Contribution of Marine Protected Areas to the Blue Economy and Sustainable Fisheries

Purpose: Information
Submitted by: Philippines
Contribution of Marine Protected Areas to the Blue Economy and Sustainable Fisheries

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Outline of presentation:

- Status of Philippine biodiversity
- Status of coastal fisheries
  - Declining fish catch over time
  - Change in species composition from highly valued to less valued
- Status of biodiversity/ ecosystem services supporting the fisheries
- MPAs and MPA networks to help resolve the problem
  - Marine Protected Areas (MPA); MPA Networks
  - Management of habitats: seagrass, mangroves, coral reefs, mudflats, water quality (plankton communities)
- Other key proposed interventions
The Philippines is one of the 18 megadiverse countries in the world

host some 70 percent of the world’s biodiversity resources

The Coral Triangle

5.7 million km² of marine area
(19 times the size of the Philippines)

6 Economies:
- Indonesia
- Malaysia
- Papua New Guinea
- Philippines
- Solomon Island
- Timor Leste
Around 500 of almost 800 known coral species in the world is found in the Philippines.

More than 21 species recently described in Palawan.

A sq. km. of coral reef in excellent/good condition is estimated to supply about 30 tons of economically valuable fish and invertebrates per year (DENR, 2011).

The country's coastal and marine resources, particularly coral reefs, supplies about 10-15% of marine fishery production that contributes to economic growth and poverty reduction of about 60% of the population within the coastal areas and about 1 million people engaged in fishing (Cabrido, 2002 cited in DENR, 2012).
Status of fisheries in the Philippines

CPUE in 2000 is less than 0.05 that in 1948...


Source: http://www.oneocean.org/flash/the_philippine_seas.html
While CPUE has been in a steep decline, total marine capture fisheries landing for both commercial and municipal fishing increase over time.

This can only be possible by:
- Increasing fishing effort
- Shifts in catch composition from more valued to less valued fish

Majority of small scale fishers obtain less than 10 kg per trip per day.
- On average there are 2 fishers on a boat.
- Take home of a fisher is less than a third of the daily catch (gross less fuel and fishing costs divided by 3 (2 fishers plus boat)).
Status of fisheries in the Philippines

- Filipino fishers exploit all types of fish using various types of fishing gears
- Spatial variation
- Reef associated and non-reef demersal constitute significant part of catch

Not so good news: Resources in decline

<table>
<thead>
<tr>
<th>Resource/Habitat</th>
<th>Status</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corals</td>
<td>Degraded state</td>
<td>BFAR-NFRDI-PAWB. 2005, BINU</td>
</tr>
<tr>
<td>Seaweeds</td>
<td>Unknown (except declining seed source)</td>
<td>-do- GTZ. 2009,</td>
</tr>
<tr>
<td>Seagrasses</td>
<td>Heavily stressed</td>
<td>BFAR-NFRDI-PAWB. 2005, BINU</td>
</tr>
<tr>
<td>Mangroves</td>
<td>Degraded state</td>
<td>-do-</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>Declining trend</td>
<td>-do-</td>
</tr>
<tr>
<td>Demersal fishes</td>
<td>Declining trend</td>
<td>-do-</td>
</tr>
<tr>
<td>Small pelagic fishes</td>
<td>Declining trend</td>
<td>-do-</td>
</tr>
<tr>
<td>Tunas</td>
<td>Stable trend (except Bigeye tuna)</td>
<td>WCPC. 2009</td>
</tr>
<tr>
<td>Sharks and rays</td>
<td>Declining trend</td>
<td>NPOA Sharks. 2009</td>
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<tr>
<td>Marine turtles</td>
<td>Threatened</td>
<td>BFAR-NFRDI-PAWB. 2005, BINU</td>
</tr>
<tr>
<td>Marine Mammals</td>
<td>Threatened</td>
<td>IUCN Red List. 2009</td>
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</table>
Status of our coastal habitats

- Coral reefs (est. 25-27 million hectares)
  - Less than 6% in good to excellent condition (>50% live coral cover)
  - 53% of reefs in fair condition (25-49.9% live coral cover)
  - 41% of reefs in poor condition (<25% live coral cover)

- Seagrass beds (est. 97,800 to as high as 27 M hectares)
  - Important in the life cycle of many commercially important species

  30% and 50% of Philippine seagrass beds have been lost due to industrial development, ports, and recreation in the last 50 years.
Mudflats (Size ???)
We know little too except important in recycling of nutrients and feeding grounds of many species

Status of fisheries resources affected by effects of climate change...

Effects of coral bleaching – climate change related disturbance

Pratchett et al. 2008
Photos source: www.reefguide.org/indopac
Philippines adopted framework of CTI to address problems in coastal and marine environment, including fisheries...

- Seascapes designated and effectively managed...
- Ecosystem approach to management of fisheries and other marine resources fully applied...
- MPAs and MPA Networks established and effectively managed...
- Climate change adaptation measures achieved...
- Status of threatened species improving...

MPAs favor rebuilding of fish stocks

- Improving conditions of habitats (coral reefs, seagrass beds, mangroves, rocky, sandy, and muddy flats)
- Reduce illegal fishing practices, with site-focused monitoring and enforcement activities
MPAs effect on Climate-Change resiliency

- “Effective management of coastal resources through a range of options including locally-managed regional networks of marine protected areas, protection of mangrove and seagrass beds and effective management of fisheries results in a slower decline in these resources.” –The Coral Triangle and Climate Change

MPAs aid recovery of fishery

Abesamis et al. 2014.
Alcala et al., 2004

MPAs aid recovery of fishery

LEGAL FRAMEWORK

NIPAS ACT

• fundamental law in the Philippines that defines the processes in establishing and managing protected areas

50 marine PAs have been placed under the System, 33 of which have specific Presidential Proclamations, covering 1.57M ha
One of the most important of the Philippines MPAs is Tubbataha Reefs Natural Park, a UNESCO World Heritage Site.
NATIONALLY MANAGED PROTECTED AREAS

APO REEF Natural Park

One of the most important of the Philippines Reefs Natural Park, which has also been designated a World Heritage Site by UNESCO.

Interpolated species diversity map of fish species in the Philippines from fish visual census data (1990s to 2008) (* Nañola et al, 2010)

Fish biodiversity → Tubbataha and Apo Reef areas
MPAs emerging governance types

- Governance by indigenous peoples and local communities, and local government units
Twin Rocks Marine Sanctuary (Verde Island Passage)

- **Area:** 22.91 hectares
- **Key Management Practices**
  - Regular coastal monitoring by the Local Government’s MPA and Maritime Law Enforcement Network
  - Annual LGU budget allocation:
    - P700,000 (marine law enforcement)
    - P350,000 (sanctuary management)
  - Incentive programs for boatmen
- **Impacts**
  - Consistent increase in live hard corals, fish biomass, and fish catch
  - Generated high income from tourism activities
  - Increased public awareness on sanctuary management

Source: MSN MPA Awards 2011

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Designating Marine Protected Areas and MPA Networks

...Transboundary Cooperation
Turtle Island Heritage Protected Area (TIHPA)

• A transboundary agreement for the conservation and protection of marine turtles between Malaysia and the Philippines
• signed on May 31, 1996

Coral Triangle National Plan of Action

Goal #3: Marine Protected Areas Established and Effectively Managed

- Using the MPA Effectiveness Management Tool (MEAT), an assessment of nine out of 33 NIPAS MPAs showed 33 per cent of the nine NIPAS MPAs are effectively managed.
  - The total area of the sampled MPAs is 330,570 hectares or 47 per cent of the 700,018 hectares of assessed NIPAS MPAs.

- The 2011 MPA Awards showed that 70 MPAs or 64 percent of the 110 locally managed MPAs that turned in applications are effectively managed.
  - The aggregate total area of these 70 MPAs is only 4,305 hectares or 14 per cent of total area of locally-managed MPAs assessed using MEAT.
Other Benefits from Effective MPA Management

Coral reefs are living "breakwaters"

Value of coral reefs as breakwater:
US $800,000 / kilometer

Source: David et al 2009.
ECOTOURISM

Ecotourism Development in Protected Areas

- 47 Protected Areas developed for ecotourism
- Increasing visitors in PAs, with a projected total revenue of $12 B US$ per year

<table>
<thead>
<tr>
<th>YEAR</th>
<th>VISITORS</th>
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<tbody>
<tr>
<td>2011</td>
<td>568,891</td>
</tr>
<tr>
<td>2012</td>
<td>610,201</td>
</tr>
<tr>
<td>2013</td>
<td>970,399</td>
</tr>
<tr>
<td>2014</td>
<td>1,581,355</td>
</tr>
<tr>
<td>2015</td>
<td>546,281</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5,133,999</td>
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</tbody>
</table>
More than instruments for conserving nature, protected areas are vital to respond to some of today’s most pressing challenges, including food and water security, human health and well-being, disaster risk reduction and climate change.

“With great power, comes great responsibility” --- Spiderman