

SPECIAL REPORT

Sustainable Seafood from Community-Based Resource Enhancement

By SEAFDEC Aquaculture Department (AQD)



Corals are thriving in the project's protected area.
Photo credit: Teruo Azuma

Earlier this year, Manila's top hotels, restaurants, and various support groups including SEAFDEC Aquaculture Department (AQD), signed a commitment to "improve the health of the oceans" by "sourcing seafood products from more sustainable fisheries and aquaculture." The Sustainable Seafood Initiative received the support of AQD to increase awareness on the need for "fully traceable, legal, sustainable, and socially responsibly-produced seafood." The movement also led hotels and restaurants to regularly source live abalone (*Haliotis asinina*) sustainably harvested from AQD's Community-Based Resource Enhancement (CBRE) project in Molocaboc Island, Sagay City, Negros Occidental, Philippines.

Molocaboc is an island-village of more than 7,000 residents dependent on fishing. It is within the multi-use buffer zone of the Sagay Marine Reserve. After years of social preparation activities, AQD first released hatchery-bred abalone juveniles in 2011 in a 4,000 m² coralline release site. Today, local gleaners sustainably harvest abalone which are sent to various buyers including top hotels in Manila. Sandfish (*Holothuria scabra*) were also first released in the area in 2011 but those that successfully grew to the recommended harvest size of 320 g. body weight were those nursed in floating *hapa* nets and released in sea ranching areas in 2015. Sampling data showed that the sandfish may also be ready for harvest soon.

The apparent success of the CBRE project did not come quickly nor simply. When AQD first conducted baseline surveys in Molocaboc Island back in 2006, they found that the increasing number of households, high fishing effort, and destructive gathering methods led to diminishing harvests of abalone and sandfish which further translated to low fishing incomes. Abalone used to thrive in the intertidal flats of Molocaboc Island, however they were overfished due to their high value.

Armed with technology on the mass production of hatchery-bred abalone developed back in 1998, and experience on several stock-enhancement projects, AQD, through the Government of Japan Trust Fund, informed and organized local fisherfolk



Molocaboc Island fisherfolk show live abalone and sandfish sourced from the CBRE project site.

and the local government's Protected Area Management Board to collaborate for the CBRE project. While AQD provides the science and technology, local fisherfolk are accountable to protect, monitor, and maintain the project site. Meanwhile, the local government provides and enforces needed regulations.

Community organizing and information-education campaigns on fisheries and coastal resource management catalyzed the "bottom-up" endorsement and promulgation of a village ordinance on abalone fishing in June 2010. Local governance regulated access to the release site, prohibited the use of *sungkit* or hook fishing gear (used to upturn corals where abalones dwell), and implemented a minimum abalone harvestable size of 6 cm. Abalone buyers now refuse to buy abalone smaller than 6 cm. Starting 2010, 6-cm abalone rulers and highlights of the regulation were periodically distributed around the village to demonstrate the minimum size of abalone that was legal to catch. They know that the regulation ensures abalone have the chance to breed before they are harvested.

Abalone juveniles released at the marine reserve are offspring of breeders sourced by AQD from the target release area to maintain the integrity of the local gene pool. They also carry diet-tags to aid monitoring. The tags, which distinguish hatchery-bred abalone from the wild stock, are green bands on their shell caused by a special formulated diet – a technology developed by AQD in 2000.

AQD involved fisherfolk and local government officials in the release of abalone in the CBRE project site. Fishers were likewise tasked to maintain the pens and cages of sandfish in the sea ranch site while students from local schools are also involved in the monitoring of released stocks. Strong community participation and cooperation also protected the coral reef in the release site. Satellite images reveal that a 2,100 m² patch of branching coral in 2009 has grown to cover about 9,300 m² in 2014.

Today, the successful collaboration between the fisherfolk, local government, and SEAFDEC/AQD has resulted in local gleaners collecting more abalone. Members of the Molocaboc Sea Ranchers Association regulate their harvest in the release site



Local school children assist AQD researchers in monitoring sandfish stocks



A local diver inspects a recovering coral boulder for abalone at Molocaboc Island.

to manage stock density and secure funds for organizational and maintenance expenses. All other fisherfolk in Molocaboc Island may catch abalone outside the CBRE release site. Soon, they will also be harvesting sandfish to further supplement their income. The harvest of other species of sea cucumber and other fishes reportedly increased inside and outside the protected release site.

With the success of the project, CBRE is bound to be duplicated in other areas. Fisherfolk in the neighboring Molocaboc Diut Island requested AQD to also establish CBRE in their shoreline. Last 22 July 2017, hatchery-bred abalone juveniles were released off the second island. In Camarines Sur, 320 km north of Molocaboc Island, AQD was also requested to consider the potential of CBRE in the town of Caramoan, a popular tourist destination. An exploratory meeting and social and environmental assessment was done last 30-31 May 2017 upon the invitation of Partido State University. Similarly, the project aims to sustain the abalone and sandfish fishery in the area and improve catch and income of fisherfolk.

This CBRE project in Sagay City in the Philippines has demonstrated that hatchery-bred juveniles released in suitable protected sites enables the rebuilding of depleted coastal resources, supplement livelihoods, and contribute to improving the supply of abalone, and soon sandfish, in local and export markets.



Hatchery-reared abalone juveniles were released off the island of Molocaboc Diut Island on 22 July 2017 upon the request of fisherfolk who hope to replicate the success of SEAFDEC/AQD's Community-Based Resource Enhancement project in the neighboring Molocaboc Dacu Island.