Mid-Atlantic Panel on Aquatic Invasive Species

Final Report for USFWS Grant F12AP01037

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Fiscal Agent: Maryland Sea Grant College

Report to the Aquatic Nuisance Species Task Force

The mission of the Mid-Atlantic Panel is to assist state and federal agencies and other stakeholders in developing and implementing strategic, coordinated, and action-oriented approaches for the prevention and control of aquatic invasive species in the mid-Atlantic region, and to coordinate and communicate these activities with the other Regional Panels, the ANSTF, and other partners.

Funding from USFWS is used to support MAPAIS business, including coordination and logistics for MAPAIS meetings, travel for MAPAIS participants at ANSTF meetings and regional panel meetings, the MAPAIS website, the MAPAIS small grants competition, and payment for fiscal management services provided by Maryland Sea Grant.

Panel Coordination

The Mid-Atlantic Panel has held coordination meetings biannually since inception in 2003. During this grant period, no meetings were held in 2017 due to the "strategic pause". Meetings were one to two days, highlighting AIS issues of importance to the region, activities of the ANSTF, small grants competition and presentations, and business of the panel. The panel and its meetings were supported by a staffer from the US EPA Chesapeake Bay Program, who helped organize panel meetings and coordinate the logistics for assembling the group.

The Panel has an active membership representing federal, state, regional and academic partners in the Mid-Atlantic region, including Washington, D.C., and the states of New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, West Virginia, and North Carolina. Three chairs during this period have included Sarah Whitney (PA), Ray Fernald (VA), and Jay Kilian (MD).

During the grant period, the Panel updated its Standard Operating procedures to reflect current practices (http://www.midatlanticpanel.org/wp-content/uploads/2018/11/MAPAIS_SOP_Final_July2018.pdf).

During 2016, the panel funded a redesign and update of its website (www.midatlanticpanel.org). The new site contains information and documents about the panel, a membership roster, records of all panel meetings (agendas and minutes), small grants competition information, resources for panelists and interested individuals, and a record of funded projects starting in 2012.

The chair represents the MAPAIS at the biannual meetings of the Aquatic Nuisance Species Task Force. The chair has participated fully in the meetings, presented any recommendations brought forward by the Panel, and also participated in "All Panel" meetings as appropriate. Funds from this grant have supported travel for the chair or designee to each of these meetings.

Mid-Atlantic Panel Meetings During Performance Period	
November 7-8, 2012	Raleigh, NC
June 5, 2013	Harrisburg, PA
December 17-18, 2013	Annapolis, MD
June 25-26, 2014	Annapolis, MD
December 11-12, 2014	Virginia Beach, VA
June 30, 2015	Annapolis, MD
November 17-18, 2015	Lewes, DE
May 17-18, 2016	Annapolis, MD
November 15-16, 2016	Annapolis, MD
July 17, 2018	Alexandria, VA
November 14-15, 2018	Harrisburg, PA
April 10, 2019	Annapolis, MD
http://www.midatlanticpanel.org/meetings/past-meetings-archive/	

Small Grants Competition

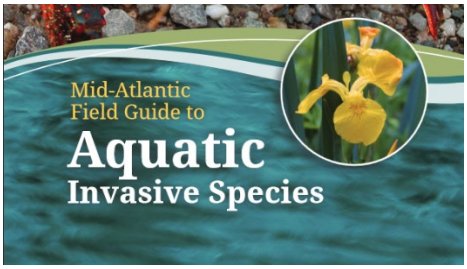
The Panel has conducted an annual grants competition to fund activities addressing MAPAIS's mission and regional priorities. Requests for Proposals (RFP)are discussed with the Panel membership and reviewed and approved by the Executive Committee before being released to the public. The RFP is the advertised on the Panel website (http://www.midatlanticpanel.org/grant-and-funding-sources/) and announced through the Panel listserv and by members within each of the states. Panel leadership review all submitted proposals for compliance to RFP guidelines and then provide a peer review of each of the submissions. At the spring or summer meeting, proposals are evaluated by the panel and selected for funding. Maryland Sea Grant then administers the subawards for all projects. Grant recipients are required to submit an annual and/or final report as well as report to the Panel on the outcomes of the work, usually through a virtual or in person presentation. In total $217,311 was allocated to these projects from 2012-2018 and $215,178 was expended by recipients.

Other Important Products and Accomplishments
The Panel helped to support two conferences during this performance period, including **International Conference on the Invasive Alga *Didymosphenia geminate*** and the **First International Snakehead Symposium**. The alga conference led to a publication in Diatom Research and the snakehead symposium led to a feature in Fisheries Magazine as well as a proceedings.

Elwell LC, Gillis C, Kunza L, Modley MD. 2014. Management Challenges of *Didymosphenia geminate*. Diatom Research. 29 (3): 303-305.
https://doi.org/10.1080/0269249X.2014.929030

Odenkirk, JS. 2018. The First International Snakehead Symposium: News from the Front(s)
https://afspubs.onlinelibrary.wiley.com/doi/full/10.1002/fsh.10218

Odenkirk JS, Chapman DC, eds. 2019. Proceedings of the First International Snakehead Symposium. American Fisheries Society. Symposium 89.
https://fisheries.org/bookstore/all-titles/afs-symposia/54089c/



The Panel also funded the production of the Mid-Atlantic Field Guide to Aquatic Invasive Species. Led by Pennsylvania Sea Grant's Sara Stahlman, this 200+ page guide highlights invasive species across the region. Paperback and field quality guides were produced and distributed free of charge to stakeholders from each of the states. High- and low-resolution PDF documents of the guide are also available on the Panel website.
(http://www.midatlanticpanel.org/mapais_resources/)

Small Grants Portfolio During This Project Period
Project abstracts are available on the website as well as any published materials that resulted from the project. Final reports for each project have been submitted to the USFWS during annual reporting and have been captured more recently in the "Annual Activities Report." Final reports are also available from the panel upon request.
http://www.midatlanticpanel.org/research/funded-projects/

ID	Title	Grantee	Summary	Grant Status
A	Development of a Strategic Plan for Eradicating Established Nutria Populations in VA and NC	Virginia Tech (PI: Scott Klopfer)	Development of a strategic plan that will provide specific details on actions, resources required, and procedures for controlling nutria. Ultimate goal is to estimate costs of implementation and eradicate nutria within the Chowan-Roanoke and Lower Chesapeake hydrologic subregions in VA and NC	Completed July 2014

B	Development of a West Virginia Invasive Species Management Plan	West Virginia Department of Natural Resources (PI: Walter Kordek)	Development of a comprehensive statewide aquatic and terrestrial invasive species plan that will include education, prevention, early detection, inventory, various treatment methods, monitoring, and restoration.	Completed July 2014
C	The Good, the Bad and the Ugly: An Invasive Species Toolkit for Educators	Maryland Department of Natural Resources (PI: Kerry Wixted)	Engage the public in understanding their role in causing and reducing the spread of invasive species. DNR will create a 'toolkit' to be used in both formal classrooms as well as in non-formal settings for multiple grade levels.	Completed December 2015
D	International Conference on the Invasive Alga *Didymosphenia geminata*	Invasive Species Action Network (PI: Leah Elwell)	Sponsorship of conference. As a direct result of the conference, a group of participants completed a management/policy recommendation white paper to assist managers in dealing with didymo both in the Mid-Atlantic and nationally.	Completed July 2013
E	Bushkill Township Invasive Species Management Project	Hanover Engineering Associates (PI: Jason Smith)	Management Project includes three primary components, including: 1) Invasive Species Identification and Mapping, 2) Action Plan for Invasive Species Treatment, 3) Social Media and Application Development – Hanover Engineering will prepare a web--based GIS application for invasive plant species.	Completed December 2014
F	Invasive Species: From the Hudson River to your Classroom	Cary Institute of Ecosystem Studies (PI: Alan Berkowitz)	This project proposes to develop, implement, and evaluate a hybrid learning course for educators on aquatic invasive species through a blend of online, field, and traditional classroom methods.	Completed July 2014
G	Environmental DNA monitoring of the invasive freshwater diatom, *Didymosphenia geminate*, in Mid-Atlantic waters	University of Maryland Center for Environmental Science (PI: Robert Hildebrand)	Use genetic monitoring on eDNA samples to establish monitoring network for highly invasive *Didymo*	Completed July 2015

H	Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania	Pennsylvania State University (PI: Edward Levri)	The presence of the NZMS in central Pennsylvania is a cause for concern because of the substantial ecological changes that can occur due to its presence. This	Completed September 2016
I	Mid-Atlantic Field Guide to Aquatic Invasive Species	Pennsylvania Sea Grant (PI: Sara Stahlman)	This project proposes to expand the Pennsylvania field guide to become a regional Mid-Atlantic AIS field guide that will include 20-30 new species of concern from New York, New Jersey, Delaware, Maryland, West Virginia, Virginia, and North Carolina, as well as Pennsylvania.	Completed September 2016
J	Engaging Lawyers to Facilitate Access to Private Land for Eradication and Control of Aquatic Nuisance Species	National Sea Grant Law Center (PI: Stephanie Otts)	The Project Team proposes to work with the Mid-Atlantic Panel on Aquatic Nuisance Species to improve regional understanding of the strategies available to access private land for eradication and control of aquatic nuisance species and lay the foundation for the collaborative development of guidance for implementation.	Completed September 2015
K	Training and Evaluation of Dogs for Early Detection of Nutria (*Myocastor coypus*)	Virginia Dept. Game & Inland Fisheries (PI: Todd Engelmeyer)	This project will be a pilot program for training dogs to detect nutria on the edges of their range in Virginia.	Completed December 2016
L	Economics Analysis of AIS Risk and Risk Reduction in the Bloodworm Trade	Main Street Economics (PI: Robert Wieland)	This project will provide an economic analysis of the cost to various constituencies involved in the bloodworm vector.	Completed September 2017
M	Pymatuning Invasive Species Boat Inspection Stations	Crawford County Conservation District (PIs: Brian Pilarcik and Stacie Hall)	This project will provide support to import the invasive species boat inspection model to Pennsylvania.	Completed September 2017
N	The use of environmental DNA (eDNA) to detect the emergent infectious pathogens in amphibian populations	Pennsylvania State University (PI: James Julian)	This project will develop and teach eDNA collection techniques to citizen scientists to screen for invasive, emergent infectious amphibian pathogens.	Completed July 2018

O	First international snakehead symposium	Virginia Chapter American Fisheries Society (PI: John Odenkirk)	This symposium will bring together snakehead researchers and AIS specialists from around the globe, to share information regarding this species.	Completed July 2018
P	Monitoring to manage: determining best population control approaches for the northern snakehead, *Channa argas*, in Jug Bay tidal freshwater marshes, Patuxent River	Jug Bay Wetlands Sanctuary (PI: Melinda Fegler)	This project will evaluate the relative effectiveness of public engagement and education, and of various control practices in monitoring and managing northern snakeheads in Jug Bay tidal marshes	Completed September 2018
Q	Mid-Atlantic lake forum: a regional approach to AIS control and management	Maryland Department of Natural Resources (PI: Mark Lewandowski)	This project will bring together professionals from Mid-Atlantic states to develop a multijurisdictional approach and regional plan to control AIS in public and private lakes of the Mid-Atlantic region.	Completed June 2019 – Report Attached
R	Using environmental DNA to detect early stages of the invasion of a destructive freshwater snail	Pennsylvania State University (PI: Edward Levri)	Building on previous work funded by MAPAIS, this project will further characterize the eastern invasion by NZMS, and facilitate early detection and rapid response along the invasion front.	Completed July 2018
S	An analysis of the recreational vector and associated pathways to aid in the prevention of invasive species introductions in Mid-Atlantic waterways	Morgan State University PEARL Laboratory (PI: Scott Knoche)	This project will analyze data traditionally collected for recreational boating/fishing management, as an AIS pathway risk analysis of boating and fishing activities.	Completed December 2018 – Report Attached