

Helene Marsh

Dugong conservation: the global challenge



Photo: Mandy Etpison

Why?

Biology

Geography

Human Dimensions

Long-lived slow breeding: adult survival must be high for population to persist



First calf at age 7-17;
1 calf every 3-7 years

Live up to 70+ years



Mandy Etpison photo

Not 'wilderness animals'- seagrass habitats are accessible to people

Singapore



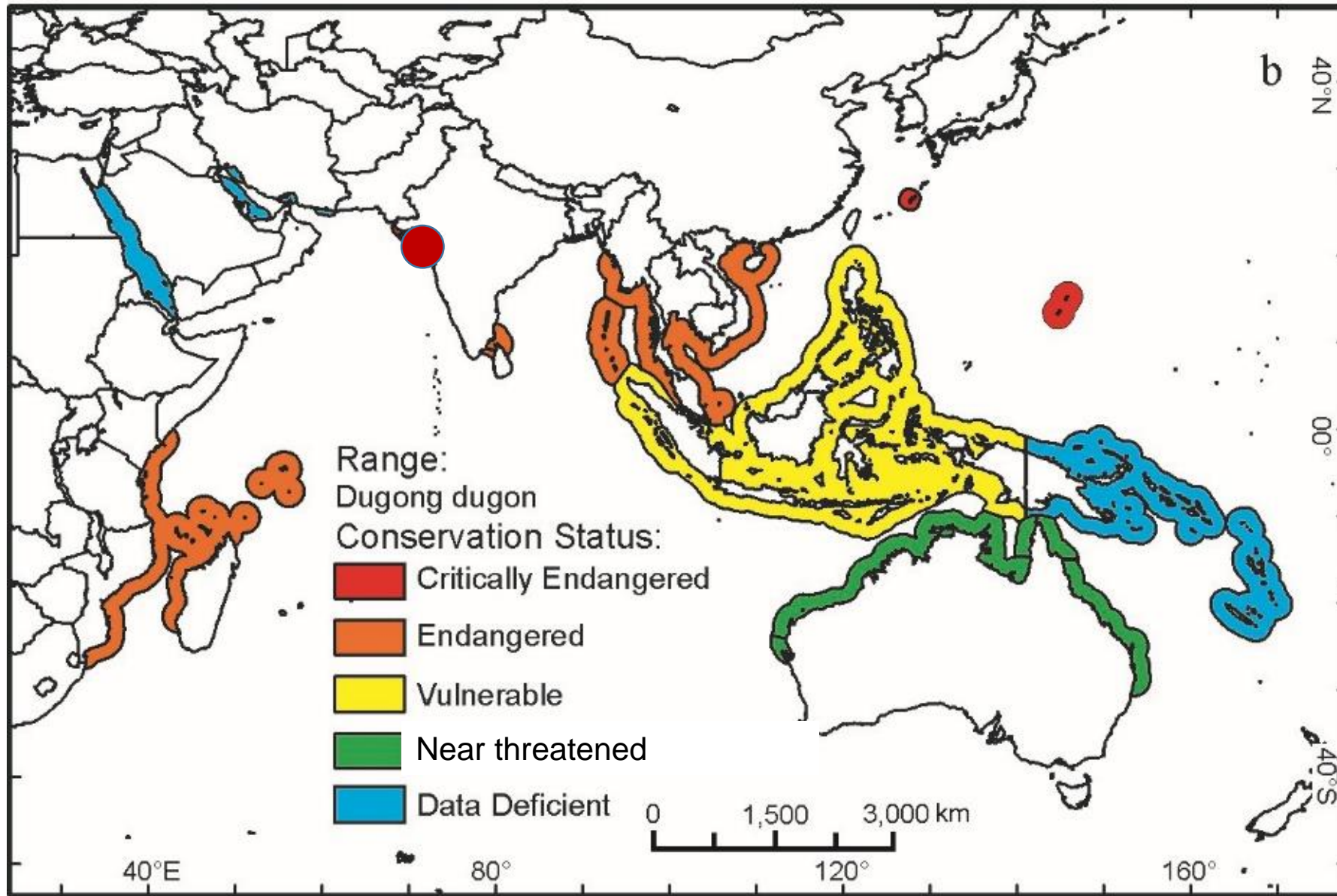
Photo: Len McKenzie

Dugong feeding trials next to coal loader
Gladstone, Queensland



Photo: DEEDI

Huge global range: uneven status

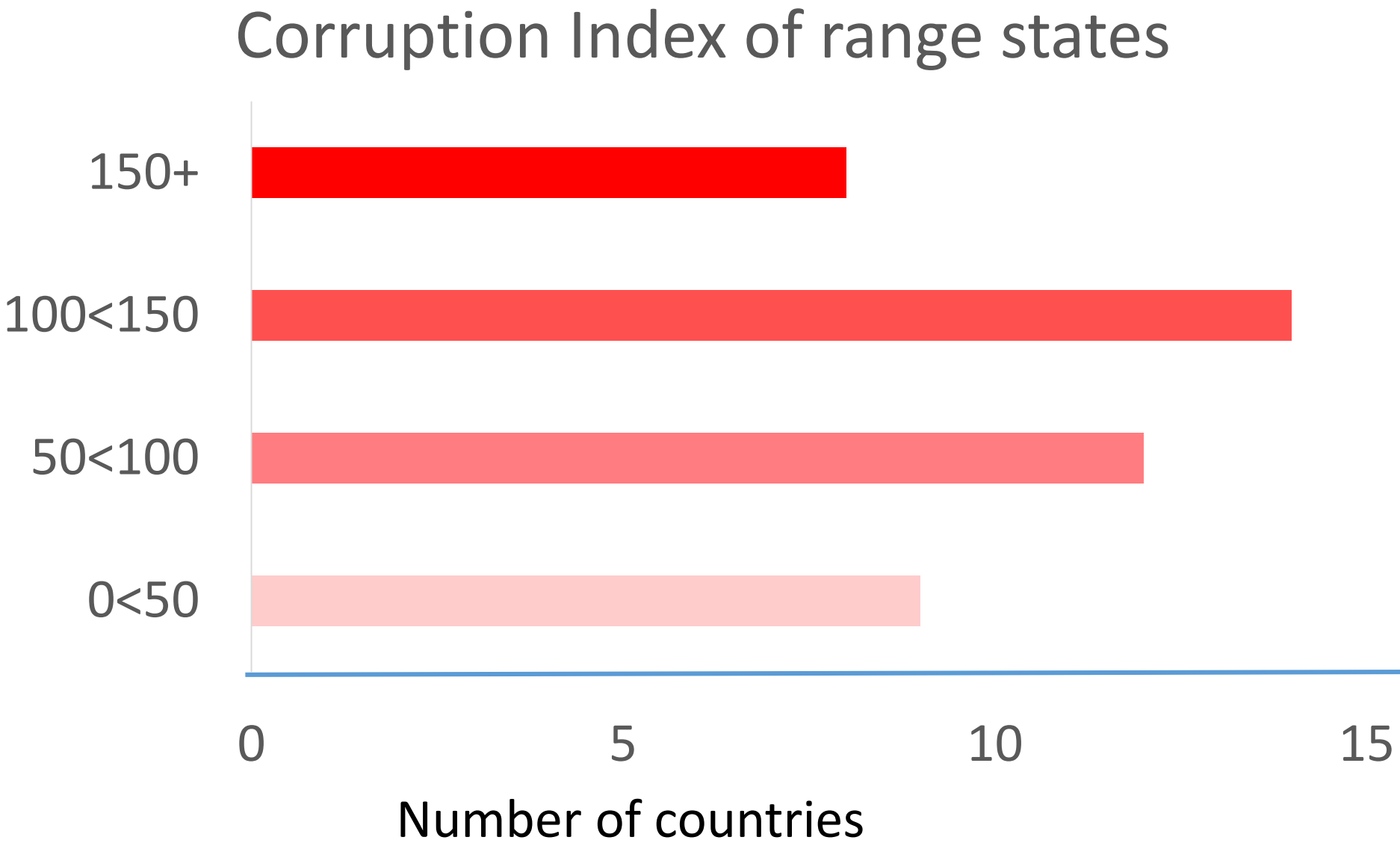


Limited conservation capacity: many range countries developing countries and/or have very small dugong populations

Dugong Population Size	Human Development Index			
	Low	Medium	High	Very High
Tens of thousands				1
Thousands	1	2		5
Hundreds	1	2	1	
Tens		7	8	5

Numbers = number of range states

Effective enforcement difficult in many range countries



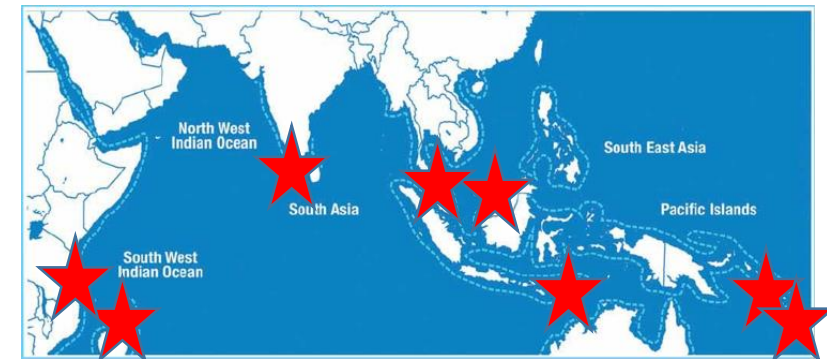
Dugongs often worth more dead than alive

Photo: Donna Kwan



Global Environment Facility: Dugong & Seagrass Conservation Project 2015-2018

- 8 dugong range countries : Mozambique, Madagascar, Sri Lanka, Malaysia, Indonesia, Timor-Leste, Solomon Islands and Vanuatu
- 19 Project regional sites -120 local sites
- 26 Partners
- Implemented by UN Environment
- Coordinated globally by Mohamed bin Zayed Species Conservation Fund
- Technical support by CMS Dugong MoU Secretariat



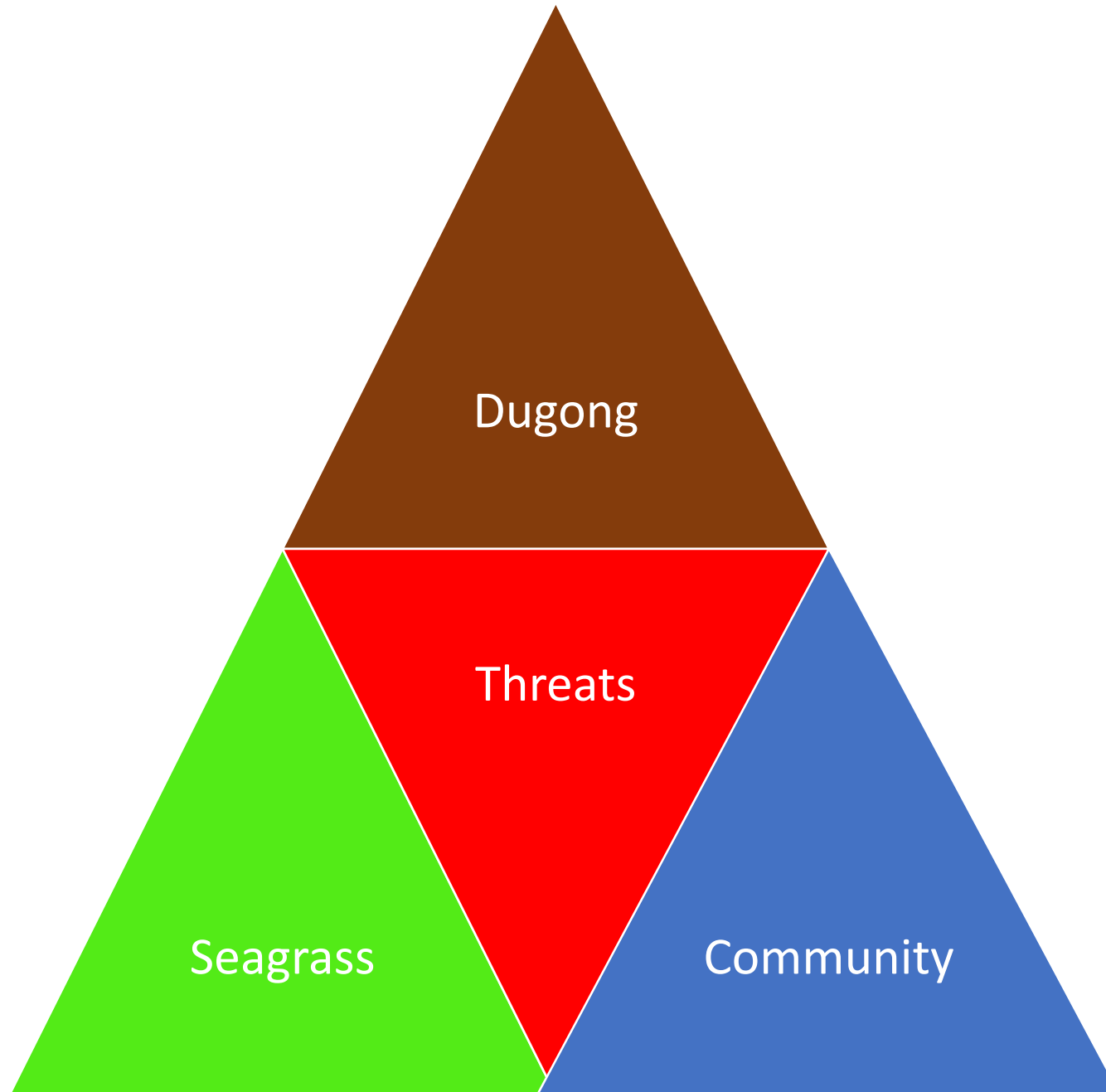
Dugong Conservation: the ongoing challenge

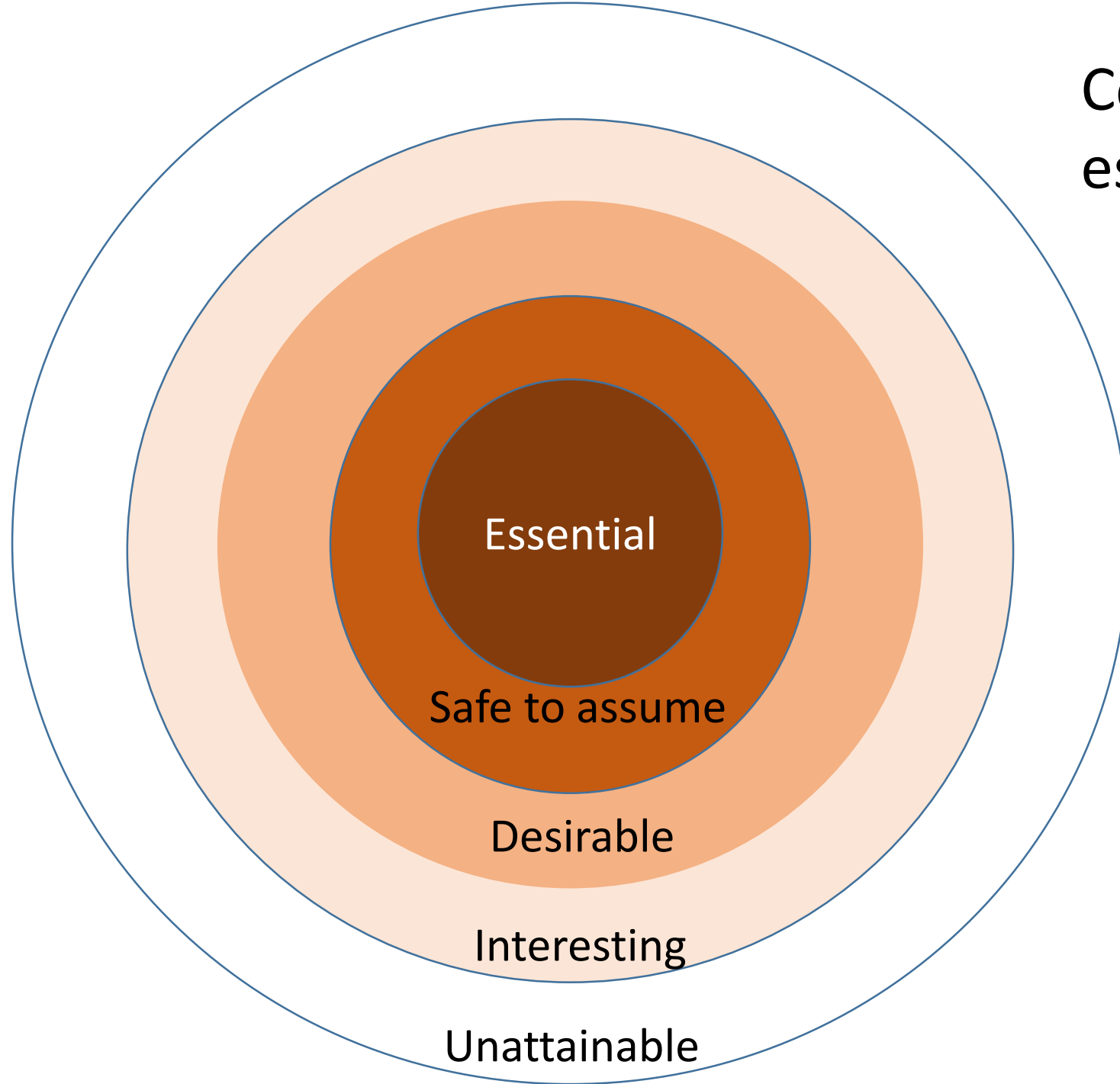
How to continue evidenced-based dugong conservation efforts with limited funding given that most range states:

- support small populations of dugongs
- have significant barriers to implementing effective dugong conservation activities



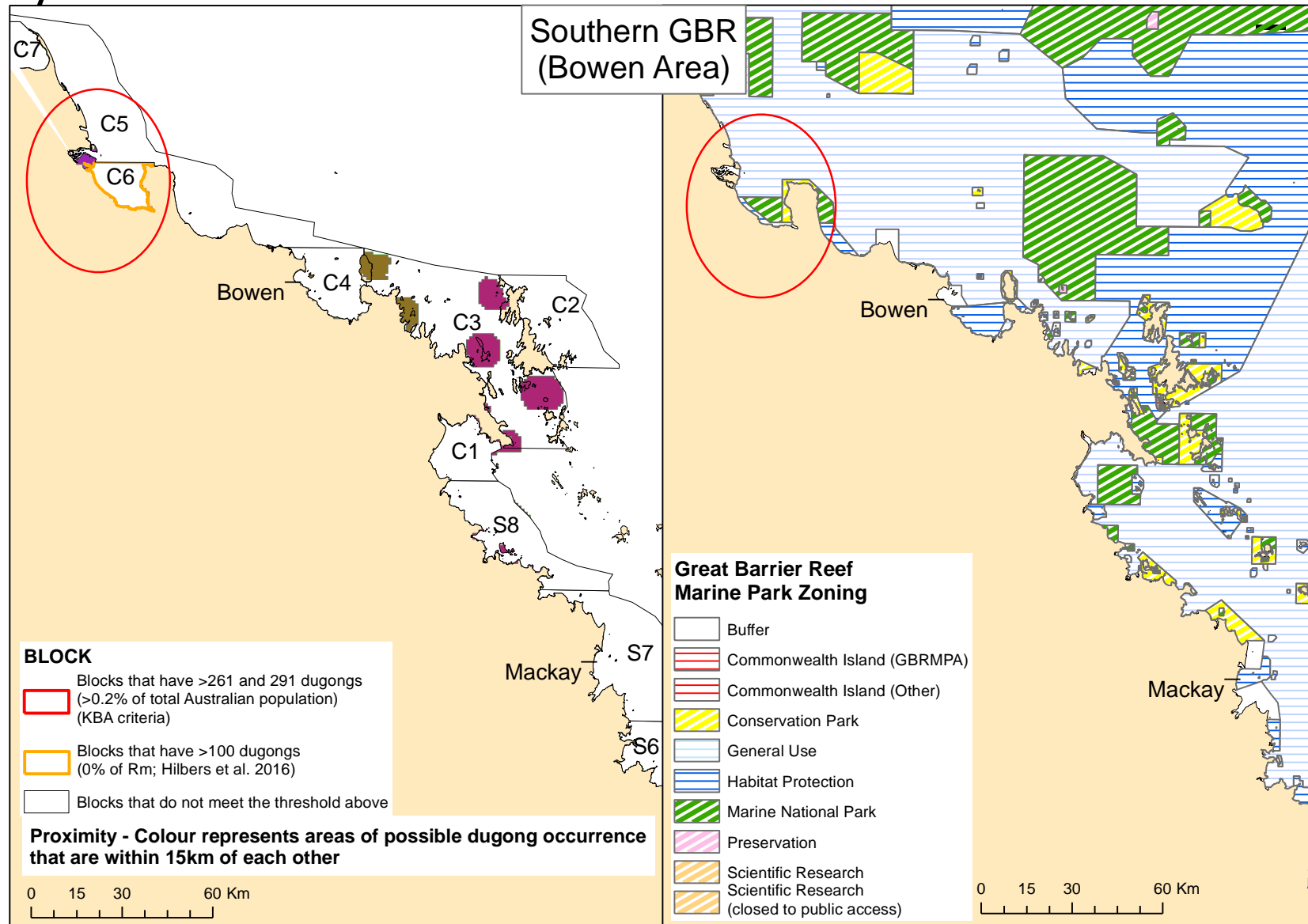
Use comprehensive
approach





Concentrate on
essentials

Essential: confirm dugong presence and identify hotspots, especially in relation to threats



Choose cost effective techniques, be clear about assumptions

No method guaranteed to detect dugongs when numbers are low

Type of investigation	Likelihood failure to detect dugong presence if dugong density low
Carcass stranding program	
Boat survey	
Passive acoustic monitoring	
Feeding trail survey	
Manned aerial survey: distribution	
Unmanned aerial survey: distribution	
Fisher questionnaire survey	
Manned aerial survey: abundance	
Unmanned aerial survey: abundance	



Act on robust assumptions

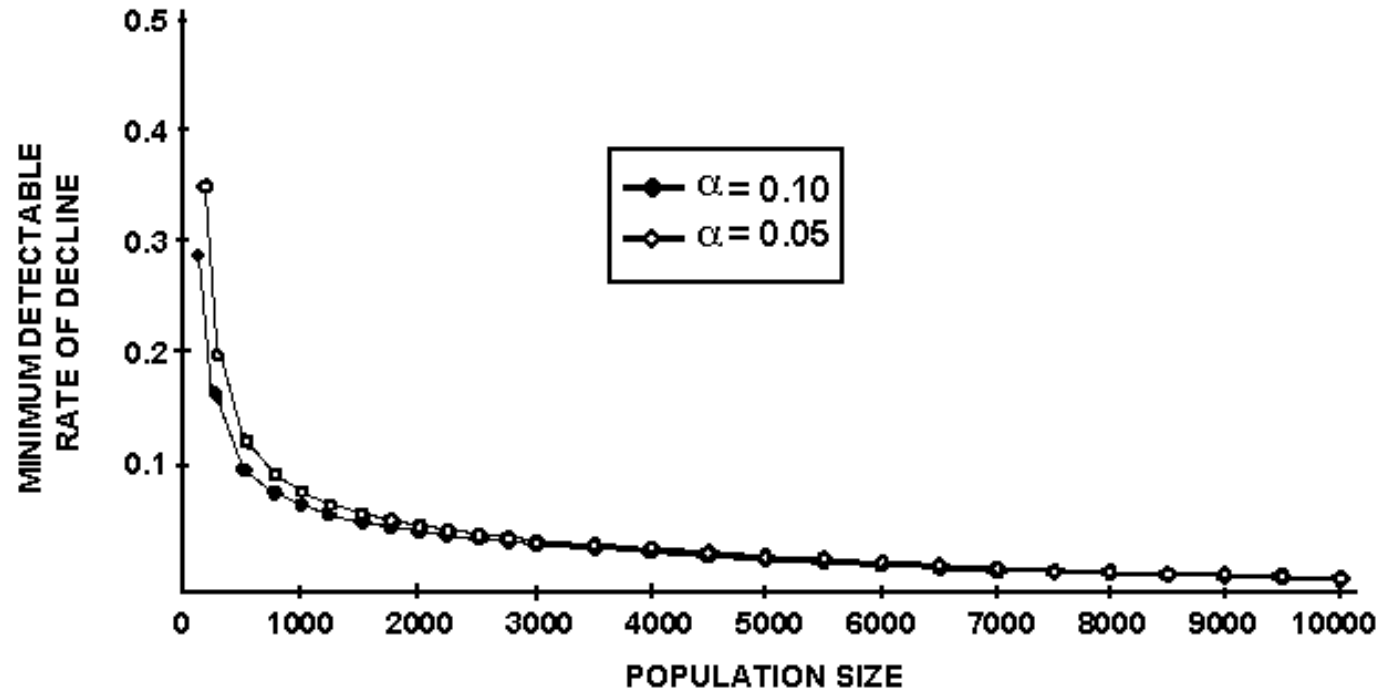
Life history information shows:
survival of adults must be > 95% p.a. to
maintain a dugong population

Dugong Population Size	Sustainable human-caused mortality per year*
100	0
1,000	<13
10,000	<130

*using PBR technique mandatory in United States

Don't waste resources on the unattainable such as trying to measure decline in small populations

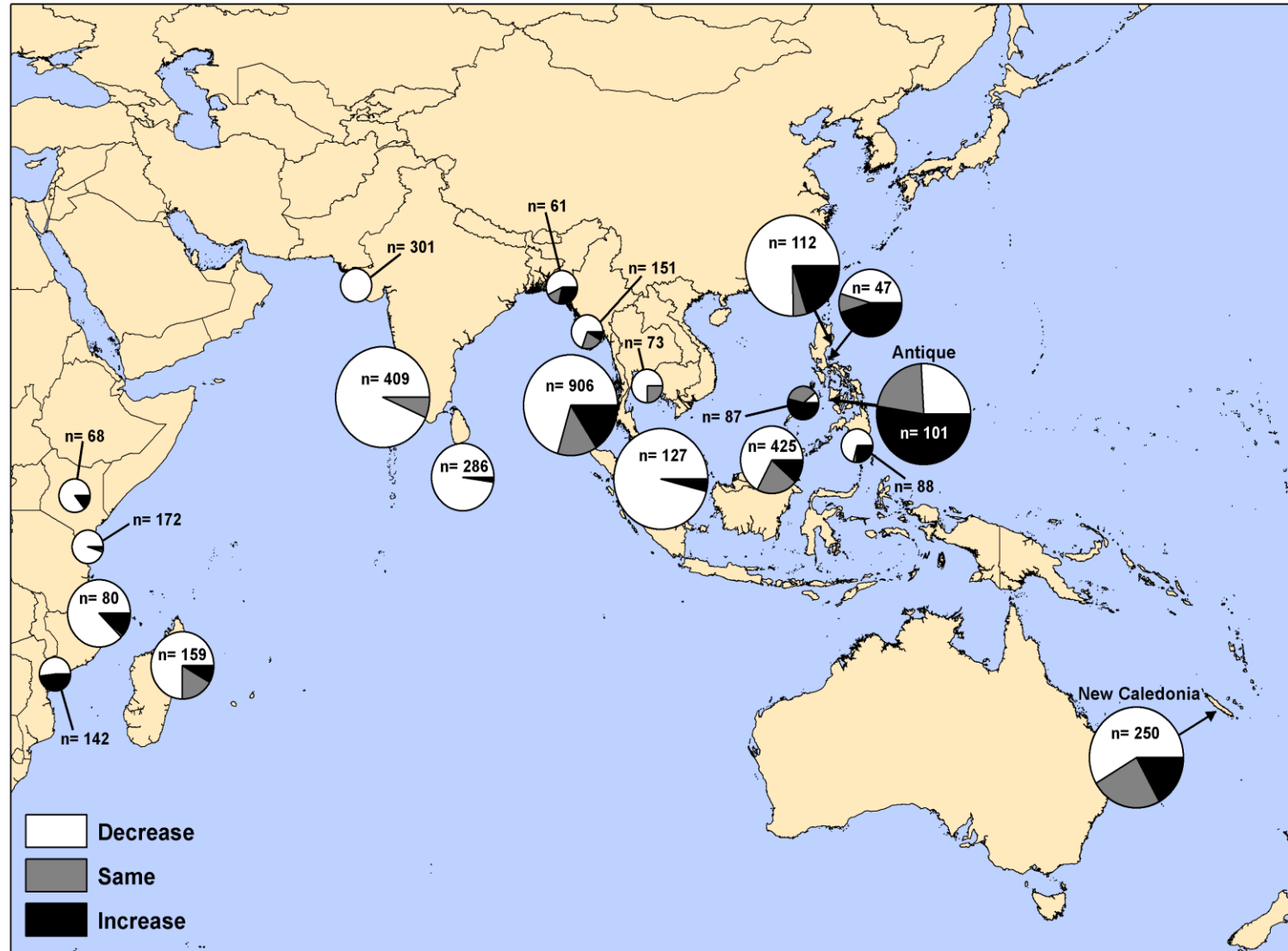
Recovery also difficult to detect



Magnitude of decline detectable after 10 years annual surveys for dugong populations of various sizes

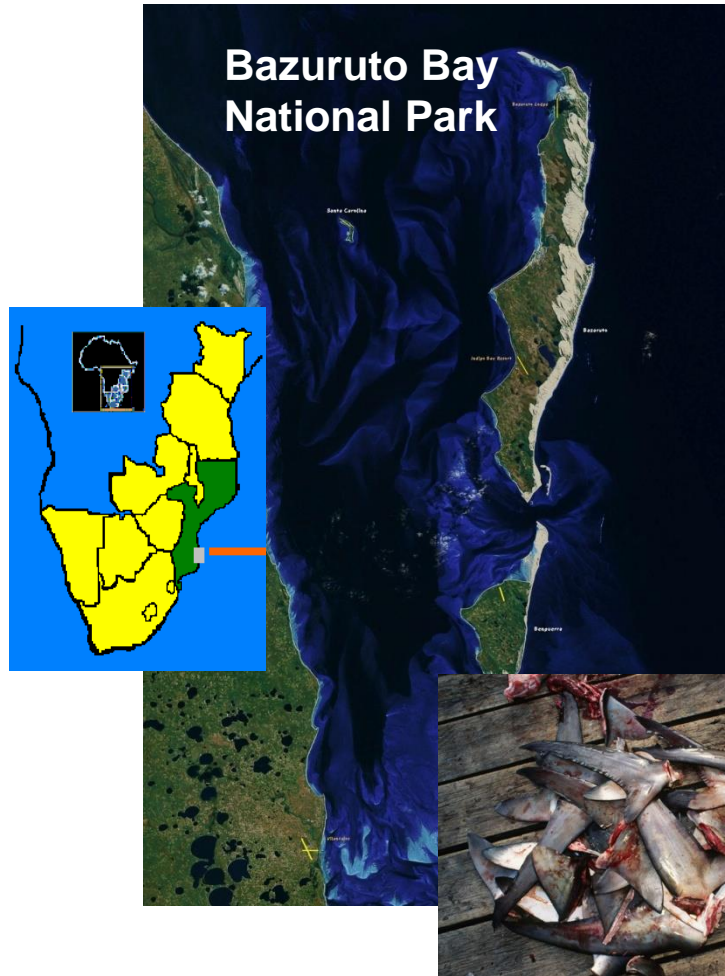
Take care with interpreting performance indicators

What does
a reported
decrease in
dugong
captures in
gill nets
mean?



Pilcher et al. in review

Bazuruto Bay



GEF Project (Blue Ventures)
Listened to communities to identify
needs:

- Access to social services and sustainable livelihoods

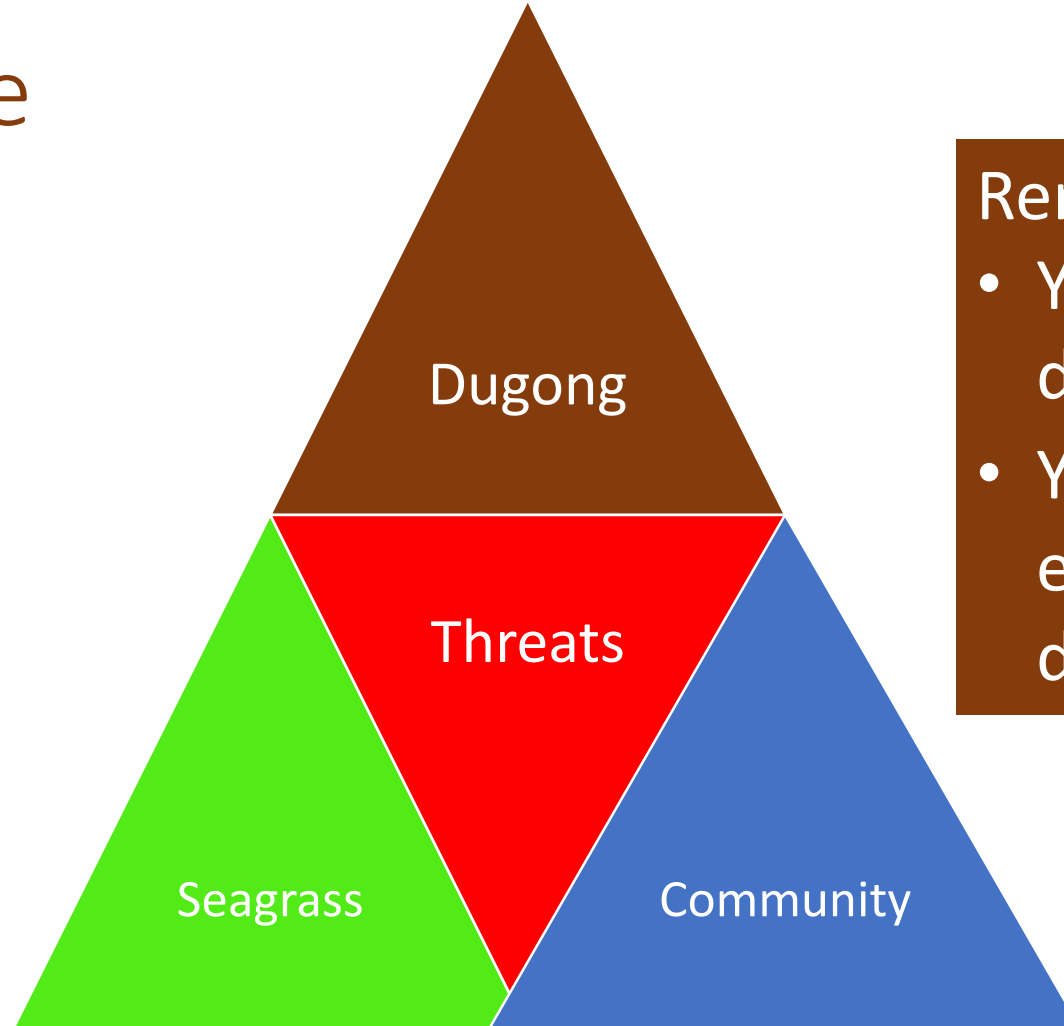


Mozambique Human Development Index 180/189 countries
Kilo of shark fin or a whole dugong represents several months' wages

Conclusion:

Vital data to inform dugong conservation can be obtained using cost-effective methods and knowledge of the literature

USE
the
ERKIT !



Remember:

- You can't manage dugongs
- YOU can manage the effect of people on dugongs



Please ask
questions

Thank you

Photo: Mandy Etpison