

# Aquatic Nuisance Species Task Force Activity Reporting Form

#### Form Instructions:

Report Type: Select Federal Member, Ex officio Member, or Regional Panel.

**Affiliation:** Specify the entity that the report will represent. If reporting for more than one entity, a separate form should be completed for each organization.

**Point of Contact:** Information for the individual who can address any follow-up questions about the form.

**Accomplishments and Ongoing Efforts:** Information should be completed for each specific Activity conducted within your organization that supports the goals and objectives of the ANSTF Strategic Plan. Additional pages will be generated as needed. Requested information for each Activity includes:

- Activity Title: A distinct title that can be used to identify the Activity.
- Activity Description: Brief description about the Activity that includes its goal, implementation steps, and how it
  supports the ANSTF Strategic Plan. If the Activity has been completed, include a short statement about what was
  accomplished. If the Activity is ongoing, include a short statement on what has been achieved to date.
- **Status:** Select Planned, Ongoing, Complete, or Routine Operation. Routine Operations are those that are performed on a routine basis to support the ANSTF or reporting organization (e.g., meetings, maintaining databases / websites).
- **Start / End Date:** Indicate the time frame when the Activity will be conducted. Fiscal Year(s) is sufficient; if more detailed information is available, please indicate.
- Lead Organization: Agency, Regional Panel, organization, or committee responsible for project implementation
- Partners Organization(s): Other entities involved in the projects. Please list all partners, even those not associated with ANSTF.
- Funding Amount and Source(s): Select the appropriate funding type and specific the specific agency / organization. For each funding type selected, include the amount of funding provided per fiscal year. Total Funding will be automatically calculated. If funding is "To be Determined"; indicate as "0" and note as such in "Additional Comments."
- Relation to the ANSTF Strategic Plan Goals and Objectives: Select the ANSTF Strategic Plan Goals and Objectives
  supported by the project. If the project clearly supports multiple goals, selecting more than one is acceptable. For
  each Goal selected, indicate the amount of funding spent for the management category (from all sources) per fiscal
  year. Total Funding will be automatically calculated; ensure that the amount matches the Total Funding in the
  Funding Amount and Source(s) section above.
- Additional Comments (optional): Any additional information you feel is necessary to adequately describe the Activity and its relationship to the ANSTF Strategic Plan.
- **Documents and Images** (optional): Citation, internet link, for documents and images relevant to this project. Write "Attached" if documents or images will be attached to the form submission.

Report Type:		Regional Panel
Member or Pa	nel: [	Mid-Atlantic Panel on Aquatic Invasive Species
Point of Conta	act:	
Name:	Ray Fern	ald
Title:	Chair, Mi	id-Atlantic Panel on Aquatic Invasive Species
Organization	Virginia	Department of Game and Inland Fisheries
Address	P.O. Box	90778, 7870 Villa Park Drive, Henrico, VA 23228-0778
E-mail:	ray.ferna	ald@dgif.virginia.gov
Phone:	804-367-	-8364

Activity Title:	Administration and Coordination of Panel Activities, and interagency Communications
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Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

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. The MAPAIS chair attended all ANSTF meetings in FFY2015-2016.

The fall 2014 MAPAIS meeting was held December 10-11 in Virginia Beach, VA. The meeting focused on AIS issues of concern in Virginia, with presentations on blue catfish, nutria, snakehead, feral hogs, and phragmites, as well as presentations about issues of regional concern such as hydrilla, AIS in aquariums, and invasive species harvest incentives. A field trip informed MAPAIS members regarding monitoring and eradication of nutria and feral hogs. Sarah Whitney and Steve Minkkinen stepped down as Panel chair and vice-chair, and Ray Fernald and Mike Allen were elected to serve as chair and vice-chair, respectively.

The spring 2015 MAPAIS meeting was held June 30 in Annapolis, MD, and focused on Small Grant Program (SPG) presentations. The panel also deliberated and made decisions on the 2015 Small Grants competition and the FFY2016 MAPAIS budget.

The fall 2015 MAPAIS meeting was held November 17-18 in Lewes, DE. The meeting focused on AIS issues of concern in Delaware, including invasive shore crabs, DE's Invasive Species Council, use of water buffalo for invasive plant control, phragmites control, and restoration of northern diamondback terrapin nesting habitat. Other presentations covered the Chesapeake Bay Sentinel Site Cooperative, waterwheel plant in Virginia, updates on ongoing SPG projects, and a tour of the UDE Research Facility.

The spring 2016 MAPAIS meeting was held in Annapolis, MD, and focused on our website rebuild project, the proposed Vessel Incidental Discharge Act, discussion of boat/trailer inspection/decontamination programs in the Mid-Atlantic region, SPG project updates, and proposal review / awarding of subgrants under our 2016 Small Grants Program.

This Activity supports Objectives 1.1, 1.2, 1.3, and 1.4 of the ANSTF Strategic Plan by enhancing coordination among MAPAIS agencies and partners, and the ANSTF, regarding all facets of AIS prevention, detection, and control.

-	' ' -	, 3 3	_ ′	
Stat	us:	Routine Operation		
Star	t Date:	1 October 2014		
End	Date, if applicable: $\Big[$	30 September 2016		
Lead	d Organization:	MAPAIS		
Part	ner Organization(s):	All Panel members and organizations, and invited s	peakers and public guests at	MAPAIS meetings.
Fun	ding Amount and S	ource(s)		
	-	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
$\boxtimes$	Federal Agend	U.S. Fish and Wildlife Service	5,850	4,850
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institutio	on		
	NG	0		
	Othe	or .	]	
	Othe	=1		

**Total Funding for Activity** 

5,850

4,850

# Relation to the ANSTF Strategic Plan Goals and Objectives

$\boxtimes$	Coo	ordination		\$ Amount FY 15	5,850	\$ Amount FY 16	5,000
		Objective 1.1: Stre	ngthen the co	ordination capacity	y of the ANSTF		
		Objective 1.2: Eval ANSTF goals and c		y of statutory autho	orities, regulations, a	and programs neces	sary to implement
	•	Objective 1.3: Facil	litate the deve	lopment and conti	inued effectiveness	of State and intersta	ite ANS managemen
		management plan	is and pathway	/ management pla			
		Objective 1.5: Coo to prevent, detect,	•		ighboring waters an	nd shared pathways	with the United State
	Prev	vention		\$ Amount FY 15		\$ Amount FY 16	
		appropriate measu Objective 2.2: Facil pathways for the in	ures litate use of sc ntroduction of	ience-based risk as ANS or potential s		ning procedures to	assess and prioritize
	Ш	work conducted b	y natural resou	urce managers			
	Early	y Detection / Rapid	d Response	\$ Amount FY 15		\$ Amount FY 16	
		Objective 3.1: Faci	litate surveys a	and monitoring to	detect ANS		
		Objective 3.2: Mak	e taxonomic a	nd ecological infor	rmation and experti	se readily available	
		Objective 3.3: Incre	ease public an	d industry involver	ment in early detecti	ion and rapid respo	nse programs
		Objective 3.4: Faci	litate developr	ment of rapid respo	onse contingency pl	ans	
		Objective 3.5: Build	d capacity to re	espond rapidly to i	nvasions		
	Con	trol and Managem	nent	\$ Amount FY 15		\$ Amount FY 16	
		Objective 4.1: Supp	port and evalu	ate ANSTF-approv	ed control and man	agement plans	
		Objective 4.2: Incre	ease invasive s	pecies training for	natural resource ma	anagers and leverag	e participation
		Objective 4.3: Eval or eradication	uate the bene	fits and risks associ	ated with the comm	nercial harvest of AN	IS as a means of cont
		Objective 4.4: Enco	ourage an Inte	grated Pest Manag	ement (IPM) approa	ich to manage existi	ng ANS populations.
	Rest	toration		\$ Amount FY 15		\$ Amount FY 16	
		Objective 5.1: Rest	ore impacted	ecosystems			
		Objective 5.2: Add habitat restoration	-	de technical assista	ance for invasive spe	ecies management l	pefore, during, and a

	Edu	cation and Outreach	\$ Amount FY 15		\$ Amount FY 16	
		Objective 6.1: Increase understa ANS and actions that can be tak		•	problems and impa	icts associated with
		Objective 6.2: Disseminate ANS	outreach and techr	nical guidance mater	rials to target audier	nces
		Objective 6.3: Promote the use related to ANS	of guidance docum	ents, best managem	nent practices and o	ther outreach materials
		Objective 6.4: Promote awarene and solutions and to legislators		•	rovide educational b	oriefings on ANS threats
	Rese	earch	\$ Amount FY 15		\$ Amount FY 16	
		Objective 7.1: Develop and main community	ntain a list of ANS re	esearch priorities; co	mmunicate this list t	to the scientific
		Objective 7.2: Develop and main ANS	ntain guidance doc	uments, protocols, a	nd best manageme	nt practices related to
		Objective 7.3: Track the progres	s of research activit	ies funded or priorit	ized by the ANSTF	
		Objective 7.4: Support developr	nent of socio-econo	omic research to qua	antify the economic	impact of ANS
		Objective 7.5: Support research	on interdiction me	thods for specific pa	thways of ANS3	
		Objective 7.6: Support efforts to to address ANS that have become		expand research rele	evant to control and	eradication measures
		Objective 7.7: Encourage resear	ch to develop speci	es invasion-risk fore	cast tools	
		Objective 7.8: Support existing of	databases and glob	al database network	xs .	
	Fun	ding	\$ Amount FY 15		\$ Amount FY 16	
		Objective 8.1: Secure dedicated	long-term funding	for the ANSTF Strat	egic Plan actions	
		Objective 8.2: Optimize use of convithin Federal agencies and add		ANS activities by eng	aging potential reso	ources and programs
		Objective 8.3: Develop a list of A	NS funding prioriti	es		
		<b>Total Funding for Activity:</b>	\$ Amount FY 15	5,850	\$ Amount FY 16	5,000
Add	ditior	nal Comments (Optional):				
MAI mos our Mar prov Doo	PAIS stored of our MAPA yland vided Cume	activity addresses virtually all ANSTF tates and agencies: Activities more d our USFWS funding among projects in als website redesign and relaunch, m Sea Grant, and travel by the MAPAIS to MAPAIS members or meeting part ents and Images (Optional) oring 2016mtg_minutes.pdf	irectly addressing spe our Small Grants Pro inimal expenses for r chair to semiannual cicipants for their time	ecific Goals and Object ogram. Other expendi neeting facilitation, ad ANSTF and All-Panel n e or travel expenses, u	tives are highlighted b tures include MAPAIS Iministrative and fiscal neetings. No reimburs nless provided for via	elow. MAPAIS allocates special projects such as support provided by ement is routinely a SGP subgrant.
A	dditi	onal Projects to Report?				
•		Yes Please continue	by entering infor	mation for the nex	ct project on the fo	llowing pages

 $\bigcirc$ 

Ongoing

Status:

Activity Title:	MAPAIS Small Grants Program (SPG)

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The Panel conducts an annual grants competition to fund on-the-ground activities addressing MAPAIS' mission and regional priorities. Since 2007, the Panel has awarded \$327,184 in project funding, and has leveraged over half a million dollars in partner funds. Funding for one project originally budgeted to FFY2013 funds, "The Good, The Bad, and The Ugly: an Invasive Species Toolkit for Educators" led by Kerry Wixted of the Maryland Department of Natural Resources, was extended at no additional cost through December 2015 to facilitate project completion. Thirteen new grant proposals requesting a total of \$242,884 were submitted in response to our 2014 Request For Proposals: three of these were approved at our spring 2014 meeting, for initiation in October 2014 using FFY2015 funds. These three projects included: (1) "Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania" led by Edward P. Levri of Pennsylvania State University; (2) "Engaging Lawyers to Facilitate Access to Private Land for Eradication and Control of Aquatic Nuisance Species" led by Stephanie Showalter Otts and Jeanette Manning of the University of Mississippi School of Law and the National Association of Attorneys General; and (3) "Mid-Atlantic Guide to Aquatic Invasive Species" led by Sara Stahlman of Pennsylvania Sea Grant.

At our spring 2015 meeting, the panel reviewed three proposals and decided to fund (FFY2016) one new project, "Training and Evaluation of Dogs for Early Detection of Nutria (Myocastor coypus)" led by Todd Engelmeyer of the Virginia Department of Game and Inland Fisheries, and also to supplement funding for waterproof copies of the Mid-Atlantic AIS Field Guide.

At our spring 2016 meeting, the panel reviewed eight SGP proposals, and selected three new projects for MAPAIS funding: addressing AIS Boat Inspection Stations, eDNA of amphibian pathogens, and economic analysis of AIS risk in the bloodworm trade.

Each SPG projects is documented below as a discrete Activity, beginning with the first fiscal year of project funding.

This Activity supports Objectives 1.1, 1.2, 1.3, and 1.4 of the ANSTF Strategic Plan by enhancing coordination among MAPAIS agencies and partners, and the ANSTF, regarding all facets of AIS prevention, detection, and control.

	L			
Start Date:		1 October 2014		
End	Date, if applicable:	30 September 2016		
Lead	d Organization: $igg[$	MAPAIS		
Partner Organization(s):		All Panel members participate in review and selection scheduled MAPAIS meetings.	on of Small Grant Program pr	oposals at regularly
Fun	ding Amount and S	ource(s)		
		Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
$\boxtimes$	Federal Agend	y U.S. Fish and Wildlife Service	0	0
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institutio	n		
	NG	0		
	Othe	er		
		Total Funding for Activity	0	0

# Relation to the ANSTF Strategic Plan Goals and Objectives

$\boxtimes$	Coo	ordination	\$ Amount FY 15 0		\$ Amount FY 16	0		
		Objective 1.1: Strengthen the co	oordination capacity o	of the ANSTF				
		Objective 1.2: Evaluate the abili ANSTF goals and objectives	ty of statutory author	ities, regulations, a	and programs neces	sary to implement		
		Objective 1.3: Facilitate the developlans	•			_		
		Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans						
		Objective 1.5: Cooperate with n to prevent, detect, and control	_	hboring waters an	d shared pathways	with the United State		
	Prev	rention	\$ Amount FY 15		\$ Amount FY 16			
		Objective 2.1: Take steps to inte appropriate measures						
		Objective 2.2: Facilitate use of sepathways for the introduction of			ning procedures to	assess and prioritize		
		Objective 2.3: Expand training a work conducted by natural reso		Analysis and Critic	al Control Point (HA	ACCP) program into		
	Early	/ Detection / Rapid Response	\$ Amount FY 15		\$ Amount FY 16			
		Objective 3.1: Facilitate surveys	and monitoring to de	etect ANS				
		Objective 3.2: Make taxonomic	and ecological inform	nation and expertis	e readily available			
		Objective 3.3: Increase public ar	nd industry involveme	ent in early detecti	on and rapid respor	nse programs		
		Objective 3.4: Facilitate develop	ment of rapid respon	nse contingency pla	ans			
		Objective 3.5: Build capacity to	respond rapidly to inv	vasions				
	Conf	trol and Management	\$ Amount FY 15		\$ Amount FY 16			
		Objective 4.1: Support and eval	uate ANSTF-approved	d control and mana	agement plans			
		Objective 4.2: Increase invasive	species training for n	atural resource ma	nagers and leverag	e participation		
		Objective 4.3: Evaluate the bendor eradication	efits and risks associat	ted with the comm	nercial harvest of AN	IS as a means of contr		
		Objective 4.4: Encourage an Inte	egrated Pest Manager	ment (IPM) approa	ch to manage existi	ng ANS populations.		
	Rest	toration	\$ Amount FY 15		\$ Amount FY 16			
		Objective 5.1: Restore impacted	ecosystems					
		Objective 5.2: Address and prov habitat restoration projects	ide technical assistan	ice for invasive spe	ecies management k	pefore, during, and af		

	Edu	cation and Outreach	\$ Amount FY 15		\$ Amount FY 16	
		Objective 6.1: Increase understance ANS and actions that can be tall	3 3	•	problems and impac	cts associated with
		Objective 6.2: Disseminate ANS	outreach and technical	guidance mater	ials to target audiend	ces
		Objective 6.3: Promote the use related to ANS	of guidance documents,	best managem	ent practices and otl	her outreach materials
		Objective 6.4: Promote awaren and solutions and to legislators		•	ovide educational bi	riefings on ANS threats
	Rese	earch	\$ Amount FY 15		\$ Amount FY 16	
		Objective 7.1: Develop and mai community	ntain a list of ANS resear	ch priorities; coi	mmunicate this list to	the scientific
		Objective 7.2: Develop and mai	ntain guidance documei	nts, protocols, a	nd best managemen	t practices related to
		Objective 7.3: Track the progres	ss of research activities fu	ınded or prioriti	zed by the ANSTF	
		Objective 7.4: Support develop	ment of socio-economic	research to qua	ntify the economic i	mpact of ANS
		Objective 7.5: Support research	on interdiction method:	for specific pat	hways of ANS3	
		Objective 7.6: Support efforts to address ANS that have become		nd research rele	vant to control and e	eradication measures
		Objective 7.7: Encourage resear	ch to develop species in	vasion-risk fore	cast tools	
		Objective 7.8: Support existing	databases and global da	tabase network	S	
	Fun	ding	\$ Amount FY 15		\$ Amount FY 16	
		Objective 8.1: Secure dedicated	l, long-term funding for t	he ANSTF Strate	egic Plan actions	
		Objective 8.2: Optimize use of c within Federal agencies and ad	_	ctivities by eng	aging potential reso	urces and programs
		Objective 8.3: Develop a list of	ANS funding priorities			
		<b>Total Funding for Activity</b>	\$ Amount FY 15 0		\$ Amount FY 16	)
Add	ditior	nal Comments (Optional):				
spec gov are eacl incl	cific Al ernme addres h indiv uded i	activity addresses virtually all ANST IS projects and activities to be devel ents, and other state and federal age ssed in the project-specific narrative vidual project. Expenditures related in the total reported under Administ ents and Images (Optional)	oped and implemented by encies. The Goals and Obje s below. Similarly, Small G to management of the bud	MAPAIS member ctives of each pro rant Project expe Igets, grants, and	agencies, NGOs, acado ject funded through o nditures are provided i	emic institutions, local ut Small Grants Program n the Activity Report for
A	dditio	onal Projects to Report?				
•		Yes Please continue	e by entering informat	on for the nex	t project on the fol	lowing pages

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Complete

1 October 2012

Status:

Start Date:

Activity Title:	Small Grant Project: The Good, the Bad and the Ugly; an Invasive Species Toolkit for Educators
Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:	

Invasive species of plants, animals and pathogens affect our everyday life, but often in ways that are not readily apparent to the public. This project is designed to provide comprehensive hands-on toolkits that teachers and other educators can use to deliver classroom lessons and exercises that fit their needs, meet state Standards of Learning and other educational requirements, target a wide range of age groups, educate teachers and students regarding AIS issues and specific threats, and motivate students to take action in their communities. The toolkit is designed to tell the story of invasive species in the eastern United States through five distinct units: (1) History of Invasive Species; (2) Introduction and Spread of Invasive Species; (3) Impacts to Natural Areas; (4) Impacts to Students' Lives; and (5) Student and Community Action.

The project provides: (1) Information, hands-on artifacts and other tools for classroom use; (2) Lesson ideas for incorporating invasive species topics into a variety of educational disciplines; (3) Correlation to Maryland environmental literacy and common core learning standards, National science standards, and STEM (Science Technology Engineering and Mathematics) goals; (4) Suggestions for student and community monitoring and action projects; and (5) Teacher/ environmental educator professional development to assure effective development and delivery.

The toolkits were distributed to appropriate agencies in all MAPAIS states, and thereby made available to educators.

This Activity directly supports Objectives 6.1, 6.2, and 6.3 of the ANSTF Strategic Plan by enhancing education and outreach regarding AIS. School, agency, and public adoption of AIS monitoring and actions taught through this Activity also support Objectives 3.1, 3.3, and 3.5 regarding early detection of and rapid response to AIS invasions.

End Date, if applicable:		31 May 2016					
Lead Organization:		Maryland Department of Natural Resources / Kerry Wixted					
Part	tner Organization(s):						
	L						
Fun	ding Amount and So						
		Source(s)	\$ Amount - FY 15	\$ Amount - FY 16			
$\boxtimes$	Federal Agenc	U.S. Fish and Wildlife Service (via MAPAIS)	0	0			
	State Governmen	t					
	Local Governmen	t					
	Tribal Governmen	t					
	Academic Institution	n					
	NGC						
	Othe	r					
		Total Funding for Activity	0	0			

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 16 \$ Amount FY 15 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 \$ Amount FY 16 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers Early Detection / Rapid Response \$ Amount FY 15 0 \$ Amount FY 16 0 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 \$ Amount FY 16 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration Objective 5.1: Restore impacted ecosystems

Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after

habitat restoration projects

$\boxtimes$	Edu	cation and Outrea	ch \$ Amount FY 15 0	\$ Amount FY 16 0
		•	ease understanding among the general pub nat can be taken to prevent and control ANS	blic of the problems and impacts associated with S
		Objective 6.2: Diss	eminate ANS outreach and technical guidar	nce materials to target audiences
		related to ANS	-	management practices and other outreach materia
		•	to legislators and other decision makers	ties and provide educational briefings on ANS thre
	Rese	earch	\$ Amount FY 15	\$ Amount FY 16
		community		orities; communicate this list to the scientific
		ANS	elop and maintain guidance documents, pr	rotocols, and best management practices related to
		Objective 7.3: Trac	k the progress of research activities funded	or prioritized by the ANSTF
		Objective 7.4: Supp	port development of socio-economic resear	rch to quantify the economic impact of ANS
		Objective 7.5: Supp	port research on interdiction methods for sp	pecific pathways of ANS3
			port efforts to identify gaps and expand resont have become established	search relevant to control and eradication measure
		Objective 7.7: Enco	ourage research to develop species invasion	n-risk forecast tools
		Objective 7.8: Supp	port existing databases and global database	e networks
	Fun	ding	\$ Amount FY 15	\$ Amount FY 16
		Objective 8.1: Secu	ure dedicated, long-term funding for the AN	NSTF Strategic Plan actions
			mize use of current funding for ANS activitiencies and additional partners	ies by engaging potential resources and programs
		Objective 8.3: Deve	elop a list of ANS funding priorities	
		Total Funding	for Activity: \$ Amount FY 15 0	\$ Amount FY 16 0
Ad	ditior	nal Comments (Op	tional):	
			rded for FFY2015 or FFY2016 because the final in prior to the final reports/presentations being sul	nvoices were processed at the end of FFY2014 when the lbmitted to MAPAIS.
Do	cume	ents and Images (C	optional)	
		Annual Performance t_EducationGuide_MI	Report and Final Report: AISToolkitPerfRpt_Wixt DNR2016.pdf	rted_MAPAIS20150924.pdf;
A	dditi	onal Projects to R	eport?	
•		Yes Plea	ase continue by entering information fo	or the next project on the following pages

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Activity Title: | Small Grant Project: Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The New Zealand mud snail (NZMS) was first documented in interior waters of Pennsylvania in the summer of 2013. In North America, populations of this species are entirely asexual (clonal) and consist of at least three distinct clones. One clone (US1) is highly invasive and has spread throughout much of the American west and southwestern Canada. Another clone (US2) is mostly relegated to the Laurentian Great Lakes and a few streams in upstate New York. A third clone in Idaho does not appear to be invasive. Presence of the NZMS in central Pennsylvania is of concern because of the substantial ecological changes that can accrue from this species. This project is designed to: (1) determine the extent of the invasion in Pennsylvania; (2) determine the diversity and identity of the clone(s) in this population; and (3) determine whether the clone(s) found in central PA possess characteristics different from other clones of the species that may influence their spread and invasiveness (e.g., desiccation tolerance, dispersal, and predator avoidance behaviors). To accomplish these goals, the researchers are surveying streams in central PA for the snail's presence, determining the genotypes of the snails from multiple locations, and conducting lab experiments to determine propensity of the snails to disperse, tolerate drying, and respond behaviorally to light and gravity. These behaviors have been documented to influence this species' ability to avoid predators.

Thus far, minimal expansion of the species' range in central Pennsylvania has been detected. The desiccation experiment revealed that the PA clone is different from the US1 clone in that the PA snails are less tolerant of being out of water. The grantee will examine the physical and chemical characteristics of the water at the locations where NZMS are absent/present to determine if some of their distribution can be explained by calcium concentration and/or conductivity. In addition, he will conduct geotaxis, photokinesis, and dispersal experiments with the snails using water with and without fish chemical cues to determine whether the PA clone can detect and respond behaviorally to predators in its new environment.

This Activity directly supports Objectives 7.6, 7.7, and 7.8 of the ANSTF Strategic Plan by supporting research regarding a specific AIS recently documented in the Mid-Atlantic region. By virtue of the incorporated surveys for this species, the project also supports Objective 3.1 and 3.2 of the Strategic Plan regarding early detection of and rapid response to AIS invasions.

Obje	ective 3.1 and 3.2 of the S	trategic Plan regarding early detection of and rapid	response to AIS invasions.	
Stat	us:	Ongoing		
Star	t Date:	1 October 2014		
End	Date, if applicable: $\Big[$	30 September 2016		
Lead	d Organization:	Pennsylvania State University / Edward P. Levri		
Part	ner Organization(s):			
Fun	ding Amount and S	ource(s)		
	3	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
$\boxtimes$	Federal Agend	y U.S. Fish and Wildlife Service (via MAPAIS)	12,000	0
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institutio	n		
	NG	0		
	Othe	er		
		Total Funding for Activity	12,000	0

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 16 \$ Amount FY 15 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 \$ Amount FY 16 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers Early Detection / Rapid Response \$ Amount FY 15 0 \$ Amount FY 16 0 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 \$ Amount FY 16 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration Objective 5.1: Restore impacted ecosystems

Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after

habitat restoration projects

	Edu	cation and Outre	each \$ Amount FY 1	5	\$ Amount FY 16			
		•	ncrease understanding among the s that can be taken to prevent and		problems and impa	icts associated with		
		Objective 6.2: Di	isseminate ANS outreach and tec	hnical guidance mate	rials to target audier	ices		
		related to ANS	romote the use of guidance docu	_	•			
		•	romote awareness of the ANSTF and to legislators and other decisic	-	rovide educational b	orietings on ANS threats		
$\boxtimes$	Rese	earch	\$ Amount FY 1	5 12,000	\$ Amount FY 16	0		
		community	evelop and maintain a list of ANS	·				
		ANS	evelop and maintain guidance do	ocuments, protocols, a	and best manageme	nt practices related to		
		Objective 7.3: Tr	rack the progress of research activ	rities funded or priorit	ized by the ANSTF			
		Objective 7.4: Su	upport development of socio-eco	nomic research to qua	antify the economic	impact of ANS		
		Objective 7.5: Su	upport research on interdiction m	ethods for specific pa	thways of ANS3			
			upport efforts to identify gaps and that have become established	d expand research rele	evant to control and	eradication measures		
		Objective 7.7: Encourage research to develop species invasion-risk forecast tools						
		Objective 7.8: Su	upport existing databases and glo	bal database network	<b>S</b>			
	Fund	ding	\$ Amount FY 1	5	\$ Amount FY 16			
		Objective 8.1: Se	ecure dedicated, long-term fundir	ng for the ANSTF Strat	egic Plan actions			
			Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners					
		Objective 8.3: De	evelop a list of ANS funding prior	ities				
		<b>Total Fundin</b>	g for Activity: \$ Amount FY 1	5 12,000	\$ Amount FY 16	0		
Ad	ditior	nal Comments (C	Optional):					
We	anticip	oate presentation o	of the project final report at the Fall 2	016 MAPAIS meeting in	mid-November 2016.			
Do	cume	ents and Images	(Optional)					
Atta	ached:	Annual Performan	ce Report: NZMudSnailPerfRpt_Levri	_MAPAIS20151130.pdf				
A	dditio	onal Projects to	Report?					
0	)	<b>Yes</b> P	Please continue by entering info	ormation for the nex	ct project on the fo	llowing pages		

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Activity Title: | Small Grant Project: Engaging Lawyers to Facilitate Access to Private Land for Eradication and Control of ANS

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

One fundamental right of property ownership is the right to exclude others, whether they are private individuals or government actors, from the property. In general, state agencies and their agents must obtain landowner consent before undertaking eradication or control efforts on private land or waters. The National Sea Grant Law Center, the National Association of Attorneys General, and the Environmental Law Institute (Project Team) worked with MAPAIS to improve regional understanding of strategies available to access private land for eradication and control of aquatic nuisance species, and to lay a foundation for collaboratively addressing this widespread problem.

The Project Team focused on conducting legal research to inventory and analyze relevant state laws. A legal intern at ELI inventoried the laws and regulations of the eight Mid-Atlantic states and the District of Columbia, and compiled provisions relevant to AIS control efforts on private lands. She searched for authority to control AIS, noxious weeds, and plant pests as the categorization of such species varies by state. She looked at the authorities of state natural resource agencies and agricultural departments alike, as control authorities among these regulators can overlap or even conflict. The Project Team then condensed this information into brief summaries for each state. Legal authority to access private land for AIS eradication and control without landowner consent varies state-by-state, particularly in the level of procedure required for an agency to enter onto private property. Five states in the region (NC, NY, PA, VA, WV) have legislation explicitly authorizing entry onto private land without consent to inspect or control noxious weeds. Explicit legislative authorization to enter private land for AIS control and eradication, however, is rare, existing only in Maryland, Virginia, and New York, and under varying circumstances.

This Activity supports Objectives 1.2 and 1.3 of the ANSTF Strategic Plan regarding evaluation of statutory authorities and regulations of Mid-Atlantic States, and by facilitating development and effectiveness of state ANS management efforts. Facilitating access to private lands for AIS monitoring and control would also support Objectives 3.4 and 3.5 regarding development and implementation of rapid response actions.

Statu	is:	Complete		
Start	Date:	1 October 2014		
End [	Date, if applicable:	30 September 2015		
Lead	Organization:	National Sea Grant Law Center / Stephanie Showalt	er Otts	
Partner Organization(s):		National Association of Attorneys General, and the Emembers.	nvironmental Law Institute;	Participating MAPAIS
Fund	ling Amount and S			
		Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
$\boxtimes$	Federal Agenc	y U.S. Fish and Wildlife Service (via MAPAIS)	7,000	0
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institutio	n		
	NG	0		
	Othe	er		
		Total Funding for Activity	7,000	0

# Relation to the ANSTF Strategic Plan Goals and Objectives

$\boxtimes$	Coordination	\$ Amount FY 15	7,000	\$ Amount FY 16	0				
	Objective 1.1: Strengthen the co	ordination capacit	y of the ANSTF						
	Objective 1.2: Evaluate the abilit ANSTF goals and objectives	Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives							
	Objective 1.3: Facilitate the developlans				_				
	Objective 1.4: Coordinate the de management plans and pathwa	•	•	STF- approved spec	ies control and				
	Objective 1.5: Cooperate with nato to prevent, detect, and control A		ighboring waters an	d shared pathways	with the United States				
	Prevention	\$ Amount FY 15		\$ Amount FY 16					
	Objective 2.1: Take steps to inter appropriate measures	dict specific pathw	ays by developing a	and implementing g	juidance and				
	Objective 2.2: Facilitate use of sc pathways for the introduction of			ning procedures to	assess and prioritize				
	Objective 2.3: Expand training an work conducted by natural resort	nd use of the Hazaı	•	cal Control Point (H <i>A</i>	ACCP) program into				
$\boxtimes$	Early Detection / Rapid Response	\$ Amount FY 15	0	\$ Amount FY 16	0				
	Objective 3.1: Facilitate surveys a	and monitoring to	detect ANS						
	Objective 3.2: Make taxonomic a	and ecological info	rmation and expertis	se readily available					
	Objective 3.3: Increase public an	d industry involver	ment in early detecti	on and rapid respo	nse programs				
	Objective 3.4: Facilitate develope	ment of rapid respo	onse contingency pl	ans					
	Objective 3.5: Build capacity to re	espond rapidly to i	nvasions						
	Control and Management	\$ Amount FY 15		\$ Amount FY 16					
	Objective 4.1: Support and evalu	ıate ANSTF-approv	ed control and man	agement plans					
	Objective 4.2: Increase invasive s	species training for	natural resource ma	nagers and leverag	e participation				
	Objective 4.3: Evaluate the bene or eradication	fits and risks associ	iated with the comm	nercial harvest of AN	IS as a means of control				
	Objective 4.4: Encourage an Inte	grated Pest Manag	ement (IPM) approa	ch to manage existi	ing ANS populations.				
	Restoration	\$ Amount FY 15		\$ Amount FY 16					
	Objective 5.1: Restore impacted	ecosystems							
	Objective 5.2: Address and provi habitat restoration projects	de technical assista	ance for invasive spe	ecies management k	pefore, during, and after				

	Edu	cation and Outreach	\$ Amount FY 15		\$ Amount FY 16		
		Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS					
		Objective 6.2: Disseminate ANS	outreach and technic	al guidance mater	ials to target audiences		
		Objective 6.3: Promote the use or related to ANS	of guidance documer	nts, best managem	ent practices and other outreach materials		
				•	ovide educational briefings on ANS threats		
	Rese	earch	\$ Amount FY 15		\$ Amount FY 16		
		Objective 7.1: Develop and main community	tain a list of ANS rese	earch priorities; cor	mmunicate this list to the scientific		
		Objective 7.2: Develop and main ANS	tain guidance docun	nents, protocols, a	nd best management practices related to		
		Objective 7.3: Track the progress	of research activities	s funded or prioriti	zed by the ANSTF		
		Objective 7.4: Support developm	nent of socio-econom	nic research to qua	ntify the economic impact of ANS		
		Objective 7.5: Support research	on interdiction metho	ods for specific pat	thways of ANS3		
		Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established					
		Objective 7.7: Encourage research	h to develop species	invasion-risk fored	cast tools		
		Objective 7.8: Support existing of	atabases and global	database network	S		
	Fund	ding	\$ Amount FY 15		\$ Amount FY 16		
		Objective 8.1: Secure dedicated,	long-term funding fo	or the ANSTF Strate	egic Plan actions		
		Objective 8.2: Optimize use of cu within Federal agencies and add	_	S activities by eng	aging potential resources and programs		
		Objective 8.3: Develop a list of A	NS funding priorities				
		<b>Total Funding for Activity:</b>	\$ Amount FY 15 7	,000	\$ Amount FY 16 0		
Add	ditior	nal Comments (Optional):					
Do	cume	ents and Images (Optional)					
Atta	ched:	Final Project Report: PrivateLandsAc	 cessFinalRpt_Otts_MAF	PAIS20151002.pdf			
Ad	dditio	onal Projects to Report?					

Please continue by entering information for the next project on the following pages

Yes

No

••

Activity Title:	Small Grant Project: Mid-Atlantic Field Guide to Aquatic Invasive Species
	· '

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The Pennsylvania Field Guide to Aquatic Invasive Species was completed in 2013, having been partially funded as a MAPAIS Small Grant Program project. MAPAIS subsequently proposed that the acclaimed Pennsylvania guide be expanded, with MAPAIS funding, as a field guide to AIS of the entire Mid-Atlantic region. The soon-to-be-released "Mid-Atlantic Field Guide to Aquatic Invasive Species" is designed to aid science professionals and other interested individuals in AIS early detection and reporting. This reference can help water conservation officers, regional biologists, volunteer monitors, resource managers, educators, students, and others working in the Mid-Atlantic to learn general information about significant AIS, identify the problem species, collect specimens for verification, and report new infestations. The 99 species included in this field guide were selected by experts from the Mid-Atlantic region, including MAPAIS members, to reflect species of greatest concern within the Mid-Atlantic region.

The guide is intended to help slow or stop the spread of invasive species in the Mid-Atlantic region. The focus of the first section is prevention, since it is important that readers understand how to minimize AIS introduction and spread. It highlights significant vectors of spread for AIS and describes reasonable preventative actions. The second section focuses on how to report invasive species occurrences, and on collecting specimens when appropriate. It is important that new infestations are reported quickly and accurately, and that specimens are collected correctly so that subsequent control or management actions can be pursued. The last section of "species profiles" highlights important characteristics that aid in distinguishing covered AIS from similar species. AIS are grouped together into larger, generally taxonomic cohorts. The Guide is to be published as a glossy paper edition, as a waterproof edition, and as downloadable .pdf files accessible on the MAPAIS and PA Sea Grant websites.

This Activity primarily supports Objectives 6.1, 6.2, 6.3, and 6.4 of the ANSTF Strategic Plan by enhancing education and outreach regarding AIS prevention, detection, and control. Through such public education, it also supports Objectives 3.1, 3.2, 3.3, 3.5, and 4.2 regarding early detection and rapid response to AIS invasions, and training of natural resources agency personnel.

Status:		Ongoing		
Star	t Date:	1 October 2014		
End	Date, if applicable:	30 September 2016		
Lea	d Organization:	Pennsylvania Sea Grant		
Partner Organization(s):		All Panel members participated in review and select Guide, and several Panel members and staff of mem review of the species profiles and ancillary material	nber state and federal agenci	ressed in the Mid-Atlantic es provided editorial
Fun	ding Amount and S	ource(s)		
		Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
$\boxtimes$	Federal Agend	U.S. Fish and Wildlife Service (via MAPAIS)	15,000	21,500
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institutio	n		
	NG	0		
	Oth			
	Othe	er		

**Total Funding for Activity** 

15,000

21,500

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 15 \$ Amount FY 16 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 \$ Amount FY 16 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers Early Detection / Rapid Response \$ Amount FY 15 0 \$ Amount FY 16 0 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 0 \$ Amount FY 16 0 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration Objective 5.1: Restore impacted ecosystems Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after

habitat restoration projects

$\boxtimes$	Edu	cation and Outreach	\$ Amount FY 15	15,000	\$ Amount FY 16 21,500		
		Objective 6.1: Increase und ANS and actions that can b		•	problems and impacts associated with		
		Objective 6.2: Disseminate	ANS outreach and techr	nical guidance mater	ials to target audiences		
		related to ANS	-	_	nent practices and other outreach materials		
		Objective 6.4: Promote awa and solutions and to legisla		·	rovide educational briefings on ANS threats		
	Rese	earch	\$ Amount FY 15		\$ Amount FY 16		
		Objective 7.1: Develop and community	maintain a list of ANS re	esearch priorities; co	mmunicate this list to the scientific		
		Objective 7.2: Develop and ANS	maintain guidance doci	uments, protocols, a	nd best management practices related to		
		Objective 7.3: Track the pro	gress of research activit	ies funded or priorit	ized by the ANSTF		
		Objective 7.4: Support deve	elopment of socio-econo	omic research to qua	antify the economic impact of ANS		
		Objective 7.5: Support rese	arch on interdiction met	hods for specific pa	thways of ANS3		
		Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established					
		Objective 7.7: Encourage re	search to develop speci	es invasion-risk fore	cast tools		
		Objective 7.8: Support exist	ing databases and glob	al database network	s		
	Fund	ding	\$ Amount FY 15		\$ Amount FY 16		
		Objective 8.1: Secure dedic	ated, long-term funding	for the ANSTF Strate	egic Plan actions		
		Objective 8.2: Optimize use within Federal agencies and	9	ANS activities by eng	aging potential resources and programs		
		Objective 8.3: Develop a list	t of ANS funding prioriti	es			
		Total Funding for Activ	vity: \$ Amount FY 15	15,000	\$ Amount FY 16 21,500		
Add	dition	nal Comments (Optional):					
Do	cume	ents and Images (Optional)					
Atta	ched:	Annual Performance Report: M	APAISGuidePerfRpt_Stahlı	man_MAPAIS2015102	7.pdf		
L_A	ditio	onal Projects to Report?					

Please continue by entering information for the next project on the following pages

Yes

No

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Acti	vity Title:	ty Title: Redesign and Relaunch of the MAPAIS Website							
Act	activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:								
Exec MAR duri Wor inco were of the	At our spring 2015 meeting, MAPAIS determined to move forward on a logo and website redesign and relaunch, precipitated by ecognition that our website was outdated, and in fact had become unsustainable due to host site and platform incompatibility. The executive Committee decided to have Maryland Sea Grant (MDSG) lead the website redesign as part of their administrative support of MAPAIS. At the fall 2015 MAPAIS meeting, the web designer presented a plan and initial logos for the redesign. The project proceeded luring the next six months, guided by an ad-hoc committee of Panel members. MDSG proposed to redesign the MAPAIS website using VordPress, a widely-available design application. The redesign involved the transfer of selected existing web content and the incorporation of new MAPAIS approved content. MDSG collaborated with the MAPAIS design team to ensure that MAPAIS' interests were fully addressed. Upon completion of the redesign, training was provided to selected MAPAIS members to facilitate management of the website. Henceforth, MAPAIS will be solely responsible for website maintenance and updates.  This Activity supports Objectives 6.1, 6.2, 6.3, and 6.4 of the ANSTF Strategic Plan by providing a significant educational resource egarding MAPAIS, ANSTF, and invasive species of the Mid-Atlantic region; and it supports Objectives 1.1 and 1.3 by enhancing oordination among MAPAIS states, agencies, and partners, and the ANSTF, regarding all facets of AIS prevention, detection, and ontrol.								
Stat	:us:		Ongoing						
Star	t Date:		1 July 2015						
End	Date, if app	plicable: [	30 September 2016	30 September 2016					
Lea	d Organizat	tion:	Maryland Sea Grant						
Part	tner Organi	zation(s):	MAPAIS						
Fun	ding Amoւ	unt and S	ource(s) Source(s)		\$ Amount - FY 15	\$ Amount - FY 16			
$\boxtimes$	Fede	eral Agend	U.S. Fish and Wildlife Service		150	5,150			
	State G	overnmer	nt						
	Local G	overnmer	nt						
	☐ Tribal Governme		nt						
	Academic	Institutio	n						
		NG	0						
		Othe	er						
			Total Funding for Activ	ity	150	5,150			

# Relation to the ANSTF Strategic Plan Goals and Objectives

$\boxtimes$	Coor	rdination	\$ Amount FY 15	0	\$ Amount FY 16	0			
		Objective 1.1: Strengthen the co	ordination capacity	of the ANSTF					
		Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives							
		Objective 1.3: Facilitate the deve				_			
	Ш	Objective 1.4: Coordinate the de management plans and pathwa	y management plar	ns					
		Objective 1.5: Cooperate with nato prevent, detect, and control A		ghboring waters an	d shared pathways	with the United States			
	Preve	ention	\$ Amount FY 15		\$ Amount FY 16				
		Objective 2.1: Take steps to interappropriate measures	dict specific pathw	ays by developing a	and implementing g	juidance and			
		Objective 2.2: Facilitate use of sc pathways for the introduction of			ning procedures to	assess and prioritize			
		Objective 2.3: Expand training as work conducted by natural reso	nd use of the Hazar	•	cal Control Point (H <i>A</i>	ACCP) program into			
	Early	Detection / Rapid Response	\$ Amount FY 15		\$ Amount FY 16				
		Objective 3.1: Facilitate surveys	and monitoring to o	detect ANS					
		Objective 3.2: Make taxonomic a	and ecological infor	mation and expertis	se readily available				
		Objective 3.3: Increase public an	d industry involven	nent in early detecti	ion and rapid respo	nse programs			
		Objective 3.4: Facilitate develop	ment of rapid respo	onse contingency pl	ans				
		Objective 3.5: Build capacity to r	espond rapidly to ir	nvasions					
	Cont	rol and Management	\$ Amount FY 15		\$ Amount FY 16				
		Objective 4.1: Support and evalu	ıate ANSTF-approve	ed control and man	agement plans				
		Objective 4.2: Increase invasive s	species training for	natural resource ma	anagers and leverag	e participation			
		Objective 4.3: Evaluate the bene or eradication	fits and risks associa	ated with the comm	nercial harvest of AN	IS as a means of control			
		Objective 4.4: Encourage an Inte	grated Pest Manage	ement (IPM) approa	ch to manage existi	ing ANS populations.			
	Resto	oration	\$ Amount FY 15		\$ Amount FY 16				
		Objective 5.1: Restore impacted	ecosystems						
		Objective 5.2: Address and provi habitat restoration projects	ide technical assista	nce for invasive spe	ecies management k	pefore, during, and after			

$\boxtimes$	Edu	cation and Outreach	\$ Amount FY 15	150	\$ Amount FY 16	5,150		
	•	•	ise understanding among the g it can be taken to prevent and c	•	problems and impa	acts associated with		
		Objective 6.2: Disser	minate ANS outreach and techn	ical guidance mater	ials to target audier	nces		
	•	related to ANS	ote the use of guidance documote awareness of the ANSTF and		·			
		-	legislators and other decision	-				
	Rese	earch	\$ Amount FY 15		\$ Amount FY 16			
		community	op and maintain a list of ANS re	·				
		ANS		,,	3	·		
		Objective 7.3: Track	the progress of research activiti	es funded or prioriti	ized by the ANSTF			
		Objective 7.4: Suppo	ort development of socio-econo	omic research to qua	antify the economic	impact of ANS		
		Objective 7.5: Suppo	ort research on interdiction met	hods for specific pat	thways of ANS3			
		Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established						
		Objective 7.7: Encourage research to develop species invasion-risk forecast tools						
		Objective 7.8: Suppo	ort existing databases and globa	al database network	CS .			
	Fun	ding	\$ Amount FY 15		\$ Amount FY 16			
		Objective 8.1: Secure	e dedicated, long-term funding	for the ANSTF Strate	egic Plan actions			
			nize use of current funding for A cies and additional partners	NS activities by eng	aging potential reso	ources and programs		
		Objective 8.3: Devel	op a list of ANS funding priorition	es				
		Total Funding fo	or Activity: \$ Amount FY 15	150	\$ Amount FY 16	5,150		
Ad	ditior	nal Comments (Opti	onal):					
טס.	cume	ents and Images (Op	rional)					
		ew website: www.midatl ent: Website Tutorial: MA	anticpanel.org NPAISWebsite Tutorial_20161004.pd	df				
A	dditi	onal Projects to Re	port?					
•	)	Yes Pleas	e continue by entering infor	mation for the nex	t project on the fo	ollowing pages		

Please save a copy of this form for you records before submitting.

No

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Complete

Status:

Activity Title: | Small Grant Project: eDNA Monitoring of the Invasive Diatom, Didymosphenia geminata, in Mid-Atlantic Waters

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

This project used genetic monitoring of environmental DNA samples to establish a robust monitoring network for the highly invasive freshwater diatom, Didymosphenia geminata (aka, "Didymo"). It established a baseline inventory of Didymo presence and abundance in headwater streams throughout the Chesapeake Bay watershed, in partnership with the Maryland Biological Stream Survey (MBSS) and the National Park Service. The grantee teamed with MBSS to sample ca. 75 headwater streams for environmental DNA in the water, while MBSS measured a variety of physical, chemical, and biological variables including flow, temperature, pH, dissolved oxygen, conductivity, nutrients (N P, and DOC), and taxonomic diversity of fish and benthic macroinvertebrates. Total DNA was extracted from filtered water samples and used to estimate the abundance of Didymo in the sample using quantitative PCR with a DNA probe that is specific for D. geminata. In addition, all positive samples were sequenced to characterize genetic diversity within and between sites, to evaluate how many genetic strains of Didymo are in the watersheds, and to determine how widely they are spreading. Didymo invasiveness at each site was then related to water quality, traditional bioindicators, and measurements of land use and urbanization using multivariate statistical models.

The project created an important baseline of Didymo distribution across a broad geographic extent for Maryland streams. Because only two streams contained Didymo, it established that Didymo is not widespread at detectable background levels. These findings provide a base map of current occurrences and absences and will allow a historical perspective for future monitoring and assessment programs. The sequencing of the two positive sites shows that Didymo occurs as multiple strains rather than as a single, invasive strain.

This Activity directly supports Objectives 7.6, 7.7, and 7.8 of the ANSTF Strategic Plan by supporting research regarding a specific AIS documented in the Mid-Atlantic region. By virtue of the incorporated surveys for this species, the project also supports Objective 3.1 and 3.2 of the Strategic Plan regarding early detection of and rapid response to AIS invasions.

Star	t Date:	19 August 2013		
End	Date, if applicable:	31 July 2015		
Lea	d Organization:	UMCES, Appalachian Laboratory / Robert H. Hilderb	rand	
Part	ner Organization(s):	Maryland Biological Stream Survey; National Park Se	ervice	
Fun	ding Amount and S		ć Amount FV 15	ć Amount EV 16
		Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
	Federal Agend	U.S. Fish and Wildlife Service (via MAPAIS)	0	0
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institution	n		
	NG	0		
	Othe	er		
		Total Funding for Activity	0	0

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 16 \$ Amount FY 15 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 \$ Amount FY 16 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers Early Detection / Rapid Response \$ Amount FY 15 0 \$ Amount FY 16 0 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 \$ Amount FY 16 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration Objective 5.1: Restore impacted ecosystems

Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after

habitat restoration projects

П	Edu	cation and Outreach	\$ Amount FY 15		\$ Amount FY 16			
				ding among the general public of the problems and impacts associated with				
		ANS and actions that can be taken to prevent and control ANS						
		Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences						
		Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materia related to ANS						
		Objective 6.4: Promote awaren and solutions and to legislators		ities and pro	ovide educational br	iefings on ANS threats		
$\boxtimes$	Rese	earch	\$ Amount FY 15 0		\$ Amount FY 16	)		
		Objective 7.1: Develop and mai	intain a list of ANS research pr	iorities; con	nmunicate this list to	the scientific		
		Objective 7.2: Develop and mai	intain guidance documents, p	rotocols, ar	nd best managemen	t practices related to		
		Objective 7.3: Track the progre	ss of research activities funded	d or prioritiz	zed by the ANSTF			
		Objective 7.4: Support develop	ment of socio-economic resea	arch to quai	ntify the economic ir	mpact of ANS		
		Objective 7.5: Support research	on interdiction methods for s	specific pat	hways of ANS3			
		Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established						
		Objective 7.7: Encourage research to develop species invasion-risk forecast tools						
		Objective 7.8: Support existing	databases and global databas	se networks	;			
	Funding		\$ Amount FY 15		\$ Amount FY 16			
		Objective 8.1: Secure dedicated	d, long-term funding for the A	NSTF Strate	gic Plan actions			
		Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners						
		Objective 8.3: Develop a list of	ANS funding priorities					
		<b>Total Funding for Activity</b>	\$ Amount FY 15 0		\$ Amount FY 16	)		
Ad	ditior	nal Comments (Optional):						
		expenditures are recorded for FFY20			-	d of FFY2014 when the		
pro	ducts	were completed, but prior to the fin	al reports/presentations being su	ubmitted to	MAPAIS.			
Do	cume	ents and Images (Optional)						
Atta	ached:	ched: Final Project Report: DidymoEDNAFinalRpt_Hildebrand_MAPAIS20150930.pdf						
	۱ ما ؛ د ،	and Duckertota Danier						
_		onal Projects to Report?  Yes Please continu	e by entering information fo	or the poyt	project on the fall	lowing pages		
		ו וכמשב כטוונוווע	c by chicking information it	or the HEXI	. project on the ion	owning pages		

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Other

Activity Title.	Small Grant Project: Bushkill Township Invasive Species Management Project
Activity ritie.	Januar Grant Project. Dushkii Pownship invasive Species Management Project

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

Many Pennsylvania municipalities have Environmental Advisory Councils and/or watershed groups that work closely with elected officials and staff to accomplish important environmental projects. This SGP project was designed to identify and map invasive plant species; create a user-friendly action plan for all stakeholders; educate residents, landowners, and stakeholders using traditional and social media; and create an internet based cellphone application for identifying and mapping new invasive species infestations. The project is intended to establish a template for other municipalities, with most of the work products being reproducible or easily adapted.

Global Positioning System (GPS) / Geographic Information System (GIS) mapping, photography, and field data collection of targeted invasive species was completed by Lafayette College, with assistance from Bushkill Township and other watershed stakeholders. The Bushkill Township Invasive Species Management Plan Handbook was developed with considerable input on invasive species education and species-specific treatment needs/processes provided by the Pennsylvania Department of Conservation and Natural Resources. The environmental education components, including development of a newsletter article, webpage, and social media materials were completed by a qualified sub-contractor, and the project ArcGIS Data is housed on the Lafayette College server. The majority of targeted invasive species along roads and on Township-owned lands within Bushkill Township were mapped, by species, with additional data on coverage and density. The mobile application was finalized based on input from student use and review and testing by Hanover Engineering staff. The mobile application and handbook were designed to be used by Township residents and municipal staff to identify, map, and document treatment of invasive species populations within Bushkill Township. The handbook and mobile application will be introduced and made available to the Township residents through the Township's spring newletter and website, and through public presentation at a Bushkill Township Environmental Advisory Council meeting.

This Activity supports Objectives 3.1, 3.2, 3.3, 3.4, and 3.5 of the ANSTF Strategic Plan by enhancing AIS early detection / rapid response efforts, and it also supports the Education and Outreach (6.1, 6.2, 6.3) and Control and Management (4.2) Objectives.

Sta	tus:	Complete		
Sta	rt Date:	19 August 2013		
Enc	Date, if applicable:	31 December 2014		
Lea	d Organization:	Hanover Engineering Associates, Inc. / Jason E. Sm	nith	
Partner Organization(s):		Bushkill Township, PA; Pennsulvania Department Jacobsburg Environmental Education Center	of Conservation and Natural R	esources, Lafayette College,
Fun	ding Amount and S	ource(s) Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
$\boxtimes$	Federal Agend	U.S. Fish and Wildlife Service (via MAPAIS)	0	0
	State Governmer	nt		
	Local Governmer	nt		
	Tribal Governmer	nt		
	Academic Institutio	n		
	NG	0		

**Total Funding for Activity** 

10

0

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 15 \$ Amount FY 16 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 \$ Amount FY 16 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers Early Detection / Rapid Response \$ Amount FY 15 0 \$ Amount FY 16 0 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 0 \$ Amount FY 16 0 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration Objective 5.1: Restore impacted ecosystems Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after

habitat restoration projects

$\boxtimes$	Edu	cation and Outreach	\$ Amount FY 15 0		\$ Amount FY 16	0		
	Objective 6.1: Increase understanding among the general public of the problems and imparts ANS and actions that can be taken to prevent and control ANS					cts associated with		
		Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences						
	•	Objective 6.3: Promote the use of guidance documents, best management practices and other outreach material related to ANS Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS three						
		-	islators and other decision makers	ies and pi		nelings on ANS threa		
	Rese	earch	\$ Amount FY 15		\$ Amount FY 16			
		community	nd maintain a list of ANS research pric					
		Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices rela  ANS						
		Objective 7.3: Track the p	progress of research activities funded	or priorit	ized by the ANSTF			
		Objective 7.4: Support d	evelopment of socio-economic resear	ch to qua	antify the economic	impact of ANS		
		Objective 7.5: Support re	esearch on interdiction methods for sp	pecific pa	thways of ANS3			
		Objective 7.6: Support et to address ANS that have	forts to identify gaps and expand rese e become established	earch rele	evant to control and	eradication measures		
		Objective 7.7: Encourage	research to develop species invasion	-risk fore	cast tools			
		Objective 7.8: Support ex	xisting databases and global database	network	CS .			
	Funding		\$ Amount FY 15		\$ Amount FY 16			
		Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions						
		Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners						
		Objective 8.3: Develop a	list of ANS funding priorities					
		Total Funding for A	ctivity: \$ Amount FY 15 0		\$ Amount FY 16	0		
Ad	ditior	nal Comments (Optiona	):					
		•	r FFY2015 or FFY2016 because the final in the final reports/presentations being sub		•	ud of FFY2014 when the		
Do	cume	ents and Images (Option	al)					
Atta	ached:	ched: Final Project Report: BushkillFinalRpt_Smith_MAPAIS20150227.pdf						
A	dditi	onal Projects to Repor	t?					
•		Yes Please co	ontinue by entering information for	r the nex	t project on the fo	llowing pages		

Please save a copy of this form for you records before submitting.

 $\bigcirc$ 

Ongoing

1 October 2015

Status:

Start Date:

Activity Title: Small Grant Project: Training and Evaluation of Dogs for Early Detection of Nutria (Myocaster coypus)

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

Through efforts funded in part by MAPAIS, the Interagency Mid-Atlantic Nutria Management Team has determined the known range of nutria in Virginia; established management zones for detection, monitoring, and eradication of this species; and developed a cooperative interagency program to address this invasive threat. Our primary current need is to detect range expansions within the "Early Detection – Rapid Response" management zone, and to facilitate "mop up" operations in areas that have already undergone extensive nutria removal, by developing an effective way to detect low-density nutria populations and incursions characteristic of range expansion or reoccupation. This project is designed to evaluate whether a dog can determine nutria presence or absence effectively, by controlling for the following variables: distance from evidence (1, 10, 20, and 40 meters), speed of search for evidence (1, 5, and 10 kilometers per hour), type of evidence (scat, hair, scent trail, and carcass), environmental exposure of the evidence (measured UV light, temperature, water saturation, and age), and likely false positives (muskrat, raccoon, and otter).

All materials needed for canine protection, health care, and training have been acquired, and two dogs (one a previously trained Law Enforcement K9, and the other a new "recruit") are undergoing training in nutria detection. Scat and other nutria "sign" have been collected for use in field experiments.

This Activity supports Objectives 3.1, 3.3, 3.4, and 3.5 of the ANSTF Strategic Plan by enhancing AIS early detection / rapid response efforts, and also supports Objectives 7.2 and 7.6 regarding development of guidance documents and protocols, and identification of gaps and expanding research relevant to control and eradication measures to address established ANS.

End Date, if applicable:		31 December 2016					
Lead Organization:		Virginia Department of Game and Inland Fisheries / Todd Engelmeyer					
Part	ner Organization(s):	Natural Resource Protection Dogs, LLC.					
Fun	ding Amount and So						
		Source(s)	\$ Amount - FY 15	\$ Amount - FY 16			
	Federal Agenc	y U.S. Fish and Wildlife Service (via MAPAIS)	0	8,500			
	State Governmen	t					
	Local Governmen	t					
	Tribal Governmen	t					
	Academic Institutio	n					
	NGO	0					
	Othe	er					
		<b>Total Funding for Activity</b>	0	8,500			

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 16 \$ Amount FY 15 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 \$ Amount FY 16 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers Early Detection / Rapid Response \$ Amount FY 15 0 \$ Amount FY 16 8,500 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 \$ Amount FY 16 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration Objective 5.1: Restore impacted ecosystems Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after

habitat restoration projects

	Edu	cation and Outreach	\$ Amount FY 15	\$ Amount FY 16
		Objective 6.1: Increase understa ANS and actions that can be tak	3 3 3 1	e problems and impacts associated with
		Objective 6.2: Disseminate ANS	outreach and technical guidance mate	erials to target audiences
		Objective 6.3: Promote the use related to ANS	of guidance documents, best manager	ment practices and other outreach materials
		Objective 6.4: Promote awarene and solutions and to legislators	•	provide educational briefings on ANS threats
$\boxtimes$	Rese	earch	\$ Amount FY 15 0	\$ Amount FY 16 0
		Objective 7.1: Develop and main community	ntain a list of ANS research priorities; co	ommunicate this list to the scientific
		Objective 7.2: Develop and main ANS	ntain guidance documents, protocols,	and best management practices related to
		Objective 7.3: Track the progres	ss of research activities funded or priori	tized by the ANSTF
		Objective 7.4: Support develope	ment of socio-economic research to qu	antify the economic impact of ANS
		Objective 7.5: Support research	on interdiction methods for specific pa	athways of ANS3
		Objective 7.6: Support efforts to address ANS that have become		evant to control and eradication measures
		Objective 7.7: Encourage resear	ch to develop species invasion-risk for	ecast tools
		Objective 7.8: Support existing	databases and global database networ	ks
	Fun	ding	\$ Amount FY 15	\$ Amount FY 16
		Objective 8.1: Secure dedicated	, long-term funding for the ANSTF Stra	tegic Plan actions
		Objective 8.2: Optimize use of c within Federal agencies and add		gaging potential resources and programs
		Objective 8.3: Develop a list of A	ANS funding priorities	
		Total Funding for Activity	\$ Amount FY 15 0	\$ Amount FY 16 8,500
Ado	ditior	nal Comments (Optional):		
Do	cume	ents and Images (Optional)		
Δ	4diti	onal Projects to Report?		

Please continue by entering information for the next project on the following pages

Yes No

Activity Title: Small Grant Project: Economic Analysis of AIS Risk and Risk Reduction in the Bloodworm Trade

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

This project is designed to evaluate the economics of the commercial movement of bloodworms from sources along the Maine coast to the Chesapeake Bay region of the Atlantic coast and worldwide. Building on earlier research (supported by MAPAIS) on the ecological and social aspects of the trade in bloodworms, and in collaboration with researchers involved in that earlier work, Dr. Wieland will expand upon the previous research by considering the economic aspects of risk and risk reduction in the bloodworm trade.

Two levels of costs will be analyzed: first, the monetized cost of ecological impacts of an introduction (i.e., the scenario in which no attempt is made to mitigate risk of introduction), discounted by relevant probabilities; and, secondly, as the costs incurred by producers and consumers when risk-mitigating practices are implemented. Several approaches have been proposed for reducing incidental biota in the shipment of live bloodworms and the likelihood of unintended introductions. Estimating the cost of implementing those approaches will be a project activity, but findings from earlier bloodworm research regarding the efficacy of risk reduction practices will be used. Cost effects will be considered in the wider context of both factor and product markets. In factor markets, Dr. Wieland will evaluate the impact of changes in packing material on people who currently earn livelihoods supplying that packing material. In product markets, he will evaluate the potential for welfare effects in markets for recreational fishing.

This case study will be used to describe and explain the economic tools, models, methods, and even jargon used in such an analysis, to address the "communication gap" between economists and our "publics" focused on science, conservation, public education/policy, and politics. That is, the project will focus on the potential management, educational, and political implications and guidance that could be derived from this project.

This Activity supports Objectives 7.4 and 7.5 of the ANSTF Strategic Plan regarding research into the socioeconomic costs and impacts of ANS, regarding interdiction of specific AIS pathways of ANS. It also addresses Objective 2.2 regarding risk assessment of AIS introduction pathways, and Objective 6.1 regarding increasing public understanding of such risks and available preventative actions.

Status:	Ongoing		
Start Date:	1 July 2016		
End Date, if applicable:	30 September 2017		
Lead Organization:	Main Street Economics, LLC / Dr. Robert Weiland		
Partner Organization(s):	University of Maryland / J. Trombley		
Funding Amount and S	ource(s)		
	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
	U.S. Fish and Wildlife Service (via MAPAIS)	0	2,256
☐ State Governme	nt		
☐ Local Governme	nt		
☐ Tribal Governme	nt		
☐ Academic Institution	on		
□ NG	0		
☐ Oth	er		
	Total Funding for Activity	0	2,256

## **Relation to the ANSTF Strategic Plan Goals and Objectives** \$ Amount FY 16 \$ Amount FY 15 Coordination Objective 1.1: Strengthen the coordination capacity of the ANSTF Objective 1.2: Evaluate the ability of statutory authorities, regulations, and programs necessary to implement ANSTF goals and objectives Objective 1.3: Facilitate the development and continued effectiveness of State and interstate ANS management Objective 1.4: Coordinate the development and implementation of ANSTF- approved species control and management plans and pathway management plans Objective 1.5: Cooperate with nations that have neighboring waters and shared pathways with the United States to prevent, detect, and control ANS \$ Amount FY 15 0 \$ Amount FY 16 0 Prevention Objective 2.1: Take steps to interdict specific pathways by developing and implementing guidance and appropriate measures Objective 2.2: Facilitate use of science-based risk assessment and screening procedures to assess and prioritize pathways for the introduction of ANS or potential species of concern Objective 2.3: Expand training and use of the Hazard Analysis and Critical Control Point (HACCP) program into work conducted by natural resource managers \$ Amount FY 16 Early Detection / Rapid Response \$ Amount FY 15 Objective 3.1: Facilitate surveys and monitoring to detect ANS Objective 3.2: Make taxonomic and ecological information and expertise readily available Objective 3.3: Increase public and industry involvement in early detection and rapid response programs Objective 3.4: Facilitate development of rapid response contingency plans Objective 3.5: Build capacity to respond rapidly to invasions \$ Amount FY 15 \$ Amount FY 16 Control and Management Objective 4.1: Support and evaluate ANSTF-approved control and management plans Objective 4.2: Increase invasive species training for natural resource managers and leverage participation Objective 4.3: Evaluate the benefits and risks associated with the commercial harvest of ANS as a means of control or eradication Objective 4.4: Encourage an Integrated Pest Management (IPM) approach to manage existing ANS populations. \$ Amount FY 16 \$ Amount FY 15 Restoration

Objective 5.1: Restore impacted ecosystems

Objective 5.2: Address and provide technical assistance for invasive species management before, during, and after habitat restoration projects

$\boxtimes$	Edu	cation and Outreach	\$ Amount FY 15 0		\$ Amount FY 16	0		
		=	nderstanding among the general pub be taken to prevent and control ANS		problems and impa	cts associated with		
		Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences						
		Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS						
		-	wareness of the ANSTF and its activiti slators and other decision makers	es and pro	ovide educational b	riefings on ANS thre		
$\boxtimes$	Rese	earch	\$ Amount FY 15 0		\$ Amount FY 16	2,256		
		community	d maintain a list of ANS research prio					
		Objective 7.2: Develop an ANS	d maintain guidance documents, pro	otocols, an	d best managemer	nt practices related to		
		Objective 7.3: Track the p	rogress of research activities funded	or prioritiz	ed by the ANSTF			
		Objective 7.4: Support de	velopment of socio-economic resear	ch to quar	ntify the economic	impact of ANS		
		Objective 7.5: Support res	search on interdiction methods for sp	ecific path	nways of ANS3			
		Objective 7.6: Support eff to address ANS that have	orts to identify gaps and expand rese become established	earch relev	ant to control and	eradication measure		
		Objective 7.7: Encourage research to develop species invasion-risk forecast tools						
		Objective 7.8: Support ex	isting databases and global database	networks				
	Fun	ding	\$ Amount FY 15		\$ Amount FY 16			
		Objective 8.1: Secure ded	icated, long-term funding for the AN	STF Strate	gic Plan actions			
		Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners						
		Objective 8.3: Develop a l	ist of ANS funding priorities					
		Total Funding for Ac	tivity: \$ Amount FY 15 0		\$ Amount FY 16	2,256		
Ad	ditior	nal Comments (Optional)	:					
			all 2016, before FFY2017 began, MAPAIS			project funds from		
una	illocate	ed FFY2016 grant funds. The	project otherwise falls within our FFY201	/ "year-cias	ss" of SPG projects.			
Do	cume	ents and Images (Optiona	1)					
	ddi+i4	onal Projects to Report	7					
	aaiti( )	Yes	1					

Please save a copy of this form for you records before submitting.