



Overview

The Aquatic Invasive Species (AIS) team is involved in many different projects dedicated to the prevention and management of alien aquatic species that threaten the unique and delicate ecosystems found in the Hawaiian Islands. Examples of aquatic invasive species include ta'ape, tilapia, mangroves, to'au, Marquesan mullet, armored catfish, California grass, and multiple species of introduced marine algae, just to name a few. Without proper management, these alien organisms have the potential to disrupt native habitats and out-compete native species for space and resources. The AIS team is committed to addressing these ecosystem threats through early detection, rapid response, control, and monitoring to protect Hawai'i's valuable natural resources.



Rapid Response

The AIS team also functions as a rapid response unit for events such as coral bleaching, disease outbreaks, marine debris, ship groundings, and non-native species introductions. These efforts help prevent and manage damage to reef ecosystems.



Invasive Algae Removal and Biocontrol

On Hawai'i's coral reefs, invasive marine algae such as Gorilla Ogo (*Gracilaria salicornia*) and smothering seaweed (*Eucheuma spp.* and *Kappaphycus spp.*) can be particularly harmful to reef health, overgrowing corals and reducing available habitat for fish and other native species. While the Gorilla Ogo can be found on most of the main Hawaiian Islands, the smothering seaweeds are concentrated in Kāne'ohe Bay, O'ahu. In an effort to prevent further spread of this devastating and aggressive alien algae, the Super Sucker project combines mechanical removal and biocontrol methods to restore coral reefs and reduce invasive algae cover in Kāne'ohe Bay. Divers use trash pumps connected to underwater vacuum hoses to manually remove the bulk of the algae from the reef, which is then given to local farmers within the Kāne'ohe Bay watershed to use as fertilizer. Following mechanical removal, native sea urchins (*Tripneustes gratilla*) raised at Anuenue Fisheries Research Center are distributed on the reef to graze on remaining invasive algae. These urchins supplement natural populations and minimize regrowth of alien seaweeds, making them a crucial part of the restoration process.

Ecosystem Monitoring

Ongoing monitoring projects are another important component of the AIS program. The AIS team uses transect and photo-plot based surveys, as well as a rapid survey methodology called Snap Assessment, to provide a snapshot of reef health and invasive algae cover quickly and efficiently, which allows for the prioritization of restoration efforts. Information gathered from monitoring is essential for resource managers to make important decisions and refine our methods concerning restoration on Hawai'i's reefs.



Ballast Water and Hull Fouling Coordination

Ballast water discharge and hull fouling are major vectors for the introduction of non-native marine species. In Hawai'i, these pathways are responsible for the majority of alien species introduced to the islands. The Ballast Water and Hull Fouling Program goal is to prevent the introduction and establishment of invasive organisms by maintaining and evaluating ballast water reports and assisting with hull inspections when necessary. This program also works to establish management policies and guidelines in order to protect Hawaiian waters from the introduction of invasive species.



Outreach

Efforts to protect and restore Hawai'i's reefs are only effective with the support of community members and the awareness of those who use the reef recreationally. The AIS team participates in a variety of community events in order to educate the public about Hawai'i's aquatic resources and raise awareness about local conservation issues. Local awareness is a vital tool in the prevention of invasive species. Through outreach events, we are able to increase community involvement and provide opportunities to volunteer and contribute to the restoration and preservation of local marine environments. The AIS team has also partnered with the Eyes of the Reef organization, which provides free education sessions to the public and trains community members as well as recreational and professional ocean users to recognize and report suspicious species and diseases to the Eyes of the Reef Network. This increases early detection of potential threats, allowing the deployment of rapid response measures that can prevent harm to the reef ecosystem. For more information on the Eyes of the Reef program, visit their website at eorhawaii.org.

