

ANS Task Force Member Updates – November 2019

Federal members of the ANS Task Force:

Bureau of Land Management

- The BLM furthered interagency, multi-partner efforts to implement an interjurisdictional containment strategy for quagga mussels in the lower Colorado River, including Lake Havasu and downstream. Workteam participation includes 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, Chemeuevi Reservation, Colorado River Indian Tribes, and U.S. Coast Guard, as well as numerous private marinas through the Lake Havasu Marine Association.
- The BLM has developed a proposed new administrative categorical exclusion (CX) for authorizing aquatic and riparian habitat restoration treatments and projects to protect, enhance, and restore streams, lakes, wetlands, and riparian habitat titled Aquatic and Riparian Habitat Restoration.
- The Washington Office has completed draft updated policy for BLM Manual Policy 6720-Aquatic Resources. As part of this update, MS 6720 provides proposed national BLM policy and guidance that addresses aquatic invasive species in sections. This language will be finalized to tier into and augment forthcoming Department of Interior invasive species policy.
- The BLM has renewed and expanded our 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 placements targeting key recreational user demographics. We estimate that these images reach over 5 million sportsmen annually.

Bureau of Reclamation

Reclamation's primary focus for the past year has been the implementation of the Fiscal Year 2019 Mussels Spend Plan. In June 2017, the Department of Interior (Department) launched a government-wide initiative entitled Safeguarding the West from Invasive Species- Actions to Strengthen Federal, State, and Tribal Coordination to address Invasive Mussels (Initiative). The Initiative focuses on keeping invasive dreissenid mussels out of the Columbia River Basin and containment of invasive mussels in the lower Colorado River.

As part the Initiative, Reclamation provided approximately \$4 million dollars to support various mussel's management activities across the West. Activities that these funds supported are described below:

- The Washington Department of Fish & Wildlife Watercraft Inspection Stations.
- Montana Fish, Wildlife & Parks Watercraft Inspection Stations.
- The Colville Confederated Tribes Invasive Mussel Early Detection Project - The Colville Confederated Tribes' (CCT) will establish an Aquatic Invasive Species (AIS) program that would enable the CCT to fully participate in regional AIS issues.
- The Washington Department of Fish and Wildlife (WDFW) CD3 Pilot Deployment - WDFW will pilot the use of Clean-Drain-Dry-Dispose or "CD3" systems within the Columbia River basin area of Washington State.

- The Washington Department of Fish and Wildlife to conduct zebra and quagga mussel monitoring activities at high-risk water bodies throughout Washington State for all mussel life stages.
- Support for Oregon Department of Fish & Wildlife Education and Outreach.
- Portland State University, Center for Lakes and Reservoirs Quagga Monitoring – Portland State University staff will perform dreissenid mussel surveys at high-priority water bodies in the CRB.
- Providing increased Enforcement at AIS Inspection Stations through the Oregon State Marine Board.
- Continued quagga mussel inspections and containment efforts at the Lake Mead National Recreation Area through the National Parks Service
- Arizona Inspection and Decontamination Station Operation and Maintenance for mobile decontamination stations as well as additional stations
- California Watercraft Traffic Study at border crossing with Arizona and Nevada conducted by and for the California Department of Food and Agriculture at their border protection stations.
- Support for Colorado Parks and Wildlife (CPW) watercraft inspection and decontamination program and the watercraft inspection database
- South Dakota Game, Fish and Parks to purchase Trailered Mobile Decontamination Wash Stations and provide Watercraft inspector Training
- Fund the Town of Grand Lake to install one boat inspection and decontamination permanent structure.
- Fund the Larimer County Department of Natural Resources to install four boat inspection and decontamination permanent structures.
- Wyoming Game & Fish Department to purchase a trailered mobile decontamination wash station and sampling nets
- North Dakota Game and Fish Department to purchase three waterless cleaning/outreach kiosks.
- Support for Utah Department of Natural Resources to prevent movement of mussels out of Lake Powell
- The Lake Berryessa Zebra and Quagga Mussel Prevention Program
- Mobile Decontamination Stations for the State of California.
- Joint funding with Reclamation’s Science and Technology program to pursue the development of invasive mussel open water control methods including those from the winning project from Reclamation’s prize challenge.

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.

NOAA International Update

- The North Pacific Marine Science Organization (PICES)
 - 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 2019 to exchange information and co-convene a workshop 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 China in October 2020.
 - The use of eDNA techniques to detect and monitor invasive species is of interest to several PICES countries and the AP-NIS is hosting a workshop at the next meeting to track international efforts on eDNA and invasive species.
- The Arctic Invasive Alien Species (ARIAS) Strategy and Action Plan
 - NOAA along with Alaska Department of Fish and Game and the US Fish and Wildlife Service organized and hosted the Alaska invasive species strategies workshop in Anchorage (Sept 24-26, 2019) to develop the framework for a statewide multi-taxa strategic plan to combat invasive species and implement ARIAS. Several stakeholders attended the workshop including members from federal, state, tribal, academic, industry, non-profits, and local entities.
 - Due to leadership changes, the US paused participation on the joint ARIAS Implementation Coordination Group (ICG) which is the international group responsible for coordination and implementation of ARIAS.
 - During the Alaska invasive species strategies workshop, US members of the ARIAS ICG evaluated their potential role and decided to re-engage with the group. The US members will take the next few months to strategize how best to collaborate with the international community regarding ARIAS.

NOAA Selected Regional Updates

NOAA - Alaska

- Dutch Harbor Marine Invasive Species Monitoring and Bioblitz Event.
 - NOAA Sea Grant in collaboration with the Smithsonian Environmental Research Center (SERC) partnered for a week-long event designed to raise community awareness of invasive species. During the event, the local community, including indigenous tribes were educated on the identification of invasive species and lessons related to invasive species were incorporated into K-12 education.
 - SERC and NOAA scientists also discussed the possible use of eDNA to help detect potential threats to the Alaska region.

NOAA - 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 nonconsumptive 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.*
- **Bighead Carp**
 - 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 still 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.

NOAA - Gulf and South Atlantic Region

- **Removing of Lionfish**
 - There were removal cruises 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.
- **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.
 - Lionfish FTEK tests were conducted in the summer 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.

NOAA - Western Region

- **Green Crab Activities**
 - Washington Sea Grant and Washington Department of Fish and Wildlife have been leading a citizen science based early detection and monitoring program. This program has a little over

200 volunteers which has led to the detection of green crab in a variety of locations in inland Washington waters. The group is now working in collaboration with University of Washington to develop standards for eDNA detection of green crabs.

- 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.
- Potential New Invasion
 - A highly invasive algal species was recently discovered at Pearl & Hermès Atoll (in the Northwestern Hawaiian Islands) during diving operations that has the potential to suffocate shallow coral reefs ecosystems in the region. NOAA is working with collaborators to identify the alga, determine if the alga is composed of one species, and/or determine if the invasive is a result of one or more introduction events. There is no formal quarantine policy but NOAA has increased the Papahānaumokuākea Marine National Monument dive gear protocols to prevent spreading of the alga.

U.S. Fish and Wildlife Service

Please note that while FWS and other DOI Bureaus will be implementing boundary changes to reflect changes to DOI boundaries, the 2019 report is still organized by FWS legacy regions as it reflects work accomplished within 2019.

Headquarters - Branch of Aquatic Invasive Species – Craig Martin (craig_martin@fws.gov)

2019 State/Interstate Aquatic Nuisance Species (ANS) Management Plan Grant Program:

- FAC received \$2 million for the FY19 State and Interstate ANS Management Plan Grant Program. The NOFO closed on March 27th.
- 43 of the 44 ANSTF-approved plans applied for funding this year. Connecticut did not apply this year due to some loss of invasive staff and changes in leadership.
- Final numbers were shared with the Regions on May 13th. So the 43 plans that applied for funding are approved to receive between \$42,000 and \$46,775 depending on what they asked for. Stage 2 of the grant program is currently ongoing in the Regions.

Outreach Updates

- Partners of the Stop Aquatic Hitchhikers (SAH) campaign have requested an expansion to the existing SAH website that will allow campaign materials to be shared and customized. The USFWS has secured a contract to build this feature on the current website. With assistance from the regional panels of the ANS Task Force, categories for the campaign materials have been identified and example materials are being compiled to be uploaded onto the portal. After this initial test, the portal will be made available to partners. SAH has also begun to incorporate vector-specific branding into campaign in order to target additional recreationalists such as sea plane operators, scuba divers, duck hunters, and non-motorized boat users. The USFWS along with the ANS Task Force is seeking to conduct an assessment to better understand how target audience receive and perceive SAH information and if the brand has influenced their willingness to change behaviors. This assessment supports action from the new ANS Task Force Strategic Plan as well as DOI's *Safeguarding the West from Invasive Species* initiative.
- The USFWS has teamed up with PIJAC 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. The relaunch of the

campaign was announced on June 11, 2019 during the Reduce Risks from Invasive Species Coalition's (RRIS) agency fair on Capitol Hill in Washington, D.C.

- USFWS FAC is working with National Wildlife Refuge System (NWRS) to develop a Memorandum of Understanding (MOU) with The North American Invasive Species Management Association, Inc. , Wildlife Forever, and National Park Service to strengthen invasive species prevention activities on our lands and waters and to utilize the "Stop Aquatic Hitchhikers", Clean, Drain, Dry Initiative", and "PlayCleanGo: Stop Invasive Species In Your Tracks" campaigns to elevate cooperation between parties, increase public awareness through education, and create clear calls-to-actions that empower people to prevent the spread of invasive species. Additional DOI bureaus, such as BLM, will be able to join the partnership in the future. We anticipate completion of the MOU by the end of the fiscal year.

USFWS prevention website and availability of ERSSs:

- Nearly 1,000 ERSSs are posted on the FAC prevention website. We anticipate having over 1,100 posted by the end of the fiscal year, including some updates to early ERSS to conform to the SOPs. BAIS and Regions 3 and 5 are revising the ERSS SOP for clarity and it will be posted once complete.
- The Standard Operating Procedures for the Freshwater Fish Injurious Species Risk Assessment Model (FISRAM) is completed and was posted in May. 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 in an ERSS. In June, BAIS published a paper on the model in the peer-reviewed journal Management of Biological Invasions.

NEPA Categorical Exclusion for EDRR:

- Since late 2017, BAIS has been working with DOI's Invasive Species Coordinator, subsequently with R4's AIS Coordinator, and more recently with DOI's Office of Environmental Policy and Compliance to coordinate an effort among the bureaus for one or more new categorical exclusions (CE) specifically on invasive species. 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 coordinated 9 other people from FWS (R1 and 4), NPS and BLM to categorize the documents into details that could provide substantiation for the proposed CE actions. The core team is now taking that information and starting to prepare substantiation for a CE focusing on rapid response, possibly including control measures. The proposed timeline, coordinated through Scott Cameron, has the final CE completed in September 2020.

Injurious wildlife:

- BAIS has been working with USGS on analyzing the effectiveness of injurious wildlife listing. The first species were listed as injurious in 1900, so the analysis is complex. The analysis is in a draft paper that will be submitted for peer-reviewed publication. Results show that, of the 306 species listed for invasiveness, only 18 were established at the time of listing. The other 288 were not established at the time of listing and remain not established, which is a 100% prevention rate. BAIS plans to present these results at the 2019 joint AFS-TWS conference.

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

- In FY19, through the State and **Interstate ANS Management Plan grant program** \$46,775.00 was provided to each state in the region (Hawaii, Idaho, Oregon and Washington). Funds support implementation of the state ANS management plans, including prevention activities.
- **Section 7 Consultation Manual** to facilitate consultation for actions related to rapid response for invasive mussel detections in the CRB. Federal and State agencies and Tribes have contributed to the Manual, including peer-review, with a final manual expected at the end of FY19.

- **ICS Framework:** The FY19 Appropriations bill included language directing Interior to work with USDA, USFS, and USACE, Western Governors' Association, and Western States to develop a joint Federal-State Incident Command System (ICS) to address invasive mussels in the West. Federal agencies (DOI, BOR, FWS, NPS, NISC-Secretariat, USFA, USFS, USACE) convened an interagency team coordinated by Hilary Smith (DOI) and have met monthly since March to provide a coordinated response to Congress in 2019. FWS participants included R6 and R1. The team continues to meet to develop ways to better coordinate rapid response activities among federal entities.
- **AIS Workshop for Columbia River Basin Tribes:** A 2-day workshop on aquatic invasive species was held for several tribes represented by the Columbia River Inter-Tribal Fish Commission (CRITFC) (Yakima, Umatilla, Warm Springs, Nez Perce) in September 2019. This workshop was funded through the Bureau of Indian Affairs (BIA) in partnership with CRITFC and supported by U.S. Geological Survey, Washington State University and U.S. Fish and Wildlife Service. The two-day workshop included field-based sampling, laboratory analysis, as well as ongoing research, monitoring, and discussions about invasive concerns focused on the Columbia River Basin.

Region-wide Coordination

- **Pacific Region FWS** is coordinating internally across programs (FAC, ES, Refuges) to streamline regulatory processes and actions related to control of invasive species - specifically flowering rush and invasive zebra and quagga mussels.
- **The Western Washington Fish and Wildlife Conservation Office** worked with the Washington Invasive Species Council and provided invasive species coordination, technical support, and outreach to Federal, State, Tribal, and local governments in the Pacific Northwest. Major topics included Northern pike (*Esox lucius*), flowering rush (*Butomus umbellatus*), European Green Crab (*Carcinus maenas*) and preparation for an Early-Detection Rapid Response Exercise for invasive mussel response at Lake Roosevelt in FY2020. The WWFWCO provided prevention-focused invasive species information to partners and the public through special events.
- **The Oregon Fish and Wildlife Office** continued to serve on the Oregon Invasive Species Council and supporting the OISC strategic plan, including consultation, habitat restoration and both technical and financial support. Staff provided comments on the ESA Section 7 Consultation manual for invasive mussel response in the Columbia River Basin, and conducted outreach to the public about invasive species at venues including the Portland Museum of Science and Industry, and the Oregon Zoo. The Klamath Falls office (Region 8) is involved in brook trout control and eradication efforts in areas of important bull trout habitat.
- **The Idaho Fish and Wildlife Office** continued to serve on the Idaho Invasive Species Council. Staff also participated in an Early Detection Rapid Response table-top exercise at Brownlee Reservoir in southwest Idaho in May 2019. Pacific States Marine Fisheries Commission (PSMFC) facilitated the training as part of the Columbia River Basin Rapid Response plan for invasive mussels. Participants included Idaho Power, Idaho Department of Agriculture, FWS (ES and FAC), NMFS, Oregon State Marine Board, Oregon Dept. of Agriculture and PSMFC.
- **The Pacific Islands Fish and Wildlife Office (PIFWO)** implements activities to prevent, mitigate, control, and eradicate populations of aquatic non-native invasive species (AIS) in Hawaii and other Pacific Islands, including identifying and strengthening biosecurity actions. PIFWO actively engaged with the Hawaii Invasive Species Council and the Coordinating Group on Alien Pest Species, aiding in their strategic planning out to 2025. PIFWO continues participating in stakeholder meetings to support amending Hawaii Administrative Rules focused on addressing ballast water and biofouling on high biosecurity risk vessels. This year PIFWO also hosted two Hazard Analysis and Critical Control Point Planning workshops in Honolulu for both Service and partner agency personnel.

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

- 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.
- Hosted a HACCP and train-the-trainer course for state and federal partners in the western United States. Tuition and supplies were funded by USFWS.

Region 3

- The Midwest and Northeast Regions worked with Headquarters to complete over 900 Ecological Risk Screening Summaries (ERSSs) to identify highest-risk aquatic species that are not yet present in the Great Lakes but have a history of invasiveness and a climate match to the region. Once available to decision makers, risk screening reports are essential to informing risk management and enhancing collaborative and voluntary partnerships with industry and states. Data from these assessments was used to inform the listing of 11 new species as Injurious under the Lacey Act in 2016. ERSSs are available online at http://www.fws.gov/fisheries/ANS/species_erss_reports.html.
- Region 3 administered approximately 50 open grants and awarded an additional 22 grants in FY18.

Asian Carp

- The draft 2017 Water Resources Reform and Development Act (**WRRDA**) Annual Report to Congress on Asian Carp in the Upper Mississippi River and Ohio River Basins is currently undergoing surname review. When approved, the report will be transmitted by the Director to Congressional committees and made available on asiancarp.us.
 - The USFWS Midwest Region has formally requested input (annual accomplishment and expenditure data) from state and federal agency partners for development of the 2018 Report. Initial drafting of the document has begun.
- In Support of the implementation of the *Management and Control Plan for Bighead, Black, Grass, and Silver Carp (National Plan)*:
 - The Midwest Region continues to lead a multi-agency Black Carp working group for the ACRCC, which prioritizes monitoring and surveillance of this species in its invaded range of the Mississippi River, focusing on young of year sampling and the state funded (Illinois) bounty program for adults. Development of a species specific bait is underway, as well as refinement of genetic surveillance tools (eDNA).
 - Throughout the Mississippi River Basin, MICRA has facilitated the development of three frameworks for collaborative implementation of management and control actions in the

Upper Mississippi, Ohio, and Missouri River basins. A fourth partnership is working to finalize a framework for the Lower Mississippi River Basin. Additionally, MICRA works with the Asian carp partnerships in the Upper Mississippi River and Ohio River basins to develop an annual Monitoring and Response Plan to collaboratively identify and implement highest priority projects with USFWS funding support authorized by Congress for these portions of the Mississippi River Basin.

- Substantial expansion of Asian carp control actions is planned for 2019 in the form of increased contract fishing efforts in both the Upper Mississippi River and Ohio River basins. USFWS is working across Regions and with partnerships in each basin to develop and coordinate an Asian carp stock assessment program (including SEACarP model) to evaluate deterrence, removal, and other management actions.

Region 4 (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN), now South Atlantic-Gulf and Mississippi Basin – Cindy Williams (Cynthia_williams@fws.gov)

- In FY19, through the State and Interstate ANS Management Plan grant program \$46,775.00 was provided to each state with approved ANS management plans (AR, GA, KY, LA, MS, SC, & TN) to support implementation of the state ANS management plans, including prevention activities. Region 4 modifies existing grants for a period of 5 years to reduce paperwork associated with establishing a new grant every year (Sec. 7 consultation, SHPO, etc). At the end of the 5 year period, new grants are established. All new grants to the states were implemented in FY 18; FY 19 are amendments.
- In 2014, Legacy Region 4, now the South Atlantic-Gulf and Mississippi Basin, established a partnerships with the GSARP to administer a Small Grants Program. The FY 14 grant expired in FY 18 and a new grant was awarded in FY 19 and provided \$115,779.10 to the GSARP. For this award, 5 projects were selected from the pool of submissions. GSARP posted a Notice of Funding Availability and a team of biologists from state, federal, NGO, and universities reviewed the proposals against the FAC Strategic Plan and ranked the projects. Based upon the amount of funding available, the top 5 projects from non-federal agencies were selected. One project from USGS was selected, funded separately with an Interagency Agreement.
- Funding to combat Asian carp species was expanded in Legacy Region 4, now the South Atlantic-Gulf and Mississippi Basin from \$1,489,000 awarded to KY, MS, and TN in FY 18 to \$1,577,500 in FY 19 awarded to AL, KY, MS, and TN. Of particular note, the state of AL has not yet requested approval from the ANS Task Force to approve their State Management Plan. We anticipate the amount of funding to expand further in FY 20 not only in the amount of available funding to fight Asian carp, but also to expand the number of states eligible to receive these funds. Our Region performs this work in coordination with Legacy Regions 3 and 5.
- The South Atlantic-Gulf and Mississippi Basin AIS Regional Coordinator has been working with DOI to identify where it would be appropriate to establish new Categorical Exclusions for Prevention and EDRR to combat invasive species. We provided Sec 7 documents used for developing the FY 18 grants to the list of documents under review.
- Expansions of snakehead, Asian swamp eel, and Cuban tree frogs into new locations has resulted in requests from the states of LA, GA, and SC for additional funds to prevent further expansion of these species. Prevention funds have not yet been approved as of this report. Prevention funds were approved to combat walking catfish in Puerto Rico.
- The AIS Regional Coordinator completed Train the Trainer HACCP and recently offered the first Regional course. Funding to support travel for additional courses has not yet been approved.
- The State of NC has been working to finalize their AIS State Management Plan to submit to the ANS Task Force for review and approval. We are unaware of the expected completion date or

any plans to submit to the ANS Task Force for approval. Currently there are state management plans in place that currently conflict with the Task Force criteria for approving state ANS plans.

- Regional Coordinator provided published, peer-reviewed literature to the Bureau of Reclamation's Mid-Pacific Region to combat the only known population of zebra mussels west of the 100th Meridian.
 - Throughout the Mississippi River Basin, MICRA has facilitated the development of three frameworks for collaborative implementation of management and control actions in the Upper Mississippi, Ohio, and Missouri River basins. A fourth partnership is working to finalize a framework for the Lower Mississippi River Basin. Additionally, MICRA works with the Asian carp partnerships in the Upper Mississippi River and Ohio River basins to develop an annual Monitoring and Response Plan to collaboratively identify and implement highest priority projects with USFWS funding support authorized by Congress for these portions of the Mississippi River Basin.
 - Substantial expansion of Asian carp control actions is planned for 2019 in the form of increased contract fishing efforts in both the Upper Mississippi River and Ohio River basins. USFWS is working across Regions and with partnerships in each basin to develop and coordinate an Asian carp stock assessment program (including SEACarP model) to evaluate deterrence, removal, and other management actions.

Region 6 (CO, KS, MT, ND, NE, SD, UT, WY) – Joanne Grady, joanne_grady@fws.gov

- Serve as American Co-Chair for the International Red River Board Aquatic Ecosystem Committee.
- Leads FWS HACCP Committee. Teaching 2019 HACCP courses in Alaska, Hawaii, California, Nevada, Atlanta and Nebraska. Working with National Conservation Training Center to update training materials and webpage. Training/coaching additional Regional Coordinators to serve as HACCP instructors.
- Participate in DOI Committees for Safeguarding the West Initiative and DOI funding.
- R6 dive team supports state partners in diving for invasive mussels. Drove at Tiber Reservoir, MT to search for mussels in 2019 and developing project to install mussel settlement samplers in Fort Peck Reservoir following spread of zebra mussels to other Missouri River reservoirs.
- Montana Fish & Wildlife Conservation Office assists Blackfoot Tribe with waterbody monitoring for quagga/zebra mussels.
- Worked with R6 Refuges Visitor Service Office and design firm to develop AIS outreach panel for region's refuges and hatcheries. Panel installed at ten National Fish Hatcheries throughout the region and nine National Wildlife Refuges in Kansas, Nebraska, North Dakota and South Dakota.
- Served as FWS WRP Voting Member and WRP ExCom Member thru mid-September 2019
- Represent FWS and provide funding support to the 100th Meridian Initiative Columbia River Basin and Missouri River Basin Teams. Prioritization and allocation of 100th Meridian Initiative grant funding. Annual grant competition largely focused on supporting efforts to collectively protect the Western U.S. from invasive species spread.
- Project funding and oversight for the following projects:
 - Don't Let it Loose pet store outreach program – Invasive Species Action Network
 - Building Consensus in the West legal products – National Sea Grant Law Center
 - Fish Hatchery Biosecurity Protocol Assessment – National Sea Grant Law Center
 - Veliger Detection Laboratory – Montana Fish Wildlife and Parks
 - Watercraft Inspection and Decontamination outreach – Pacific States Marine Fisheries Commission
 - In situ quagga detector – EQO

- Industry AIS outreach and marketing – American Boat and Yacht Council

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

- The Service conducted the 3rd year of pilot work (10 days each May) focused on watercraft inspections and decontamination at the Alcan Port of Entry in coordination with APHIS and Customs and Border Protection. These efforts have shown that ~50% of all watercraft entering Alaska at this point are coming from high risk states and that >25% of all watercraft have not been inspected on their way to Alaska.
- The Service partnered with multiple entities to conduct early detection surveys and invasive species management efforts of Elodea spp, Signal Crayfish, and Northern Pike throughout various regions of the state. Early detection surveys identified three new water bodies infested with Elodea in Interior Alaska.
- 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 worked with outdoor gear retailers to implement a regional outreach campaign on “clean boating” and “clean fishing” practices in collaboration. The businesses and the Invasive Species Action Networked assisted us in creating various materials that retailers can display and distribute.
- The Service has been actively involved in implementing the Arctic Council’s Arctic Invasive Alien Species Strategy and Action Plan and is the regional U.S. representative of the circumpolar implementation coordination group.

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

- Two HACCP courses and a HACCP Train-the-Trainer course were hosted in California. HACCP courses held in Lodi and Sacramento will aid natural resource staff in ensuring their field activities don’t expand invasive species populations. Several Regional AIS Coordinators and other partners are now trained to teach HACCP.
- Bluefin Killifish – In October of 2017 bluefin killifish (*Lucania goodie*) were discovered by the USFWS Lodi Fish & Wildlife Delta Juvenile Fish Monitoring crew in the Sacramento–San Joaquin River Delta. Since then, the species has been captured by both USFWS and State agencies indicating an established population. A coauthored paper is in draft form and expected to be published in 2020. An Early Risk Screening Summary is available at: https://www.fws.gov/Fisheries/ANS/erss/uncertainrisk/ERSS-Lucania-goodei_Final.pdf
- AISP Workshops for the public and partners: For the 12th year running, R8 AISP with its California State Partners from California State Parks Division of Boating & Waterways and California Coastal Commission along with the California State Department of Fish and Wildlife have provided hundreds of participants with three key take home elements: 1) An understanding of the impacts AIS have on the economy and environment 2) Learn to recognize AIS in their region and 3) How to take action and prevent spreading AIS by inspecting and cleaning equipment and watercraft.
- Nutria Modeling Project- Working with USFWS and California State partners for the following goals: (1) identify potential habitat for nutria in the Central Valley and (2) to forecast their future distributions. We focus our forecasts on areas of management concern in the Sacramento San-Joaquin Delta, especially areas that relate to habitat for endangered species and infrastructure for drinking water and flood protection.

U.S. Forest Service

The USDA Forest Service (USFS) continues to conduct a wide range of research and management activities against aquatic invasive species (ANS/AIS) across the agency, with particular emphasis on work in major watersheds to restore areas impacted and prevent new invasions from establishing or spreading.

Significant issues at the national level include work on coordinating with state and federal agencies to address the prevention and control of invasive mussels across the west, particularly with respect to national forest system lands and waters, recreational boaters, public education and awareness, and firefighting activities associated with aquatic areas. Forest Service collaboration with the Western Governors' Association has accelerated through the WGA initiative on biosecurity and invasive species. The Forest Service stewarded a nationwide Memorandum of Understanding between the Secretary of Agriculture and WGA to expand our collaborative efforts against invasive species and other mutual interests.

The Forest Service continues to lead the implementation of PMS-444: "Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations" through the National Wildfire Coordinating Group, increasing cooperation with State, Tribal, and local partners to prevent the spread of AIS within and between watersheds. In addition, the Forest Service works closely with States and participates in multi-partner monitoring and surveillance programs to detect new invasions and to rapidly respond to a variety of AIS threats. USDA Forest Service representatives serve on coordinating bodies, special incident command groups, and are members of numerous state/regional councils and coordinating groups. Regional and National invasive species offices in the USDA Forest Service are directly engaged in AIS issues and coordinating/collaborating with partners nationwide.

More broadly, especially at the regional and local levels, the USDA Forest Service continues to support and participate in the work of the ANS Regional Panels, and plan to continue our support for invasive species prevention and control, as well as education and outreach, within our limited financial and staffing capacity. The U.S. Forest Service has representatives on every ANSTF Regional Panel in the nation, and works closely with state personnel and tribes on a variety of AIS issues impacting watershed conditions. The USDA Forest Service continues to provide endorsement and cooperation on AIS educational campaigns such as Stop Aquatic Hitchhikers, Clean Drain Dry, Play Clean Go, Wild Spotter, and other similar efforts.

Throughout 2019, Forest Service field-operations against AIS have provided support to numerous local, state, and regional organizations. The following examples illustrate the value-added support provided by the Forest Service, particularly with respect to the AIS threats in the West:

Montana and Northern Idaho

- Flathead NF (MT) contributes funds to the Flathead Basin Commission, which runs several inspection stations. The commission operates the Highway 2 station on the Blackfoot Reservation, where 40 percent of MT's contaminated boats were intercepted last year.
- Lolo NF (MT) contributed to inspection/wash stations in the Clearwater Basin, including FS boat launches.
- The Region is coordinating with Montana on veliger detection and National Genomics Center for Wildlife and Fish Conservation / USDA FS Rocky Mountain Research has been advising on genetic methodology for veliger detection.
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Colorado, Eastern Wyoming, South Dakota, Nebraska, Kansas

- USFS has a Cost Share Agreement with Colorado Parks and Wildlife (CPW) as well as other partnerships for boat inspection and decontamination programs on 10 reservoirs across 5 National Forests in the Region. In FY 2019, the FS cost-shared a total of \$154,000 with CPW for boat inspections and decontaminations on NFS waters across Colorado:
 - San Juan NF – McPhee Reservoir. 4-way partnership with CPW, FS, BOR, and Delores Water Users. FS Share = \$26,000K
 - Grand Mesa/Uncompahgre/Gunnison NF – Taylor Park Reservoir. FS share = \$28,000K
 - Pike/San Isabel NF – Turquoise and Twin Lakes. FS Share = \$15,000K
 - White River NF – Green Mountain and Ruedi Reservoirs. FS Share = \$30,000K
 - Arapaho Roosevelt NF – Colorado Big-Thompson System of Grand Lake, Shadow Mountain and Lake Granby. FS Share = \$55,000 of the \$100,000K needed with partners making up for FS deficit in cost share

Arizona and New Mexico

- Tonto NF has an active public education program for quagga mussels, “Don’t move a mussel”, and collaborate with AGFD and Bureau of Reclamation to operate and monitor boat wash stations and reservoirs on the lower Salt River Project, including Saguaro Lake which was recently invaded by quagga mussels.
- Several National Forests in NM and AZ have ongoing projects for removing nonnative species from sensitive reaches that contain T&E species. Forests partner with AGFD each year to remove thousands of apple snails and their egg masses along the lower Salt River. There are also volunteer groups working to remove crayfish in springs with Gila topminnow.
- The Tonto and Coronado National Forests participate in programs that search for non-native American bullfrogs and remove them if encountered, with a goal of bullfrog-free areas to assist in recovery actions for Chiricahua Leopard Frogs. This is a cooperative program with AGFD, USFWS, and several other partners. In addition, Tonto NF assisted AGFD to remove a non-native salamander (*Ensatina* sp.) from the headwaters of Tonto Creek.
- Several National Forests in NM are working with NMDGF to explore use of YYBrook Trout to skew sex ratios and mechanical Brook Trout removal to eradicate this non-native from areas suitable for native trout restoration. In addition, USFS participated in piscicide treatments to remove non-native trout for Gila Trout restoration.

Utah, Nevada, Southern Idaho, Western Wyoming

- The Regional Office continues to fund AIS inspection, decontamination, outreach, and AIS monitoring on high risk USFS waterbodies, through partnerships with Utah Department of Wildlife Resources (UDWR), Idaho Department of Agriculture, and Wyoming Department of Game & Fish (WDGF), with commitments that have totaled \$1.2 million across 10 years.
- In 2015 – 2018, with support of the Forest Service, state partners interdicted, inspected, and outreached to 230,000 watercraft; 3500 of these boats arrived from infested waters and required decontamination prior to launch; and 50 boats were infested with AIS. State partners also monitored 28 NFS waterbodies multiple times each season for invasive mussels & plants. To date, there are no known occurrences of invasive mussels in any USFS waterbody.

Flaming Gorge Reservoir:

- The Forest Service provides a significant amount of funding to hire AIS prevention technicians at Flaming Gorge Reservoir from April through October, on both the Utah and

Wyoming sides, and also provides portable hot water decontamination units for state crews to use. Nearly 14,500 watercraft were interdicted during the boating season. The states collected plankton samples from Flaming Gorge Reservoir in May, July, August, and September and all samples were found to be negative for mussel veligers.

- In the event of dreissenid infestation, Flaming Gorge has a Rapid Response and Control Plan (2016) which lays out actions that agencies will take immediately upon mussel detection to improve reaction time. The Plan represents a collaborative effort between the Forest Service, BOR, Wyoming DGF, and Utah DWR. The plan will serve as the guiding document for initial decision making and containment and will facilitate effective communication to the boating community on developments around the reservoir.

Oregon and Washington

- Regional AIS Monitoring Strategy: In 2019, the Regional Office Fisheries Program collaborated with Pacific Northwest Research Station to complete the final of 3 years of testing the Regional AIS Monitoring Strategy. Monitoring will help us understand the degree of AIS invasion on National Forest System lands within Oregon and Washington and inform our early detection/rapid response program. The strategy includes using surveyors at fixed locations throughout the region. Areas not covered by surveyors will be sampled using multispecies eDNA. With sufficient support from our partners, the Region hopes to fully implement the monitoring strategy in 2020.
- Suttle Lake Eurasian Watermilfoil Control: The Regional Dive Team spent 4 days controlling an invasion of Eurasian watermilfoil in otherwise pristine Suttle Lake in the Cascade Mountains on Deschutes National Forest.

Ex- Officio members of the ANS Task Force:

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

Member Agency: Association of Fish and Wildlife Agencies (AFWA) Invasive Species Committee
Submitted by: Kim Bogenschutz, AFWA Invasive Species Committee Vice Chair

Committee Charge: To provide a national forum for exchange of information and to identify and coordinate needs and actions among state, federal, and tribal agencies, NGOs, and other stakeholders to strategically address high priority invasive species threats and to promote sound policies.

Key ANS Activities from May 2019 through November 2019

Staff Update:

- AFWA has delayed hiring a new Species Program Manager.

Major Accomplishments:

- Fall Meeting – September 21, 2019, during the AFWA Annual Meeting in St. Paul, Minnesota

Ongoing Work:

- Lacey Act Title 18 – The Committee heard a presentation on Titles 16 and 18 of the Lacey Act from USFWS Law Enforcement Staff during the fall meeting. The need for good state laws without a lot of exceptions that are strongly enforced was identified as a need to make Title 16 more effective. Creation of a working group to model state level legislation and recommend revisions to the Lacey Act has been delayed because of the lack of AFWA staff dedicated to the

Committee. Caroline Murphy (The Wildlife Society) is interested in working with Committee members and ANS Task Force Regional Panel members to organize the working group.

- Invasive Fish Control - The AFWA Invasive Species Committee was provided an overview of Carbon Dioxide Carp for control of Asian carp during the fall meeting. The USFWS holds the registration for Carbon Dioxide Carp which was registered in April 2019. It can be used as either 1) an Asian carp behavioral deterrent or 2) as an under-ice-lethal control for nuisance fishes. State agencies wanting to use Carbon Dioxide Carp must have state registration for use.

Proposed Work:

- The topics of HACCP for all species (not just aquatic species), biosecurity, risk screenings, and biosurveillance for both invasive species and diseases were discussed as potential focus topics for the next Committee meeting.
- Deactivation of the Invasive Species Advisory Committee and how it will impact coordination of invasive species management across the country was also suggested as an agenda item for the next Committee meeting.
- Spring Meeting – March 9, 2020, during the North American Wildlife and Natural Resources Conference in Omaha, Nebraska

Gulf States Marine Fisheries Commission

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

Regional Panels of the ANS Task Force:

Gulf and South Atlantic Regional Panel on Aquatic Invasive Species

- 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. Over the last five years of this cooperative program between the USFWS, GSMFC, and GSARP, 33 projects totaling \$710K have been funded. This year, after all proposals were reviewed and ranked by the GSARP's Review Committee, six projects were selected for funding totaling \$140,189 through the 2019 funding opportunity. These projects will be addressing invasive species eDNA data standards, model bait regulations, risk analysis of injurious fish species, lionfish, human health risks, and apple snails. The GSMFC ANS Program Coordinator will also be working with USFWS to get the 2020 RFP distributed in the first part of next year.
- The GSMFC's Computer System Administrator has finished development of the new GSARP website. The new site includes several new features including, a custom view into the USGS's NAS database that focuses just on GSARP states, regional specific ANS alerts from the USGS alert system, 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. The GSARP's Education and Outreach workgroup will continue to explore the possibility of incorporating a game for elementary-aged children, and developing a poster that teachers can display that will keep the message about invasive species in the classroom after the lesson is complete. They will also look at developing lesson plans that cover the materials included in the trunk to make it easier for teachers to incorporate them into their science curriculums. The trunks

have been utilized for 1,469 day since they were made available to the public in the summer of 2012.

- Panel Membership: The Panel discussed membership at their spring meeting and on the summer conference call. Through these discussions, Pam Fuller was offered an at-large seat on the Panel and a tribal representative (Craig van der Heiden with the Miccosukee Tribe) was recommended and will be attending the Panel's fall meeting.
- The Panel will hold its fall meeting in Charleston, South Carolina on November 19th–20th, 2019.

Northeast Aquatic Nuisance Species Panel Updates

The Panel's spring 2019 meeting and Connecticut River training was convened June 3-5 in Springfield, Massachusetts. Presentation topics included the Vessel Incidental Discharge Act actions for the affected states, "Spotlight on Species: marine debris as a potentially major new global vector for marine bioinvasions," Panel roundtable, and meeting time and updates for and by the Panel's work groups

The Panel will next meet with the Mid-Atlantic Panel on Aquatic Invasive Species December 10-11, 2019 at the Five Rivers Environmental Education Center in Delmar, New York.

Mid-term conference calls are convened February and August to keep Panelists connected and to prepare recommendations for the Aquatic Nuisance Species Task Force meetings.

The Panel is looking forward to hosting the Aquatic Nuisance Species Task Force for its May 2020 meeting. This event marks the third time that the Panel will have had the honor to host the Task Force. Tentative plans include presentations on and field tours to the Connecticut River Hydrilla infestation and marine Rapid Assessment Survey.

The Panel provided funding for the marine Rapid Assessment Survey (RAS). The RAS visited and collected samples and data from sites from Rhode Island to the New York City area. With leadership from NEANS Panelists Drs. Judy Pederson and Jim Carlton, a team of scientists volunteered their time for the week-long event. The Panel's fiscal agent, the Northeast Aquatic Nuisance Species Council, provided services to manage the grant and logistics for the team. A brief presentation on the RAS fieldwork is slated for the Panel's December meeting agenda. The team will present its data at a subsequent meeting.

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, working with a team of Army Corp Engineers and other agency and private sector partners, provided a successful classroom and field Hydrilla monitoring and sampling training on the Connecticut River June 3-4, 2019. Agencies donated boats and equipment for the training. The classroom training included presentations and sessions on the efforts to date in the infestation areas and upstream, using tuber bank monitoring and mapping, big system monitoring strategies, treatment options, and outreach and education in management. The Panel has been invited to present on its work at the US Army Corp of Engineers Park Rangers and Natural Resource Professionals training event November 12-15, 2019 in Boston, Massachusetts. Further work is planned for the 2020 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).