

## DAR Supersucker Invasive Algae Removal Process



The Supersucker Barge anchors at a reef prioritized for restoration and deploys the Mini Barge which houses the pumps and hoses that divers utilize for algal removal.



The mini barge is positioned by divers within specific 10 X 10m<sup>2</sup> plots that have sparse to dense invasive algal coverage. These plots are determined by algae distribution maps over-laid with geo-referenced grids generated prior to the removal process.



There are two trash pumps on the Mini Barge (left), with 30 ft. intakes and 100-300 ft. outtakes. The suction action of the pumps creates an underwater vacuum that allows the diver to remove invasive algae from the reef. The diver controls the intake which leads to the pump, where the algae is broken down into smaller sizes, and the outtakes lead directly to the sorting table where deck hands observe the algae for any by-catch and place algae into 35-60 lb. bags.



Divers remove invasive algae such as *Eucheuma denticulatum* (above) from the reef with the underwater vacuum.



*Eucheuma denticulatum* (above) is then transported from the reef to the Supersucker Barge via the pump and hose and is sorted by deck hands for possible by-catch before hand-bagging the algae.



Bags of invasive algae (above) are piled onto the Supersucker Barge and the 22' Force throughout the day until it is time to meet the farmers with the algae at the boat harbor.



Bags of invasive algae (above) are transported to the dock at He'eia Boat Harbor and unloaded by hand.



Bags of invasive algae (above) are then loaded into multiple local farmers' trucks for them to use on their crop fields or taro patches (lo'i). Here, a pile of 104 bags of algae totals about 3,168 lbs.



This farmer intends to use this load of algae to add nutrients to the soil of a field in which he will plant some taro. It is a great benefit that an invasive species such as these algae can be utilized for something productive after it is removed from the coral reef.



The invasive algae collected is usually either composted in a large pile at a farm (left) or spread directly onto the soil by farmers and left to break down or decompose for a few weeks (below). Currently, farmers have had no problems with salinity levels in their soil even with the addition of a marine algae that retains a large amount of salt water.



After a few weeks, fields that have had algae added as a nutrient enhancer for the soil, are tilled and then inundated with fresh water in order to create a taro (kalo) patch (lo'i). Mounds are made in the inundated taro patch and individual taro huli (transplant cuttings from adult taro plant) are planted into each mound to start a new plant.

