

ANS Task Force Member Updates – May 2019

Federal members of the ANS Task Force:

Bureau of Land Management

- The BLM has cooperative agreements/and or formally participates in AIS management through implementation of the state AIS plans in AK, CO, NM, UT, and WY. This includes attending meetings, reviewing documents, and providing support for interagency efforts. At the national level, the BLM is an active participant in the ANSTF, DOI Invasive Species Task Force, and Western Regional Panel.
- The BLM supports inspection and decontamination efforts by funding positions, usually through the state agencies. Programs include efforts at Lake Havasu and BLM water bodies in Utah, where the BLM supports seasonal technicians at BLM priority waterbodies.
- The BLM conducts and supports AIS monitoring in coordination with state agencies. Efforts include targeted monitoring, such as that for Dreissenid mussels at Pelican Lake, UT (down listed from inconclusive to not detected), as well as concurrent AIS monitoring with other activities. Additionally, the BLM National Aquatic Monitoring Center, also known as the Bug Lab at Utah State University, provides taxonomic expertise in the identification of AIS, flagging any samples which are sent if for verification. New analysis is underway using the Aquatic AIM dataset at the Bug lab. This project is to provide distribution and density for aquatic invasive invertebrates across BLM lands.
- The BLM participates in a variety of AIS control efforts, for example:
 - 2015-2018 participating in an experimental treatment of Whiting Harbor, AK for *D. vex.* Observations suggest eradication is possible.
 - Removal of nonnative fish during native species restoration efforts (e.g., nonnative trout, green sunfish)
 - Removal of bullfrogs "
- The BLM participates in many outreach and education opportunities for AIS. These range from providing AIS pocket guides at fishing events and providing AIS information at environmental education events to developing and disseminating AIS ads in fishing regulations with Wildlife Forever.
- 2017: Renewed/Ongoing assistance agreement with Wildlife Forever to conduct outreach, education and providing resources to support behavior change and best practices for recreationists in the prevention of the spread of invasive species. In particular, design and place advertisements using Clean Drain Dry logo messaging in numerous game and fish publications and state / federal regulation booklets and guides. By targeting key BLM states, project selects media partners for ad placement where circulation is high and targeting key recreational user demographics. All media placements are evaluated by circulation and impressions of reach. Also develop and deploy other on-the-ground Clean Drain Dry Initiative educational resources to support and complement media and stakeholder outreach efforts, including brochures, signs, and posters
- Interagency assistance agreement to deploy eDNA sampling for AIS presence at multiple locations across the state of Nevada including Truckee and Humbolt Rivers; Place facility signage and billboards on AIS especially around Lake Mojave and known AIS infested waters
- The BLM will assist Colorado Parks and Wildlife (CPW) and other agencies with AIS surveys and inventories (i.e., rusty crayfish, New Zealand mud snail, zebra mussel) and submit the required reporting documentation when AIS are found. BLM will assist in the development of AIS educational materials and these educational materials will be distributed at all BLM Field

Offices. CPW and BLM will work to educate users and will coordinate on public information and signage placement of AIS warning signs where appropriate on public lands.

- The BLM Montana office has an assistance agreement with the US Geological Survey to investigate bullfrog eradication methods and using eDNA to help identify bullfrog sources populations that contribute disproportionately to un-invaded sites. In addition several projects are ongoing that involve the removal of non-native Brown, Brook, and hybrid species. Additionally, the BLM is determining the need to leave barriers in place to stop non-native pike from predating several sensitive species.
- The BLM Utah has an assistance agreement in place for AIS work with Utah Division of Wildlife Resources. The purpose of this agreement is to provide staffing the highest priority BLM Utah waterbodies with seasonal technicians that will be responsible for inspecting incoming watercraft, decontamination (if needed), educating the public and private stakeholders on the impacts of AIS, how they can help; identifying the threats of AIS introduction, and monitoring the occurrence and spread of AIS.
- The BLM will continue to partner with the ADF&G and Smithsonian Environmental Research Center to continue investigating options (turbidity curtain and pool chlorine) to eliminate the invasive tunicate from Alaska. In 2010, *Didemnum vexillum* (*D. vex*) was found in Whiting Harbor in Sitka, AK. Given its detrimental effects in other areas, there is concern about how it might affect the Sitka Sound ecosystem and steps were taken to limit its spread. The BLM collaborated with the ADF&G and Smithsonian Environmental Research Center. The project goal is to investigate potential techniques for eradication of *D. vex* on the seafloor. Previous work looked at the feasibility of different treatments and current work will scale-up those experiments to cover larger areas of the seafloor.
- The BLM continues to work with its partners on a strategy for the Lower Colorado River. The BLM hosted an interagency, multi-partner meeting to develop an interjurisdictional containment strategy for quagga mussels in the lower Colorado River, including Lake Havasu and downstream. A report was produced from the information gathered at the meeting conducted December 6-7, 2017, with participation from the Arizona Game and Fish Department, California Department of Fish and Wildlife, BLM, Arizona State Parks, U.S. Fish and Wildlife Service, Bureau of Reclamation, Chemehuevi Reservation, Colorado River Indian Tribes, and U.S. Coast Guard, as well as numerous private marinas and a very active and involved volunteer base, through the Lake Havasu Marine Association.
- BLM Arizona annually puts funds into a assistance agreement with Arizona Game and Fish Department for AIS activities. Funding is used for education outreach programs and activities, including staffing boat inspectors/outreach specialists at public access areas. In addition, assistance agreement supports mobile decontamination efforts on Lake Havasu. The BLM also provide funds to BLM Lake Havasu Field Office to help cover cost of park ranger to do outreach to boaters using BLM boat in campsite and ramps.

Bureau of Reclamation

- The Bureau of Reclamation announced its FY19 Mussel's spend plan recipients in January 2019. \$4 million dollars went to 29 activities that support various Dreissenid mussel management in the West, primarily support for watercraft inspection and decontamination with partners.
- Reclamation received 70 requests at approximately ~\$10 million dollars' worth of request, highlighting the immense need for resources pertaining to invasive mussels. Implementation of the spend plan is currently underway through Reclamation's Regions.

Environmental Protection Agency

- EPA continues to work with USCG and in consultation with the Governors to respond to requirements of the new VIDA legislation. EPA headquarters has shifted its oversight of ballast water related issues from the Water Permits Division in the Office of Wastewater Management to the Office of Wetlands, Oceans, and Watersheds. That group has begun working toward establishing new standards for ballast water regulation, with a target of December 2020. EPA and USCG are committed to stakeholder outreach and engagement throughout this process, and will be hosting webinars and listening sessions over the coming months (<https://www.epa.gov/vessels-marinas-and-ports/vessel-incident-discharge-act-vida-engagement-opportunities>).
- In addition to this, EPA's Great Lakes National Program Office (GLNPO) has begun coordinating with partner agencies to work toward establishment of the Great Lakes and Lake Champlain Invasive Species Program, also in response to new mandates under VIDA. GLNPO has reached out to EPA regions 1 and 2, the States of New York and Vermont, and the Lake Champlain Basin Program to incorporate Lake Champlain into existing Great Lakes invasive species programs already supported by the Office. In the absence of Congressional appropriations for the program, initial work will be focused on developing an initial inventory of ongoing activities that support the activities outlined in VIDA in the "Purpose" section of the Act. This inventory will also help identify gaps in activities that could be a future focus of the program. EPA and its federal partners have also recently released the draft Great Lakes Restoration Initiative Action Plan III and are seeking public feedback on the document until May 24 (<https://www.glri.us/action-plan-3>).
- EPA's Office of Research and Development continues to support invasive species surveillance efforts in the Great Lakes. This has included recent efforts, in partnership with the National Parks Service, to assess dreissenid invasion status on the Apostle Islands National Lakeshore. ORD scientists also continue to offer guidance on optimization of sampling protocols for ANS monitoring in the Great Lakes, and to develop and assess molecular surveillance approaches for larval fish and other target taxonomic groups. Additional research efforts are aimed at applying similar tools in the context of ballast water risk assessment; ORD continues to explore the utility of high throughput sequencing for determining biodiversity in ballast tanks and evaluating the efficacy of management strategies including ballast water exchange and treatment.

National Oceanic and Atmospheric Administration

Overview :

- NOAA does not receive congressional appropriations to manage invasive species under these authorities, or any other specific budget line item. Consequently, NOAA has not elevated/identified invasive species as a distinct priority but addresses the prevention and control of invasive species through fulfilling our mission mandates, including but not limited to sustaining marine fisheries (Magnuson-Stevens Fishery Conservation and Management Act), protecting special marine places (National Marine Sanctuaries Act), conserving species that are in danger of extinction (Endangered Species Act), and protecting marine mammals from depletion (Marine Mammal Protection Act).
- In the fiscal reality, NOAA's efforts regarding the prevention and control of invasive species are limited. However, we will continue to find ways to address invasive in the context of our mission mandates and Administration priorities.

International Update:

- NOAA - US representative serves on the Advisory Panel on Marine Non-Indigenous Species (AP-NIS). The advisory committee is comprised of members from Korea, Japan, China, and Canada.
- The NOAA US representative attended the PICES Meeting in October 2018 to exchange information related to eradicating, controlling, and preventing the transmission of invasive species and discuss regulations and management of invasive species. The next meeting will be held in Victoria, Canada in October 2019.

The Arctic Invasive Alien Species (ARIAS) Strategy and Action Plan

- NOAA along with the Alaska Department of Fish and Game and the US Fish and Wildlife Service are creating a US Strategy for Alaska including an Alaska-wide outreach and communication strategy on invasive species. There is a workshop scheduled for September 2019.
- A joint ARIAS Implementation Coordination Group (ICG) representing all Arctic Countries, with the exception of Russia, has formed to coordinate and implement the ARIAS. Due to the government shutdown, the first in-person meeting of the group did not take place and is currently being rescheduled.
- The US is discussing a potential proposal on education and outreach to address the increased tourism based shipping to the Arctic.

National Update

- Regional Biosecurity Plan (RBP) for Micronesia and Hawaii
- NOAA will be submitted a congressional report to the Committee on Appropriations: Commerce, Justice, Science and Related Agencies Subcommittee to provide a list of FY19 efforts to support the RBP recommendations on the prevention, detection, and response to marine invasive species in Micronesia and Hawaii.

Northeast Region

- NOAA Chesapeake Bay experts in collaboration with the Chesapeake Bay Program's Sustainable Fisheries Goal Implementation (SF-GIT) met in December 2018 where the Invasive Catfish Task Force (ICTF) recommended development of a bay wide fishery management plan be developed for invasive catfish.
- The ICTF has now been renamed the Invasive Catfish Work Group and will produce an annual report on the status of invasive catfish, new science, and analysis or indicators of ecological impacts.

Great Lakes Region

- NOAA Great Lakes Environmental Research Laboratory's Ecosystem Dynamics Branch and Long-Term Research (GLERL-LTR) Program integrates a core set of long-term observations on biological, chemical, and physical variables to explore impacts of various stressors, including invasive species such as the dreissenid mussels, on the ecosystem.
- There are number of recent publications that highlight the GLERL-LTR efforts
 - Pothoven, SA and Elgin AK. 2019. Dreissenid Veliger Dynamics Along a Nearshore to Offshore Transect in Lake Michigan J. Great Lakes Res. 45:300-306.
 - Pothoven, SA and Vanderploeg HA. 2019. Variable demographics and consumption requirements of *Bythotrephes longimanus* (Crustacea, Cercopagididae) along a nearshore to offshore gradient in Lake Michigan. *Hydrobiologia* 830:63-75.

- Marino, J. A. Jr., S. D. Peacor, D. B. Bunnell, H. A. Vanderploeg, S. A. Pothoven, A. K. Elgin, J. R. Bence, J. Jiao, and E. L. Ionides. 2019. Evaluating consumptive and noncon- sumptive predator effects on prey density using field time-series data. *Ecology* 100(3):e02583. 10.1002/ecy.2583
- Zhang, H., E. S. Rutherford, D. M. Mason, M. E. Wittmann, D. M. Lodge, X. Zhu, and T. B. Johnson, A. Tucker. 2019. Potential impacts of three invasive species on the Lake Erie food web. *Biological Invasions*.
- Presentations entitled “Predicted biomass and food web impacts of bigheaded carp across Great Lakes habitats” were made at annual meetings of International Association of Great Lakes Research in Scarborough, CA, and at the 4th International Symposium of Mississippi River and Yangtze River Research in Chongqing, China. Research suggest bighead carp densities and food web impacts were highest where nutrient concentrations and plankton densities were highest.
- Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS): The database provides a ‘one-stop’ public access on invasive species information and is used as a baseline of information guiding management decisions for federal, state and tribal agencies throughout the Great Lakes region as well as for determining research priorities.
 - Two new products were launched: GLANSIS Map Explorer (created in partnership with GLAHF) and GLANSIS Risk Explorer (created in partnership with the Great Lakes Panel on ANS).
 - The GLANSIS Map Explorer is being piloted and allows users to download GLANSIS data for use in other GIS platforms as well as to create custom maps of up to 3 Great Lakes nonindigenous species overlain on habitat layers from the GLAHF database. This feature allows any user to explore the relationship between species distribution and habitat characteristics.
 - The GLANSIS Risk Explorer was created and populated leveraging the pre-existing interface with the USGS-NAS reference database and provides access to risk assessment literature of critical importance to Great Lakes decision-makers. The region is currently working on piloting this new product and the first major influx of new risk assessment data is anticipated to be available by June 2019.
 - Influx of new risk data is also being used to expand the GLANSIS Watchlist which serves information profiles for species identified as posing a significant risk to the Great Lakes.

Gulf and South Atlantic Region

- Removing of Lionfish: Two removal cruises are planned for 2019 to reduce the growing population of lionfish in the Flower Garden Banks National Marine Sanctuary.
- Reef Environmental Education Foundation (REEF) through a permit with the Florida Keys National Marine Sanctuary, will continue lionfish removals in Existing Management Areas (derbies) and Special Protected Areas for research and conservation. Ten workshops will take place throughout South Florida in which participants receive a Florida Keys National Marine Sanctuary permit to net lionfish in Sanctuary Preservation Areas.
- REEF will also be conducting surveys of all past workshop participants and derby participants to determine whether they use these permits and how often, how many lionfish they remove per year, and where from.
- Lionfish Trap Development : A “Fish Trap Extension Kit” (FTEK) which is based on the unbaited lionfish attraction devices (FADs), is being considered for a no-cost extension to

allow continued testing and development. This extension was requested due to delays caused by the government shutdown.

- Lionfish FTEK tests will be conducted in June 2019 in order to refine ballasting of the traps to ensure reliable opening. Also needed are trials by commercial fishermen to determine the most effective ways to fish the traps in open ocean conditions.

Western Region

- Detecting and Managing Walleye: The Northwest Fisheries Science Center is testing the efficacy of using eDNA to test for Walleye presence/absence in Lake Washington and using stable isotope analysis to evaluate Walleye diet that will ultimately provide insight on the structure of reservoir food webs.
- Green Crab Activities: Washington Sea Grant and Washington Department of Fish and Wildlife have been leading a volunteer-based early detection and monitoring program. This program has led to the detection of green crab in a variety of locations in inland Washington waters.
- There are several publications on Roi (*Cephalopholis argus*):
 - Schemmel, EM, MK Donovan, C Wiggins, M Anzivino, AM Friedlander. 2016. Reproductive life history of the introduced peacock grouper *Cephalopholis argus* in Hawaii. *J. Fish Biol.* 89(2).
 - Giddens, JL, C Wiggins, AM Friedlander, EJ Conklin, KA Stamoulis, and D Minton. 2018. *Environ. Biol. Fish.* 101:275-286.
- Guam Invasive Activities: NOAA Fisheries facilitated monitoring of *Chaetomorpha* in the Manell-Geus Habitat Focus Area and identified potential disposal sites for removal action. Repeated storm events precluded removal and the bloom decreased significantly in late 2018 during the dry season as repeated storm events swept the affected reef areas with strong waves.

U.S. Fish and Wildlife Service

Headquarter Updates

- Outreach Updates: Partners of the Stop Aquatic Hitchhikers campaign have requested an expansion to the existing Stop Aquatic Hitchhikers website that will allow campaign materials to be shared and customized. The USFWS is currently securing a contract to build this feature on the current website. The USFWS and PIJAC have been working to revitalize Habitattitude™, a nationally branded social marketing campaign targeting aquarium owners and water gardeners to promote environmentally responsible behavior and prevent the establishment of invasive species. Although the core objectives and message of Habitattitude™ remain, the revitalized website will target a broader audience. The USFWS has provided PIJAC with comments and recommendations on the revised website. Once PIJAC has addressed these items, the website will be made available for public viewing. The Invasive Species Action Network began a directed Don't Let It Loose (DLIL) program in 2014 through Service Funding. The program specifically targets independent pet stores through in-person contact, recruiting them to educate their customers to avoid releasing pets and to encourage them to become identified "turn-in" centers for unwanted pets. The Service provided additional funding to the Invasive Species Action Network in 2018 to support expansion of the Don't Let it Loose program into Arizona, Nevada and New Mexico. This grant also provided some continued support to the existing efforts in Montana, North Dakota, South Dakota, Wyoming, Nebraska, Kansas and Utah, which were previously funded by the Service.
- Working with Boat Manufacturers through the American Boat and Yacht Council: The Service and our state partners continue to work with the manufacturers of boats and associated equipment to

develop guidelines and best practices to reduce the likelihood of spreading AIS through boating activities. A Technical Information Report has been completed to help facilitate watercraft inspection and decontamination (WID) programs and “Clean, Drain, Dry” best practices for water recreationalists. The TIR has raised awareness of the AIS issue and promoted steps manufacturers can take to better manage AIS risks within their products and within the recreational watercraft vectors. USFWS has worked in collaboration with our State partners to make \$52,000 available for marketing and promoting the ABYC Technical Information Report.

- Quagga Zebra Mussel Action Plan (QZAP): For FY19, the Service is expected to allocate approximately \$960,000 for the implementation of containment programs for quagga/zebra mussels in the western U.S. A Notice of Financial Opportunity should be posted in Grants.gov in early March. For FY18, the Service received 12 proposals, requesting a total of \$3,221,608.00. After reviewing and ranking the proposals, the \$960,000 was distributed among 7 containment and education projects. Project recipients included Arizona, Utah, Nevada, the Pacific States Marine Fisheries Commission, the Invasive Species Action Network, the Lake Havasu Marine Association, and the University of Montana.
- USFWS prevention website and availability of ERSSs: The Service’s ERSS process characterizes and prioritizes the potential risk of invasiveness for wild animal and plant species. It provides an initial estimate of a species’ invasiveness and can be used by the Service, its natural resource partners, industry, and the public to help inform future decision-making. Over 900 ERSSs are posted on the FAC prevention website. We will post 340 new or updated ERSSs to the website by the end of the fiscal year. BAIS and Regions 3 and 5 have revised the ERSS SOP for clarity and will be posted soon. The [Standard Operating Procedures for the Risk Assessment Mapping Program](#) has been finalized and posted. RAMP is a mapping tool that uses the current geographic range of a species to predict the climate suitability of other geographic areas or future time periods. It was developed by the Service primarily to assist with risk assessment of nonnative aquatic wildlife and plants. It requires no knowledge of statistics or coding languages to operate, and it runs on computer software that is commonly available in natural resource agency offices. RAMP provides a suite of potential target regions for climate matching focused on U.S. species management applications, although options for other target regions within North America exist. It is designed to be used with the ERSSs. The Standard Operating Procedures for the Freshwater Fish Injurious Species Risk Assessment Model (FISRAM) is completed and should be posted in April. This is the third and last SOP for the risk assessments. FISRAM can be used to further narrow the risk of a species that has an uncertain Overall Risk Assessment Category.
- NEPA Categorical Exclusion for EDRR: In late 2016, Scott Cameron requested that the DOI Invasive Species Task Force coordinate an effort among the bureaus for categorical exclusions (CE) specifically on invasive species. The Service is leading the process through FAC’s BAIS and R4 to obtain one or more new categorical exclusions (CEs) that could facilitate the NEPA process for rapid response to invasive species for the land management bureaus. The Region 4 AIS Coordinator is taking the lead in preparing the CE. BAIS is coordinating the effort through HQ and the Department. The proposed CE includes terrestrial and aquatic species as well as pathogens. BAIS and the R4 AIS coordinator have been working with DOI’s Invasive Species Coordinator and the Office of Environmental Policy and Compliance. The core team has reviewed the information received from 52 responses from seven bureaus from the data call in 2018 and has developed a draft CE. In April, the core team will coordinate the 19 other people from FWS (R1, 4, 5, and 6), NPS, BLM, BOR, and USGS to divide the work of the next phase to substantiating the proposed actions. The proposed timeline, coordinated through Scott Cameron, has the final CE completed in September 2020.

- 2019 National AIS Coordinator’s Meeting: A National AIS Coordinator’s Meeting (Regional AIS Coordinators and the Headquarters AIS staff) will occur on March 19-21, 2019, in San Diego, CA, at the Sweetwater Marsh unit of the San Diego Bay NWR. This is a follow-up to the 2018 meeting in Loxahatchee, FL. The purpose of the 2019 meeting is to complete an in-depth review of Objective 2 (Early Detection and Rapid Response) of the AIS Goal of the FAC Strategic Plan to develop tasks for inclusion in our 2020 work plans to help us answer the question: What do we need to do at the national, regional, and field level to 1) provide leadership for a comprehensive aquatic invasive species early detection program and 2) implement a nationally coordinated rapid response program for high-risk AIS taxa and pathways. The planned format for this meeting is longer sessions with time for in-depth conversation, brainstorming, and planning. Although the current FAC Strategic Plan is for FY2016-2020 our intention is to think of this in a 5-year time frame.

Region 1 (HI, ID, OR, WA) – Theresa Thom (theresa_thom@fws.gov)

- Safeguarding the West: As part of Interior Secretary Zinke’s Safeguarding the West Initiative, the Pacific Region Fish and Aquatic Conservation (FAC) Program funded and is leading a team comprised of the Pacific States Marine Fisheries Commission and NOAA Fisheries to develop a manual to facilitate Endangered Species Act Section 7 consultations on rapid response actions for Dreissenid mussels in the Columbia River Basin. Other federal and state agencies, tribes, and organizations are collaborating on this effort. The manual will provide the information needed to conduct response actions with minimal adverse impact on listed species, and will reduce the regulatory burden associated with Section 7 consultation for action agencies. Additional outcomes include improved coordination and preparedness among partners engaged in invasive mussel rapid response actions in the Columbia River Basin. A draft of the manual is currently under revision.
- Interstate Aquatic Nuisance Species (ANS) Tribal Coordination: Fish and Wildlife Service has partnered with the Columbia River Inter-Tribal Fish Commission on AIS outreach and education to tribal members with the intent of relationship-building to gauge tribal interest in, and support for, the development of an Interstate ANS Tribal Plan. An Aquatic Invasive Species (AIS) coordination and training workshop for tribal fisheries staff will occur in summer 2019. FWS made a financial commitment to assist with training and travel purposes, as needed, to facilitate tribal participation.
- Pacific Region Proposal for HQ 2018 Prevention Funding: Abernathy Fish Technology Center (FTC), Columbia River Fish and Wildlife Conservation Office (FWCO), and Carson National Fish Hatchery (NFH) are working together on proof-of-concept eradication of brook trout in Tyee Springs (above Abernathy FTC) using the YY male approach. This proof-of-concept evaluation of the YY male methodology is now underway. Results of this work will provide important science to inform if and how this approach could control nuisance brook trout populations in other locations, and for other nuisance AIS, like common carp.
- Pacific Region Invasive Species Policies: The Region developed and signed a policy on “Minimizing the Introduction of Invasive Species by Service Activities” in 2016. The policy directed that each Program in the Region develop their own step-down guidance. The Pacific Region FAC Program developed step-down guidance, "Invasive Species Policy Guidelines to Minimize the Introduction of Invasive Species" that was rolled out in March 2019. These guidelines apply to relevant field activities for Pacific Region FAC employees and emphasize the prevention, early detection, and removal of invasive species under common working scenarios.
- European Green Crab Control/Rapid Response: Control efforts are continuing in response to the recent invasion of European Green Crab to estuaries on the Makah Indian Reservation. Efforts include assessing the extent of invasion, controlling crab population growth, and providing

training to tribal staff to continue and expand control efforts. The Service provided \$30K through the National Fish Habitat Partnership Program, with \$52K in matching funds from the Makah Tribe. The Pacific Marine and Estuarine Partnership selected this project for funding in 2018. Staff from the Western Washington Fish and Wildlife Conservation Office (WWFWCO) also assisted the Makah Tribe with trapping efforts.

- Washington Invasive Species Council: The WWFWCO continues to work with the Washington Invasive Species Council and provides invasive species coordination, technical support, and outreach to Federal, State, Tribal, and local governments in the Pacific Northwest. The WWFWCO provided prevention-focused invasive species information to our partners and the general public through venues such as the Seattle Boat Show and the Science Olympiad State Tournament.
- The Oregon Fish and Wildlife Office continues to serve on the Oregon Invasive Species Council and support the OISC strategic plan, including consultation, habitat restoration and technical support.
- The Pacific Islands Fish and Wildlife Office implements activities to prevent, mitigate, control, and eradicate populations of aquatic non-native invasive species in Hawaii and other Pacific Islands, including identifying and strengthening biosecurity actions. The Office actively participates with the Hawaii Invasive Species Council and the Hawaii Alien Aquatic Organism Task Force. Office staff continue to support the State of Hawaii Department of Land and Natural Resources Division of Aquatic Resources in developing a regulatory framework and building capacity for in-water cleaning to address biofouling and ship husbandry issues. PIFWO staff attended a series of stakeholder engagement sessions related to the Honolulu Harbors Modernization project to inform the Honolulu Harbor 2050 Master Plan, and provided financial assistance to acquire monitoring equipment to enhance bio-fouling inspections for harbor monitoring in Hawaii. Office staff also provided technical support for the Western Governors' Association's Biosecurity and Invasive Species Initiative led by Hawaii Governor Ige, with a series of webinars and workshops held throughout 2018. The Office is currently focusing on marine biosecurity from biofouling organisms, hull fouling, and new and expanding aquaculture operations within the State.
- The Idaho Fish and Wildlife Office continues to participate with partners on invasive species issues. Office staff will participate in an upcoming dreissenid mussel rapid response exercise hosted by the Idaho State Department of Agriculture, Pacific States Marine Fisheries Commission, the Invasive Species Action Network, and partners including Idaho Power. The Rapid Response exercise will utilize the Incident Command System as part of the Columbia River Basin Dreissenid Mussel Rapid Response Plan. Staff also participated in the two-day 100th Meridian Initiative Columbia River Basin Team coordination meeting held in Boise, Idaho in December with a work session on Dreissenid mussel monitoring.
- Pacific States Marine Fisheries Commission (PSMFC): The PSMFC Aquatic Nuisance Species Program continues to conduct educational outreach, coordination, and prevention activities associated with the 100th Meridian Initiative, Quagga-Zebra Mussel Action Plan (QZAP), Building Consensus and the "Safeguarding the West from Invasive Species" initiative in western states including the Pacific Region.

Region 2 Updates (AZ, NM, OK, TX) –Barak Shemai, barak_shemai@fws.gov

- In Fiscal Year 2018 Region 2 awarded seven QZAP grants totaling \$960,000, The awardees include the following:
 - Pacific States Marine Fisheries Commission, \$77,499, Watercraft and Decontamination Training Program Utah Department of Natural Resources, \$225,338, for boat inspection and decontamination, and outreach in Utah with an emphasis on containment near Lake Powell.
 - Nevada Department of Wildlife, \$222,633, for containment and decontamination at Lake Mead and outreach for Las Vegas Area Watercraft Dealers

- Lake Havasu Marine Association, \$10,000, for industry outreach on SLIDE Anchor.
- Arizona Game and Fish Department, \$200,000, for boat inspection and decontamination, and public outreach throughout the Lower Colorado River
- Invasive Species Action Network , \$103,400, Non-motorized boater outreach through industry partnerships, advertising, and agency coordination.
- University of Montana, Flathead Lake Biological Research Station, \$121,100, to quantify the lowest natural abundance of invasive mussel 5 observable using the DNA-Tracker to facilitate improvements in Early Detection.
- Awarded a sole-source grant in the amount of \$193,000 to Arizona Game and Fish Department for Watercraft Inspection and Decontamination at Lake Havasu and Pleasant within the state of Arizona.
- Executed a new Interagency Agreement with the Bureau of Reclamation that will fund the state of Arizona for watercraft inspection and decontamination over the next 5 years. The total 5-year funding will not exceed \$1,386,450.00.
- Fiscal year 2019 Quagga/Zebra Mussel Action Plan grants will total \$990,000. The Notice of Funding Opportunity closed April 27, 2019. Grants will be reviewed and ranked by a review committee and awarded through Region 2.
- Continued engagement with, the Safeguarding the West initiative, the Interagency Mussel Funding Group, and the WGA Mussel Forum Planning Committee.

**Region 4 (AR, GA, KY, LA, MS, SC, TN have approved plans; AL, FL, & NC do not have approved plans)-
Cindy Williams, cynthia_williams@fws.gov**

- Attended Regional Coordinators meeting in March 2019 in Sweetwater Marsh Unit of San Diego Bay NWR. Focus of the meeting was to implement a national EDRR program, and how each Region could contribute to that effort. R4 FAC RO staff presented SWOT (Strengths, Weakness, Opportunity, Threats) for implementing at the Regional level.
- Region 4 hosted the Regional AIS coordinator meeting at the Loxahatchee NWR (3/2018) with assistance from the Peninsular FL FWCO staff, Welaka NFH, and FL FWCC, and arranged an electrofishing field trip in the surrounding canals and Python Patrol training.
- FAC & ES RO staff work with the Air Force and several of our FAC's NFH's to control invasive plants on military installations.
- R4 FAC & ES staff are working with NC on their revision & update of their state's AIS plan. Not sure when it will be ready for submission to the ANSTF.
- FAC RO staff are coordinating with USGS & Baton Rouge FWCO to examine possibilities for monitoring and eradicating Cuban Tree frogs from 2 sites near New Orleans, the only 2 established populations outside of FL.
- Asian Carp funds for contract fishing (removal) will be awarded in FY 19 to KY, TN, MS, and AL (thanks to Senator McConnell (KY)). In FY 18, only KY & MS received these funds. KY's efforts received a lot of attention last year in the media. MS is working to get the program going. TN's TWRA, and AL's DNR will begin setting up their programs upon award of funding. TWRA's previous efforts focused on monitoring. This is the first year AL has been identified to receive federal funds. Total funding amounts to these 4 states for FY 19 is expected as follows: KY \$977,500; TN \$320,000; MS \$75,000; AL \$225,000. Additional information on the total amounts awarded to these individual grants since establishment are available upon request. These funds are inclusive of all Asian carp work, including contract fishing for removal.
- Funded 7 State AIS plans, a total of \$333,865 in FY 18. All 7 states requested funding in FY 19 and are expected to be awarded funding based upon availability.

- Funded the Small Grants Program thru GSARP (see following summary) in FY 18 and expect to award funds in FY 19, the amount yet to be determined based upon availability.
- Our Lower MS FWCO has been heavily involved in Asian carp work thru the MSRBP and MICRA, coordinating efforts with MS and AR. They are finalizing the Lower Mississippi River Asian Carp Framework, which will include 11 states in the Lower Mississippi, Arkansas, White and Red River Basins, including the following activities:
 - Barkley Dam Sound Deterrent is on schedule for installation during June and July 2019. LMRFWCO staff have been involved for R4, with R3 leading the effort. Met onsite in early April with contractors to discuss logistics; continue to participate in Research Team meetings.
 - Continue to assist Tennessee River states (KY, TN, MS, AL) in their Asian Carp efforts.
- Although FL does not have an ANSTF approved AIS State Management Plan, they regularly attend GSARP and other meetings with FAC and ES staff. Our Peninsular FL FWCO (PFFWCO) actively works with FL FWC on a number of projects, often coordinated with NFH, ES and NWR field offices. Examples include:
 - With the North Florida ES, FL FWCC, & the St Sebastian River State Preserve, are investigating alternatives to control invasive African Jewelfish that negatively affect gopher frogs, a candidate species for listing.
 - Participation in a “Fish Chat” with representatives of the Everglades Cooperative Invasive Species Management Area (CISMA), to discuss research and management results and actions to control AIS within the Everglades footprint. A multi-agency plan was developed to conduct early detection surveys for AIS.
 - FLFWCO, Welaka NFH, Jacksonville ES, Ocala National Forest (NF) and FL FWCC are exploring alternatives for the control of tilapias affecting threatened-listed manatees, in two spring-fed runs within Ocala NF. Tilapias are a non-native invasive fish that disrupt the bottom while cleaning spawning grounds, removing aquatic plants and exposing Timucua Indians burial grounds found within the NF.
 - Staff continue to meet and discuss with partners, as part of Everglades Invasive Species Summit, options for prevention, surveillance, control, eradication, education and research on AIS.
 - Staff continue to work with fishery biologists from 12 agencies, including USGS, FL FWCC, NPS, FL International University, U of FL, and Miami-Dade County in the “Fish Slam” events in Palm Beach, Broward, and Miami-Dade counties using multiple fishing gears to conduct early detection surveys for invasions of nonnative fishes. Fish Slam events are held twice/year, with 23 nonnative fish species documented most recently.
- Summary of Region 4’s Small Grant’s Program
 - Region 4 collaborated with the Gulf States Marine Fisheries Commission and the GSARP to create an AIS small grants program, which started in FY 2014. The GSARP publishes the NOA opportunity, which is open to anyone, any university, or organization, for aquatic nuisance species work. The 2018 announcement states: *The Gulf States Marine Fisheries Commission (GSMFC) is requesting proposals for aquatic nuisance species (ANS) work. We are hoping to have \$100K - \$150K (provided by the USFWS) available to fund 4-8 grants, cooperative agreements, and/or interagency service agreements, ranging in size from \$10K – \$25K, however, larger requests will be accepted. The period for this work will be July 1, 2018 – December 31, 2019 (Though, the funding of projects and the start date is subject to whether/when the funding is available).*
 - Between FY 2014 and 2018, Region 4 provided a total of \$659,488.37 in funding. A total of 116 project proposals were submitted requesting a total of \$2,712,010. For this same period, a

total of 22 projects were awarded. At least 7 different universities were funded, as well as the NPS and USGS. Federal agency's approved for funding are administered by Region 4 AIS coordinator, while all other grants and awards are administered by GSARP Coordinator, who provides annual reports to Region 4 AIS coordinator.

- Some of the projects awarded include:
 - *Phragmites australis* invasion in the southeast
 - Cyanotoxin associated with aquatic plant invasions
 - Asian carp effects on age 0 fish dynamics
 - Prioritizing management of hydrilla in reservoirs with toxic epiphytic cyanobacteria to reduce Bacular Myelinopathy
 - Novel tool development to tracking *Myxobolus cerebralis* (whirling disease) in the Southeast
 - Identifying origins & dispersal of Asian Carps & Northern Snakehead in the lower MS River Basin
 - Applying Salvicide II to control Giant Salvinia
 - Development of new manage strategies: viability of Hydrilla tubers under different combinations of substrate & drying periods
 - Identifying drivers of hybridization between endemic & invasive Black Basses in GA
 - Review of current & potential priority aquatic species: occurrences, vectors, impacts, & management in the SE region
- Federal agency funding to the NPS for swamp eel work in the Chattahoochee River National Park, and to USGS for development of the FaST database tracker was also provided.
- The grant to GSMFC was modified in FY 18 to include a change in scope to provide a 'bounty' on lionfish in the Gulf of Mexico and southern Atlantic coastal areas. This was a no cost time extension provided to GSARP and GSMFC to administer this program.

Region 7 (AK) – Aaron Martin, aaron_martin@fws.gov

- The Service will be conducting the 4th year of early detection surveys (10-15 days each May) focused on watercraft inspections at the Alcan Port of Entry in coordination with APHIS and Customs and Border Protection. These efforts have shown that ~45% of all watercraft entering Alaska at this critical control point are coming from high risk states and that >25% of all watercraft have not been inspected on their way to Alaska. The Service purchased a portable decontamination unit in the fall of 2018 that will be at the Alcan Port of Entry this summer.
- The Service is working with the University of Alaska system on two statewide projects. The first project consists of conducting a vector analysis on watercraft movement on waterbodies throughout the state. This information will help inform resource managers in prioritizing early detection surveys for various AIS. This information will compliment the seaplane vector analysis that was completed in 2017. The second project is to develop a standardized early detection protocol for Elodea, Alaska's first invasive aquatic plant.
- The Fisheries and Aquatic Conservation Program completed a multi-stakeholder, statewide communication strategic plan with participation from tribal groups, industry, and state/federal agencies. The overarching goal of the strategic plan is to engage in conversations with target audiences in ways that lead to them being informed and motivated to play an active part in keeping Alaska wild and free of invasive species.
- The Alaska Region has hired two fellows for the summer of 2019 that will develop, as well as adopt and market, various educational programs and materials to increase awareness and a sense of urgency to act against invasive species. The target audiences for this year's effort include people recreating or working in the outdoors and youth.

- The Service provided leadership on all of the Elodea eradication task forces. These include: Yukon River Basin Elodea Task Force, Alexander Watershed Elodea Task Force (Susitna River Basin), Kenai Peninsula Elodea Task Force (comprised of the Cooperative Weed Management Area Team), and the newly formed Anchorage AIS Task Force.
- The Service is collaborating with the Department of Defense at Fort Wainwright to conduct field trials that will determine the detection probability of Elodea in newly infested waterbodies. The results of the project will help establish a standardized survey protocol.
- The Service is partnering with NOAA, Alaska Department of Fish and Game, and Alaska Department of Natural Resources to host a strategic planning workshop. The workshop was to occur in February, but has been moved to October 2019 due to the partial federal government shutdown. The goal of the workshop will be to work with tribes, industry, non-government agencies, and state/federal agencies to develop Alaska's first all-taxa strategic plan. This plan will be a step-down plan to the Arctic Council's Arctic Invasive Alien Species Strategy and Action Plan.

Region 8 (CA, NV)– Louanne McMartin, louanne_mcmartin@fws.gov

- FY18 ANS Awards: The Service awarded \$47,695 to the States of California and Nevada through the State/Interstate Aquatic Nuisance Species Management Plan Grant Program. Due to a solicitor's review and opinion, Tahoe and other non-states can no longer be awarded these funds directly as they have been in the past; they must be awarded through an actual state. On behalf of the Tahoe Regional Planning Agency (TRPA) the Nevada Department of Wildlife acted as a pass through mechanism to send the FY18 funds to TRPA to implement key elements of the Lake Tahoe Region AIS Management Plan.
- ANSTF approved the Nevada State Aquatic Invasive State Plan allowing Nevada to apply and receive FY19 funds.
- The FWS is funding staff time to model potential nutria in the Sacramento-San Joaquin Delta habitat to prioritize areas for monitoring and to forecast their possible future distributions. It appears that the population is still small enough that eradication is feasible. Given the emergency nature of the problem and the limited resources available, using existing data to improve the efficiency of the response.
- Hazard Analysis Critical Control Point (HACCP) 2018 plans from all FWCO were submitted, reviewed, approved by the Regional AIS Coordinator and uploaded for FWS Regional access. R8 will host two HACCP trainings and one train-the-trainer course in 2019.
- In partnership with state agencies, FWS delivered AIS educational workshops throughout California to recreational boaters as well as state and federal agency staff to increase awareness of the impacts of AIS and how to prevent spreading AIS. These one day workshops have been conducted three times a year for well over a decade reaching nearly 1000 people.
- FWS detected a new species of fish, the bluefin killifish, in the Sacramento Delta in the fall of 2017. FWS identified the fish by morphology and verified the species using DNA analysis. FWS conducted an ecological risk screening summary (ERSS). Although the information on the biology this species is readily available and there are records of established populations outside the native range, no information on impacts of introduction was available. Thus the assessment was uncertain. The introduction is likely through aquarium release.

Ex- Officio members of the ANS Task Force:

Association of Fish and Wildlife Agencies (AFWA) Invasive Species Committee

Submitted by: Kim Bogenschutz, AFWA Invasive Species Committee Vice Chair

Key ANS Activities from December 2018 through May 2019

Staff Update:

- AFWA has not hired a replacement Invasive Species Program Manager to date. Eric Sutton, Executive Director of the Florida Fish and Wildlife Conservation Commission, is the new Chair of the AFWA Invasive Species Committee.

Major Accomplishments:

- Spring Meeting – March 6, 2019, during the North American Wildlife and Natural Resources Conference in Denver, Colorado
- Fall Meeting – September 23, 2019, during the AFWA Annual Meeting in St Paul, Minnesota

Ongoing Work:

Lacey Act Title 18 - AFWA reached out to state fish and wildlife agency attorneys to share issues they were having as a result of the change in the Lacey Act interpretation but did not receive much feedback. Focus has shifted to developing and recommending more robust regulations at the state level. Caroline Murphy (The Wildlife Society) is interested in creating a working group to model state level legislation and recommend revisions to the Lacey Act.

- Action Item: States experiences challenges as a result of the change in the Lacey Act interpretation or members interested in being part of a Lacey Act working group should contact Devin DeMario, AFWA Government Affairs Associate.

Coordination with Departments of Agriculture – AFWA was a sponsor of the Western Invasive Weed Summit which convened federal and state agencies, local governments, tribes, and key non-government organizations to review existing invasive species mandates and programs and set a coordinated plan of action (Western Weed Action Plan) for invasive plant management in the West. The AFWA Invasive Species Committee was requested to consider drafting a letter of support for the plan and will discuss this at the fall meeting after members have had time to review the plan. Another need identified as a result of the Western Weed Summit States was better coordination between state wildlife agencies and state departments of agriculture regarding invasive species. State departments of agriculture often have authority over some invasive species (e.g., aquaculture species, plants). State wildlife agencies may therefore be hindered when trying to manage those invasive species in order to protect wildlife species under their authority. AFWA will explore partnering with the National Association of State Departments of Agriculture (NASDA) for better communication and coordination of state regulations to assist states in managing invasive species.

- Action Item: Committee members should review the Western Weed Action Plan and consider drafting a letter of support from AFWA for the plan.

Invasive Fish Control and Management Needs/Piscicide Re-registration - The AFWA Invasive Species Committee was provided with an overview of the research that USGS is doing on chemicals for control of Asian carp and other invasive fish at their fall 2018 meeting which led to a discussion on registration concerns for piscicides. It was recommended that a working group be formed with members from the AFWA Invasive Species Committee and the American Fisheries Society to look at collaborating on ways to determine future needs for fish toxicants.

- Action Item: Explore forming a working group with members from the AFWA Invasive Species Committee and the American Fisheries Society to look at collaborating on ways to determine future needs for fish toxicants.

Legislation – AFWA continually tracks and solicits state agency input on proposed and relevant invasive species legislation, develops AFWA positions on legislation, and prepares Congressional testimony or briefings on legislation as needed.

- *Recovering America's Wildlife Act (RAWA)* - This bill amends the Pittman-Robertson Wildlife Restoration Act to direct the Department of the Treasury to transfer revenues from energy and mineral development on federal lands to the Wildlife Conservation and Restoration Subaccount of the Federal Aid to Wildlife Restoration Fund. The purpose of the subaccount is to fund state wildlife conservation and restoration programs for managing fish and wildlife species of the greatest conservation which are frequently impacted by invasive species. This will be the third Congress for this legislation, and AFWA will continue to advocate strongly for the dedicated funding this bill would bring to states.
- *Vessel Incidental Discharge Act (VIDA)* - This legislation passed last session in the Coast Guard package. The bill language preempts state authority but does provide for state consultation and the ability to petition for more stringent rules. The Western Governors Association (WGA) is developing a webinar on the impacts of bill (possibly for delivery in May).
Action Item: States having challenges working with the Coast Guard under VIDA should contact Devin DeMario.
- *Water Resource Development Act (WRDA, Title 1 of America's Water Infrastructure Act)* – This legislation passed and was signed by the President. Funding was included for invasive species (e. g., zebra mussels, Asian carp) research and watercraft inspections stations. The timeline for WRDA reauthorization is every 2 years, so it will be up for reauthorization in 2020. AFWA is forming a working group to identify key components to request in the next version of WRDA.
Action Item: Committee members interested in being part of the AFWA WRDA working group should contact Devin De Mario.
- *John D. Dingell, Jr. Conservation, Management, and Recreation Act* - This legislation became law on 12 March 2019. It contains many provisions including land conveyances, exchanges, acquisitions, withdrawals, and transfers; national parks, monuments, memorials, wilderness areas, wild and scenic rivers, historic and heritage sites, and other conservation and recreation areas; wildlife conservation; funding for the Land and Water Conservation Fund; and recreational activities on federal or nonfederal lands.
- *Wildlife Innovation and Longevity Driver (WILD) Act* – The purpose of this bill is to reauthorize the Partners for Fish and Wildlife Program and certain wildlife conservation funds, to establish prize competitions relating to the prevention of wildlife poaching and trafficking, wildlife conservation, the management of invasive species, and the protection of endangered species, and for other purposes. It would require each Secretary to develop a strategic plan for the implementation of an invasive species program to achieve a substantive annual net reduction of invasive species populations or infested acreage on land or water managed by the Secretary concerned. It would also require 75 percent of the amount appropriated to each Secretary each year for on-the-ground control and management of invasive species.

Great Lakes Commission

- Analysis of Great Lakes Aquatic Invasive Species Funding: The GLC is working with the Great Lakes ANS Panel (GLP) to conduct an analysis of AIS funding since the implementation of the Great Lakes Restoration Initiative (GLRI) to summarize progress, identify trends and gaps, and

develop a strategy to target remaining priority needs and help direct invasive species work over the next decade. This effort will complement and enhance current GLRI reporting systems through the collection of additional project information and providing a more detailed analysis of how funding from GLRI and other sources has invested in invasive species prevention and control. The result will be a repository of information that includes detailed project data and metrics, as well as summary analyses which have been drafted and will be presented to the GLP for approval at the May GLP meeting.

- Invasive Mussel Collaborative: The Invasive Mussel Collaborative (IMC) is working to advance scientifically sound technology for invasive mussel control to produce measurable ecological and economic benefits. The IMC provides a framework for communication and coordination and is identifying the needs and objectives of resource managers; prioritizing the supporting science; implementing communication strategies; In November the IMC released a new strategy to reduce invasive mussels and their negative impacts. The Strategy to Advance Management of Invasive Zebra and Quagga Mussels is intended to drive investments, policy, and research around invasive mussels across the Great Lakes region and beyond. The IMC is also working to develop and implement a control method demonstration and evaluation project near the Sleeping Bear Dunes National Lakeshore to begin implementation of the Strategy. In addition, the IMC launched a new website (www.invasivemusselcollaborative.net) and video: <https://www.youtube.com/watch?v=mZgf4IAfVYY&feature=youtu.be>. Visit the IMC website for more updates and recordings of the latest webinars.
- Great Lakes Phragmites Collaborative (GLPC) & Phragmites Adaptive Management Framework (PAMF): The GLC and USGS are jointly leading the GLPC to improve communication and collaboration leading to more coordinated, efficient and strategic approaches to non-native Phragmites across the Great Lakes basin. The GLPC provides educational resources tailored to diverse interest groups, connects invasive species managers with the latest research and technology, encourages the use of adaptive management, and facilitates alignment of partner efforts across jurisdictional barriers. Recently, GLPC released a map of local invasive species cooperatives in the Great Lakes region: <http://glcommission.maps.arcgis.com/apps/webappviewer/index.html?id=cff62bb6b6314f4490d5a80d3a520555>. See www.greatlakesphragmites.net for more of the latest news, updates, and progress of the collaborative.
- The GLC and USGS are also working to promote effective Phragmites management across the Great Lakes basin and tracking the effectiveness and resources efficiency of those management activities through the PAMF model. PAMF requires working with a variety of Phragmites managers across the basin, from state and federal employees to private citizens, in a strategic attempt to engage, learn from, and assist all levels of Phragmites managers. PAMF recently completed it's first year of enrolling sites and providing management guidance; see <https://www.greatlakesphragmites.net/wp-content/uploads/2019/02/PAMF-Infographic-20190122.jpg> for detail.
- Interstate Aquatic Invasive Species Prevention, Early Detection, and Response: The GLC is supporting the eight Great Lakes states in their efforts to plan and coordinate interstate AIS prevention, early detection, and response activities. The GLC recently completed a pathway risk assessment focused on high priority aquatic invasive plants. The purpose of the assessment is to help the states and regional partners understand pathway activity for invasive aquatic plants; determine which pathways are associated with high risk plant species; and identify gaps in management, compliance and law enforcement, and education for each pathway. The next phase of this project will involve developing a communications protocol to complement the previously completed regional surveillance and response plans.

- Great Lakes Detector of Invasive Aquatics in Trade: The GLC developed the web-based software tool Great Lakes Detector of Invasive Aquatics in Trade (GLDIATR). GLDIATR collects, analyzes and allows users to access information about how many and what types of Great Lakes AIS are available for sale on the Internet. This information is being used by invasive species managers to inform and help target a variety of activities, including outreach and education, risk assessment, monitoring and surveillance, and enforcement.
- Blue Accounting Aquatic Invasive Species Pilot: The GLC is working with The Nature Conservancy and regional partners to develop and implement an AIS pilot project under the Blue Accounting program. The AIS pilot is focused on surveillance and rapid response to new species introductions, the organisms in trade pathway of spread, and control and management of invasive species. GLC and TNC are working with a group of regional AIS experts and managers to provide input and guide implementation of the AIS pilot. In December 2018, the pilot, in partnership with state and federal agencies, launched a new suite of web-based resources and tools to support early detection of AIS in the Great Lakes. The resources include a detailed prioritization of monitoring sites in the Basin. More detail is available at <https://www.glc.org/news/BA-AIS-121318> and <https://www.blueaccounting.org/issue/aquatic-invasive-species>.
- Other: The GLC continues to engage with partner groups and support its member states and provinces on other high priority AIS issues facing the Great Lakes region, including ballast water and Asian carp.

Chesapeake Bay Program

Mid-Atlantic Lake Forum

- The Department of Natural Resources (DNR) was awarded funding to assist with the implementation of a Mid-Atlantic Lake Forum. This forum brought together professionals from Maryland and surrounding states to discuss aquatic invasive species issues. Lake managers and AIS managers discussed AIS issues within each state and solutions to minimize the spread of those species. Presentations focused on control methods used in each state, regulations and innovations for minimizing introductions, herbicide use, and technology for cleaning vessels. Fifty –five people from seven states attended the forum, and there are plans to repeat this regional effort in 2021.

State Lakes Protection and Restoration Fund

- In May of 2018 Governor Hogan approved \$1,000,000 annually for three years for the State Lakes Protection and Restoration Fund. These funds are intended to protect and restore State-owned lakes. The Department of Natural Resources was tasked with developing a budget for best utilizing these funds in coordination with local governments, organizations, and citizens. This winter the department developed an annual work plan that prioritizes and details projects that will receive funding.
- The purpose of the funds are to protect state-owned or state managed lakes by removing sediment, treating contaminated sediment, preventing the spread of invasive species, improving ecological and recreational value, and taking any other action the department deems necessary.
- In November and December 2018, the department held five open houses around the state to solicit public input. The department has developed a work plan and working budget for projects that were selected to begin in July 2019.

ANS Plan Funding expenditures-

- Maryland DNR has used its funding allotted from the ANSTF to fund the following projects:
 - Invasive Species Signage and outreach education signs in Maryland State Parks

- E-DNA projects for Zebra mussels
- Flathead Catfish Assessment
- Hydrilla Control in Lake Habeeb, Rocky Gap State Park
- ANS Risk Assessment Project

Maryland Fisheries Service

- Maryland Fishing and Boating Services is continuing the annual Snakehead fishing tournaments in Southern MD to reduce the overall population. On Maryland's Eastern Shore, flyers are being distributed to anglers to encourage anglers to remove any snakeheads caught.
- Maryland Southern region Fisheries Service will begin tracking blue catfish to this year to learn the areas and types of habitat they spawn and overwinter in Patuxent River. That work will be done to inform watermen about the densest areas when targeting blue catfish.

Gulf States Marine Fisheries Commission

- See Gulf and South Atlantic Regional Panel on Aquatic Invasive Species Update below

National Marine Manufacturers Association

- NMMA and its Boating and Angling AIS Coalition submitted comments regarding the ACOE's Brandon Roads project during the open comment period. The coalition also submitted an appropriation request specific to AIS priorities.
- NMMA will be a cohost during MICRA's Congressional briefing on May 3rd. NMMA will also be hosting a separate Congressional briefing on AIS issues and the boating industry in July.
- NMMA has been reviewing and monitoring state legislation that would support local AIS programs.

Regional Panels of the ANS Task Force:

Great Lakes Panel on Aquatic Nuisance Species

- **Semiannual Meetings:** The Great Lakes Panel (GLP) held its fall meeting November 7-8, 2018 in Ann Arbor, Michigan. The November meeting featured plenary sessions on response and updates from other regional partner groups, as well as break-out sessions focused on advancing common AIS priorities for the Great Lakes region. Break-out session discussions were robust and identified several high priority activities for the GLP and other partners to focus their efforts on in the near-term. The spring GLP meeting is scheduled for May 14-15, 2019 in Cleveland, Ohio. The meeting will include a report out on next steps from the fall break-out sessions, as well as plenary sessions on risk assessment and ballast water policy. Meeting agendas and other materials are available online at <http://www.glc.org/work/glpans/meetings>.
- **Grass Carp Ad Hoc Committee:** The Grass Carp Committee is providing a forum for ongoing communication and coordination specific to Grass Carp and to track and advance progress on priorities identified in the GLP's Grass Carp Priorities for the Great Lakes document. The committee is finalizing letter to states that allow stocking of diploid Grass Carp encouraging changes to their policies that would reduce the risk of introduction and spread. GLC staff are working with the Great Lakes Fishery Commission (GLFC) to distribute the letter to the diploid states via the Council of Great Lakes Fishery Agencies. Remaining tasks for the committee are to compile relevant education and outreach materials to identify any needs or gaps, and to work with the GLFC Law Enforcement Committee to collect information on triploid grass carp regulatory compliance.
- **Risk Assessment Committee:** The Risk Assessment Committee is continuing to guide work and facilitate progress in developing a regional risk assessment clearinghouse to provide information about different risk assessment methodologies and serve as a repository for risk assessment documents. GLC staff are working directly with staff supporting the Great Lakes Aquatic Nonindigenous Species Information System to develop and populate the clearinghouse according to committee guidance. A beta version of the clearinghouse is currently available on the GLANSIS website for user testing. A part-time, limited term staff person was hired to begin populating the database with risk assessment summaries and results. Progress on the database will be reviewed and discussed at the May GLP meeting.
- **Research Coordination Committee:** The committee is working with GLC staff to develop a summary and analysis of AIS funding in the Great Lakes region. This effort will look at how investments made over the last five years align with priorities identified by the GLP. This includes developing a project database using Great Lakes Restoration Initiative funding information and summarizing the projects and funding across different categories and attributes (e.g., pathway focus, species focus, etc.). Summary analyses are drafted and will be presented to the GLP for approval at the May GLP meeting.
- **Coordination with partner groups:** The GLP continues its outreach to other groups and forums engaging in and/or supporting AIS prevention and control including the Great Lakes Restoration Initiative, the Great Lakes Water Quality Agreement Annex 6 subcommittee, various regional species collaboratives, and other similar entities. This outreach provides an opportunity for the GLP to provide input on priority activities and identify opportunities for making progress. The GLP also continues to serve as a valuable forum for these partner groups to convene their own meetings around GLP meetings.

Gulf and South Atlantic Regional Panel on Aquatic Invasive Species

- The GSARP's spring 2019 meeting was held on April 17-18th, in Fort Lauderdale, Florida. The presentations from that meeting can be found on the Panel's website (www.gsarp.org).
- The Panel is continuing to help disseminate the research findings from the Region 4 USFWS AIS Small Grants Program throughout the region by inviting PIs to present at, and participate in, Panel meetings. In the first three years of this cooperative program between the USFWS, GSMFC and the GSARP we have been able to fund 26 projects totaling \$556K. This year we are funding 7 projects totaling \$154,235 through the 2018 funding opportunity that will be addressing Hydrilla, whirling disease, Asian Carps, Snakehead, Giant Salvinia, and invasive Black Bass. The GSMFC ANS Program Coordinator will also be working with USFWS to get the 2019 RFP distributed once the regional office receives their final budget numbers.
- The Panel and GSMFC are continuing efforts to develop a new Panel website. The new site was presented to the Panel at their spring 2019 meeting and is currently undergoing final review by the Panel before going live this summer. The new site has many new features, including a clearinghouse of grey literature and research reports, a custom view into the USGS's NAS database that focuses just on GSARP states, and a list of the top ten invasive species that are threatening the region with links to fact sheets that can provide more information on their invasion history. The Panel is also looking into incorporating a clearinghouse of completed risk assessments and or outreach materials into its new website or will provide links to national clearinghouses if they are established.
- The Panel and the GSMFC are continuing to support the Panel's Invasive Species Traveling Trunk program which is still receiving steady use (about 70 days of utilization since the December meeting). The GSARP's Education and Outreach workgroup completed a full update of the trunk's content last year and will continue to explore the possibility of incorporating a game for elementary-aged children, and developing a poster that teachers can display in their classroom that will keep the message about invasive species in the classroom after the lesson is complete. They will also look at incorporating lesson plans that cover the materials included in the trunks to make it easier for teachers to incorporate them into their science curriculums.
- The Panel is planning to hold its fall 2019 meeting in Charleston, South Carolina the last week of September or the first week of October.

Mid Atlantic Panel on Aquatic Invasive Species

- The spring 2019 MAPAIS meeting was held on 9-10 April 2019 in Annapolis, Maryland in conjunction with the first Mid-Atlantic Lakes Forum, sponsored and funded in part by MAPAIS. The Lakes Forum, held on April 9 and attended by 55 people, aimed to improve communication and information sharing among regional lakes managers dealing with AIS issues. The MAPAIS meeting held on April 10 focused on routine business items, presentations from regional panel members covering recent regional AIS detections, management activities, and research, and review of proposals and award decisions regarding our 2019 small grants program.
- For FY2019 funds, the MAPAIS issued an RFP in January 2019 and received nine proposals totaling \$91,695. The panel reviewed the proposals to identify the highest quality proposals to support that directly relate to the mission of the panel. Three proposals were selected for funding.
- Tentative plans were also set for the fall MAPAIS meeting in New York.

Mississippi River Basin Panel on Aquatic Nuisance Species

Progress Report for Financial Reward (Performance Period - July 1, 2017 – November 30, 2018)

- Travel support was provided to MRBP Co-chair to attend and represent the MRBP at the MICRA Executive Board meeting July 2017.
- Developed and launched a new MRBP website.
- Executed a Service Agreement with the University of Wisconsin Extension for the partial funding and initiation of a project titled 'Creating Acceptable Alternatives to the Buddhist Practice of Animal Release.'
- Shipping of the Whac-A-Mussel educational unit to Illinois Department of Natural Resources and Colorado Parks and Wildlife for outreach events.
- MICRA continued to host and provide coordination support for the MRBP, and covered indirect costs associated with hosting and operations of the MRBP during the performance period. MICRA assisted the MRBP conduct all aspects of panel business including organizing and facilitating panel meetings and conference calls, drafting reports and panel correspondence, developing project proposals and agreements, managing operational and project budgets, and paying expenses for panel operations.
- Provided financial and technical support for the organization and hosting of the 1st International Snakehead Symposium July 18-19, 2018, in Alexandria, Virginia, in partnership with the Virginia Chapter of the American Fisheries Society, Mid-Atlantic Panel on Aquatic InvasiveSpecies, and the Virginia Department of Game and Inland Fisheries.

Northeast Aquatic Nuisance Species Panel Updates

- The Panel's fall 2018 meeting was convened in December at the state's Department of Environmental Services coastal office in Portsmouth, New Hampshire. Presentation topics included the Vessel Incidental Discharge Act, New Hampshire (legislative) Exotic Aquatic Weeds and Species Committee, "Spotlight on Species: Eelgrass," salt as a terminator or facilitator of invasive species, roundtable, updates on the Panel's funded projects on the Connecticut River and Long Lake in Maine, and work group meetings.
- The Panel will next meet in June along the Connecticut River in the Massachusetts-Connecticut border area. A Hydrilla classroom and field training session, conducted by the US Army Corps of Engineers, will be hosted by the Panel in conjunction with the meeting.
- Mid-term conference calls are convened in or around February and August to keep Panelists connected and to prepare recommendations for the Aquatic Nuisance Species Task Force meetings.
- The Panel thanked Meg Modley, Lake Champlain Basin Program, for her work over the last two years as co-chair. Panelist elected David Wong, MA Department of Environmental Protection, as incoming co-chair for two years. Dr. Wong joins Kevin Cute, Rhode Island Coastal Resources Management Council, who is senior co-chair.
- The Climate Change Work Group continues its work to formulate an existing and likely invasive species list based on changing environmental conditions.
- The Spread Prevention Work Group completed its first year of work collecting Hydrilla samples on the Connecticut River in Vermont, New Hampshire, Massachusetts, and Connecticut. The project included DNA analysis as well as the development of outreach products including outdoor signage, table top displays, rack cards, and floating key chains with QR code.
- The Panel funded a *Myriophyllum heterophyllum* a successful rapid response project on Long Lake in Maine.

- Under consideration by the Panel is a plan to conduct a marine rapid assessment survey from Connecticut to Maine is planned for the 2019 field season.
- The NEANS Panel continues to participate on the ANSTF Communication, Education, and Outreach; Boating; and Economic Committees, the latter in a leadership role.
- Through pro bono work, the NEANS Panel maintains listserves for the Panel and interested individuals and organizations as well as for regional panel principals. Other pro bono donations include computers, audiovisual equipment, teleconference and webinar services, meeting refreshment and other catering, and other services, materials, and equipment.
- All meetings are negotiated at gratis spaces with cooperating organizations and agencies. There are often temporal and other restrictions on the use of these spaces that make logistics challenging. It is not a sustainable model, given that these organizations will not provide the favor more than once. The NEANS Panel has institutionalized its voluntary meeting registration fee, which it piloted several years ago. No one is barred from participating in the meeting if he/she cannot pay the fee. There is no transparency for anyone to see who has paid or who has not—participants register separately from the payment device. Not everyone is able to pay the fee so the returns are modest but cover some of the material costs to provide light refreshments (but not the additional contractor time and equipment for catering the meetings and covering additional costs, which would normally be included when renting a conference space).

Western Regional Panel on Aquatic Invasive Species

Ongoing Work

- Annual Meeting: The 2019 meeting is scheduled for October 9-11 in Missoula, MT. This meeting will be hosted by the Montana Fish, Wildlife & Parks. The two-and-a-half-day meeting will feature a variety of topics on emerging and relevant AIS management. A field trip will include site visits focused on local AIS issues.

Coastal:

- Regional model framework for regulating in-water cleaning of commercial and passenger vessels: The Coastal Committee is developing the framework to improve consistency across the region when regulating in-water cleaning.
- Regional Biofouling Best Management Practices for currently un-regulated vessels: The Coastal Committee is developing BMPs that would provide guidance for un-regulated recreational vessels, commercial fishing vessels, and mobile marine infrastructure (e.g., dredges, construction barges, mobile drilling rigs). This effort is in a finalization phase. The goal is to share final product with vessel owners and vector-based management.

Inland:

- The WRP developed a status report document for the Quagga and Zebra Mussel Action Plan for Western US Waters (QZAP) (April 2019). Members of the WRP and their respective organizations have made significant contributions in advancing zebra and quagga mussel management and this report is intended to summarize accomplishments related to QZAP goals and objectives over the last decade. It does not document progress on this issue at a national level.
- The WRP developed the Building Consensus in the West activity report 2011-2019. The document provides a summary of the collective efforts of Building Consensus and its partners to protect western waters from zebra and quagga mussels.

- The WRP has been actively engaged in various aspects of dreissenid management including the following:
 - Collaborating with the Department of Interior on the Safeguarding the West Initiative.
 - Collaborating with the Western Governors Association and numerous partners on a 2019 Western Leadership Forum on Zebra and Quagga Mussel Management.
- New Workgroup formed: “Wildfire Equipment Decontamination” was created to produce standard Fire Equipment Inspection and Decontamination protocols and procedures for western states and agencies. Standards will be based on National Wildfire Coordinating Group (NWCG) guidelines. The resulting product will be a training manual that WRP states/provinces could voluntarily adopt.
- New Workgroup formed: “eDNA Workgroup” was created with several goals:
 - The development and hosting of a series of webinars to educate WRP members on what eDNA is, the current state of the science, and how eDNA is being used in dreissenid management in the western USA.
 - The first webinar was hosted in March 2019. Draft a white paper on eDNA (essentially update the original ISAC white paper) for WRP specific to dreissenids which provides definitions needed to understand how managers should interpret eDNA results.
 - Draft a list of research or development projects related to dreissenid eDNA as a reference for directing future efforts to meet management needs and further science collectively.
 - Develop standard field protocols for collection of eDNA samples for dreissenids.
 - Develop standard lab protocols for analysis of eDNA samples for dreissenids.
- The WRP made the Decontamination Think Tank a permanent standing committee of the WRP to further dialog related to prevention and containment through watercraft inspection and decontamination. In April 2019, the WRP approved standards for on-demand hot water decontamination unit specifications produced by the committee.