CCRES

PROGRESS UPDATE

COMPONENT I
Quantifying the value and market potential of coral reef and mangrove ecosystem services

ACTIVITY
Bio-LEWIE modelling project (fisheries and tourism)

OBJECTIVE
To develop a novel model to link biological components (e.g. fish abundance and reef quality) with a Local Economy-Wide Impact Evaluation (Bio-LEWIE) model, in order to understand the economics of tourism and fishing

Ted Gilliland (second left) and members of the Palawan State University team.
Photo: E. Taylor

DEVELOPING A MODEL TO GENERATE ECONOMIC INSIGHTS INTO LOCAL ECONOMIES

Overview

Led by Professor Jim Sanchirico and CCRES PhD scholar Ted Gilliland, from the University of California, Davis, the project seeks to understand the economics of tourism and fishing in the CCRES pilot site of El Nido, Palawan, Philippines.

This work aims to assess:

1. How tourist's expenditures in El Nido might change with improvements in the ecological condition of coastal resources.

2. How growth in tourism will affect (a) different sectors and households of the El Nido economy, and (b) fishing pressure in the El Nido fishery

3. How fishermen allocate their time and effort, and how these allocations will respond to marine conservation interventions in the fishery (e.g. the creation of a Marine Protected Area)

These questions are fundamental to the objectives of CCRES. Considering the importance of tourism to El Nido, mapping the benefits of coastal resources to business opportunities requires an understanding of how tourist spending will respond to changes in the quality of coastal resources.

Data collected from comprehensive household, business and tourist surveys undertaken in El Nido will address these questions and support development of the Bio-LEWIE model (Bio-Economic Local Economy-Wide Impact Evaluation Model).

LEWIE models track local economic impacts. The Bio-LEWIE is an innovative extension that incorporates a bio-economic model of a key natural resource, in this case a fishery.

The model will allow simulation of how policies directed at one sector (for example fishing) could affect livelihoods throughout the entire economy. It can also be used to estimate the impacts of other changes to the ecological and economic systems of El Nido.

One of the most valuable aspects of the Bio-LEWIE model is the ability to test how the labour force will respond to changes in the economy. For example, if tourism grows, the Bio-LEWIE can predict how this will affect the pressure on coastal resources such as fishing. This ability to predict quantitatively the effect of changes in business activities can help inform the choice of development activities.

Progress

In 2015, researchers from the University of California, Davis and the Palawan State University, with assistance from site co-ordinator the El Nido Foundation, undertook a series of household, business and tourism surveys over a 10-week period. Approximately 460 households, 275 businesses and 433 tourists were sampled randomly to generate a snapshot of the El Nido economy. Members of the Palawan State University team were trained in survey design and surveying methodologies as part of the project.

The surveys focused particular attention on tourism-related activities (including tourists' spending) and fishing-related activities, as these are two primary livelihoods for the El Nido community.

The data gathered will be used to develop the Bio-LEWIE model which will demonstrate the impact of different policy scenarios for El Nido, and in particular how changes in marine conservation will affect the local economy. This information can be used to inform marine management actions.

Tourists boats in El Nido town.
Photo: G. Sheehan

The initial results from the data show that there are important linkages between economic sectors in the El Nido economy that must be accounted for when assessing how tourism will affect fishing pressure, and how fishers allocate their effort over space and time.

Results also show that tourists would spend more time and money in El Nido if reef quality were higher. A preliminary report has been prepared which highlights some initial results from the data and includes the initial version of the Bio-LEWIE model.

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Early morning fishing at El Nido, Philippines.
Photo: T. Gilliland

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Capturing Coral Reef and Related Ecosystem Services (CCRES) is a regional technical support project that seeks to unlock new, sustainable income streams for coastal communities in the East Asia-Pacific region.

CCRES will develop knowledge products — which inform the design of global, regional and national projects, plans and policies — and technical models and planning tools which assist with preparation of community-based coastal resource management plans.

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