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**Science, Technology, Research and Innovation for Development
(STRIDE)**

PHASE I

Increasing the production of abalone *Haliotis asinina* Juveniles in Hatchery and Nursery for Grow-Out Farming as Supplemental Livelihood in Coastal Communities



PHASE II

Developing a Semi-Intensive Abalone *Haliotis asinina* Farming System

GRANTEE: Western Philippines University (WPU)

PRINCIPAL INVESTIGATOR: Dr. Lota Creencia

INDUSTRY PARTNER: Malampaya Foundation, Inc. (MFI)
Krisjewels Pearl Culture & Hatchery Inc. (KPCHI)

GRANT PERIOD: Phase I: September 1, 2015 to August 31, 2016
Phase II: December 1, 2016 to February 28, 2018

GRANT AMOUNT: Php 9,301,119.10 (approximately USD197,900)

Sustainable farming of Philippine abalone

Abalone *Haliotis asinina* is a highly-valued shellfish with a big export market. There is intense abalone collection from reef areas, which has led to decreasing harvest in recent years. A number of people in the fishing community are dependent on this fishery for their livelihood. Thus, mass production of abalone juveniles in hatchery and nursery systems is seen as a viable option to increase livelihoods among the fishing communities in Palawan. WPU has operated an abalone hatchery for about three years, but still encounters low production of post-larval to early juveniles. Trial and analysis revealed that the supply of coralline algae, diatom biofilm complex, and cultured pure microalgae in the hatchery and macroalgae for the nursery are critical to increase production of abalone in culture.

Under Phase I, the project focuses on increasing the supply of abalone in hatcheries and nurseries for grow-out culturing. This is important to promote the idea that abalone farming systems can provide supplemental livelihoods in coastal communities, which can reduce the collection pressure on the wild population and the



Abalone juveniles are grown in a hatchery at WPU's project site in Binduyan, Palawan

overturning of coral stones. In addition, it will also provide an impetus to protect the surrounding waters where farmers maintain their culture facility. The farming of macroalgae (i.e., *Gracilaria* or *Ulva*) as food for abalone in culture will also provide additional income for people in coastal areas.

Milestones

The successful implementation of Phase I of the project resulted in better and higher hatchery production of abalone at the WPU facility: a) an improved abalone hatchery production facility, b) increased production of abalone natural food with the revisions undertaken in the aeration system, and c) reduced growing time, which translates into faster scale-up of production of diatoms as supplemental food of settled post-larvae and early juveniles in tanks. Such conditions resulted in an increased settlement rate of post-larvae (from 11% to 48%) and survival rate (from 0.01% to 5.54%) of early juveniles in the hatchery.

Moving forward

Building on the results of Phase I, the second phase will focus on the farming of abalone using a semi-intensive system. Phase II covers the production of both microalgal and macroalgal food of abalone and the culture of abalone itself from the hatchery to the grow-out stage to produce marketable abalone. In addition, the project aims to develop a comprehensive manual for semi-intensive farming of abalone that covers different aspects of production from the hatchery to grow-out stage. The manual will serve as a guide and reference for potential abalone farming technology adopters.



Regular inspection of cultured abalone in cages