



**Utilizing species data to inform cost
effective site level conservation:
ASEAN Experiences**

Some common Questions

- Where do we establish protected areas?
- What data sets are essential to PA establishment and management?
- How do we use species information to inform management practice?
- Are there examples where these have worked?

Where do we establish protected areas?

- **Vulnerable sites** are those holding one or more globally threatened species
- **Irreplaceable sites** are those holding a significant proportion of the global population of a species

Graham, G.J. 2007. Key biodiversity areas as globally significant target sites for the conservation of marine biological diversity. *Aquatic Conserv: Mar. Freshw. Ecosyst.* 16pp.

Where do we establish protected areas?

- Areas (aquatic) characterized by high productivity and/or high biodiversity, established to protect breeding and juvenile fishes, guard against overfishing and ensure a sustainable supply of fish stock
- In degraded area in order to promote the rehabilitation and recovery of degraded coral reefs

Casia, M. et al. 2000. Introduction to the establishment of a community-based marine sanctuary. USAID - CRM Document No. 24-CRM/2000.

Use of species information to inform management practice: Trigger Species

Analysis of trigger species based on

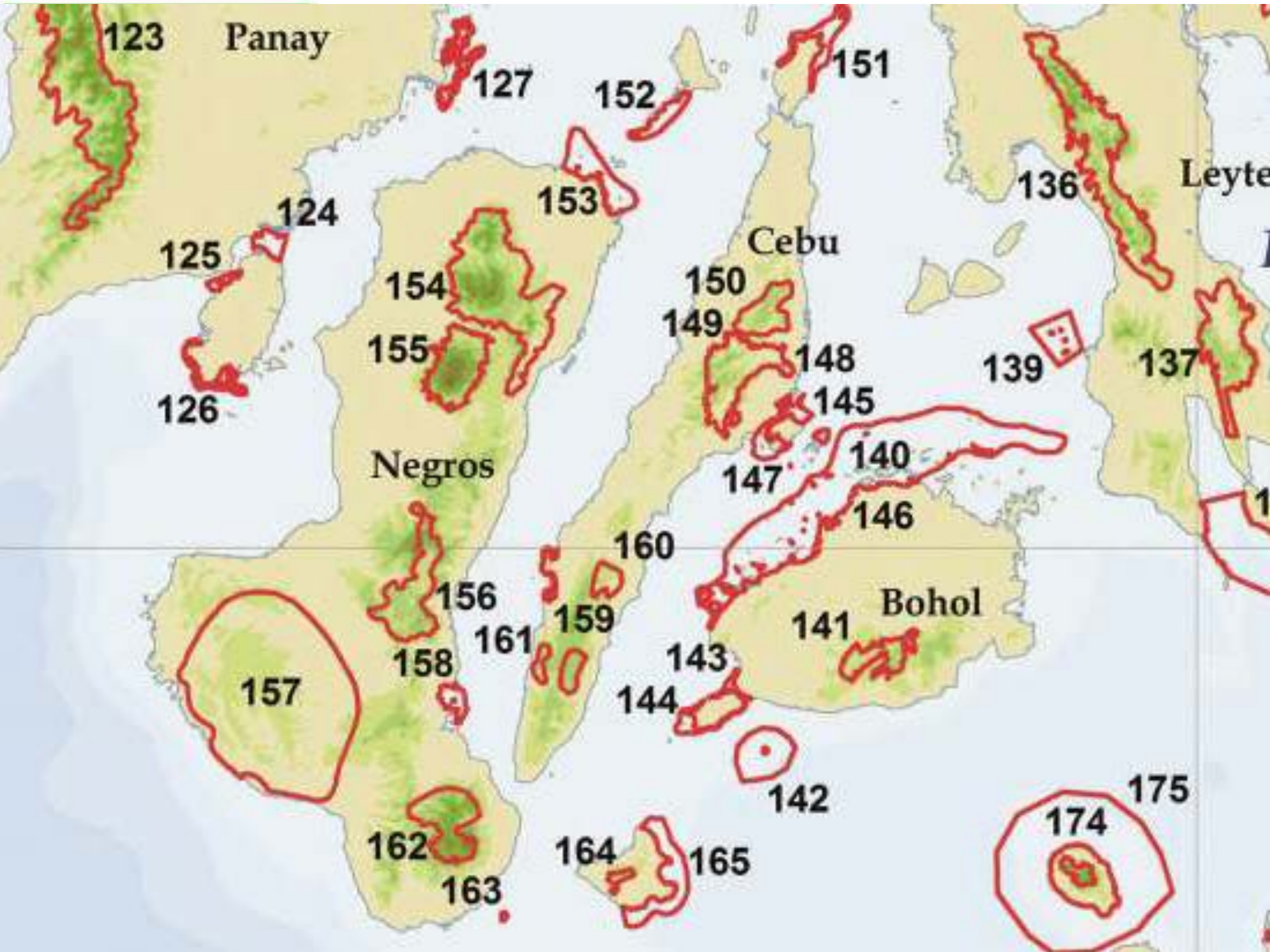
- literature review, expert validation
- Species occurrence and distribution data were obtained from survey/assessment reports, scientific reports, published literature, museum records and expert accounts
- Point locality data for each trigger species were then plotted on a map and overlaid with data for other trigger species belonging to the same taxonomic group.
- KBA boundaries were delineated primarily based on available information (IBA, CPA), on habitat requirements and affinities of the trigger species.

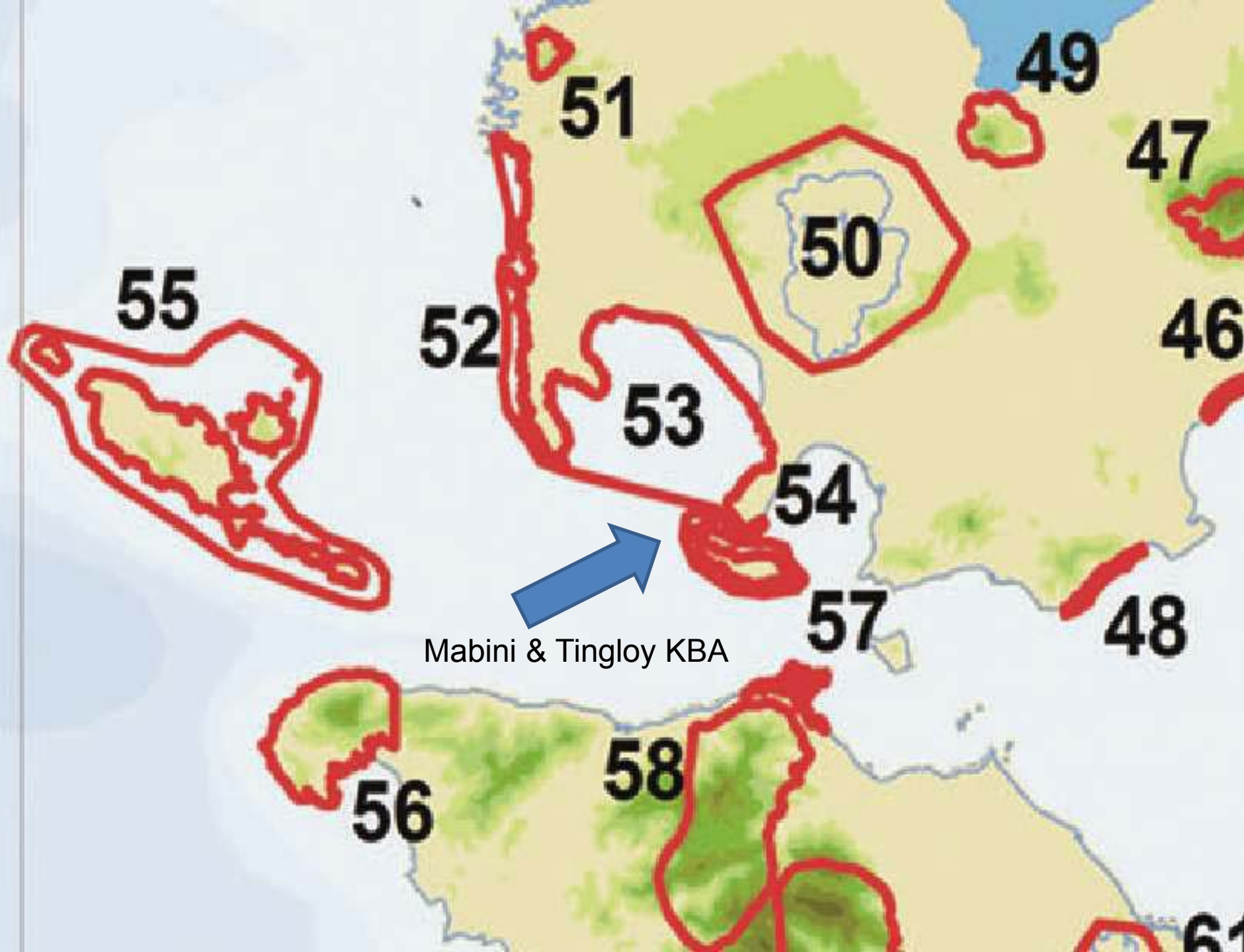
Use of species information to inform management practice: Trigger Species

ID	Name	Location				Estimated Area (has)	Trigger species
		Region	Province	Municipality	Long		
MARINE KBAs							
1	Bolinao Peninsula	I	Pangasinan	Bolinao, Anda	119.979015	16.354908	13937.75 <i>Goniastrea deformis</i> (VU) <i>Nemenezophyllia turbida</i> (VU) <i>Euphyllia paraancora</i> (VU) <i>Euphyllia divisa</i> (VU) - type locality <i>Pavona cactus</i> (VU) <i>Acropora caroliniana</i> (VU) <i>Porites eridani</i> (EN) <i>Acanthastrea nampichii</i> (VU)
2	Northern Sierra Madre National Park	II	Isabela	Palanan, Ilagan, Divilacan, Maconacon	122.428786	17.206832	36849.06 <i>Goniopora albiconus</i> (VU); <i>Montipora vietnamensis</i> (VU); <i>Seriatopora aculeata</i> (VU)
3	Salvador Island	III	Zambales	Masinloc	119.901385	15.520949	323.89 <i>Turbinaria peltata</i> (VU) <i>Galaxea astreata</i> (VU)
4	Grande Island	III	Zambales	Subic	120.226868	14.767786	148.94 <i>Catalaphyllia jardinei</i> (VU)
5	Baler	III	Aurora	Baler	121.603417	15.759978	583.24 <i>Pavona decussata</i> (VU)
6	Jomalig Island	IV	Quezon	Burdeos	122.417733	14.698865	2731.51 <i>Hydnophora bonsai</i> (EN)
7	Padre Burgos	IV	Quezon	Padre Burgos	121.845200	13.888058	1732.91 <i>Goniopora burgosi</i> (VU)
8	Pagbilao	IV	Quezon	Pagbilao	121.750279	13.905579	1023.95 <i>Catalaphyllia jardinei</i> (VU)
9	Mabini	IV	Batangas	Mabini	120.890781	13.715815	525.24 <i>Alveopora excelsa</i> (EN) <i>Alveopora minuta</i> (EN) <i>Hydnophora bonsai</i> (EN) <i>Lobophyllia serratus</i> (EN) <i>Montipora setosa</i> (EN) <i>Pectinia maxima</i> (EN) <i>Porites eridani</i> (EN) <i>Porites ornata</i> (EN)

Bolinao KBA

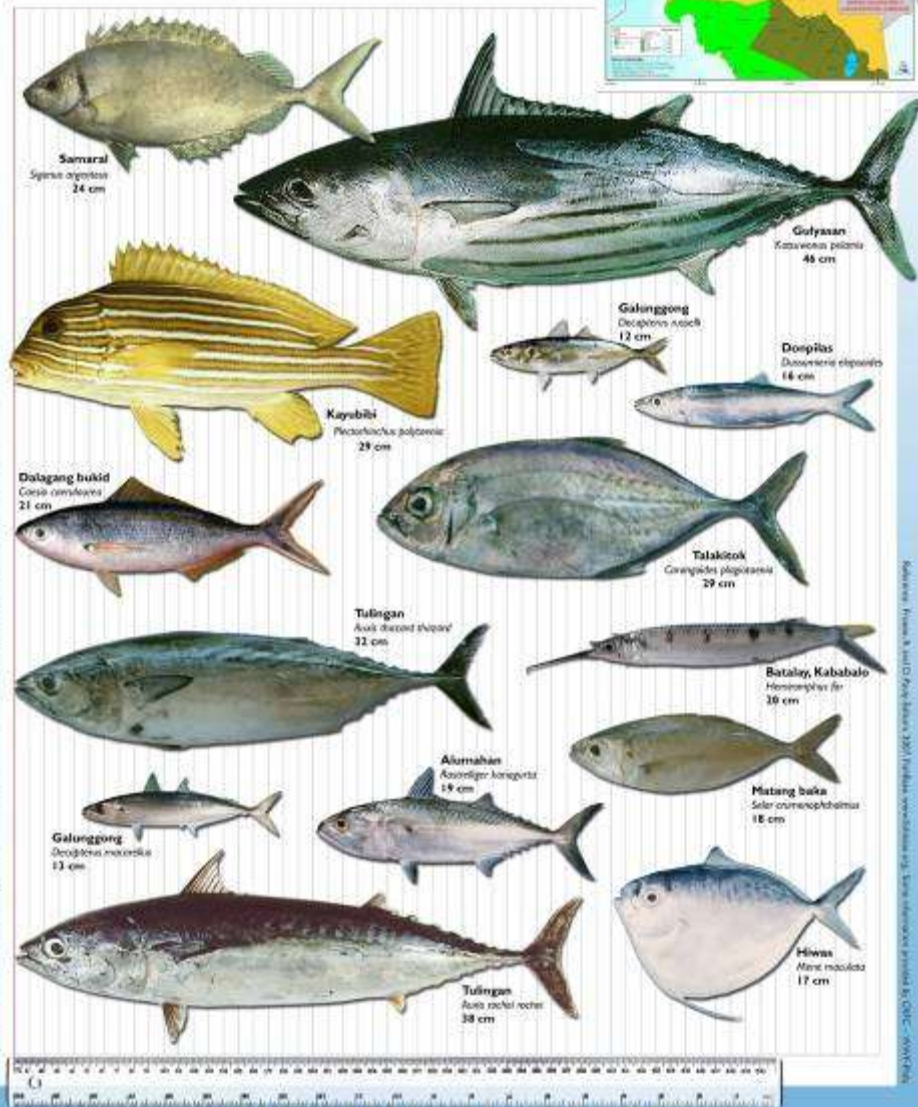






Mabini & Tingloy KBA

**Size at Maturity for Some Commercial Fishes
of the Verde Island Passage Marine
Biodiversity Conservation Corridor**



Smaller Fish Cannot Reproduce!!!



Species data for PA management: LfM

Promote fish harvests at sizes beyond their length at first maturity.

This poster shows the length at first maturity of commercially important fish in the Verde Island Passage. Fish represented here were sourced from the information collected in the surveys and through market interviews

CI and FishBase collaboration

Ang Kinabukasan ng mga Isda at ng Pangisdaan

Marami sa mga isdang mabibili sa mga pamilihan ay pawang napakaliliit. Ang mga ito ay nahuli bago pa man lumaki at makapangitlog. Ang paghuhuli sa mga isdang maliliit at hindi pa nakapangitlog ay banta at panganib sa ating pangisdaan. Kinakailangan na ang mga isda ay hayaang lumaki at makapangitlog upang mapalitan ang ating mga hinuli at kinain. Ipinapakita ng "Panukat-Isda" kung ang mga isdang ating hinuhuli ay mga "sanggal" pa lamang. Mas mainam na nasa tamang laki at sukat ang isda na ating hinuhuli, itinitinda at kinakain.



Photos by J.S. Kandel, M.N. Torres, G.V. Hermosa, Jr. and D. First and with permission, © 2006. Rules prepared by Rachel C. Alarcon, PakStar Project, WorldFish Center.



In collaboration with the INCOFISH project based at the WorldFish Center, the use of *Panukat Isda*, a simple fish ruler to help fishers measure the minimum length of fish ready for harvest is advised. The ruler has been introduced at some of the enforcement training workshops.

A useful tool for advanced fisheries management, *Panukat Isda* helps ensure that we have more fish for the future by simply avoiding catching and eating baby fishes.

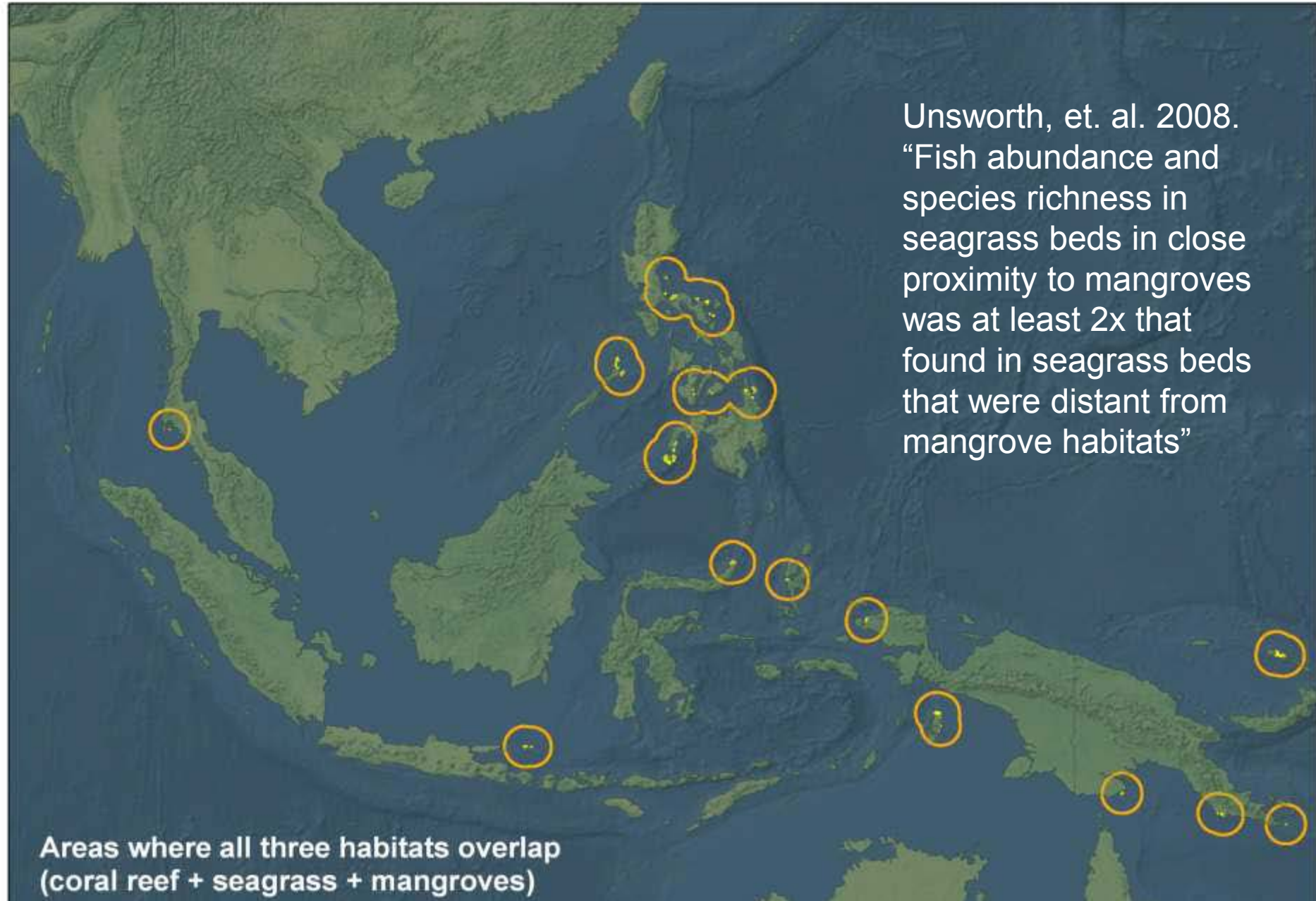
Scaling Up: Where do we establish protected areas?

- Abundance and species richness in seagrass beds in near mangroves was at least 2x compared to seagrass beds that were distant from mangroves
- Mangroves may enhance fish assemblages of nearby seagrass beds by increasing the availability of food and shelter
- Seagrasses play an important fish nursery role that can be enhanced by the close proximity of coral reefs and mangroves

Unsworth, R.K.F. 2008. High connectivity of Indo Pacific seagrass fish assemblages with mangrove and coral reef habitats. *Mar. Ecol. Prog. Ser.* Vol. 353: 213 - 224

Mangroves, Coral Reefs and Seagrasses in the ASEAN

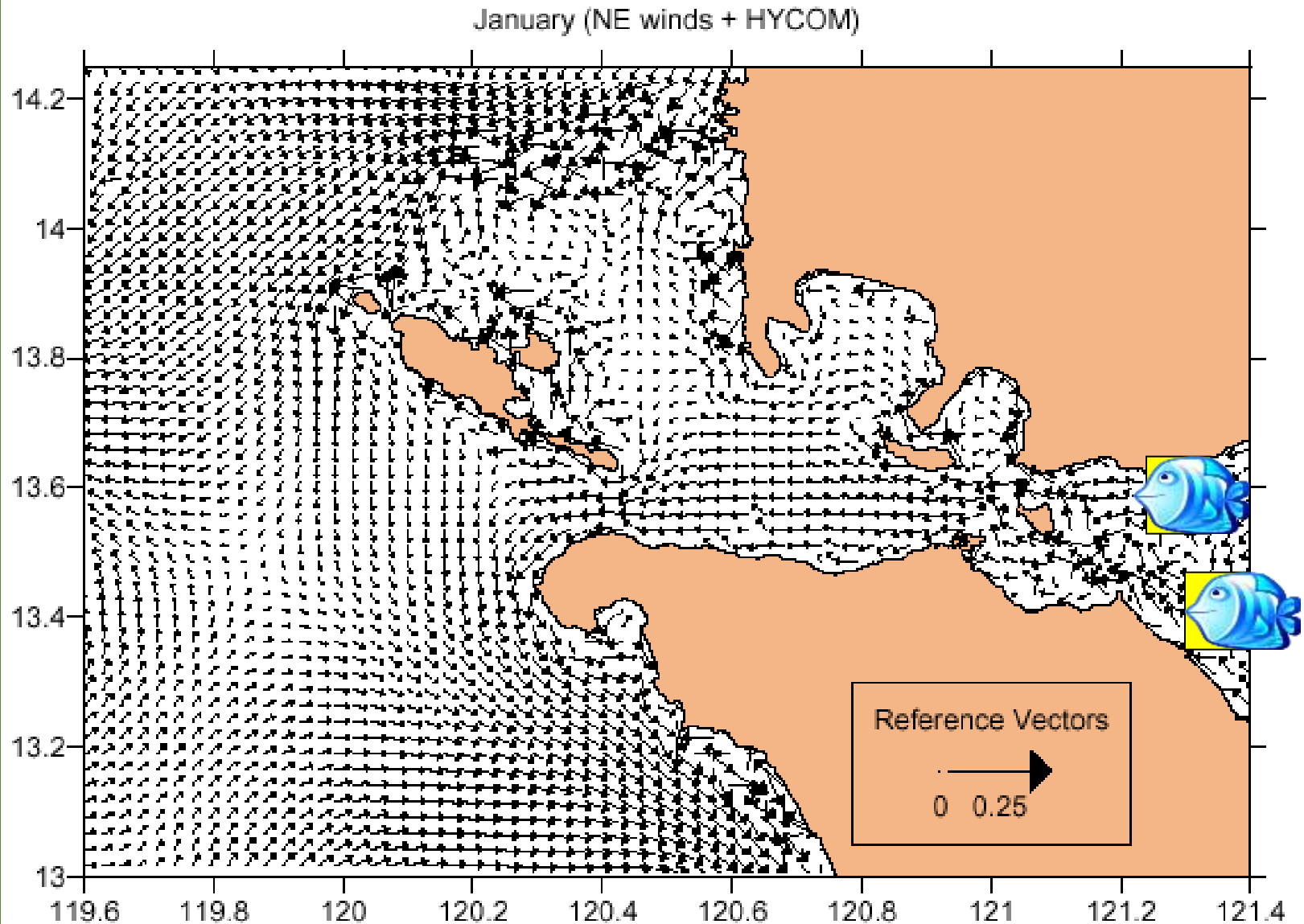
Priority Marine habitats for conservation as nursery areas



Unsworth, et. al. 2008.
“Fish abundance and species richness in seagrass beds in close proximity to mangroves was at least 2x that found in seagrass beds that were distant from mangrove habitats”

Areas where all three habitats overlap
(coral reef + seagrass + mangroves)

Use connectivity Pattern information to increase data resolution



Courtesy of Noy Beldia



Scaling up the method

- HOME
- ACB
- ASEAN HERITAGE PARKS
- ABOUT US
- CONTACT US
- SITE MAP



AMS CHM Websites

- Brunei Darussalam
- Cambodia
- Lao PDR
- Indonesia
- Malaysia
- Myanmar
- Philippines
- Singapore
- Thailand
- Viet Nam

Biodiversity in the ASEAN Region

Priority Areas for Conservation

Biodiversity Conservation Initiatives

Improving Capacities for Biodiversity Conservation

Who's Who in ASEAN Biodiversity

Biodiversity Resources

ASEAN Biodiversity Assessment

Ecosystems

Drivers of Biodiversity Loss in the ASEAN Region

Graphs and Trends

Map Overlays

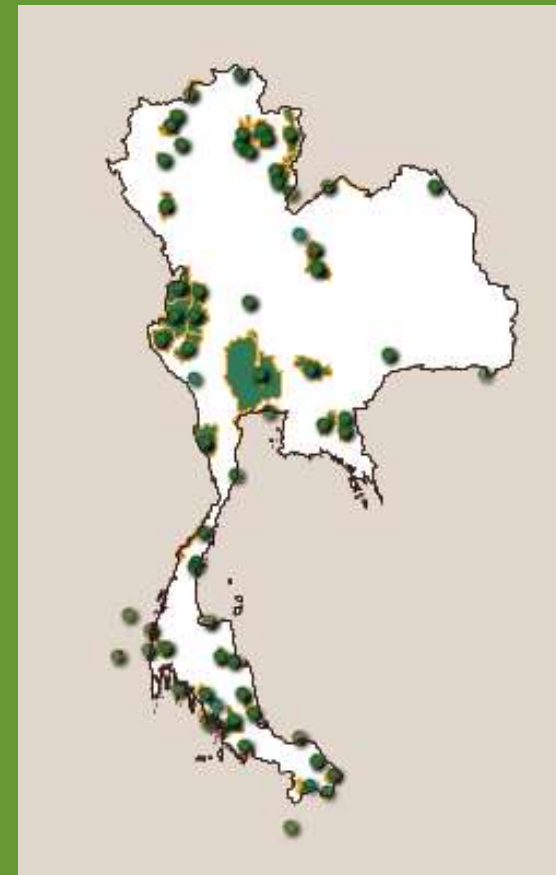
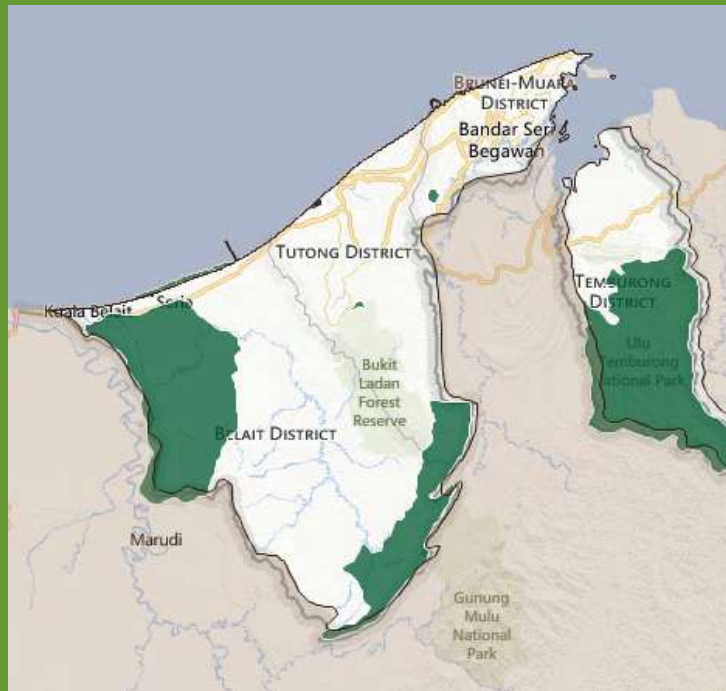
Special Reports

Moving Towards the Aichi Targets

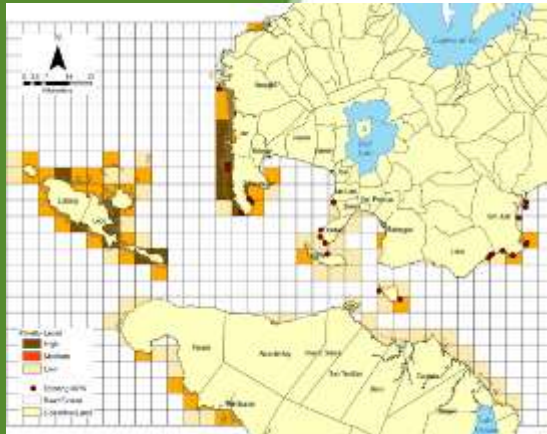
Growth in extent of protected areas, ASEAN, 1950-2011



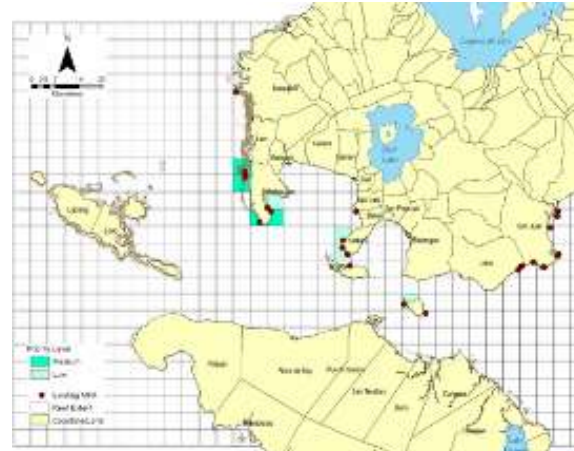
Priority Sites for Conservation: using IBA points and polygons in Myanmar, Brunei Darussalam, Singapore, Thailand



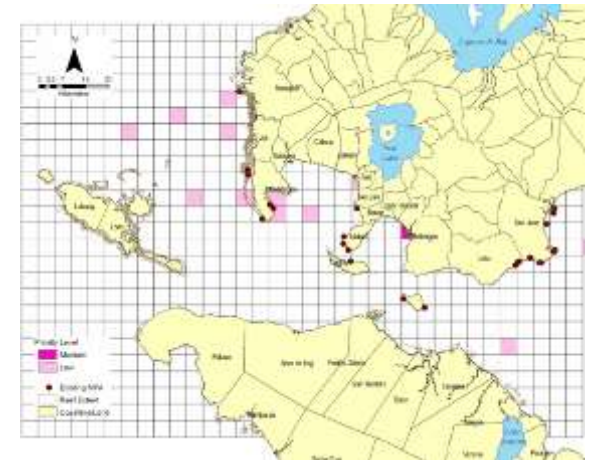
Completing the Story



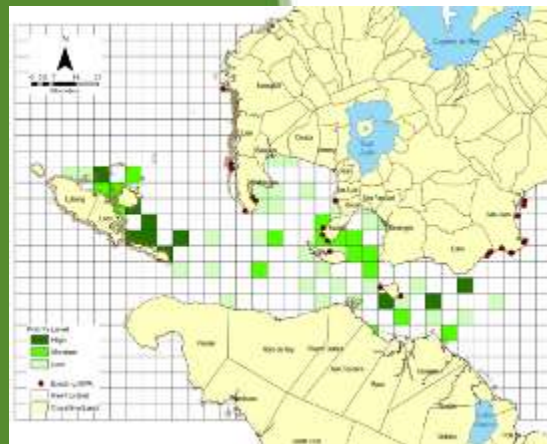
Habitat Extents



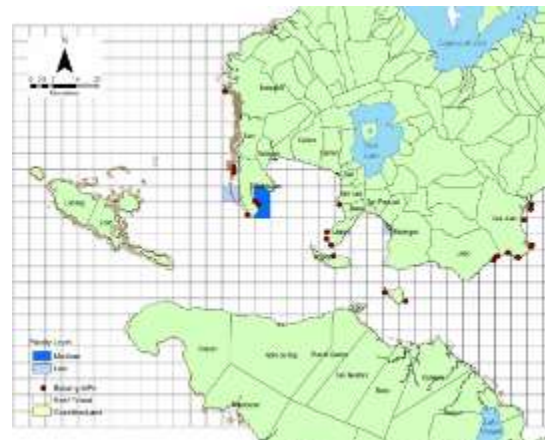
MPA Status in the Verde Island Passage



Threats based on stakeholder perceptions



Replenishment Potential



Threats based on assessment



Best MPA Options

CI, UPMSI collaboration in the Sulu Sulawesi Seascape



Thank You!