

**2016 Annual Report for
Cyanotech Corporation Conservation Plan for
Hawaiian Stilt (*Himantopus mexicanus knudseni*)**



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August 20, 2016

Introduction

Cyanotech is a 36.4 hectare Aquaculture facility located in the North Kona District on the Island of Hawaii. Cyanotech opened at the Natural Energy Labs Hawaii Authority (NELHA) at Keahole Point in 1985. The facility was constructed to cultivate micro-algae to be used as nutritional supplements. Cyanotech developed proprietary methods of growing, processing and drying micro-algae. *Spirulina pacifica* a micro-algae with high vitamin and health benefits was the first product that Cyanotech produced. Over the next 11 years Cyanotech expanded to 70 production raceways with approximately with 20.2 hectare of the facility in production raceways. In 1997 Cyanotech began work a second species of micro-algae *Haematococcus pluvialis* that synthesizes Astaxanthin, a potent anti-oxidant. The production raceways for both micro-algal species are maintained at approximately 20 cm. The large open raceways and depth, proved to be an attractive nuisance by supporting a few species of invertebrates that are a food source for the stilts.

As a result of working with the wildlife agencies and during the development of the Habitat Conservation Plan (HCP) for Cyanotech, in 1998, Cyanotech created a 0.69 hector nesting habitat at their facility. Cyanotech managed the habitat for five years until it was agreed by all parties to close the habitat in an effort to have the stilts frequenting the facility to disperse to other wetland sites here along the Kona Coast of West Hawaii. The nesting habitat produced a total of 237 Hawaiian Stilt fledglings during the five years of management.

Cyanotech's HCP and incidental take permits (ITP) expired in March of 2016. Cyanotech had formally requested to, the wildlife agencies, the opportunity to amend the HCP and ITP early in 2015 for another 19 years the remaining amount of time Cyanotech has on its lease with NELHA. The wildlife agencies have tentatively agreed to grant the amendment and extend Cyanotech's HCP and ITP for the 19 year time frame. Cyanotech has one year to come to an agreement with Kamehameha Schools for off-site mitigation or with another approved site to conduct mitigation efforts to benefit Hawaiian Stilts. After many years, Cyanotech was able to make payment to Kamehameha Schools for the predator control work at Kapo`ikai (Opae`ula) wetland to the north of the facility (7.7 km). Kamehameha Schools Land Management Division was not set up for their accounting department to receive funds and it took many years for that to be resolved, but Cyanotech has paid Kamehameha Schools in full for the 10 years from the past HCP and ITP agreement.

Facility Management

Former Nesting Habitat

Efforts are made to maintain the former nesting habitat in a manner that does not encourage stilts to frequent it. The basin was monitored daily as part of normal operations. The use of deterrents (pyrotechnics) and mylar tape was utilized when needed and appropriate. The use of pyrotechnics was very limited the past year at the facility as a whole. A large solar array has been installed in the former nesting habitat basin and occupies approximately 80% of the basin floor (0.69 hectares).

Production and Processing Areas

The operations of the facility have remained the same for many years now. The entire facility is monitored as part of daily operations. Cyanotech staff checks the production raceways, both Spirulina and Astaxanthin each morning. Surveying the raceways for debris is conducted daily in an effort to protect the mechanical and harvest systems of the production raceways. Surveying the raceways visually is conducted first thing in the morning, before the paddlewheels are turned on.

Nesting and Incidental Take

Past hazing efforts have been successful in reducing the numbers of stilts frequenting the facility especially during the day. The numbers of stilts frequenting the facility at night has risen slightly this past year. The number of stilts roosting at the facility rarely exceeded 10 individuals this past year, however there were several early morning counts with as many as 30 stilts present. Stilt activity at the Cyanotech facility coincides with increased usage by stilts of Kapo`ikai wetland, increased stilt activity and nesting at Kohanaiki, a luxury beach and golf community to the south of the Cyanotech facility (3.0 km) and the continued use by stilts at Kealakehe wastewater treatment plant further to the south (8.3 km).

Nesting

There were three nests, with 11 eggs total and no hatchlings at the facility. The staff was informed not to disturb the nesting pairs and nests and not to alter or use the basin until the nesting is completed. One nest with four eggs was in the former nesting habitat adjacent to the soar array. The second and third nests were on the center berms of two Spirulina raceways. The second nest had three eggs and was presumed abandoned after a week. The third nest with four eggs is still present at the time of writing, but has well passed the expected hatching date.

Incidental Take

There were no mortalities recovered from Cyanotech this past year.

Property Outside of Cyanotech Boundaries

Lava Field of Keahole International Airport

The lava field adjacent to the Cyanotech facility, where stilts had nested in past years, is monitored weekly during the nesting season for nesting activity. Surveys were conducted every Monday during the nesting season. Zeiss 10 x 40 binoculars are used to survey the lava field. There were no nests observed in the lava field of Keahole International Airport.

References

Evans, K. and Uyebara, K. 2001. A Conservation Plan for Hawaiian Stilt at Cyanotech Aquaculture Facility Keahole Point, Hawaii. Ducks Unlimited Inc. 76 p.