

#### **14.5.1. Batangas State University – The National Engineering University has a plan to minimise physical, chemical and/or biological alterations of related aquatic ecosystems.**

The University through our marine research center - Verde Island Passage Center for Oceanographic Research and Aquatic Life Sciences (VIP CORALS) has a plan to minimise physical, chemical and/or biological alterations of related aquatic ecosystems as part of their mandates. These mandates are the following: provide leadership in conducting research on different marine ecosystems in the Verde Island Passage for sustainable national development; Spearhead collaboration among various stakeholders, government institutions, non-government organizations in the promotion of research-based activities in protecting and preserving the marine environment; train LGUs in the Verde Island Passage on marine protection, livelihood programs, and policy formulation boosting the local tourism industry; provide training to local folks in VIP on marine conservation and protection, livelihood opportunities and awareness on all applicable natural resources conservation laws and statutes; and provide technical assistance on establishing marine protected areas (MPAs) to preserved and enrich the marine ecosystem in Verde Island Passage. In addition, VIP CORALS should lead in the protection, conservation and strategic management of the Verde Island Passage as lifted in the Republic Act No. 11694 on the act of declaring Batangas State University as the National Engineering University.

Moreover, the significant results of the research projects below can be utilized as a basis for their policy and plans in relation to minimizing physical, chemical and/or biological alterations of related aquatic ecosystems.

The MBioassess-VIP project identified *Ulva* spp. and *Padina* spp. as bioindicator species for water quality in seaweed/seagrass ecosystems. In the same project, non-MPA coral reefs in Batangas and Marinduque were identified as sites with higher-than-average coral cover and biodiversity.

The Backyard Tilapia Farming project educated inland pond beneficiaries in Batangas on the efficient management of tilapia ponds. Beneficiaries were given tilapia fingerlings that were then reared in ponds established in vacant lots near their houses. A combination of good quality of fingerlings, feeds and training on good farming practices showed a relatively good harvest tilapia harvest.

Other implemented projects of the VIP CORALS aimed to study the biology of marine organisms with potential economic benefits in order for sustainable harvest, leaving the wildstock untouched. The results of the pulse amplitude modulation (PAM) fluorometry analyses done showed at what temperature, irradiance and photoperiod *Asparagopsis taxiformis* thrives. The Sea Cucumber farming project demonstrated the feasibility of cultivating sea cucumber *Holothuria scabra* in an off-shore environment through artificial seawater and feed. The Sea BaTH project checked if several species of siganids' juvenile in Calatagan, Batangas use seaweed beds as transition habitats apart from seagrass areas before settling to coral reefs as adults.

Two recently approved projects that will be funded by DOST-PCAARRD will aim to , the recently approved “Stock Assessment and Reproductive Biology of mottled spinefoot *Siganus fuscescens* in Calatagan, Batangas: Inputs Species Management Plan” project aims to assess the current status of fishery and biology of *S. fuscescens*. Lastly, the FLAKE project aims to assess which 3rd to 5th class municipalities in Batangas province can become new site/s, where euclideanoid strains *Kappaphycus* spp. and *Eucheuma* spp. can be farmed.

Lastly, the ULVA Watch website of the ULVA project was established to pinpoint sites along the coast of Batangas province if there is an occurring green tide blooms caused by *Ulva* spp. Such phenomenon happening in a given site can be reported to respective LGUs, who will then deploy their countermeasure.