

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

December 13, 2013

Board of Land and Natural Resources
Honolulu, Hawaii

REQUEST FOR APPROVAL TO AUTHORIZE THE CHAIRPERSON, BOARD OF LAND AND NATURAL RESOURCES, TO EXPEND *PORT ROYAL* TRUST FUNDS (NOT TO EXCEED \$150,000) TO EXPAND THE CAPACITY OF THE SEA URCHIN HATCHERY AT THE DIVISION OF AQUATIC RESOURCES ANUENUE FISHERIES RESEARCH CENTER

Submitted herewith for your consideration is a request to authorize the Chairperson, Board of Land and Natural Resources, approval to use *Port Royal* trust funds to expand the capacity of the Sea Urchin Hatchery at the Division of Aquatic Resources (DAR) Anuenue Fisheries Research Center (AFRC). In order to expand upon this successful program, the purchase of 20 new tanks is requested; tanks will be installed upon delivery. This plan includes the ancillary plumbing and propagation supplies needed for the new tank installation as well as supplies required for urchin settlement substrate, e.g. PVC, filters, fasteners, screen and other miscellaneous hatchery supplies.

The 20 sea urchin larval settlement tanks will be used for the settlement of sea urchin larvae when they transition from free swimming larvae to settled juvenile urchins. These tanks house the juvenile sea urchins for five months until they are ready to be released. With the addition of 20 tanks, estimated production will reach 250,000 urchins per year. The urchins will be used to combat algae infestations statewide.

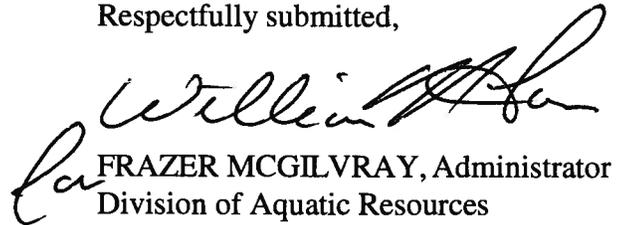
Sea urchins spend the first part of their lives as free-swimming larvae. At three to four weeks of age they are ready to undergo metamorphosis and settle. A unique set of observational metrics have been developed at AFRC to determine larval competency for settlement. As these changes in anatomy become evident, the larvae are transferred out of the larval rearing facility and into settling tanks. Once the urchins settle they spend the next four to five months growing in these tanks; thereafter they are ready to be released into the wild to eat invasive seaweeds.

Settling tanks are prepared with ambient biofilms. Biofilms are cultured by running filtered seawater through tanks for two weeks prior to settlement. Seawater must be filtered through five (5) micron filter bags to remove any unwanted organisms that might harm, compete with or prey on the sea urchins. Clear plastic plates are placed in tanks to collect biofilms and act as settlement substrate. These settlement structures must be fabricated from clear PVC roofing material, rods and nylon nuts. Each tank must be provided with appropriate aeration, filtration, water flow and removable shade. Aeration and water delivery systems are made from PVC pipe, fittings and valves; plastic irrigating tubing, fittings and valves; and nylon air line material. Shades or shade cloth are added or removed to control temperature and biofilm growth.

RECOMMENDATION:

That the Board authorize the Chairperson to expend up to \$150,000 in *Port Royal* trust funds in order to expand the capacity of the Sea Urchin Hatchery at the DAR Anuenue Fisheries Research Center.

Respectfully submitted,


FRAZER MCGILVRAY, Administrator
Division of Aquatic Resources

APPROVED FOR SUBMITTAL:


WILLIAM J. AILA, JR.
DLNR Chairperson