for Viral Hemorrhagic Septicemia virus (VHSv).
- This potentially devastating virus has not been identified from wild fish in Delaware or Maryland, which **shares waters**.

This project will use funds to:

- **Purchase bait** (minnows, Cyprinidae, Cyprinodontidae; sunfishes, Centrarchidae) from five bait stores in Maryland in fall 2025 for the purpose of **testing up to 30 fish/species and two species/store for VHSv in spring 2026**.
- For vendors with bait testing positive for VHSv, **identify supply sources and create and target outreach to vendors** to disrupt the pathway of introduction by 2026.

Photo credit

Proposal B: Maryland Department of Natural Resources

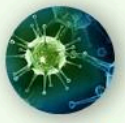
Slide 2/4
Amount Requested: $2,310
Reviewer Average Score: 4.31 / 5

Project Title: Assessing the bait pathway risk for introducing Viral Hemorrhagic Septicemia in Maryland waters. (Testing fish bait for Viral Hemorrhagic Septicemia to prevent its introduction to Maryland)

Summary of reviewer comments:

- **VHS testing details were lacking**, budget is very reasonable
- It seems like a **problem worthy of attention**, and it seems like these investigators would be capable of addressing it. My problem with this proposal was that all of the **activities that came between identifying the problem and the actions that they propose are really unclear**. Paraphrasing, it's buying a lot of fish from bait dealers, testing them, and then going back to the bait dealers with education in mind. Honestly, this doesn't seem like much of a plan. Or maybe it IS a good plan, but I'm not convinced by the sell that I'm seeing here, and I think that it's because there are a lot of details left out. I understand that this is a short proposal and that details can't be extensive, but in a **study like this, details matter**: **why this particular number of fish and this number of dealers? Where are they located within the potential range and how are they selected?** These are pretty basic questions of survey design that, even given the limited space, I would expect to see.

Photo credit



Proposal B: Maryland Department of Natural Resources

Slide 3/4
Amount Requested: $2,310
Reviewer Average Score: 4.31 / 5

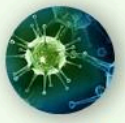
Project Title: Assessing the bait pathway risk for introducing Viral Hemorrhagic Septicemia in Maryland waters. (Testing fish bait for Viral Hemorrhagic Septicemia to prevent its introduction to Maryland)

Summary of reviewer comments:

- Oct 2025 - Sept 2026; $560 travel; $1,750 supplies; "determine the percentage of bait shops that test positive for VHS virus"; Potential for regional implication. **Objective is clear and timeline is reasonable. Some match via personnel time and use of equipment**.

- This proposal is focused on testing live baitfish from Maryland Bait Shops for the VHS pathogen- a highly destructive aquatic virus (invasive from Europe) that can decimate fish populations. They also propose to do some basic outreach to bait shops depending on their results. I found this to be **well-written with clearly stated background, methods, and justification related to the MAPAIS priorities**. My only comments are minor: perhaps a little **more could be done in terms of outreach for VHS**. The CVs of those involved indicate good qualifications. Also, and overall small **~2,000 amount of funding has been requested, so this could easy be funded with other proposals**.

Photo credit



Proposal B: Maryland Department of Natural Resources

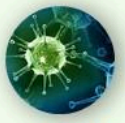
Slide 4/4
Amount Requested: $2,310
Reviewer Average Score: 4.31 / 5

Project Title: Assessing the bait pathway risk for introducing Viral Hemorrhagic Septicemia in Maryland waters. (Testing fish bait for Viral Hemorrhagic Septicemia to prevent its introduction to Maryland)

Summary of reviewer comments:

- Would like to understand what the office of communication will produce for vendors and **how these materials will ensure the disruption of the pathway of introduction**. Great description of the virus's first discovery and incidence across the world. **Would like to know mortality rates, infection rates, species within the mid-atlantic it is of concern for, and its effect on human health, economy, and/or recreation**.
- Project is based on vector management and although it is a research study, it is paired with management actions in the case of positive tests of VHSv. **There is a linkage with existing AIS as this pathogen is identified as unknown level of concern in Maryland's Aquatic Nuisance Species Plan**. Informing the state of Maryland and the surrounding region of the status of the viral infection is definitely impactful to public perception, management decisions and forging a link with industry. The outreach is technically sound although **clearer description of how the pathway of introduction will be disrupted by the actions of the Office of Communications would be appreciated**.

Photo credit



Proposal B:
Maryland Department of Natural Resources

Questions
Amount Requested: $2,310
Reviewer Average Score: 4.31 / 5

Project Title: Assessing the bait pathway risk for introducing Viral Hemorrhagic Septicemia in Maryland waters. (Testing fish bait for Viral Hemorrhagic Septicemia to prevent its introduction to Maryland)

Questions:

- Were any specific stores or locations mentioned?
    - No unless I missed it

Photo credit

Proposal C:
Environmental Justice Journalism Initiative

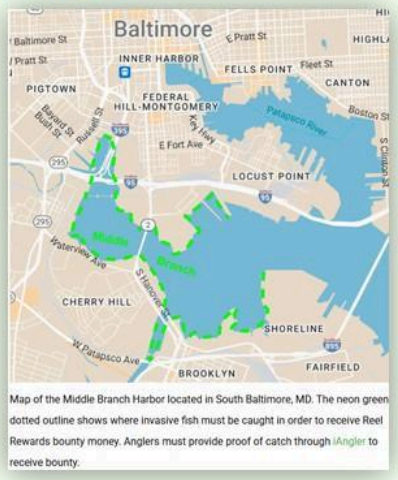
Slide 1/6
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

Background:

Pilot Program: Reel Rewards

- Funded by South Baltimore Gateway Partnership (SBGP) and the National Oceanic and Atmospheric Administration (NOAA),
- **Bounty program incentivizes fishers to remove invasive fish species** from the Middle Branch of the Patapsco River.
- **During its 2024 pilot program, over 300 fishers participated, removing over 300 invasive fish and receiving a total of $8,640 in monetary incentives**. This pilot not only aided in environmental restoration but also contributed to scientific research by providing survey results for one graduate student's masters thesis and another's PhD dissertation.



Map of the Middle Branch Harbor located in South Baltimore, MD. The neon green dotted outline shows where invasive fish must be caught in order to receive Reel Rewards bounty money. Anglers must provide proof of catch through iAngler to receive bounty.

Photo credit; Photo credit

Proposal C: Environmental Justice Journalism Initiative

Slide 2/6
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

This project aims to fund a graduate or post-doctoral researcher to:

- **Build on lessons from the 2024 pilot season** of EJJI's Reel Rewards program which revealed significant gaps in existing AIS catch data and population estimates.
- **Facilitate outreach efforts** that will include developing educational materials, coordinating with bow fishermen to refine removal strategies, and presenting findings to key stakeholders.
- **Enhance AIS data collection, community engagement, and management strategies** in the Baltimore area of the Patapsco River.
- **Use population dynamics theory and coding methods**, the researcher will develop replicable data monitoring tools that allow for more precise AIS population tracking and removal impact assessments.
- **Expand angler involvement** across a broad range of demographics and fishing methods
- **Contribute to regional AIS management efforts** by establishing replicable data collection and communication models for use beyond Baltimore.

Proposal specifically references **Northern Snakehead, Blue Catfish, and Flathead Catfish**.

Photo credit

Proposal C: Environmental Justice Journalism Initiative

Slide 3/6
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

Summary of reviewer comments:

- I had to read through this a few times and **still feel a little unclear on the objectives**. It looks like they wish to obtain funding (about **$35K, nearly all available MAPAIS funding**) to hire a student or post doc to collect angler catch data on Northern Snakehead, Blue Catfish, and Flathead Catfish in the Patapsco River (city of Baltimore) to estimate population sizes.
- Additionally, the funded position will work to **amplify an existing incentivized harvest program** for these species (but **they don't describe how, unless I missed it?**). They state this will help prevent further introductions, but since these species already appear to be established here, I'm not sure how beneficial of a goal that is.
- Question: **why can't population biomass be estimated by electrofishing CPUE or another more typical way by a team of biologists working for a few days**? The CVs provided don't seem to indicate much prior experience with invasive species, specifically (although one certainly has strong academic research experience). I feel this is a weaker proposal and marginal with respect to MAPAIS priorities. The budget is also very large

Photo credit

Proposal C: Environmental Justice Journalism Initiative

Slide 4/6
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

Summary of reviewer comments:

- Oct 2025 - Sept 2026; ~$31K to salaries; $500 supplies; $4K indirect; project site: Baltimore area of the Patapsco River; "researcher will support AIS removal and engagement through the Reel Rewards program by expanding participation with anglers from all demographics"
- I actually really like this proposal because it's **well founded from a historical perspective**, paints with a very broad brush in terms of AIS and maximizing the impact of a single researcher and project, and it's **fairly realistic about what it thinks it can accomplish**. My biggest concern with this proposal is budgetary. The proposal states multiple times that it wants to support a graduate student or postdoc, but **the requested amounts just simply aren't realistic with regard to those goals**. I know that a graduate student costs ~$20,000/semester and a postdoc will cost even more, at least ~$30,000/semester. Those costs are simply the reality of doing business if you want to support a grad student or postdoc. **One possible budgetary saving grace is that the proposal is willing to partially fund a student or postdoc, which does allow a bit of a resolution for the budgetary issues. However, to make that happen, I'd like to see a bit more evidence up-front** because it's actually not that easy to just swoop in and want to drop a lot of $$ on a student or a postdoc, and often, you actually can't do it because of various restrictions about the way that $$ can be spent or received. The mechanisms need to be thought out here in advance. I really do like this idea and this set of goals, but the proposal has to be realistic in the way it's going to spend the funds, and I'm

Photo credit

Proposal C: Environmental Justice Journalism Initiative

Slide 5/6
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

Summary of reviewer comments:

- Has potential to reach a wide number of community members and **provide great outreach to many underserved communities**.
- The objectives are clearly stated, but it is **unclear HOW they will strengthen relationships with anglers, HOW they will expand participation with anglers, HOW the multimedia strategy will end with more participation** not just visibility of the program.
- It was helpful to know about the success of the reel rewards program, but **it was unclear how this approach could sustainably manage invasive species without continued funding.**
- **Would've like to know how the culture of the anglers has shifted** due to previous outreach efforts and how that has shifted the perspective of invasive species without the need for an incentive program.
- The approach is appropriate but **not detailed enough to provide confidence in the grantee completing their objectives**

Photo credit

Proposal C: Environmental Justice Journalism Initiative

Slide 6/6
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

Summary of reviewer comments:

- Although this work is significant for Baltimore's AIS population, **the significance to the region as a whole is of concern**. Providing replicable programs is great, however additional funding on a much larger scale would be needed to implement these programs and create a significant change in AIS problems throughout the region.
- It will take time to establish reliable catch-data in the Patapsco River to estimate population size/density of invasive species. Then once the population sizes are defined the **management strategy of incentive based catch isn't sustainable.**
- Outreach success is verified by the success in the Reel Rewards program, although **would like metrics to see what difference was made** other than number of fishers participating in a pilot program and the amount of monetary incentives they received.

Photo credit

Proposal C: Environmental Justice Journalism Initiative

Questions
Amount Requested: $35,278.60
Reviewer Average Score: 3.43 / 5

Project Title: Enhancing Community Engagement and Science Communication in Baltimore

Questions:

- ...

Photo credit

Proposal D: Allegheny College

Slide 1/5
Amount Requested: $12,465
Reviewer Average Score: 4.04 / 5

Project Title: Tracking Invasive Round Gobies in the French Creek Watershed: A Novel Monitoring Approach for Targeted Management and Suppression

Background:

In 2024, we initiated a study to better **understand round goby movement to inform targeted suppression efforts**. We **tagged 109 round gobies** with half-duplex passive integrated transponder tags (HD-PIT) and installed a Litz Cord **monitoring array system at the outflow of Lake LeBoeuf** to monitor movement between Lake LeBoeuf and LeBoeuf Creek. We collected data from August 8, 2024, until December 2, 2024, when **water levels rapidly increased to record levels from a combination of intense rain and snowmelt, which destroyed the on-shore portions of our array system**

Photo credit; Photo credit

Proposal D: Allegheny College

Slide 2/5
Amount Requested: $12,465
Reviewer Average Score: 4.04 / 5

Project Title: Tracking Invasive Round Gobies in the French Creek Watershed: A Novel Monitoring Approach for Targeted Management and Suppression

This project aims to:

- **Monitor progression of Round gobies in Pennsylvania** which were previously restricted to the watershed of Lake Erie until their discovery in Lake LeBoeuf, part of the French Creek Watershed, in 2013. This **invasion presents a significant threat to one of the most biodiverse aquatic systems in the United States**.
- **Replace the damaged equipment and resume data collection** for one year to identify periods of peak goby concentrations in Lake LeBoeuf.
- We will **share our results with management agencies** in Pennsylvania to **directly inform suppression strategies**, enabling targeted removal using electrified benthic trawl and electrofishing gear.
- We will **incorporate our existing outreach activity,** The Round Goby Invasion, into annual outreach events targeting K-12 students, such as the 4th Graders as Scientists program and the Creek Connections symposium.
- To our knowledge, this is the **first use of an in-stream array monitoring system focused on round goby management**, making this work novel and critical toward effective control methods to reduce established populations of round gobies. Understanding goby movement patterns in a high-biodiversity watershed is essential for guiding eradication efforts and preventing further spread to vulnerable stream systems. Photo credit

Proposal D: Allegheny College

Slide 3/5
Amount Requested: $12,465
Reviewer Average Score: 4.04 / 5

Project Title: Tracking Invasive Round Gobies in the French Creek Watershed: A Novel Monitoring Approach for Targeted Management and Suppression

Summary of reviewer comments:

- This request would rescue an experiment halted by loss of equimpent in a storm event. It is nice that budget covers only new equipment and has no fluff. No indirect costs. **The seasonal movement of a few round gobies in this subwatershed is very very small science**, but hey, you never know.
- Funding would provide additional years of work on an ongoing project. The project itself is well-designed and aims to inform the management of round goby in smaller tributaries.
- ~$10K for equipment; $2K for publication cost; Funding needed to purchase equipment that was lost/damaged from storm. Appears the PI is trying to salvage an ongoing research project that is in jeapordy due to the loss of essential equipment. Outcome has potential to apply regionally. Timeline is reasonable.

Photo credit; Photo credit

Proposal D: Allegheny College

Slide 4/5
Amount Requested: $12,465
Reviewer Average Score: 4.04 / 5

Project Title: Tracking Invasive Round Gobies in the French Creek Watershed: A Novel Monitoring Approach for Targeted Management and Suppression

Summary of reviewer comments:

- This is a proposal focused on researching the invasive round goby in northwestern Pennsylvania. **I found it to be well-written** and have a thorough justification/background. However, much of the proposal's budget is placed towards replacing gear that was damaged (by flood water) in a project that was already started (they do indicate placing equipment differently this time to avoid that). That said, **I do feel this proposal matches up well with the MAPAIS priorities** as they are researching an invader that is not common in the Mid-Atlantic region and ultimately looking into movement to inform potential control efforts.
- The budget is ~$12k, but I see that **$2K has been budgeted for publication charges**- I'd suggest this is removed from their budget (MAPAIS has not funded page charges in the past as it's not certain if a paper will be published during the grant cycle). The CVs of the applicants, especially the second, show high qualifications (many previous studies on the round goby).

Photo credit

Proposal D: Allegheny College

Slide 5/5
Amount Requested: $12,465
Reviewer Average Score: 4.04 / 5

Project Title: Tracking Invasive Round Gobies in the French Creek Watershed: A Novel Monitoring Approach for Targeted Management and Suppression

Summary of reviewer comments:

- Methods are appropriate and technically sound to address the objective of verifying preliminary hypotheses of peak time frames of goby movement. Budget for the repair makes sense and is justified, however the **publication costs do not fall within MAPAIS priorities**. As an emerging invasive species in the mid-atlantic region that was previously secluded to just the great lakes region it is **well within MAPAIS's priorities** to inform detection and rapid response of the identified population.
- This AIS issue is clearly labeled as a major **threat to an area of high biodiversity and ecological significance**. Methods are reproducible in other states in the region. **Little information is shared about how the students can prevent future introductions and spreads.** Will the Creek Connection Symposium, college course, 4th Graders as Scientists, and the developed active-learning activity be just an information sharing venue or will it result in actions from students?

Photo credit

Proposal D: Allegheny College

Questions
Amount Requested: $12,465
Reviewer Average Score: 4.04 / 5

Project Title: Tracking Invasive Round Gobies in the French Creek Watershed: A Novel Monitoring Approach for Targeted Management and Suppression

Questions:

- Concern about funding publication charges especially since it will be hard to publish within the time frame of the grant.
- It is good to distribute findings, but would need insurance of being able to publish within the year time frame.
  - Could be a reasonable thing to request a no cost extension on
- Can we gain more clarity on the amount of biodiversity in this sub-watershed?
  - https://www.frenchcreekconservancy.org/biodiversity/

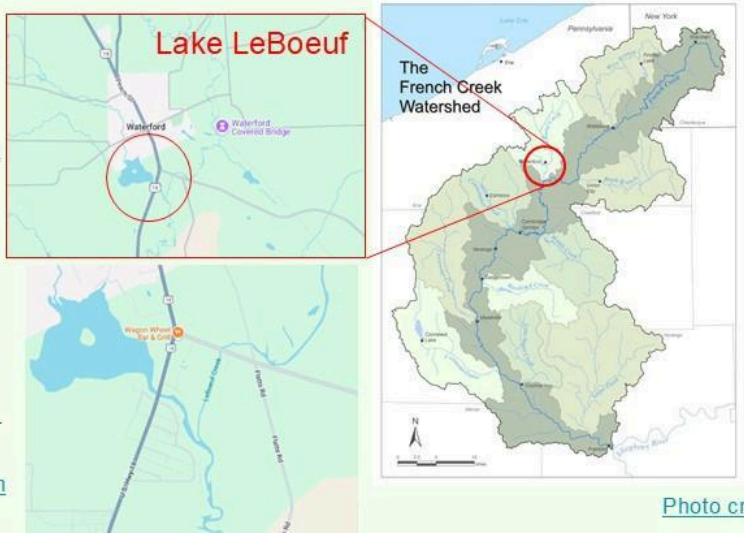


Photo credit

Proposal E: University of Maryland

Slide 1/6
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games

This project aims to enhance the conservation of Blue-Catfish affected habitats by:

- Task #1, **Develop the educational content** through close collaboration with experts recruited from the Invasive Catfish Workgroup to ensure scientific accuracy and alignment with conservation objectives.
- Task #2, **Design and implement the game prototype using virtual reality and web-based technologies**, allowing students to explore the Chesapeake Bay ecosystem, experience the impact of blue catfish, and engage in problem-solving scenarios.
- Task #3, **Introduce the newly developed games into schools and community outreach programs** through UMES extension, UME 4-H Youth Development programs, Caroline County Public Schools, and Virginia Seafood Agricultural Research and Extension Center at Virginia Tech. Evaluate the game's effectiveness through educator feedback.

Photo credit

Proposal E: University of Maryland

Slide 2/6
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games

- **Traditional environmental education programs** provide important knowledge, however they primarily rely on passive learning methods, such as **lectures and videos, which limit hands-on engagement**.
- Meanwhile, **field trips and workshops are often one-time experiences that may not be accessible to all students**. Without interactive problem-solving opportunities, younger audiences may struggle to fully grasp complex ecological issues.
- To address these limitations, **a more engaging and scalable approach is needed** to enhance student participation and extend learning beyond structured programs.

Photo credit; Photo credit

Proposal E:
University of Maryland

Slide 3/6
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games
Summary of reviewer comments:

- I thought this was a VERY well-written proposal focused on creating and educational game to teach children (**middle school age range**) about invasive Blue Catfish in the Chesapeake Bay by developing a virtual reality game that they can play. **This is a critical age to teach about AIS and seems like a very unique approach**. Fits very well with the MAPAIS educational priorities.
- **Will likely have a broad reach (whole school district) and likely could be adapted by others.** The CVs of the applicants indicate good qualification on developing educational content and I see they also propose to work with Fisheries Biologists in Maryland to review technical content. A well put-together proposal/idea with a modest budget (about half available funds).
- Oct 2025 - Sept 2026; ~$12K to salary + benefits; ~$2K travel; $1,800 supplies; $1,500 indirect; Interesting idea. Most of the work will be completed in 2026. A significant part of the budget is salary (grad student intern). **Game will require virtual reality interface, which will limit practical use.**

Photo credit

Proposal E:
University of Maryland

Slide 4/6
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games
Summary of reviewer comments:

- Seems to be a topic of broader interest to MAPAIS and the product could be used outside of the scope of the project. 10% small project indirect rate is nice. **Seems like a lot of work for the amount of funding - are there additional funds** supporting the development of the project? I'd encourage PIs to check in on AIS language discussions and be intentional about some of the framing they use. Seems like an appropriate group to do this work and established partnerships to make it happen.
- STEM related educational outreach - deliverables and timeframe appear reasonable to produce an effective result.
- Immersive games will **provide a more tangible lesson plan and will affect the next generation of environmental stewards more than a traditional plan**. After development the game can be put to use pretty quickly however **there will need to be iterations of the game to make it more effective** and it is unclear whether by the end of the grant timeline how good of a product there will be.

Photo credit

Proposal E: University of Maryland

Slide 5/6
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games
Summary of reviewer comments:

- Relevant to mission and program priorities, but is a regional effort surrounding the Chesapeake Bay. Clear linkage with new/existing AIS management plans. **How accessible is VR in the classroom?** Will this be a multi-exposure lesson plan or a one time experience? Objectives are clearly stated and justified. **Proposal could have benefited from explaining future plans for the lesson plan and how it would be implemented for generational change rather than a few incidents in a few schools.**

Photo credit; Photo credit

Proposal E: University of Maryland

Slide 6/6
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games
Summary of reviewer comments:

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Photo credit

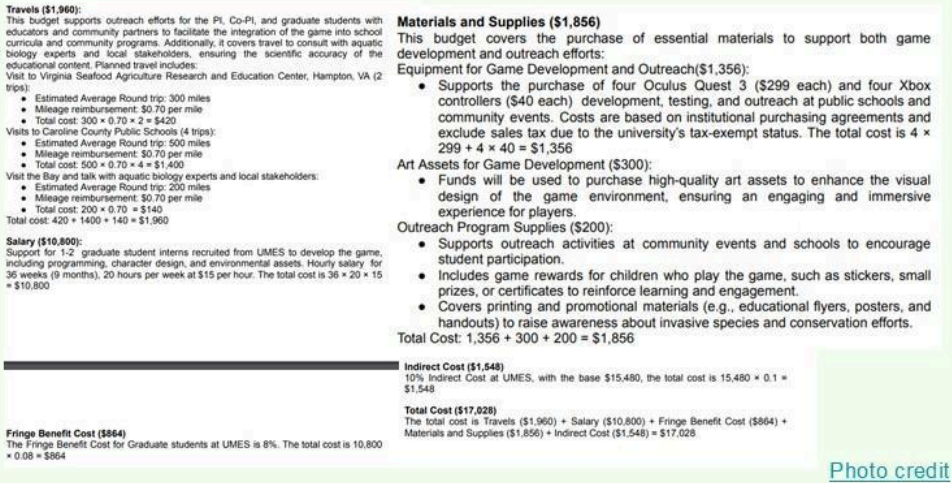
Proposal E: University of Maryland

Questions
Amount Requested: $17,028
Reviewer Average Score: 4.11 / 5

Project Title: The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games

Questions:

- Why are they using VR? What software? Where are assets coming from? $17,000 does not seem enough to deliver a high quality meaningful experience.



Travels ($1,960):
This budget supports outreach efforts for the PI, Co-PI, and graduate students with educators and community partners to facilitate the integration of the game into school curricula and community programs. Additionally, it covers travel to consult with aquatic biology experts and local stakeholders, ensuring the scientific accuracy of the educational content. Planned travel includes:
Visit to Virginia Seafood Agriculture Research and Education Center, Hampton, VA (2 trips):
- Estimated Average Round trip: 300 miles
- Mileage reimbursement: $0.70 per mile
- Total cost: 300 × 0.70 × 2 = $420

Visits to Caroline County Public Schools (4 trips):
- Estimated Average Round trip: 500 miles
- Mileage reimbursement: $0.70 per mile
- Total cost: 500 × 0.70 × 4 = $1,400

Visit the Bay and talk with aquatic biology experts and local stakeholders:
- Estimated Average Round trip: 200 miles
- Mileage reimbursement: $0.70 per mile
- Total cost: 200 × 0.70 = $140

Total cost: 420 + 1400 + 140 = $1,960

Salary ($10,800):
Support for 1-2 graduate student interns recruited from UMES to develop the game, including programming, character design, and environmental assets. Hourly salary for 36 weeks (9 months), 20 hours per week at $15 per hour. The total cost is 36 × 20 × 15 = $10,800

Fringe Benefit Cost ($864)
The Fringe Benefit Cost for Graduate students at UMES is 8%. The total cost is 10,800 × 0.08 = $864

Materials and Supplies ($1,856)
This budget covers the purchase of essential materials to support both game development and outreach efforts:
Equipment for Game Development and Outreach($1,356):
- Supports the purchase of four Oculus Quest 3 ($299 each) and four Xbox controllers ($40 each) development, testing, and outreach at public schools and community events. Costs are based on institutional purchasing agreements and exclude sales tax due to the university's tax-exempt status. The total cost is 4 × 299 + 4 × 40 = $1,356

Art Assets for Game Development ($300):
- Funds will be used to purchase high-quality art assets to enhance the visual design of the game environment, ensuring an engaging and immersive experience for players.

Outreach Program Supplies ($200):
- Supports outreach activities at community events and schools to encourage student participation.
- Includes game rewards for children who play the game, such as stickers, small prizes, or certificates to reinforce learning and engagement.
- Covers printing and promotional materials (e.g., educational flyers, posters, and handouts) to raise awareness about invasive species and conservation efforts.

Total Cost: 1,356 + 300 + 200 = $1,856

Indirect Cost ($1,548)
10% Indirect Cost at UMES, with the base $15,480, the total cost is 15,480 × 0.1 = $1,548

Total Cost ($17,028)
The total cost is Travels ($1,960) + Salary ($10,800) + Fringe Benefit Cost ($864) + Materials and Supplies ($1,856) + Indirect Cost ($1,548) = $17,028

Photo credit

Proposal F: University of Pennsylvania

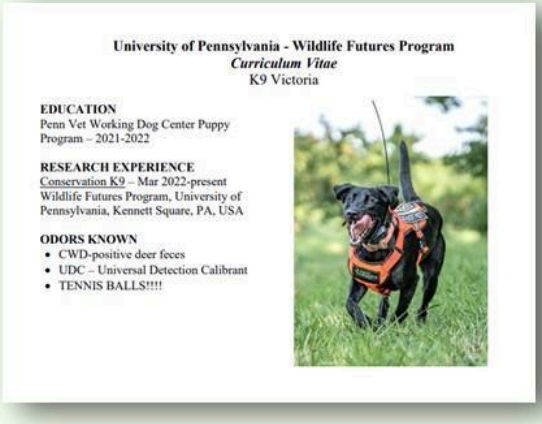
Slide 1/5
Amount Requested: $18,882
Reviewer Average Score: 3.24 / 5

Project Title: Use of Conservation K9s for Aquatic Invasive Species Detection

This project aims to assess the feasibility of using working dogs for early detection of invasive New Zealand mud snails (NZMS).

NZMS are a small invasive species that impact the ecological structure of waterways by displacing native species and decreasing fish health due to their indigestibility. Early detection of NZMS within hatcheries can reduce the risk of NZMS introduction to waterways from state fish hatcheries, thereby preserving local fish population Health.

We propose to achieve this by teaching a working conservation detection dog to indicate the presence of NZMS in fish hatchery sediment and bio boxes.



University of Pennsylvania - Wildlife Futures Program
Curriculum Vitae
K9 Victoria

EDUCATION
Penn Vet Working Dog Center Puppy Program – 2021-2022

RESEARCH EXPERIENCE
Conservation K9 – Mar 2022-present
Wildlife Futures Program, University of Pennsylvania, Kennett Square, PA, USA

ODORS KNOWN
- CWD-positive deer feces
- UDC – Universal Detection Calibrant
- TENNIS BALLS!!!!

Photo credit: K9 Victoria's Resume

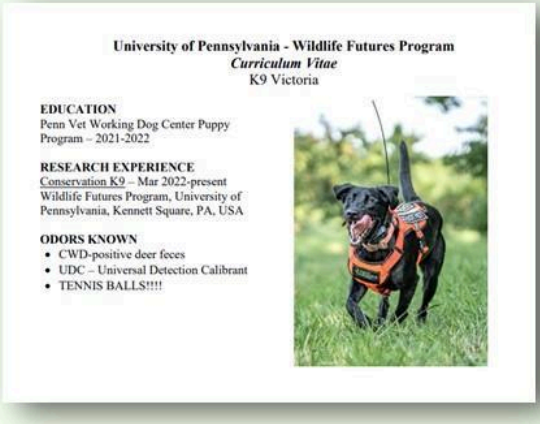
Proposal F: University of Pennsylvania

Slide 2/5
Amount Requested: $18,882
Reviewer Average Score: 3.24 / 5

Project Title: Use of Conservation K9s for Aquatic Invasive Species Detection

Our methodology includes **a multistage training plan wherein the dog learns to associate the scent of NZMS with a reward** in increasingly more realistic search scenarios.

At each stage, the dog will be **assessed for detection precision and sensitivity**. We anticipate that the dog's excellent sense of smell and high-speed search skills will allow for more efficient hatchery inspections and earlier detection of NZMS invasions.


University of Pennsylvania - Wildlife Futures Program
Curriculum Vitae
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EDUCATION
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Wildlife Futures Program, University of Pennsylvania, Kennett Square, PA, USA

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Photo credit: K9 Victoria's Resume

Proposal F: University of Pennsylvania

Slide 3/5
Amount Requested: $18,882
Reviewer Average Score: 3.24 / 5

Project Title: Use of Conservation K9s for Aquatic Invasive Species Detection

Project Objectives

- To **assess the feasibility** of working dogs as an innovative **early detection tool for control of aquatic invasive species** (AIS).
- To **associate the appeal of dogs with the promotion of AIS issues in outreach** and education materials using our existing reporting channels.
- To **create repeatable protocols** for use in future AIS conservation dog projects by maintaining video and training logs.

Photo credit: K9 Victoria's Resume

Proposal F: University of Pennsylvania

Slide 4/5
Amount Requested: $18,882
Reviewer Average Score: 3.24 / 5

Project Title: Use of Conservation K9s for Aquatic Invasive Species Detection

Summary of reviewer comments:

- Continues the MAPAIS tradition of investment in detector dogs. Stated goal of **75% effacacy is of limited real-world utility**. Panel **funds are all for salary, fringe, and a whopping 62.5% administrative overhead**. This one reads like it will be going forward irrespective of the panel decision but that they would love for MAPAIS to take on some of the costs.
- Excellent proposal and needed effort. Only a **slightly lower score due to ability to transfer from research to wide-scale applicable implementation**.
- Seems like a statewide project that could be useful within the state, but **unclear how broadly MAPAIS can use the results**. As much as I love conservation dogs, I wonder about the broad applicability since the need for a trainer and handler exists if this is successful (which I'm sure it will be). If it is successful, how are the **results used to further promote this approach**? Outreach outside of standard presentations and reporting seems to be centered on the project has a dog, which admittedly will generate interest, but would've liked some additional details. The whole staff is qualified, but **Victoria is very well qualified**.

Photo credit: K9 Victoria's Resume

Proposal F: University of Pennsylvania

Slide 5/5
Amount Requested: $18,882
Reviewer Average Score: 3.24 / 5

Project Title: Use of Conservation K9s for Aquatic Invasive Species Detection

Summary of reviewer comments:

- Oct 2025 - Sept 2026; ~$9K to salary + benefits; $840 travel; $1,500 supplies. Assess feasibility of using dogs as early detection of New Zealand Mud Snail. Method: train one dog on scent and determine detection precision and sensitivity. **No matching $$$**. "We will train a WFP canine-handler team to detect NZMS presence in fish hatchery sediment and bio boxes as a proof of concept to assist with NZMS surveillance at fish hatcheries in central Pennsylvania." **The Nutria removal project in the Chesapeake used detection dogs**.
- As mentioned in the proposal **K9s will be an easy way to engage the public**. Assuming the dog will be trained successfully to identify NZMS, the results could be put to practical use instantly, but there are **limitations due to there only being one dog trained**. Obviously this can be extended since the project wants to create a training regime and video logs. I think use of k9s would not only increase efficiency of identifying AIS, but also provide a way to engage the public.

Photo credit: K9 Victoria's Resume

Proposal F:
University of Pennsylvania

Questions
Amount Requested: $18,882
Reviewer Average Score: 3.24 / 5

Project Title: Use of Conservation K9s for Aquatic Invasive Species Detection

Questions:

- ...

Photo credit: K9 Victoria's Resume

Proposal G:
Delaware Riverkeeper Network

Slide 1/6
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Project Background:

- While the Delaware River above its tidewaters maintains high water quality and ecological integrity, invasive species threaten this Wild & Scenic River, from snakeheads to invasive crayfish to mud snails.
- The base of the food web now also faces the threat of invasion and ecological displacement as **Hydrilla verticillata expands out of the estuary and moves into upper areas of the basin**, threatening the aquatic plant community dominated by native groups such as Elodea, Heteranthera, and Vallisneria.

Photo credit; Photo credit

Proposal G cont. : Delaware Riverkeeper Network

Slide 2/6
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Project Goals:

- DRN will **educate and empower, a corps of volunteer monitors** to help survey a 15 mile stretch of the Wild & Scenic Delaware River (using kayaks, snorkels, and visual assessment methods).
- We will then **empower these trained volunteer monitors to outreach with families of all ages** coming to enjoy the River and launching at high traffic access points during the summer months.
- We will hold a series of **"pop up education good steward events"** timed with optimal summer and fall weather to engage recreation users that frequent this beautiful 15 mile stretch of River.

Photo credit; Photo credit

Proposal G cont. : Delaware Riverkeeper Network

Slide 3/6
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Project Goals cont.:

- We **will have simple handouts to provide for regular users developed by agencies**. From our 20 plus years experience at these launches, we know that the multi-generational audiences visiting these high traffic areas are not the likely suspects to show up for our existing aquatic workshops and volunteer monitor sessions.
- Methods will incorporate engaging ways to **involve and educate in a casual setting**. In this effort we will share BMPs needed to control the spread of invasive hitch hikers and cover good citizen stewardship.

Photo credit; Photo credit

Proposal G cont. : Delaware Riverkeeper Network

Slide 4/6
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Summary of reviewer comments:

- This proposal appears to have two aims

  1) to teach citizen volunteers to survey for invasive Hydrilla in the middle/lower Delaware River and

  2) post-training, have those volunteers serve as "launch stewards" of sorts at popular access areas along the river to teach users about how not to spread AIS like Hydrilla, using materials already available/developed in Pennsylvania.

  While Hydrilla has been present in this region for some time, it is still actively spreading (as noted in the narrative) and I think the concept of teaching volunteers about invasive plants (and then having them spread their knowledge to others) is a **great approach and consistent with the educational priorities of MAPAIS**. I did find the proposal to be well-written and fundable at a smaller budget (~$8K). The CV of the PI indicates a well-qualified applicant (I do note that they have received MAPAIS grant funding in the recent past).

Photo credit

Proposal G cont. : Delaware Riverkeeper Network

Slide 5/6
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Summary of reviewer comments:

- Oct 2025 - Sept 2026; ~$5,900 to salary + benefits; $700 travel; $700 supplies; $1,100 indirect; in-kind match + ~$20K Natl. Park Foundation; "outreach to the public and volunteers about invasive species in the Lower Delaware Basin"; "We will hold a series of pop-up education (good steward) events"; project site: ~15 mile stretch of the upper Delaware River; In addition to the "pop-up education events" this is also a citizen-science project that orchestrates 4 flotilla events which will have outreach/training components and also incorporate SAV surveys, to document presence/absence of Podostemon (a native plant) and Hydrilla.
- **This program could have great significance** to not only inform the public about hydrilla as an invasive, but also how easy it can be to introduce invasives to an area without being cognizant of BMPs. There is **a lot of outreach potential** since the project will leverage DRN media resources as well as activate volunteers at hotspot recreation areas.

Photo credit

Proposal G cont. : Delaware Riverkeeper Network

Slide 6/6
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Summary of reviewer comments:

- Valid proposal and notable match; but dependant on volunteers
- A proposal that **seems worthy of supporting in nearly every way.** This sort of work is familiar to these investigators and they have a very definite list of priorities and goals. My only issue with this proposal is philosophical and probably goes beyond the scope of consideration here, but I do feel compelled to mention it, and that is that there is **a pretty good body of evidence that outreach of this sort just simply does't move the needle**. There are two major reasons: you simply don't reach enough people, and that people will take factual information and use it to support their own personal position, even if that position sems unsupportable to everyone but themselves. Does that mean that we should stop trying? No. But I do think that we need to begin to think outside of the box a bit

Photo credit

Proposal G cont. : Delaware Riverkeeper Network

Questions
Amount Requested: $8,371
Reviewer Average Score: 4.24 / 5

Project Title: Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Questions:

- What section of the delaware river does this affect?
    - main stem from Easton PA (RM 183.5) downstream to Upper Black Eddy PA (RM 168)

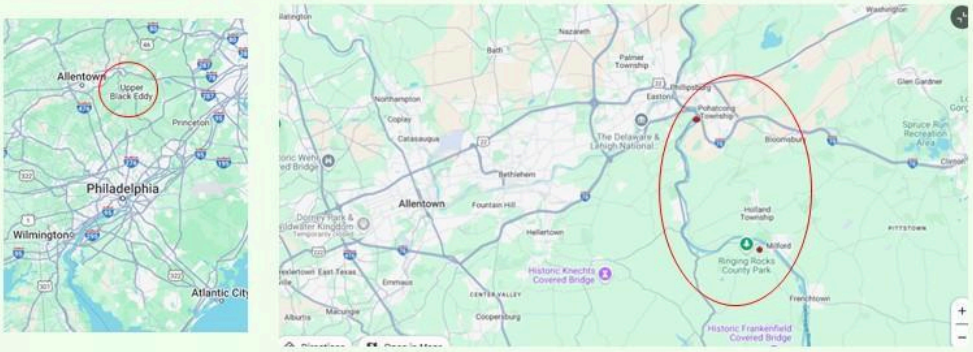

Photo credit

Funds available: ~ $38,000

Total funds requested: $99,334.60

Funds requested from B, E, & G: $27,709

PROPOSAL	Score	Institution	Title	Amount
Proposal A	2.84	NBLT	Invasive Species Management for Watershed Restoration	$5,000.00
Proposal B	4.31	MDNR	Assessing the bait pathway risk for introducing Viral Hemorrhagic Septicemia in Maryland waters. (Testing fish bait for Viral Hemorrhagic Septicemia to prevent its introduction to Maryland)	$2,310
Proposal C	3.43	Environmental Justice Journalism Initiative (EJJI)	Enhancing Community Engagement and Science Communication in Baltimore	$35,279
Proposal D	4.04	Allegheny College	Tracking Invasive Round Gobies in the Fresh Creek Watershed: A Novel Monitoring Approach for Management and Suppression	$12,465
Proposal E	4.11	University of Maryland	The Fight Against Blue Catfish Invasion: Tell a Story Through Immersive Educational Games	$17,028
Proposal F	3.24	University of Pennsylvania	Use of Conservation K9s for Aquatic Invasive Species Detection	$18,882
Proposal G	4.24	Delaware Riverkeeper Network	Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River	$8,371

Appendix I: NBLT budget table

Budget Table:

Item	Description	Grant Request	Match	Total	Source
Contracted invasive species management	Contracted invasive species management at Forest Echo and Hanover Crossings	$4,500	$5,000	$9,500	Donated Services; Grant (pending); and NBLT Budgeted funds
Administrative	NBLT Staff Time Devoted to managing project as well as Stewardship, Enviro. Edu. and Outreach	$500	$3,500	$4,000	Grant (pending); and/or NBLT Budgeted funds
Travel	Travel expenses for site visits		$500	$500	NBLT Budgeted Funds

Appendix II: Love et al Budget table

Budget Table

2026	Description	Budget
	Regular Personnel	$0
	Contractual Personnel	$0
	Total Regular & Contractual Personnel	$0
	Fringe Benefits	$0
	Total Salary & Fringe Benefits	$0
Indirect Cost Rate 17.11%	Indirect Costs	$0
In State Travel		$560.00
Equipment		$0
Supplies		
Bait Fish (30 fish x 2 species x 5 stores x 1.00/fish)		$300.00
VHS Testing (5 stores x $250/store)		$1,250
Printer paper, ink		$200
Contractual		**$0**
Construction		**$0**
Other		**$0**
	Total Direct Charges-Non-Salary	$2,310.00
	Total Direct Charges-Salary & Fringe Benefits	$0
	Total Direct Charges	$2,310.00
	Total Indirect Costs	$0
	Grand Grant Total	$2,310.00

Appendix III: EJJI Budget table

Budget Table

Description	Charge	Hours Per Week	Duration	Monthly Cost	Annual Cost
Salaries					
Environmental Researcher	$17/hr	20	1 year	$1,360	$16,320
Content Development	$15/hr	10	1 year	$600	$7,200
Community Outreach Coordination	$15/hr	10	1 year	$600	$7,200
Materials					
Printable materials (signs, pamphlets, infographics, educational sheets)	$500	n/a	1 year	n/a	$500
Fringe					
Insurance, administration, project management	13%	n/a	1 year	n/a	$4,058.60
Total					$35,278.60

Appendix IV: Allegheny College Budget table

Budget Table

1	Equipment	Item Number	Price per unit	Quantity	Total
a.	BioMark Litz System, Control Node	IS1001-24V	$2,195	1	$2,195
b.	BioMark Litz System, Data Logger USB	IS1001	$335	1	$335
c.	BioMark Litz System, Rec N Peake Block		$365	3	$1,095
d.	Battery Box, Small Green	BATTBOX	$1,450	1	$1,450
e.	Solar Panel Kit	VIC 150/45	$2,575	1	$2,575
f.	Exciter Cable Antenna	EXC IL-F20'	$595	1	$595
g.	Conduit- Superflex	Superflex 3/4	$20	4	$80
2	**Supplies**				
a.	BioMark Litz System, Battery 85aH	BATT 85AH	$385	4	$1,540
3	**Other**				
a.	Shipping and Handling		$600	1	$600
b.	Publication Costs		$2,000	1	$2,000
Total					**$12,465**

Appendix V: Cao Budget table

D. Budget Table

Category	Estimated Cost ($)
Travels (Content Development and Storytelling, Outreach with Public Schools and Community)	1,960
Salary (Graduate Student Interns for Game Development)	10,800
Fringe Benefit Cost	864
Materials and Supplies	1,856
Indirect Cost	1,548
Total	17,028

Appendix VI: Boersema Budget table

Budget Table

Personnel					
Name	Role	Effort	Salary	Benefits	Total
Lisa Murphy	PI	0.12 Calendar Months	$1,660	$523	$2,182
Brenna Aizen	Supervisor	0.12 Calendar Months	$755	$238	$993
Robyn Strong	Dog Handler	1.0 Calendar Month	$4,642	$1,462	$6,104
Travel					$840
Supplies					
Dog Training Supplies					$700
Dog Decontamination Supplies					$300
Home Aquarium					$500
Total Direct Costs					$11,620
Indirect Costs (62.5%)					$7,262
Total Costs					$18,882

Appendix VI: Boersema Budget table

Budget Table

Personnel					
Name	Role	Effort	Salary	Benefits	Total
Lisa Murphy	PI	0.12 Calendar Months	$1,660	$523	$2,182
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Dog Training Supplies					$700
Dog Decontamination Supplies					$300
Home Aquarium					$500
Total Direct Costs					$11,620
Indirect Costs (62.5%)					$7,262
Total Costs					$18,882

Appendix VII: Silldorff Budget table

Project Budget

Delaware Riverkeeper Network

Community Empowered Volunteer Monitors Help Educate By Flotilla & Land to Disseminate BMPs During Popular Summer Boat Launch Season Along Wild & Scenic Delaware River

Project Budget

Expense Categories	**This Request**
Salary	$4,340
Fringe / Benefits	$1,519
Permanent Equipment	$0
Expendable Supplies & Equipment	$720
Travel	$700
Publication & Documentation	$0
Indirect Costs *(15% de minimus rate)*	$1,092
Total Project Expenses	**$8,371**
Project Match	
National Park Foundation	$19,910
Volunteer in-kind time	$17,950
Total Project Match	**$37,860**

Appendix VI:
Maryland State Spring 2025 Update to MAPAIS

Blue catfish: Contact: Branson Williams (branson.williams@maryland.gov) and Joe Love (joseph.love@maryland.gov).

The department has engaged multiple fronts to reduce abundance and impacts by blue catfish in Chesapeake Bay.The department has developed a process to contract and incentivize 20 commercial harvesters and 16 professional bowfishing and angling guide services to remove blue catfish from Chesapeake Bay watershed. The department has also identified five invasive fish harvest tournaments in 2025 to support, including two tournaments that are co-organized as education events with the department. Funding received through USDA APHIS currently supports these initiatives in 2025.

Additional funding from U.S. Fish and Wildlife Service currently supports four contracts with commercial harvesters and professional angling guide services to enhance long-term capacity for removing blue catfish from Chesapeake Bay watershed (Potomac River, mid- and upper Chesapeake Bay, Susquehanna River, and Chester River). Following discussions with the department's Invasive Catfish Advisory Committee and members of the general assembly in 2024, the department sought to expand opportunities for commercial harvesters to remove blue catfish from Chesapeake Bay by expanding the ability to use finfish trotlines south of Chesapeake Bay bridge and to sell blue catfish taken commercially during chartered trips. Each of these opportunities was made possible with pilot projects developed and managed in 2025 by the department. The department is currently working on a monitoring protocol that includes summertime harvest of blue catfish using boat electrofishing, which will additionally provide an opportunity in 2025 for commercial licensees to observe and obtain blue catfish. Thanks to a combination of recent federal funding, the department is able to update its aged boat electrofishing fleet with two new boats. Both have been ordered and are scheduled to arrive in 2025. These boats will purposely be used for removal and research of invasive fishes, including blue catfish. To examine the influence of size- selective harvest on causing population declines, the department is currently leveraging state and federal funds to work with the U.S. Geological Survey and create a size-structured, population dynamics model. The department allocated funds from the Aquatic Nuisance Species Task Force to support empirical studies performed by Salisbury University to determine if harvest by boat electrofishing of large blue catfish from targeted populations will cause changes in the length-frequency distribution of the population. The department has also allocated federal funds to determine the economic value of the recreational harvest fishery for blue catfish. As harvest is a principal mechanism for controlling abundance impacts by blue catfish, the investment by recreational harvesters must be recognized in order to determine if the level of economic benefit outweighs the ultimate cost to promote the recreational harvest fishery with

outreach, expanded consumption advisories, and tournament incentives. The contract for this work has been fully executed and will be begun by researchers at Morgan State University in 2025. Following the department's first focus group testing marketing ideas, which was funded by the Aquatic Nuisance Species Task Force, the department worked with the Maryland Department of Agriculture's Seafood Marketing Program to develop a three-pronged marketing campaign that will begin in April 2025 and target recreational anglers, outdoor enthusiasts, and seafood consumers with vital and targeted messaging. The department continues to work with the Seafood Marketing Program to identify additional markets for commercially sold blue catfish, such as fertilizer and pet food, which broadens the market and removes more blue catfish from Chesapeake Bay. Thanks to funding by Aquatic Nuisance Species Task Force, the department worked with the Maryland Department of Environment (MDE) to expand testing for biocontaminants in blue catfish, which was accomplished leading to an updated, revised and more consumer-friendly fish advisory guide for recreational harvesters. Reallocated funding from the Aquatic Nuisance Species Task Force has also supported collaboration with Amy Laliberte (MDE) and Dr. Ellen Dierenfeld (World Wildlife Fund) to secure a contractor to test whole fish for nutritional value for the purpose of delivering undersized blue catfish to zoo animals for food. A company has been selected and samples will be obtained for testing during late spring or early summer.

Northern snakehead: Contact: Branson Williams (branson.williams@maryland.gov) and Joe Love (joseph.love@maryland.gov).

In 2025, the department co-published several years of research in Blackwater River drainage aimed at learning more about the ecosystem-level impacts of northern snakehead in freshwater and oligohaline marshes. This open-source publication is: Newhard, J.J., J. Love, and M. Walker. 2024. Changes in fish communities before and after establishment of northern snakehead in an estuarine marsh of the Chesapeake Bay watershed. Journal of Fish and Wildlife Management 15:380-394. The department received federal funding from the U.S. Fish and Wildlife Services to support efforts aimed at removal of northern snakehead from Maryland waters. Three competitive harvest-based tournaments have been supported by these funds in 2025, one on Marshyhope Creek, one organized by the department on Gunpowder River, and one to incentivize harvest of snakeheads from upper Chesapeake Bay. Federal funds also currently support a collaboration between the department and its partners to minimize introduction of snakeheads to the upper Susquehanna River by removing snakeheads from fish lifts operating at Conowingo Dam. The west fish lift (WFL) has been designed such that fishes can be sorted by people and targeted species, translocated upstream. Due to concerns related to passing invasive fishes further upstream, 100 percent sorting of all fish began in 2021. Over 4,700 northern snakeheads have been removed from the fish lifts since 2021, which remove more by weight than commercial harvest baywide. In spring 2025, a staff person has been hired to help collect fish and provide them to

fish processors who will donate the meat. Additionally, a refrigerator unit has been emplaced on site. The department is currently working with U.S. Fish and Wildlife Services and U.S. Geological Survey to explore long-term solutions that may include stimuli and artificial intelligence that deter, identify and select against the passage of invasive fishes. Additional invasive fishes, such as blue catfish and flathead catfish, have been collected in the fish lift and the non-native, freshwater drum (*Aplidonotus grunniens*) exists at the base of the dam and may be passed in the future. After several years of funding by the Aquatic Nuisance Species Task Force, early-detection procedures, along with a decision tree following detection, for northern snakehead using eDNA has been developed and is being field-tested. A combination of funding from Aquatic Nuisance Species Task Force and the U.S. Fish and Wildlife Survey has supported development of a survey for northern snakehead by sampling multiple locations using eDNA (Liberty Reservoir, Little Seneca Lake, Loch Raven Reservoir, Prettyboy Reservoir, and Triadelphia Reservoir). Two Smith-Root backpack eDNA samplers have been purchased and were used to collect water samples. Little Seneca Lake and Loch Raven Reservoir were expected to test positive for northern snakehead. Indeed, of 62 total samples for Loch Raven Reservoir and Little Seneca Lake tested for northern snakeheads, 54 tested positive, which supports that snakeheads exist in each waterbody. As expected from departmental surveys and angler catches, no samples tested positive for northern snakehead in Prettyboy Reservoir or Triadelphia Reservoir; however, 5 of 14 samples tested positive for Liberty Reservoir, where northern snakehead has not yet been collected by department or reportedly caught by anglers. However, in July 2022, the department received a report from a member of the general public who observed two adults guarding about 5,000 young fry in Liberty Reservoir; the person also reported that they had heard others bragging about sportfish anglers stocking them.

<u>MD State Lakes Efforts</u>

MD DNR will continue to treat for invasive and nuisance natives at the following parks: Greenbrier State Park, Tuckahoe State Park, Rocky Gap State Park and Blairs Valley NRMA.
Deep Creek Lake will continue its launch steward program as well as treat two coves for hydrilla in 2025. MD DNR Trapa control efforts

DNR will continue to use Maryland Conservation Corps crews to assist with the Bird River collection of

Trapa natans. Efforts on the Sassafras River coupled with increased salinity in 2023-24 have dramatically decreased populations on that river.

In summer of 2025, DNR worked with USFWS to remove beavers from Beaverdam Pond and breach the dam, draining the pond to control Trapa bispinosa. DNR also organized volunteer groups to harvest Trapa bispinosa in Buddy Attick Lake Park.

DNR has been working with the Todd Lakes community board to develop a management plan to control Trapa natans their community

Appendix VII:
Pennsylvania State Spring 2025 Update to MAPAIS

Pennsylvania Fish and Boat Commission

MAPAIS Updates, Spring 2025

· In December 2024, the Pennsylvania Fish and Boat Commission (PFBC)'s Aquatic Invasive Species (AIS) Coordinator delivered educational lectures on AIS to several groups, including the Middle Susquehanna Master Naturalist Chapter, Keystone College, and the agency's Northcentral Bureau of Law Enforcement staff.

· During Winter 2025, the PFBC's Digital Director collaborated with the agency's AIS Coordinator to develop social media outreach content for National Invasive Species Awareness Week (February 24th – 28th). Content included general "Clean, Drain, Dry" messaging, as well as a mini "swipe left on invasive species" campaign, which contrasted Pennsylvania native species of conservation concern (swipe right) with AIS (swipe left).

· In January 2025, the PFBC made several updates to Pennsylvania's Control Plan for invasive New Zealand Mudsnails:

https://www.pa.gov/content/dam/copapwp-pagov/en/fishandboat/documents/conservation/ais/ais-control-plan-nzm.pdf

· During March 2025, the PFBC's AIS Coordinator participated in the agency new "Mission Mondays" program via a live-streamed lunch hour talk on AIS. Approximately 70 persons tuned in, and a recording will be made available in the future on the PFBC's website. The talk focused on a general introduction to AIS in Pennsylvania: what they are and how to prevent their spread.

· During March 2025, the PFBC's AIS Coordinator delivered a half-day introductory training lecture on AIS in Pennsylvania to the agency's new class of approximately 20 Water Conservation Officer (WCO) Cadets. Content included a general overview of AIS, vectors of spread, biosecurity, and regulations related to AIS in Pennsylvania. Upon completion of their training (approximately one year), the Cadets will be assigned to county districts in Pennsylvania where they will enforce PFBC regulations, including those related to AIS.

· PFBC staff are currently working on conjunction with staff from the Pennsylvania Game Commission to update Pennsylvania's Wildlife Action Plan for 2025-2035. A notable feature for this update will be a chapter focused on the potential impacts of invasive species (aquatic and terrestrial) on Species of Greatest Conservation Need (SGCN) and their habitats. The updated plan is anticipated for completion in late 2025.