

AGENCY UPDATE

Invasive Species Advisory Committee (ISAC) Virtual Meeting - March 6-8, 2023

NAME

Deborah H. Lee

AGENCY / BUREAU

Department of Commerce/ National Oceanic and Atmospheric Administration

CONTACT E-MAIL / WEBSITE URL

deborah.lee@noaa.gov

AGENCY'S MISSION RELATED TO INVASIVE SPECIES

Directed by Executive Order, congressional legislation, national and international cooperation, NOAA has key leadership positions in the National Invasive Species Council, the Aquatic Nuisance Species Task Force, the Great Lakers-Lake Champlain Invasive Species Program and several ongoing national and/or international strategic efforts. Additionally, NOAA has relevant regulatory authorities under the Endangered-Species Act, the Magnuson-Stevens Fishery Conservation and Management Act, and the National Marine Sanctuaries Act.

PRIORITIES / ACTIVITIES FOR FY2023 (Not ordered by agency priority)

Stony Coral Tissue Loss Disease (SCTLD)

SCTLD has devastated coral reefs in the Atlantic and Caribbean. NOAA and other resource management partners are concerned about the possibility of this disease coming to the Pacific. Introduction of this disease to the Pacific Region could be catastrophic.

NOAA is already supporting SCTLD preparedness activities in the Pacific Region through the [NOAA Strategy for Stony Coral Tissue Loss Disease Response and Prevention](#) and US Coral Reef Task Force Coral Disease Working Group. Current work includes improving preparedness in the PIR, evaluating modes of transport (e.g. ballast water, biofilms, etc.), transmission experiments with Pacific coral species, and development of response strategies.

European green crab (EGC)

NOAA staff, along with staff from numerous other Federal agencies, have been involved in a series of briefings with staff from the Governor's office (Washington), Washington Congressional Delegates, and representatives of the Lummi Nation over concerns about the expanding range and increased population of invasive European Green Crab (*Carcinus maenas*). EGCs are one of the most widespread marine invasive species on the planet. Where they are abundant, green crabs compete with other crabs and disturb sediment which can lead to loss of eelgrass. They also are a major predator of clams, mussels, and oysters. If green crab take hold throughout Puget Sound, they could significantly impact Tribal rights to aquatic resources, commercial and recreational fisheries (e.g. native rock crab and Dungeness crab, a \$50M fishery), and Washington's large shellfish culture industry. They also may pose a threat to protected salmon populations in the region.

Great Lakes Aquatic Nonindigenous Species Information System

The Great Lakes Aquatic Nonindigenous Species Information System ([GLANSIS](#)) database, managed by NOAA and Michigan Sea Grant, provides information about current and potential aquatic invasive species (AIS) – including plants, animals, and microorganisms – which are one of the most pervasive threats to Great Lakes ecosystems and economies. GLANSIS staff also conduct outreach to raise the profile of the database and educate audiences about AIS identification, prevention, and management.

AGENCY UPDATE

Invasive Species Advisory Committee (ISAC) Virtual Meeting - March 6-8, 2023

PRIORITIES / ACTIVITIES FOR 2023 (*continued*)

Lionfish

Lionfish (*Pterois volitans*, *Pterois miles*), are venomous fishes native to the Indo-Pacific and Red Sea, are the first [invasive species](#) of fish to establish themselves in the Western Atlantic. They are a top predator that competes for food and space with native species, including overfished stocks such as snapper and grouper (Magnuson-Stevens Act).

NOAA National Marine Sanctuaries have led NOAA efforts to mitigate impacts on marine resources ([NOAA' National Marine Sanctuaries Lionfish Response Plan](#)). These efforts include helping to develop lionfish traps and in promoting public engagement on the issue. National Marine Sanctuary sites, including the Florida Keys National Marine Sanctuary and the Flower Garden Banks National Marine Sanctuary, host removal events to engage stakeholders and volunteer divers who want to help to reduce populations in priority areas. These events are successful at reducing lionfish populations, as well as effective engagement and outreach tools with the public.

Caulerpa prolifera

Caulerpa prolifera is an invasive eel grass that has been identified in Newport Bay, California. Confirmation of the new infestation occurred in spring 2021 and NMFS staff helped reconvene the Southern California Caulerpa Action Team to develop and implement a [rapid response plan](#). The management response is ongoing and our regional [protocol](#) has recently been updated to address bottom disturbing activities that may result in further spread. However, funding is needed to support a rapid response and eradication plan, outreach, risk assessment, and eDNA monitoring methods.

The Southern California Caulerpa Action Team, which successfully worked together to eradicate *Caulerpa taxifolia* in 2006, reconvened to address this new *Caulerpa prolifera* infestation of Newport Bay. Reinfestation of this species has resulted in economic impacts due to increased survey and regulatory effort associated with harbor construction projects and federal dredging operations. The species is spread through dredging and construction activities which could be mitigated by new regulations. However, staff in this region are experiencing a significant regulatory burden at the moment with limited staff resources. Economic impacts would increase if it were to spread elsewhere along the southern California coast.

Dreissenid Mussels

NOAA's Great Lakes Environmental Research Laboratory conducts a benthic monitoring program that has documented the invasion of dreissenid mussels in Lake Michigan from the very beginning of the introduction. This annual survey provides an unparalleled record of dreissenid mussel population growth in the Great Lakes. This effort is a part of the NOAA GLERL Long-Term Research (GLERL-LTR) program that 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. NOAA GLERL also participates in dreissenid research and monitoring in Lakes Huron, Lake Erie, and Lake Ontario as part of the multi-agency Cooperative Science and Monitoring Initiative.

Control technologies for dreissenid mussels include chemical treatment by Zequanox, potash, and copper compounds. Physical methods such as benthic mats and UV exposure are also used. To date, these chemical and physical methods have been employed to treat smaller scale, isolated infestations. The next step is to scale up efforts in large, open water systems- within targeted regions deemed to have high management value (e.g., fish spawning grounds).

AGENCY UPDATE

PRIORITIES / ACTIVITIES FOR 2023 (*continued*)

Examples of NOAA Management Authorities and Agency Programs Relevant to Invasive Species

Endanger Species Act

NMFS is responsible for the protection, conservation, and recovery of more than 160 endangered and threatened marine and anadromous species under the Endangered Species Act (ESA). Introduction of non-native species is considered a threats to ESA-listed species, and invasive species have been documented as a contributing cause to many species extinctions in recent decades.

Under section 7(a)(2) of the ESA, all Federal agencies must consult with NMFS or USFWS to ensure that their actions will not jeopardize the continued existence of ESA-listed species or destroy or adversely modify designated critical habitat. Through ESA section 7(a)(2) consultations, NMFS has worked collaboratively with other Federal agencies to mitigate the threat that invasive species pose to ESA-listed species and their habitats. Examples of ESA consultations NMFS has conducted that address the effects of invasive species include:

- o Programmatic Biological and Conference Opinion on the Towing of Inactive U.S. Navy Ships from their Existing Berths to Dismantling Facilities or other Inactive Ship Sites - NMFS and the Navy developed a mitigation measure that required hull cleaning prior to towing inactive Navy ships from one port to another for ship tow routes that represented an elevated risk of invasive species introductions.
- o An assessment of the United States Coast Guard's National Ballast Water Management Program and Initial Numerical Standard - The purpose of this consultation was to evaluate the ballast water management program and to analyze risks associated with introducing non-native species from discharged ballast water meeting the proposed numerical standard.
- o Biological Opinion on the Uniform National Discharge Standards for Vessels of the Armed Forces and Biological and Conference Opinion on the U.S. Environmental Protection Agency's Proposed Vessel General Permit and Small Vessel General Permit - In both of these consultations NMFS analyzed the potential effects of invasive species introductions, via ballast water and hull fouling, on ESA-listed species and their habitats.

NOAA Sea Grant

There is language in the Sea Grant authorization to fund priority areas, including university research on the biology, prevention, and control of aquatic nonnative species. Over the past 5 years, in total, Sea Grant has invested \$7.07M in ANS/AIS focused work across three funding "streams", base funds, aquaculture funds, and other NOAA-LOs/Inter-agency sources. The majority (~68%) of ANS "focused" spending has come from Sea Grant's base funding, which totals approximately \$4.8M over the past 5 years. We identified one project funded by Aquaculture appropriations that had ANS as a major focus, although it was one of several foci within major collaborative effort - this project's funds total \$1.2M, which is ~17% of total ANS-focused funding. The other ~15% (\$1.07M) is associated with two collaborative projects with other NOAA line-offices and federal agencies.

NOAA's National Ocean Services (NOS)

NOS has two programs – Office for Coastal Management, and Office of National Marine Sanctuaries (ONMS) – that are engaged in invasive species work. OCM primarily focuses on invasive species research, and through its National Estuarine Research Reserve System Science Collaborative, it has funded research on invasive species using eDNA methods, exploring the potential for eDNA to support estuarine management. ONMS works with NOAA and other partners to monitor, research, and manage the presence and effects of invasive species within national marine sanctuaries. While not specifically related to management of invasives, the National Centers for Coastal Ocean Science (NCCOS) Competitive Research Program (CRP) has previously supported projects focused on aquatic invasive species (AIS) that can inform and improve management practices.