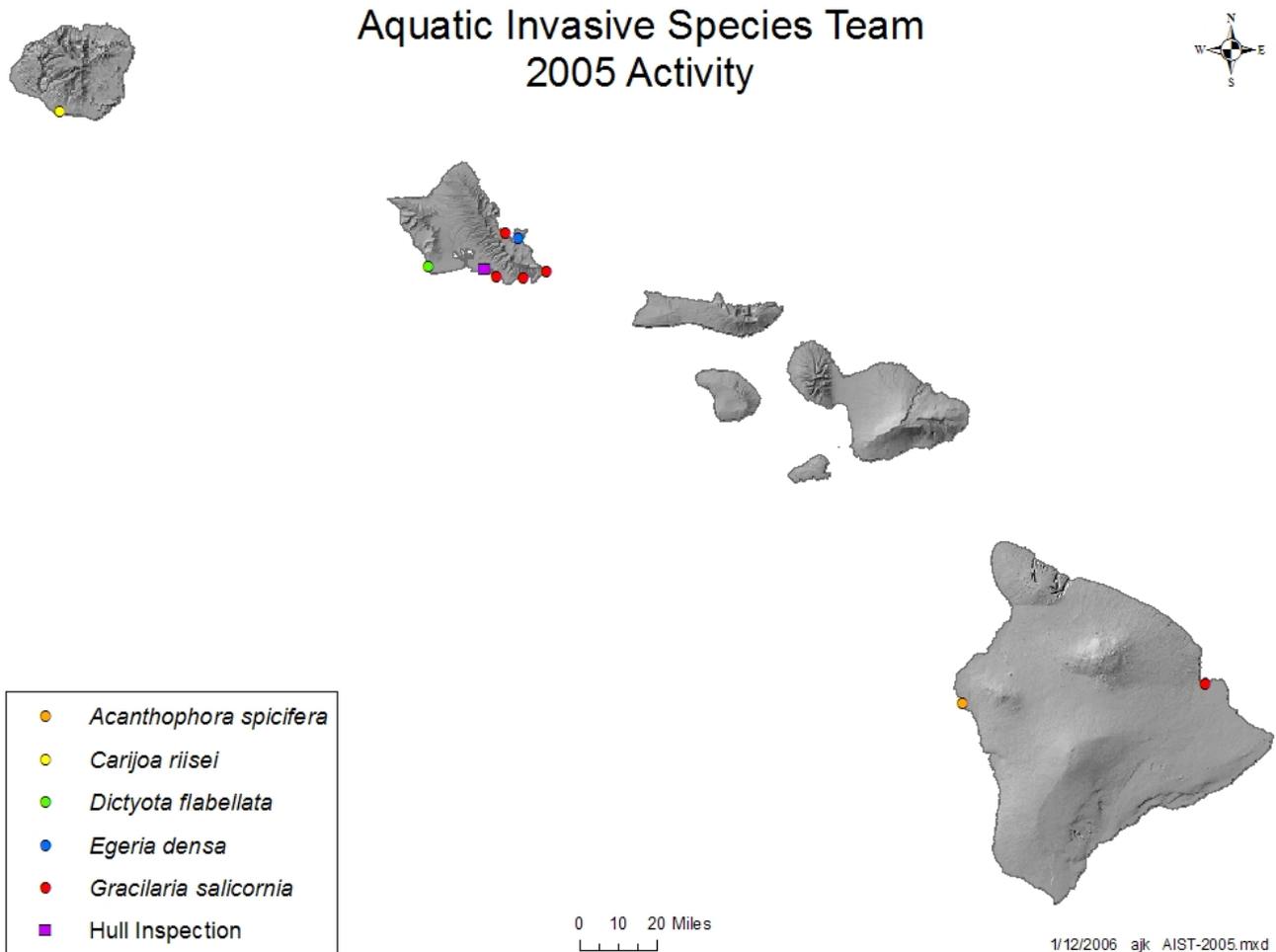


THE AQUATIC INVASIVE SPECIES RESPONSE TEAM 2005



The Aquatic Invasive Species Response Team was formed in 2005, and consists of a supervisor, three technicians and an Americorps intern. In November, an additional technician and a monitoring specialist were added in Hilo, HI. Despite the difficulties that come with starting a brand-new experimental program, the AIS Team initiated several major control/eradication operations as well as partnering with others in researching large-scale invasive algae control.

Field Work



Although the AIS Team's focus is broad-scale, invasive algae are currently a priority. Since its inception, the team has worked in partnership on several large algae projects. In conjunction with The Nature Conservancy and the University of Hawaii

Manoa, the AIS Team has been assisting with the operation of the large algae vacuum on Kaneohe Bay (dubbed “The Supersucker”). This vacuum, when operating at full capacity, has the ability to remove up to 750 lbs. of *Gracilaria salicornia* per hour. The “Supersucker” is part of a comprehensive approach to invasive algae control that also includes using cultured native algae eaters such as sea urchins to control algal re-growth after mechanical removal.



The AIS Team also assisted the National Park Service in its continuing efforts at removing the invasive alga *Acanthophora spicifera* from fish ponds in the Kaloko-Honokohau National Park in Kailua-Kona, HI. Over a period of three days, members of the team helped remove 567 lbs. of *A. spicifera* from these culturally significant ponds and recycled it at a green waste facility in Kailua-Kona.



The AIS team has initiated a series of surveys along the south shore of Oahu to map the distribution of *G. salicornia* in Maunalua Bay. These are labor-intensive surveys requiring the use of snorkelers and covering approximately 9 miles of coastline, to document the distribution and abundance of the alga. This knowledge will enable natural resource managers to help protect valuable areas such as Hanauma Bay or keep isolated, ecologically sensitive pockets clear of invasive algae.



In 1999, a non-native, potentially invasive alga (*Dictyota flabellata*) was discovered on a floating dry dock at Kalaeloa Harbor, Barber’s Point, Oahu. Subsequent surveys indicated that the alga had spread to surrounding areas. The AIS Team has begun to resurvey for the presence of *D. flabellata*.

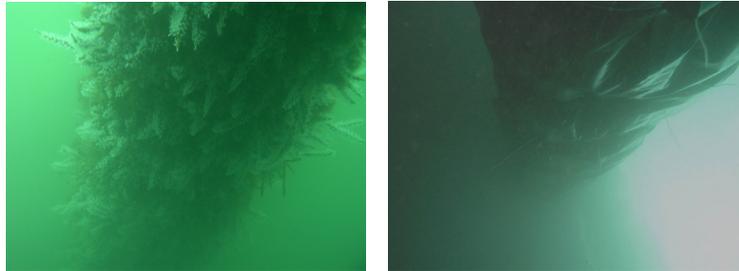
On the Big Island, new AIS Team members have begun to survey the distribution of *G. salicornia* in Hilo Harbor, as well as develop a statewide monitoring system. This monitoring system will be a holistic approach to try and survey for previously established and newly introduced aquatic species in areas considered “hotspots” (such as harbors) that are at a greater risk for new introductions.



One of the larger projects undertaken by the AIS Team is the geographic eradication of the invasive octocoral *Carijoa riisei* (Snowflake Coral) on the island of Kauai. This soft coral is very common around Oahu and Maui and evidence indicates that *C. riisei* can overgrow and smother black coral. The population of



C. riisei on Kauai is contained in the Port Allen Harbor (on pilings under the commercial pier), and this project's goal is to eradicate this population to prevent its spread to the Northwestern Hawaiian Islands. The commercial pier at Port Allen consists of 663 pilings equating to 110,000 square feet of substrate. This project involves using an innovative technique of wrapping pier pilings with industrial plastic in order to smother *C. riisei*. Preliminary tests have shown this method to be 100% effective at killing *C. riisei*. It is expected that this project will be completed in 2006.



In partnership with the Hawaii Department of Agriculture, the AIS Team is in the process of eradicating an intentionally introduced corallimorph, *Actinodiscus nummiformis*. Corallimorphs are popular in the aquarium trade throughout the country; however, these organisms are illegal to possess in the State of Hawaii. This organism was illegally introduced in state waters sometime before 1997 and has since become established at the point of introduction. Over the course of several months, the AIS Team has killed the vast majority of this population consisting of more than 80 colonies including over 500 polyps. The AIS Team will continue to monitor and kill this organism throughout 2006 with the goal of total eradication.



In partnership with the City and County of Honolulu, the AIS Team is providing support in the operation of an aquatic harvester at the Hoomaluhia Botanical Gardens in Kaneohe, Oahu. This harvester allows for the removal of the aquatic weed *Egeria densa* (Brazilian elodea) that has overgrown the 32-acre lake. The aquatic harvester, operated by AIS Team technicians, cuts and removes the *E. densa* with cutting blades and a conveyor. Botanical Garden staff subsequently removes the harvested material.



The AIS Team has also been involved in several rapid response reports to investigate new sightings of potential aquatic invasive species, including a (fortunately false) report of invasive algae in Hanauma Bay. In addition, AIS Team members inspected several vessels before they traveled to the Northwestern Hawaiian Islands. The July

2005 grounding of the M/V *Casitas* on Pearl/Hermes atoll required the use of a tug and barge from Honolulu to help remove the vessel off the reef. Prior to both vessels leaving Honolulu, the AIS Team inspected their hulls and found several non-native (and potentially invasive) species. Based on this finding, the vessel owners were requested to clean the hulls and undergo re-inspection. In the coming year, the team's ability to provide this type of rapid-response will be expanded.

Outreach

CGAPS has taken the lead with the help of the AIS Team in conducting outreach efforts for aquatic issues. A full-time marine outreach coordinator has held numerous and wide-ranging marine invasive species outreach events in 2005, many of which involved participation by the AIS Team. Two events were held at the Waikiki Natatorium (WN) and 3 events were held at the Hilton Hawaiian Village (HHV).



Seven volunteer invasive algae clean-up events were held in Waikiki in 2005. These events are designed to educate and



involve the community in invasive species issues. Each event averaged around 100 volunteers. These volunteers, in addition to a core of dedicated, repeat individuals, were comprised of various groups from local middle and high schools, college service groups, boy scouts and local athletic clubs.

Invasive Algae Community Cleanups

2005	Location	Tons Removed	Volunteers	Donation per Event
26-Feb	WN	3	91	\$1,378.50
18-Jun	WN	3	71	\$831.00
13-Aug	HHV	3	93	\$993.50
24-Sep	HHV	6	77	\$567.50
5-Nov	HHV	3	108	\$943.50

The AIS Team served as land support as well as divers for five of these clean-ups. Community donations included a large container, dumping fees, air tanks for the divers, water and tables for the volunteers, surfboards, coffee and discounted lunch for the volunteers.

Method	Total # algae Removed (lbs.)	Total # of Volunteer hrs.*	Avg. # lbs./ person/hr.
Supersucker	19,070	110	22
Community Cleanups	36,000	7040	5.11

* based on 8 hours per 5 Supersucker crewmember per outing and 4 hours per event per volunteer for Community Cleanups.

In addition, the marine outreach coordinator attended many fairs around Oahu, including Malama Kailua Festival, Kokua Festival, Hanauma Bay Community Night, and Malama I Ke Kai festival. At these fairs, displays were presented depicting alien algae and its effects on the coral reef ecosystem. The displays included aquariums stocked with invasive algae and photographs of invasive algae smothering coral that allowed people to learn to identify invasive algae and find out what they can do to prevent the spread of these types of algae. These are well-attended public events and they present excellent opportunities for reaching large numbers of people.

Another important component of the AIS outreach is education. In May 2005, the Marine Outreach Coordinator conducted a pilot program, 3-session after school seminar on algae (both native and introduced) for 7th & 8th graders at King Intermediate School. Two sessions were spent introducing the children to historical and cultural uses of native limu, as well as the problems caused by invasive algae. The third session was a trip to Coconut Island, where the children waded in the shallow areas off the beach and were able to view examples of both native and invasive algae. The program involved 15 children and was so successful that the outreach coordinator is now in the process of expanding this course with the Pacific American Foundation for Spring 2006. The course will provide a more extensive program using a curriculum created to fulfill DOE standards in science and math. In addition, the coordinator instituted an “adopt a reef” program with the Haaula charter school. In three sessions, students learned about native limu, invasive algae, cultural uses and current uses of algae. Students also learned how to use a transect and quadrat to monitor a reef across from their school. The students will return every couple of months to monitor how the reef structure changes and watch for invasive species.

Partnerships: Hawaii Department of Land & Natural Resources/Division of Aquatic Resources, Hawaii Department of Agriculture, Hawaii Department of Transportation, Hawaii Institute of Marine Biology, The Nature Conservancy, Bishop Museum, University of Hawaii Manoa, University of Hawaii Hilo, Windward Community College, Hoomaluhia Botanical Gardens, City and County of Honolulu, Hawaii Tourism Authority, Koloko-Honokohau National Historic Park, U.S. Fish & Wildlife Service, National Fish and Wildlife Foundation, National Oceanic & Atmospheric Administration, Hilton Hawaiian Village, Blue Planet Surf Shop, Island Divers Hawaii, Waikiki Aquarium, Hawaiian Earth Products, Starbucks, and Kauai Invasive Species Committee (KISC).