

## ***Gracilaria salicornia* Removal Kaunakakai Harbor January 2010.**



**Before**



**After**

The AIS team conducted a *Gracilaria salicornia* (Gorilla Ogo) removal event at Kaunakakai Harbor, August 2009. A total of fourteen thousand pounds of alien algae was removed from the selected harbor area. The AIS team returned to the harbor in January 2010 to conduct an additional removal event. The amount of alien algae biomass washed up on the beach was alarming. There was visibly more alien algae biomass in January, 2010 than there was in August, 2009.

Unfavorable weather and tidal conditions did not allow the use of the Manini. Strong Kona winds cause for murky, zero visibility, blown out conditions which may have explained the large amount of Gorilla Ogo drift that had accumulated on shore. Afternoon low tides were too shallow to utilize the Manini, deeming manual removal methods the sole method utilized during this event. The Manini was parked by the removal area and used as an educational tool.

### **Kaunakakai harbor January 2010**



In January the AIS team was responsible for removing invasive alien algae, mangrove propagules, and Jellyfish from within Kaunakakai harbor. Over ten tons of Gorilla Ogo was removed from the harbor; this included attached and beach drift algae. In addition, we removed over a thousand invasive *Rhizophora mangle* (Red mangrove) propagules from within the harbor area; a quarter of these propagules had already established them self into the substratum. The AIS team was also responsible for removing approximately twenty, Upside-Down Jellyfish (*Cassiopea spp.*). The small

number of removed Jellyfish is thought to be a result of MoMISC's prior removal efforts in December 2009 that yielded over seventy specimens.

The AIS Team conducted educational conversations with over a hundred curious community members and handed out a few hundred project t-shirts. A handful of community members volunteered during this removal event. From this event, the AIS team obtained a list of contact info for future event volunteers.

### **Removal progress: 1/6/2010**



- Low tide is favorable for manual removal efforts in the harbor.

Along with the assistance of community volunteers, the AIS team was able to remove a great deal of alien algae biomass. Nevertheless, as expected there are tons of this species that still remain in the harbor area. Our recent experimental efforts provided the team with experience and knowledge that will be useful in future removal events. This experience will allow us to make educated recommendations on how future removal events should be efficiently conducted. Thus far, these recommendations include, a combination of manual and mechanical (Manini) removal methodologies, frequent maintenance/removal events (every few months), a favorable low tide to work in at this location, and the efforts of the community as a whole, addressing this invasive algal species in the harbor.

### **End results of the removal event.**



### Plans for February (16-19)

In February, the AIS team will be working within Kaloko eli Fishpond a few miles east of Kaunakakai Harbor. We will be collaborating with the non profit group Ka Honua Momona International. We are planning to conduct outreach activities with KHM's staff, volunteers and educational groups during our week at Kaloko eli removing Gorilla Ogo.

### Observations:



- Gorilla Ogo will utilize any hard substrate to grow on ie. Aluminum can or anchor/mooring line. Observed in the harbor.
- During the removal event in August, the AIS Team removed small pebbles with attached alien algae and left them to desiccate. Figure above and to the right represents one of these pebbles in January 2010. The Gorilla Ogo is very dry but still attached to the pebble after five months.