

Impacts of a population-environment program on coastal ecosystem health, livelihood and human well-being: The case of IPOPCORM in Culion, Palawan

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Background: Culion Island is among the 14 hotspots ranked by the Philippine government as “extremely high priority” for conservation of marine biodiversity because of the increasing population and socioeconomic threats besetting its coastal resources. In 1995, Culion was established as a regular municipality with a total land area of about 64,162 hectares and coastal area of 75,750 hectares. Historically, the waters of Culion and neighboring islands have been an open access resource, with unrestricted entry and free-for-all harvesting of coastal products. With no customary rights of tenure for fisheries, heavy exploitation of available resources resulted in reduced catch rates and consequent decline in total production.

This state of Culion fisheries is further plagued by increasing fishing effort due to increasing human population on the island. During 1995-2000, Culion’s population escalated from 13,000 to 15,000 people due to natural increase and in-migration. Since fishing is a year-round activity, people are heavily dependent on coastal resources for survival and livelihood. Further analysis of health and socioeconomic data indicated that childhood malnutrition was most pronounced in households where fishing was the primary occupation and where mothers were not practicing family planning.

Design/Method: The Integrated Population and Coastal Resource Management (IPOPCORM) initiative was introduced to Culion in 2002, seven years after it became a municipality. Using community-based approaches and a natural resource management framework that incorporates family planning as a strategic intervention to reduce fishing effort, the project enabled coastal communities to work towards creating an environmentally sustainable human population and to fulfill the responsibilities mandated under the Philippine Local Government Code of 1991, including management of the municipality’s coastal habitats and natural resources via establishment of fish and mangrove protected areas. Alternative livelihood and micro-credit inputs were also supported to enable fisher households to diversify their income sources.

Results/Outcomes: Resource and ecological habitat assessments conducted in 2001 and 2004 in selected project sites revealed improvements in coral reef condition with a mean live coral cover of 26.5% in 2001 and 38.7% in 2004. Further, the coral mortality index in 2001 (45%), indicating that reef habitats were stressed, declined significantly in 2004 (10%). Although average biomass estimates of target reef fish decreased from 14.7 mt/km² in 2001 to 10.4 mt/km² in 2004, estimates in sanctuary area showed nearly a 3 mt/km² increase during the 2004 survey. Program monitoring also showed an increase of Php800 (US\$16) in average monthly household income of fishers in 2004, while parallel household surveys conducted in 2001 and 2004 revealed a 10% decline in malnutrition among preschool children suggesting improvement in food security.

Conclusion: IPOPCORM enhanced community development in Culion and contributed to improvements in coastal ecosystem health, fish production and household income security while simultaneously addressing malnutrition in children.

*Presented at the 2nd National Conference on Population, Health and Environment
“PHE: Creating our Future” [Parallel Session Theme (A5): PHE and Conservation]*

Table 1. Comparative biological, fisheries and human health data in Culion, Northern Palawan, Philippines IPOPCORM Project: 2001-2004

Indicator	2001	2004
I. Live coral cover (%)*		
• Average for the island	26.5	38.7
• Sanctuary area	22.6	18.8
II. Coral mortality index (MI)*		
• Average for the island	0.45	0.1
• Sanctuary area	0.2	0.0
III. Target reef fish biomass (mt/km ²)		
• Average for the island	14.7	10.4
• Sanctuary area	5.8	8.3
IV. Target reef fish density (individuals/500m ²)		
• Average for the island	55.0	58.8
• Sanctuary area	58.0	39.0
V. Fisheries**		
• Average fish catch (kg)	10.0	18.0
• Average monthly HH income		
> All (fishers & non-fishers)	P3,248.28	P3,948.74
> Fishers	P2,713.33	P3,503.45
VI. Health		
• % underweight children <3 years of age***	34.2	24.5

* Average value was based from all transects surveyed by UP-MERF except sanctuary area; Values for the sanctuary area were actual values recorded only in Binudac.
Source: IPOPCORM Behavioral Monitoring Survey (BMS) Consolidated Report 2003-2004

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*** Source: Results from the UP-DRDF Household surveys in 2001 and 2004.