

Author	Flores-Salgado, Daisy Desiree
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ABSTRACT

There is an increasing number of marine reserves in the country, yet conducting adaptive management for these areas poses a challenge to local resource managers. This study aimed to determine the effect of establishing a marine reserve on the fish density, fish biomass and coral cover within and outside Biga Marine Reserve over a two-year period, 2003-2005. It employed the Before and After, Control and Intervention (BACI) Analysis to compare these parameters. Fish Visual Census (FVC) was used to determine fish abundance. Life from Intercept Transect (LIT) was applied to monitor coral cover. The point Intercept Transect (PIT) was used as an alternative method on benthic coral survey. To determine if significant differences exist between the parameters being compared, t-test and/or Standardized Mean Difference (SMD) were used. The study also provided information that may help the local decisions makers develop an adaptive management plan and to provide policy recommendations to the local government. Biga Marine Reserve is located in Barangay Biga, Lobo, Batangas.

Results showed a significant mortality in live coral cover both in the control (outside the MR) and in the Intervention areas (inside the MR) from 2003 (before) to 2005 (after). Percent live coral cover outside the reserve was 53% in 2003, which decreased to 36% in 2005, or a 17% decrease in live coral cover. Live coral cover inside the reserve was 43% in 2003, which decreased to 37% in 2005, or a 6% decrease in a two-year period. An increase in algal growth was observed in both areas. T-test showed a significant decrease in live coral cover outside the reserve from 2003 to 2005, indicating the importance of establishing a marine reserve in preserving live corals.

A significant increase in fish density inside the marine reserve was recorded in 2005 with the abundance of damselfishes, a herbivore that feeds on algae. Pelagic carnivorous fishes or transient fishes were also noted in 2005. There was no significant increase in fish density or biomass outside the reserve in 2005 but there were signs of a developing trend of increasing number of smaller fishes. Simple economic valuation indicated livelihood indicated positive implications on food and livelihood in having a marine reserve. The study provided some adaptive management strategies as part of this study's policy recommendations to the stakeholders of Biga Marine Reserve particularly the local government of Lobo, Batangas.