



Accounting for sea space use in ECOFISH MKBAs - A preliminary approach

Regina Therese M. Bacalso

Senior FCRM Specialist

Rina Rosales

Senior Resource Economics Specialist

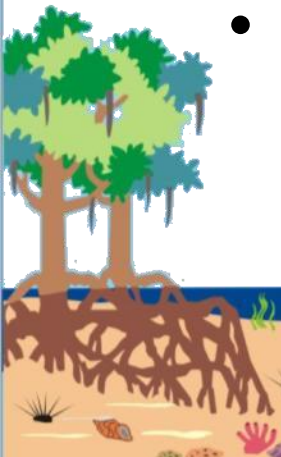
- conserve biological diversity •
- enhance ecosystem productivity •
- restore fisheries profitability •

ECOSYSTEMS IMPROVED FOR
SUSTAINABLE FISHERIES
(ECOFISH) PROJECT



Outline

- **ECOFISH Backgrounder**
- **Fisheries zoning and marine spatial planning in ECOFISH**
- **Why “account” for sea space use?**
- **Early applications**
- **Challenges and future outlook**

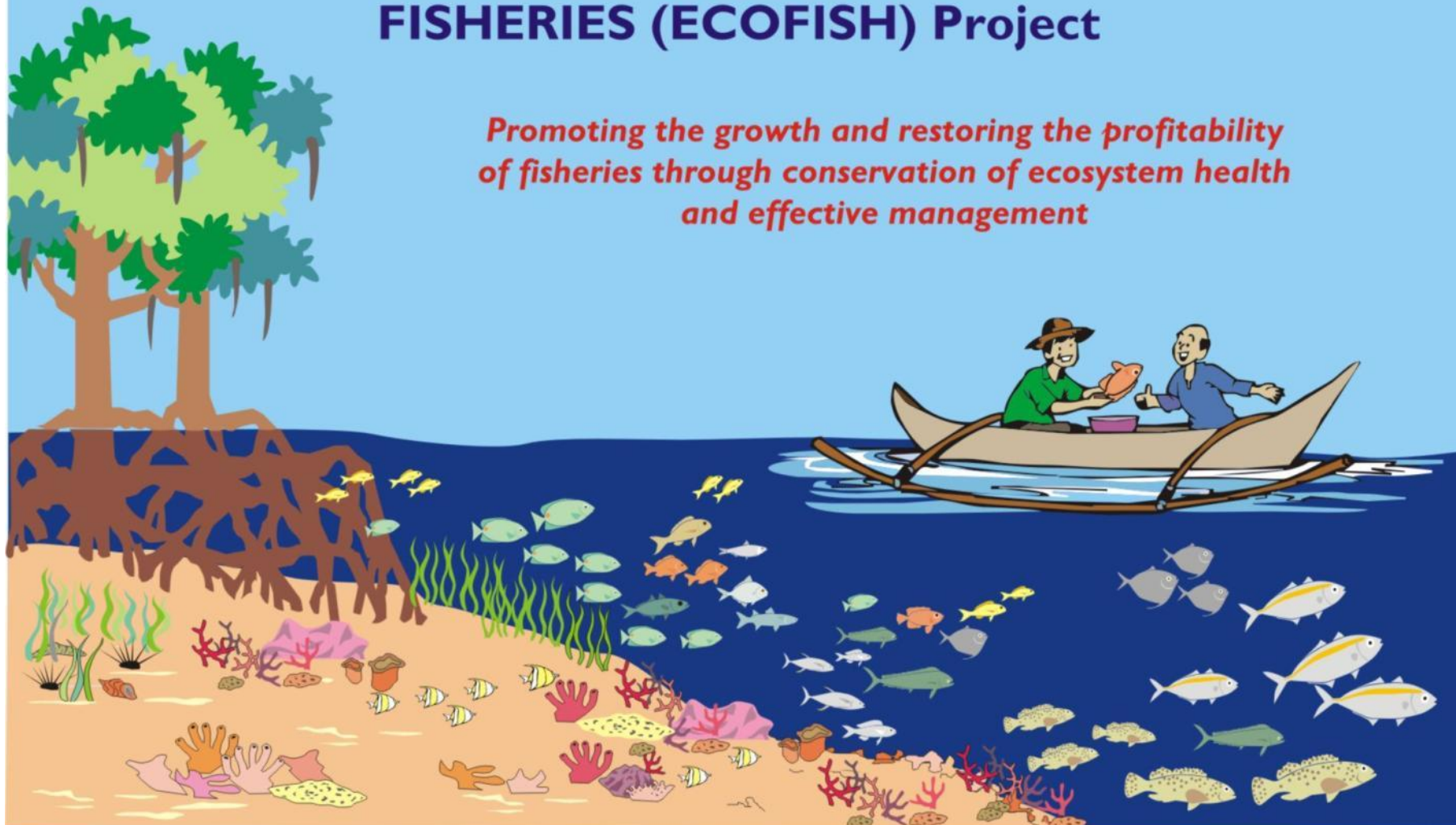




USAID
FROM THE AMERICAN PEOPLE

ECOSYSTEMS IMPROVED FOR SUSTAINABLE FISHERIES (ECOFISH) Project

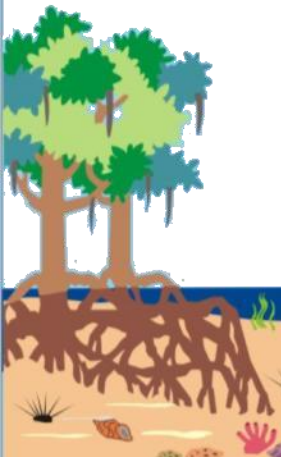
Promoting the growth and restoring the profitability of fisheries through conservation of ecosystem health and effective management



Implemented with:

- **Department of Agriculture – Bureau of Fisheries and Aquatic Resources**
- **Other National Government Agencies (DILG, DENR, etc)**
- **Local Government Units (LGUS)**

Managed by: Tetra Tech – ARD,
in collaboration with PRIMEX,
REECS, MERF and SSG Advisors





ECOFISH Project Sites

Legend:

1. Lingayen Gulf
2. Verde Island Passage
3. Calamianes Island Group
4. Lagonoy Gulf
5. Danajon Reef
6. South Negros Island
7. Surigao del Sur & del Norte
8. Sulu Archipelago

Marine Key

Biodiversity Areas (MKBAs)



Within an MKBA...



Ecosystems Approach to Fisheries Management (EAFM)

- is about managing fisheries at ecosystem scales rather than the scales defined by jurisdictional boundaries
- addresses the sustainability of ecosystems and not just the sustainability of target species
- provides governance mechanisms for the selected spatial scale

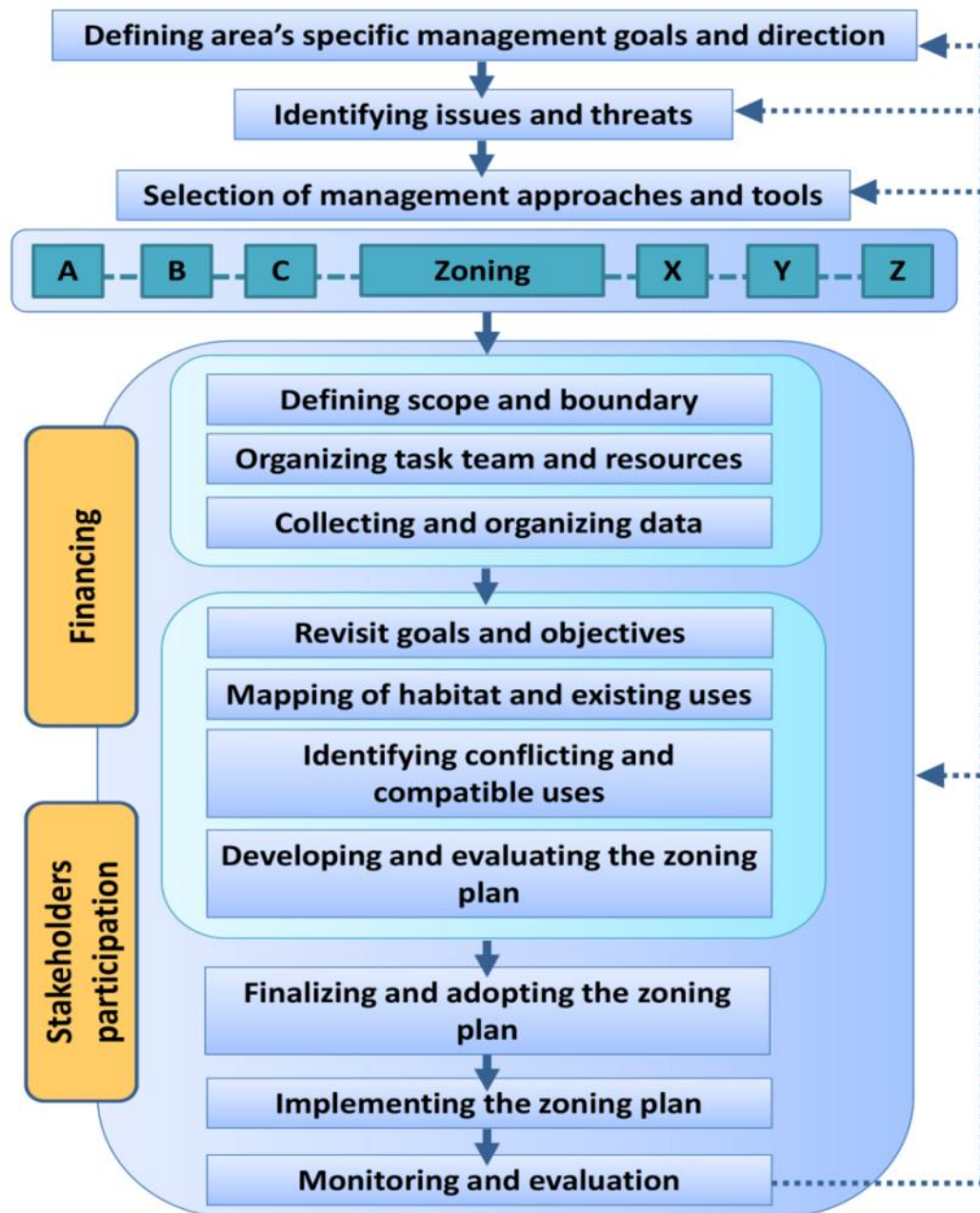


Where does Fisheries Zoning and MSP Fit In?



Fisheries activities and other sea uses – a typical Philippine setting

Fisheries Zoning and MSP in ECOFISH



Identifying & mapping current uses



Evaluating use conflicts

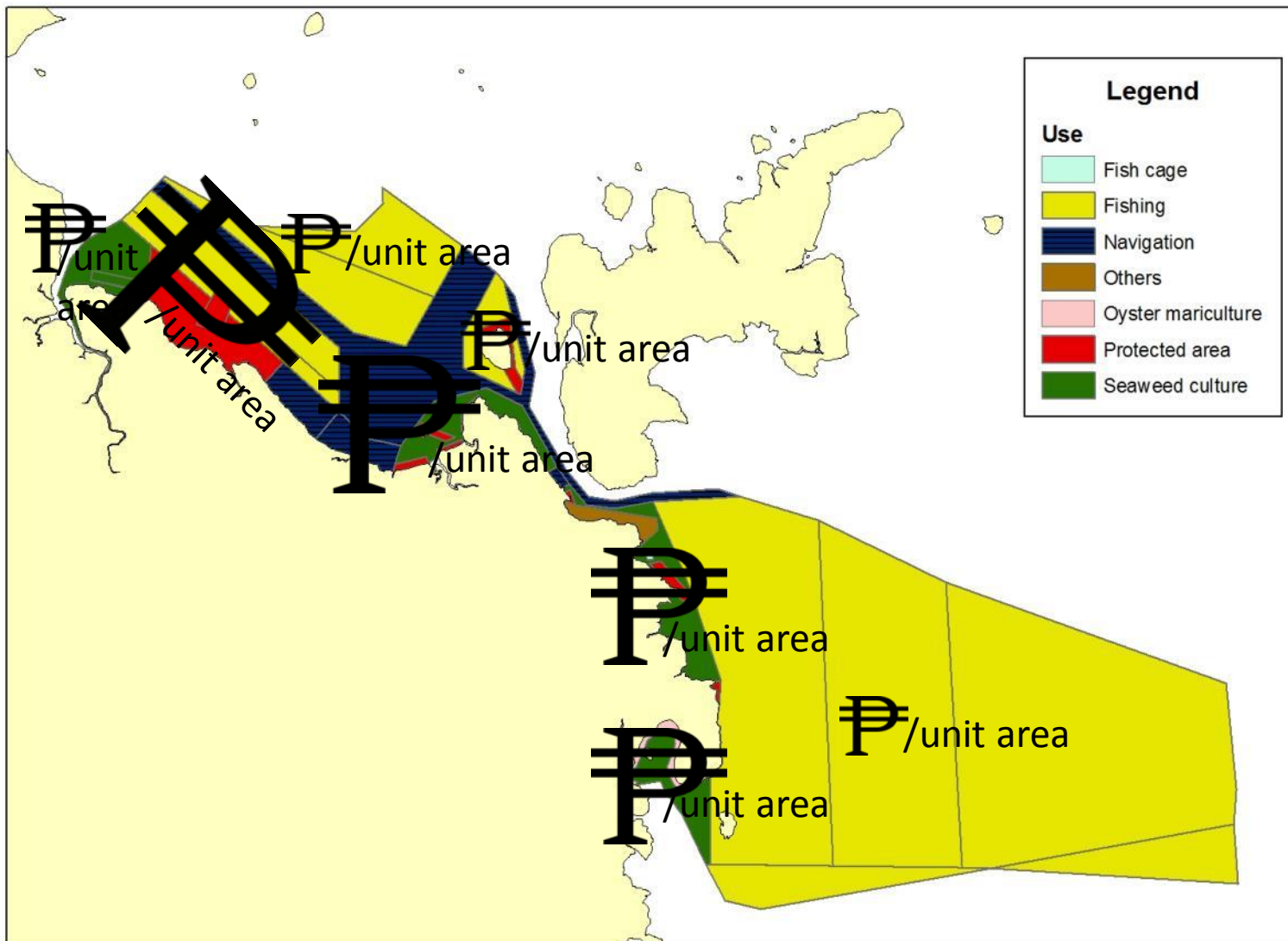


Draft sea use zones

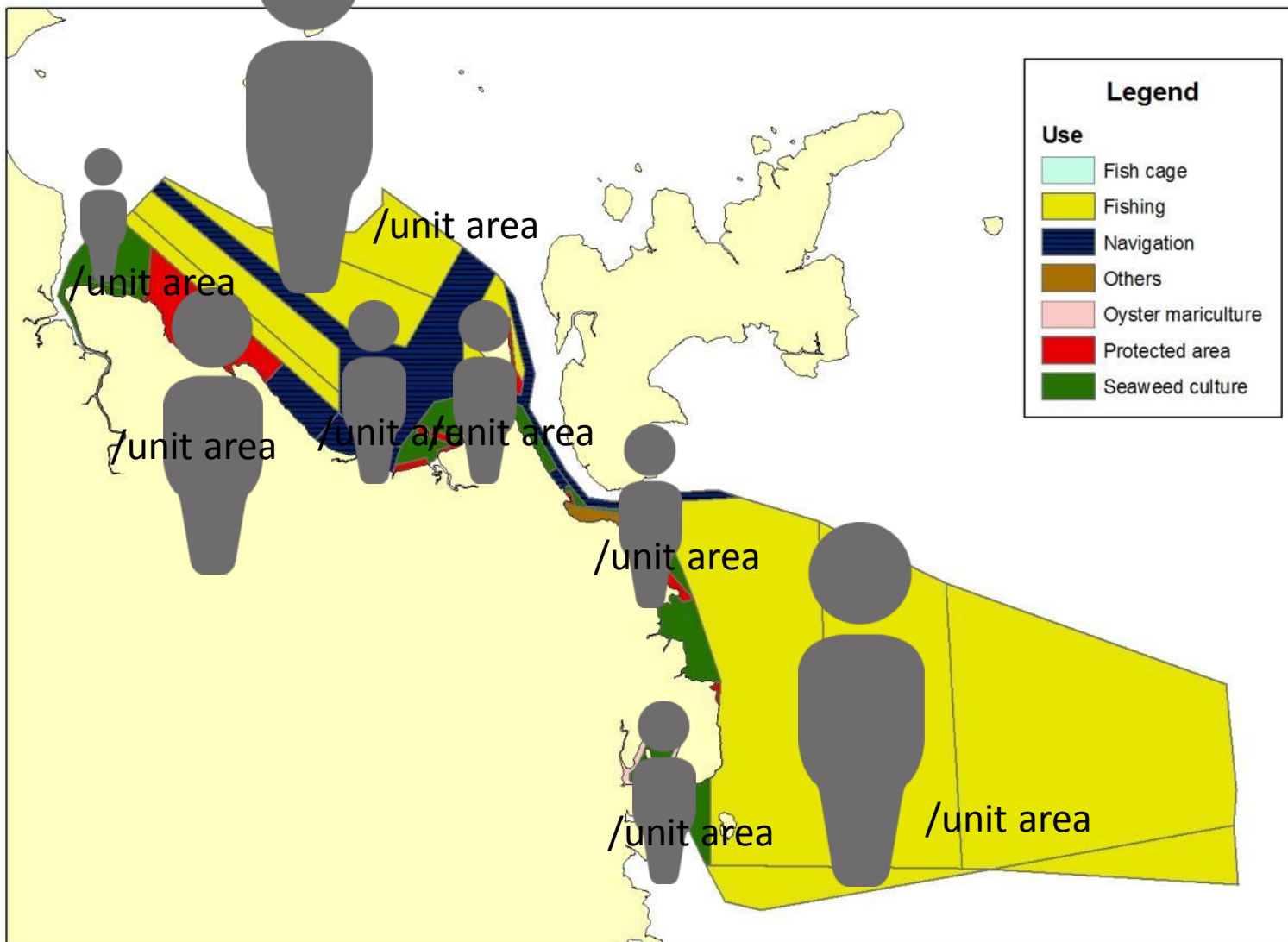
[illegible]

Outline "DOs and DON'Ts"

Accounting for sea space use



Accounting for sea space use



Why account for sea space use?



1. To aid in decision-making: assign economic values to assess which uses bring most benefits to the planning unit/ area
2. To aid in decision-making: assess the distribution of benefits and costs
3. To provide economic basis for implementing revenue-generating schemes for LGUs
4. To provide economic basis for redistribution of benefits and costs




Data Requirements


1. Defined sea use zones
2. Area per zone (km²)
3. Estimated number of users per use zone
4. Estimated benefits per user per zone
 - a. Income per user
 - b. Government revenues from use
 - c. Indirect values, non-use values
5. Costs per user per zone
 - a. Expenses per use
 - b. Opportunity costs



A man wearing a cap and a dark shirt is sitting in a small, light-colored wooden boat on the ocean. He is holding up a large, pinkish-orange fish with both arms raised in a celebratory gesture. The boat has a small wooden box on the left side and a blue buoy attached to the front. The background shows the vast blue ocean under a clear sky.

	Capture Fisheries									
	Simple hook and line	Bottom-set longline	Multiple handlines	Bottom-set gillnets	Drift (surface/mid-water) gillnets	Jigs	Fish pots	Fish corrals	Beach seines	Spear fishing
Information/Data Needed										
1. Estimated area (km ²)	Area of fishing ground (Fisheries surveys; PCRA & use maps, etc.)									
2. Estimated number of direct users (annual)	Estimated number of fishers (Fisher inventory; Fisheries profiles; FishR)									
3. Estimated incomes from direct use (annual, PhP)	Estimated annual fisheries landings * average prices of fishes caught (Fisheries monitoring surveys; Fish price monitoring surveys; FGD & KII)									
4. Estimated Non-use Values from current use (annual, PhP)	Benefits Transfer of NUVs for similar use and site									
5. Estimated expenses (annual, PhP)	Includes capital, operational costs, license and registration fees, etc. (Socio-econ.monitoring surveys; FGD & KII)									
6. Government revenues (annual, PhP)	LGU's income from fees, permits (LGU records)									
7. Direct Employment	Equivalent to number of fishers									
8. Opportunity Costs	Loss of income from conflicting uses									

Accounting Matrix

	Mari-culture			
	Sea ranching (Fish)	Seaweeds culture	Pearl farms	Oyster/other invert.culture for food
Information/Data Needed				
1. Estimated area (km ²)	Inclusive area of operation (Satellite images; ground-truthing/validation surveys; documents incl. application for business permits/license to operate)			
2. Estimated number of direct users (annual)	Number of operators (Business application records)			
3. Estimated incomes from direct use (annual, Php)	Estimated annual harvests * average prices per unit volume/weight * frequency of croppings per year (Monitoring surveys; FDG & KII)			
4. Estimated Non-use Values from current use (annual, PHP)	Benefits Transfer of NUVs for similar use and site			
5. Estimated expenses (annual, Php)	Includes capital, operational costs, annual permits/fees, etc. (Monitoring surveys; FGD & KII)			
6. Government revenues (annual, Php)	LGU's income from fees, permits, taxes (LGU records)			
7. Direct Employment	Number of persons employed per operator (business application documents)			
8. Opportunity Costs	Loss of income from conflicting uses			

Accounting Matrix



	Habitat & bio-diversity conservation	
	Marine Protected Area establishment	Mangrove rehabilitation & protection
Information/Data Needed		
1. Estimated area (km ²)	Total area of MPAs (MPA Ordinances - Technical description)	Total mangrove area under protection, rehabilitation (Ordinances - Technical description; Satellite images; Ground-truthing, validation surveys)
2. Estimated number of direct users (annual)	a. PO/Community members (PO membership records, Barangay population); b. # Visitors for recreation incl. diving, swimming, snorkelling (visitor logs/registration, other records: tickets/receipts)	a. PO/Community members (PO membership records, Barangay population); b. # Visitors for recreation incl. mangrove walks, etc. (visitor logs/registration, other records: tickets/receipts)
3. Estimated incomes from direct use (annual, Php)	a. Direct/use including incomes derived from MPA visitors (user-fees); b. indirect and non-use values (benefits-transfer)	a. Direct/use e.g. incomes from aqua-silviculture activities, mangrove tours, etc.; b. indirect and non-use values (benefits-transfer)
4. Estimated Non-use Values from current use (annual, PhP)	Benefits Transfer of NUVs for similar use and site	Benefits Transfer of NUVs for similar use and site
5. Estimated expenses (annual, Php)	costs of MPA establishment, for maintenance, PO organization, patrolling/enforcement-related	costs of mangrove rehabilitation, PO organization, patrolling/enforcement-related activities, etc. (PO records, LGU
6. Government revenues (annual, Php)	user-fees, donations (tickets, receipts issued)	user-fees, donations (tickets, receipts issued)
7. Direct Employment	Bantay-dagat members; tourism-related (SCUBA diving operators, boat operators, etc.)	Community members engaged in e.g. aqua-silviculture, community-based ecotourism, etc.
8. Opportunity Costs	Loss of income from conflicting uses	Loss of income from conflicting uses

Challenges and Future Outlook

- **Data gaps and data standardization**
- **Sea use zones as discrete layers whereas potential impacts of sea uses and activities may go beyond zone boundaries**
- **Currently a static representation of socio-economic value attributes, i.e. the status quo**
- **How to package the information for various stakeholders**



THANK YOU FOR YOUR ATTENTION!

Acknowledgements:

Korean Maritime Institute (KMI)
Partnerships in Environmental Management for
the Seas of East Asia (PEMSEA)

