A new Record and Eradication of Cassiopea sp. (Scyphoa: Rhizostomeae) from Kapoho, Hawaii.

A new record of *Cassiopea sp*., commonly known as the upside down jelly fish was discovered in a tide pool just north of the Marine Life Conservation District in Kapoho, during a survey of intertidal habitats in February 9th, 2006. *Cassiopea sp*. are not native to the Hawaiian Islands and probably transported to harbor and lagoon areas via ballast water exchange. *Cassiopea sp.* are found in tropical inshore marine environments along soft, sandy substrates generally associated with mangrove dominated habitats (Hoover, 1998). The *Cassiopea* population inhabited an isolated tide pool with an area of approximately 273333 sq ft. Based on the restricted tide pool size, and the threat of a potential spread/introduction of the *Cassiopea sp*, to the Kapoho MLCD, the Aquatic Invasive Species Team decided to manually remove/eradicate the upside down jelly fish population from the environment. The introduction of the *Cassiopea sp.* could potentially have a catastrophic effect on species composition within the MLCD due to the presence of *Rizophora mangle*, an invasive mangrove species that inhabits almost the entire coastline of the marine protected area, the ideal settlement area for *Cassiopea sp.* No *Cassiopea sp*. has been detected at this site since February 2006, and this species is thought to be locally eradicated. The site continues to be monitored to assess the success of the eradication efforts.

While conducting a baseline survey for marine invasive algal species in the Kapoho MLCD a healthy population of *Cassiopea sp.* was discovered immediately outside of the MLCD boundaries (19 29.389 N, 154 49.188 W) by the Aquatic Invasive Species team on February 9th 2006. The habitat where the *Cassiopea sp.* was discovered is composed of a sheltered, shallow, soft muddy substrate tide pool, subject to tidal influence. This tide pool is located within a residential area and could potentially be subject to an excess of nutrients due to improper human waste restrictions and regulations and the fast percolating capability of basalt rock.

The manual removal efforts were carried out on the 9th, 10th, and 13th of February 2006. The surveyed site encompasses 273,333 sq. ft of shallow water habitat. The area of the tide pool was systematically surveyed for the presence/absence of *Cassiopea sp.* The number of individuals were estimated and recorded. Two hundred and three individuals were removed, measured, and disposed of. Individuals were measured and assigned a letter sizing/rank ((A) 1-10cm, (B) 10-20cm, (C) 20-30cm) and recorded. Seventy two percent of the individuals were B ranked followed by 24% C, and 9% A. All individuals were bagged and disposed. Photo documentation was taken of the individuals and the sample site. Samplers must wear protective body gear while handling *Cassiopea sp.* these animals can cause minor stings, if disturbed they release free-floating nematocysts into the water.

After initial eradication efforts, the site has been monitored at 1-2 month intervals for possible individuals. *Cassiopea sp.* has not been detected within the site since February 13th, suggesting a successful local eradication of the species. Monitoring of the site will continue to assure the long term success of the eradication.

Jellyfish eradication and surveys:

Eradication:

-manual removal of individuals while snorkeling
-the size of each jellyfish was recorded, based on 10cm size classes
-7 jellyfish were preserved
-187 jellyfish were killed by suffocation and dehydration
-6 jellyfish were sent to Waikiki Aquarium (Jerry Crow) for genetic analysis work conducted by Bishop Museum).

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Kapoho *Cassiopea sp.*, specimen preservation process.

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Cassiopea sp. specimen from Kapoho, HI.

Cassiopea sp. Individuals were discovered on the Island of Molokai on December 6, 7th 2006, at Old Kamalo Wharf, and within Puko'o Lagoon.

Cassiopea sp. Specimen, Old Kamalo Wharf, Molokai, HI.