

*Helene Marsh*

# *Dugong conservation: the global challenge*



Photo: Mandy Etpison

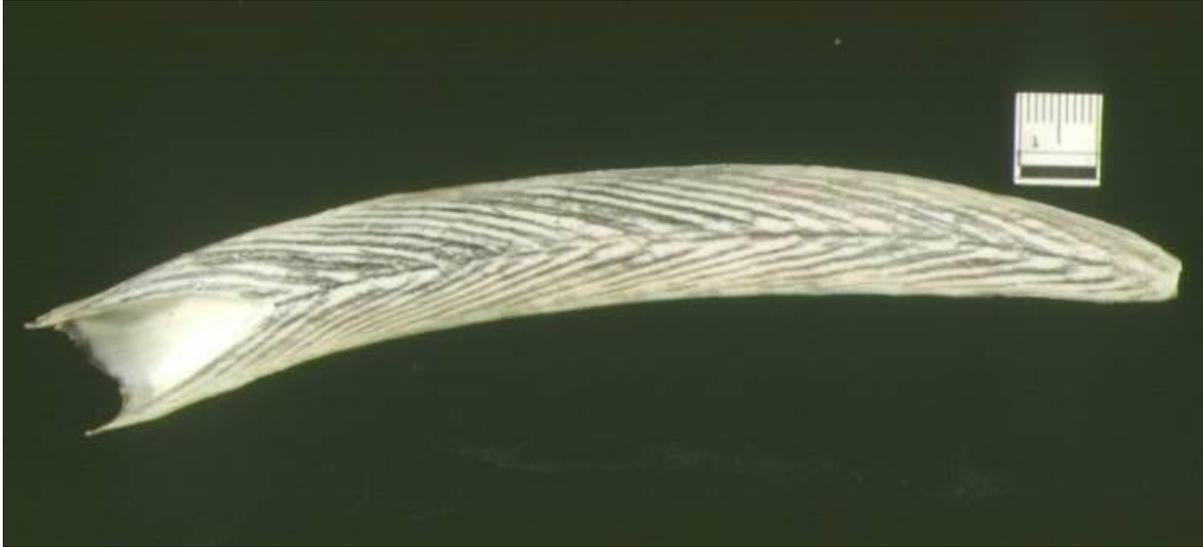
Why?

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

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

Singapore



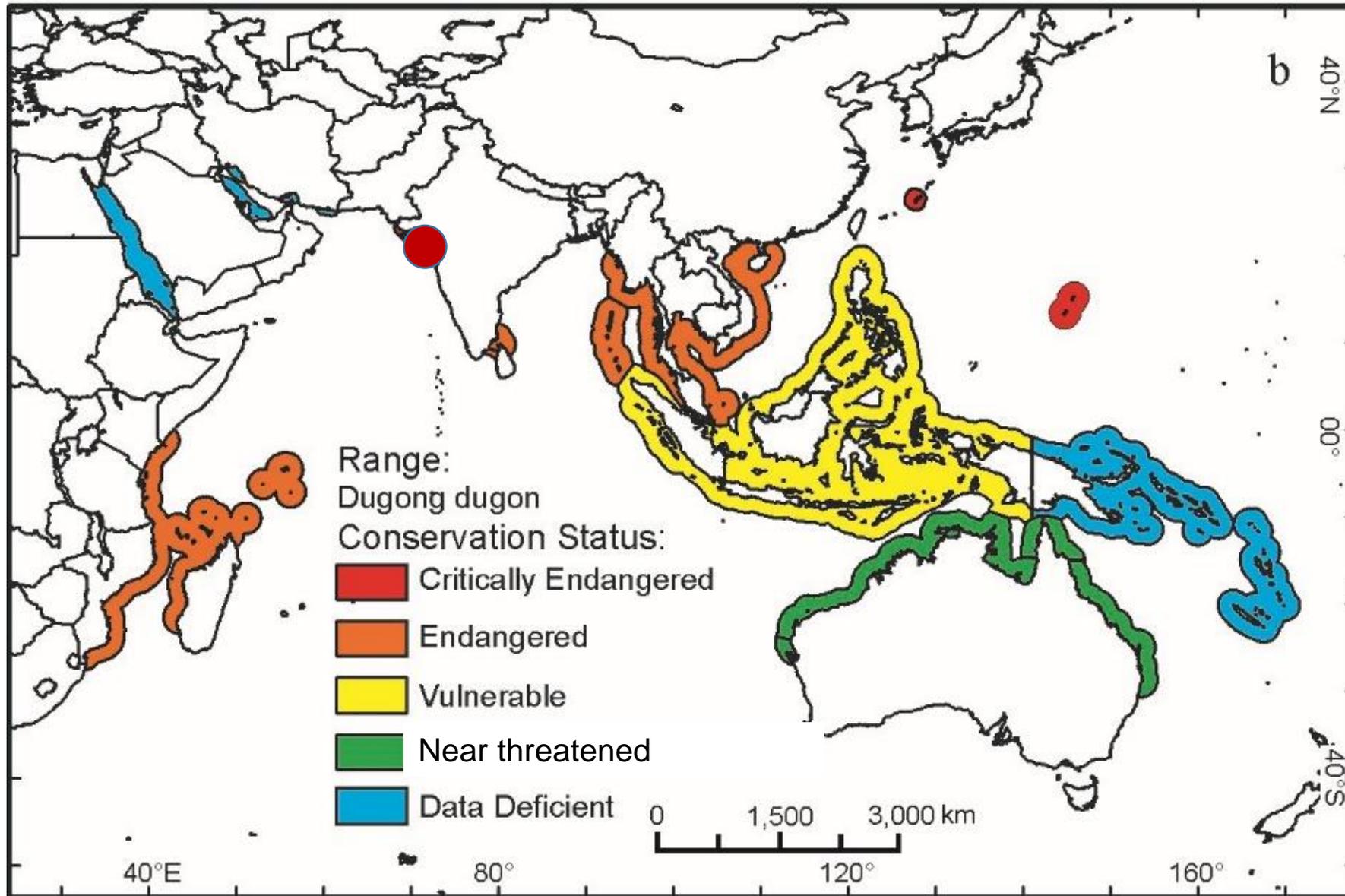
Photo: Len McKenzie

Dugong feeding trials next to coal loader  
Gladstone, Queensland



Photo: DEEDI

# Huge global range: uneven status



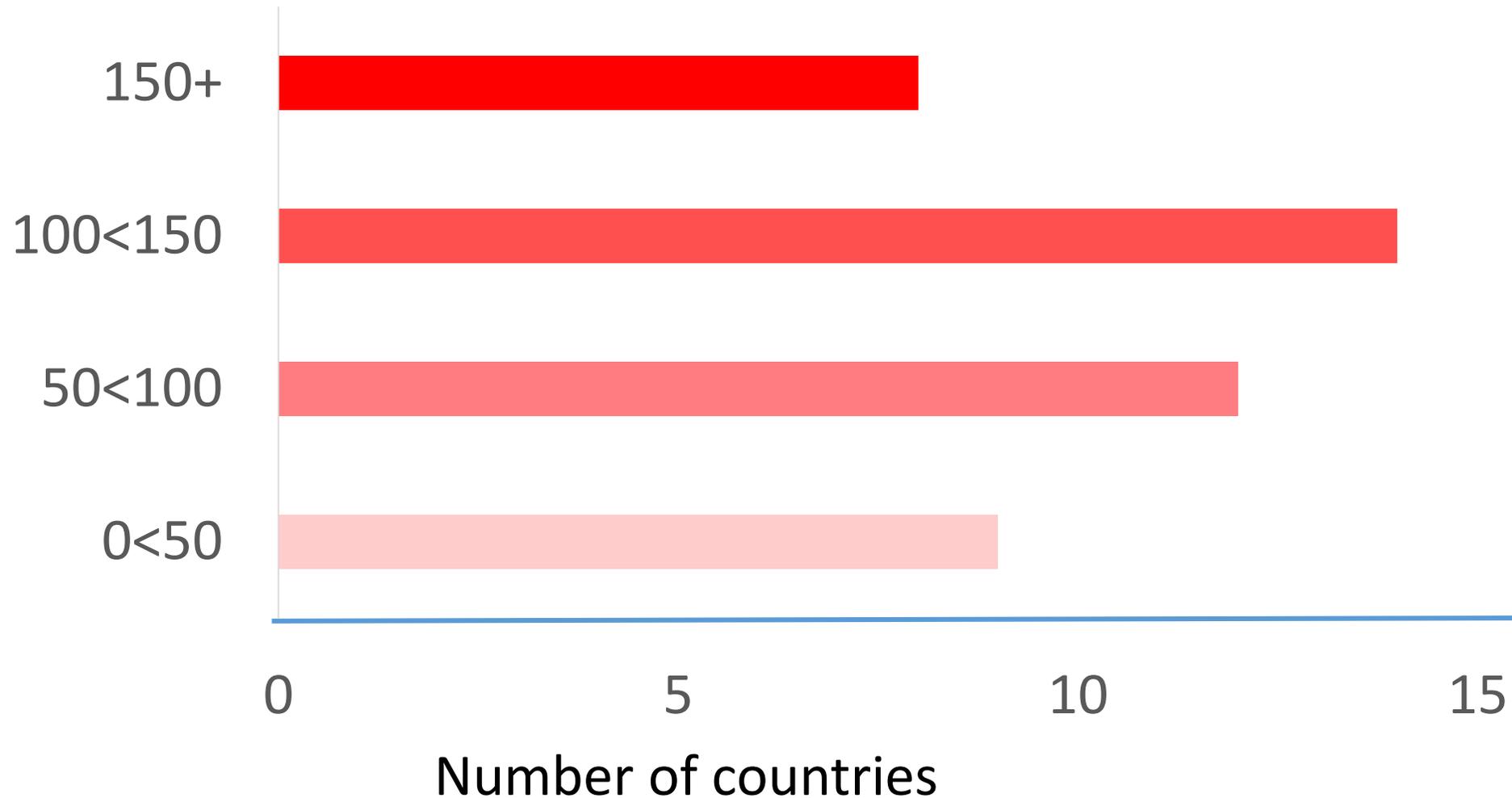
Limited conservation capacity: many range countries developing countries and/or have very small dugong populations

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

Numbers = number of range states

# Effective enforcement difficult in many range countries

Corruption Index of range states



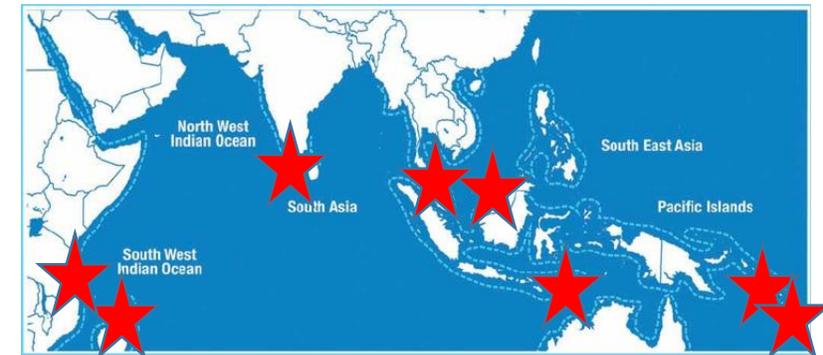
# Dugongs often worth more dead than alive



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



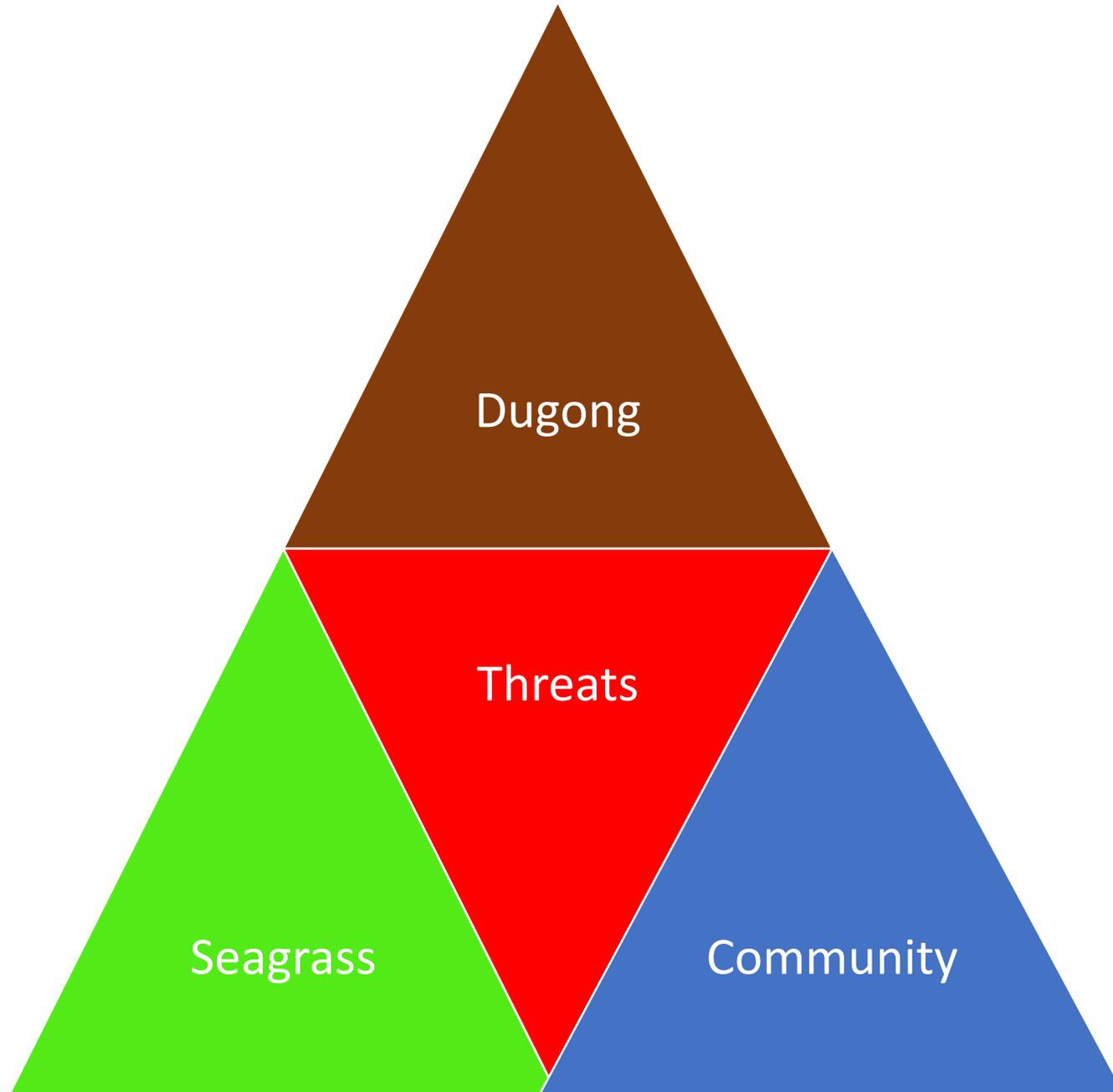
# Dugong Conservation: the ongoing challenge

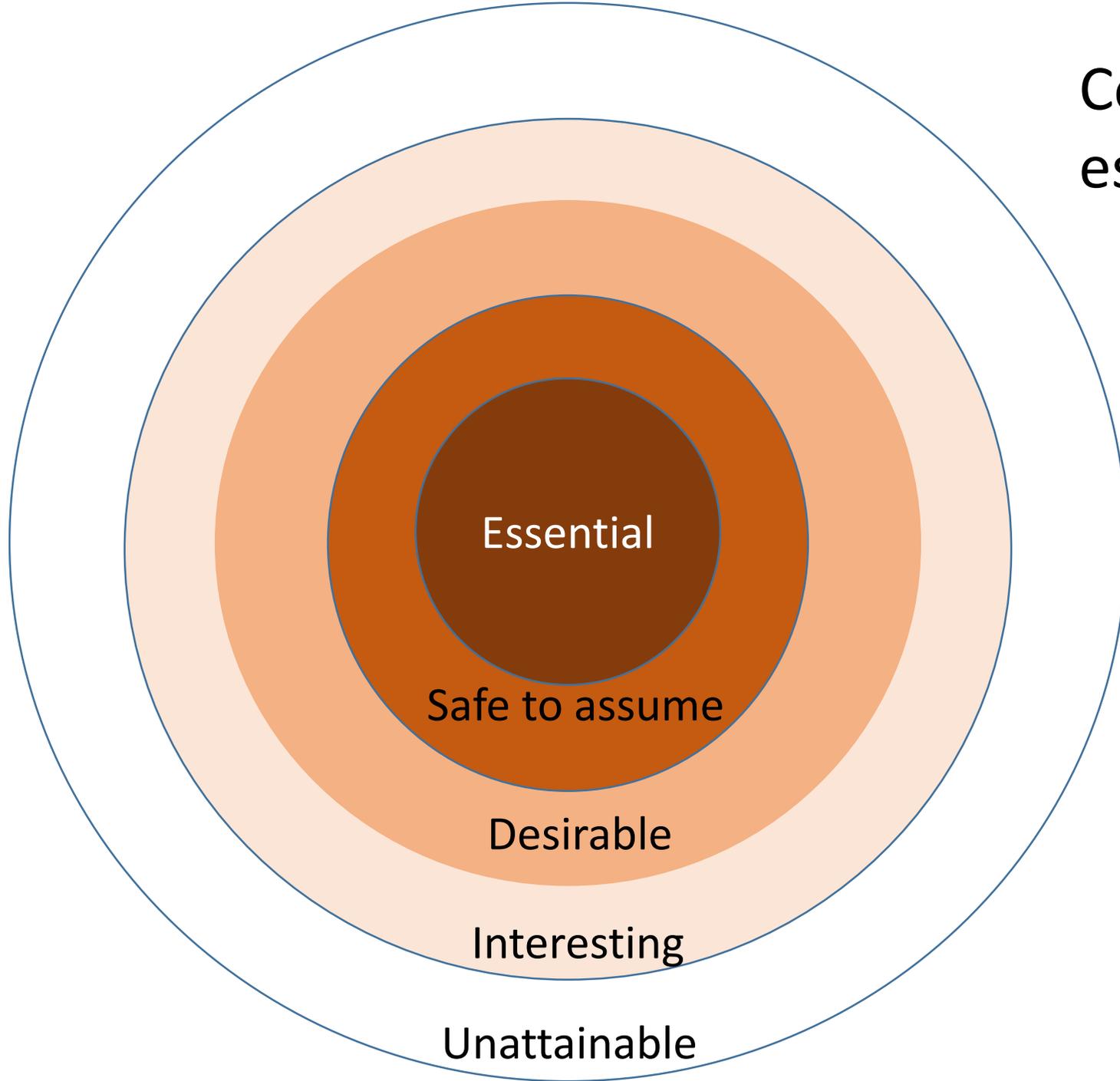
How to continue evidenced-based dugong conservation efforts with limited funding given that most range states:

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



Use comprehensive  
approach





Concentrate on  
essentials

Essential

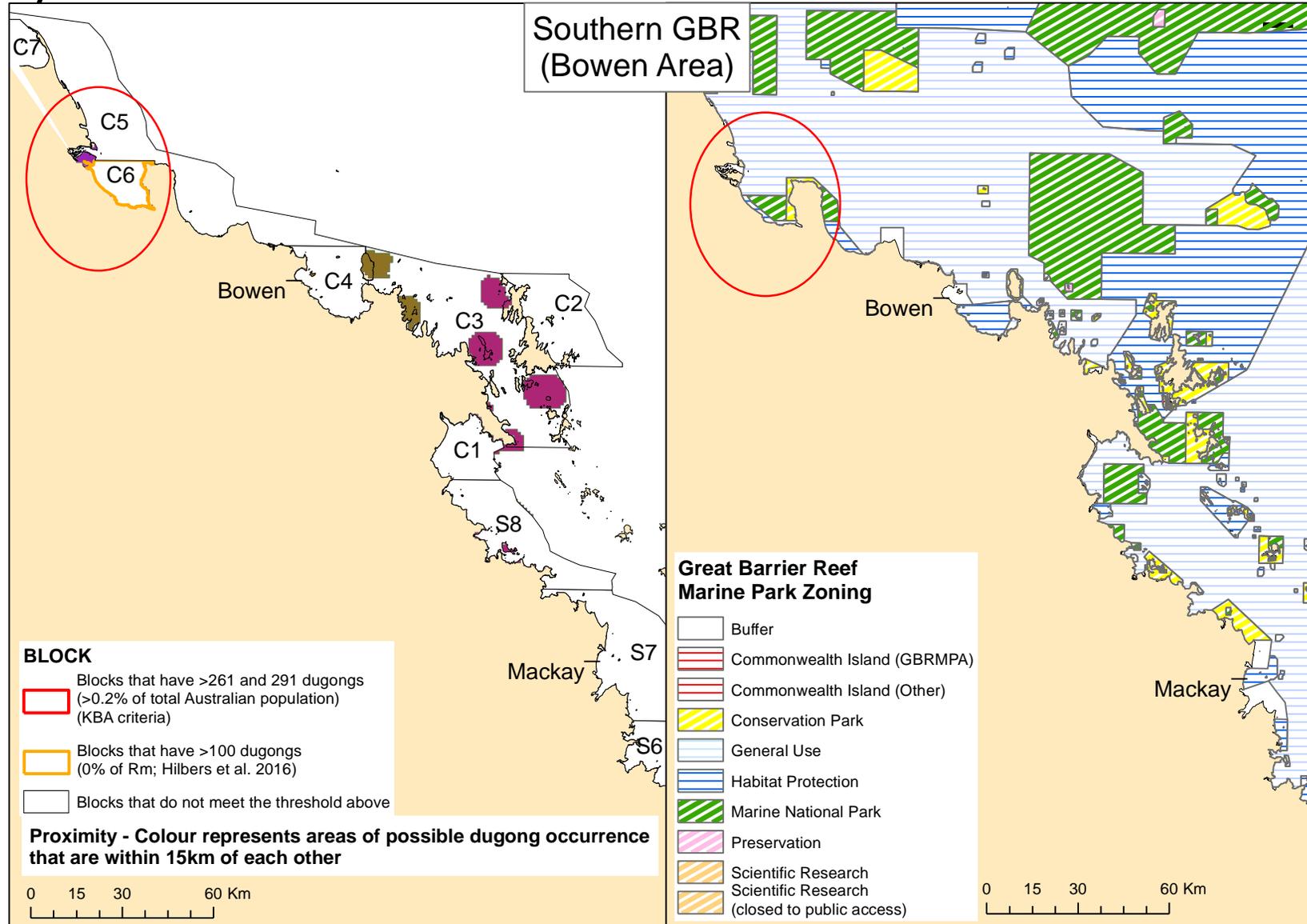
Safe to assume

Desirable

Interesting

Unattainable

# 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	High
Boat survey	High
Passive acoustic monitoring	Medium-High
Feeding trail survey	Medium-High
Manned aerial survey: distribution	Medium
Unmanned aerial survey: distribution	Medium
Fisher questionnaire survey	Low-Medium
Manned aerial survey: abundance	Low-Medium
Unmanned aerial survey: abundance	Low

Turbid waters increase difficulty



# Act on robust assumptions

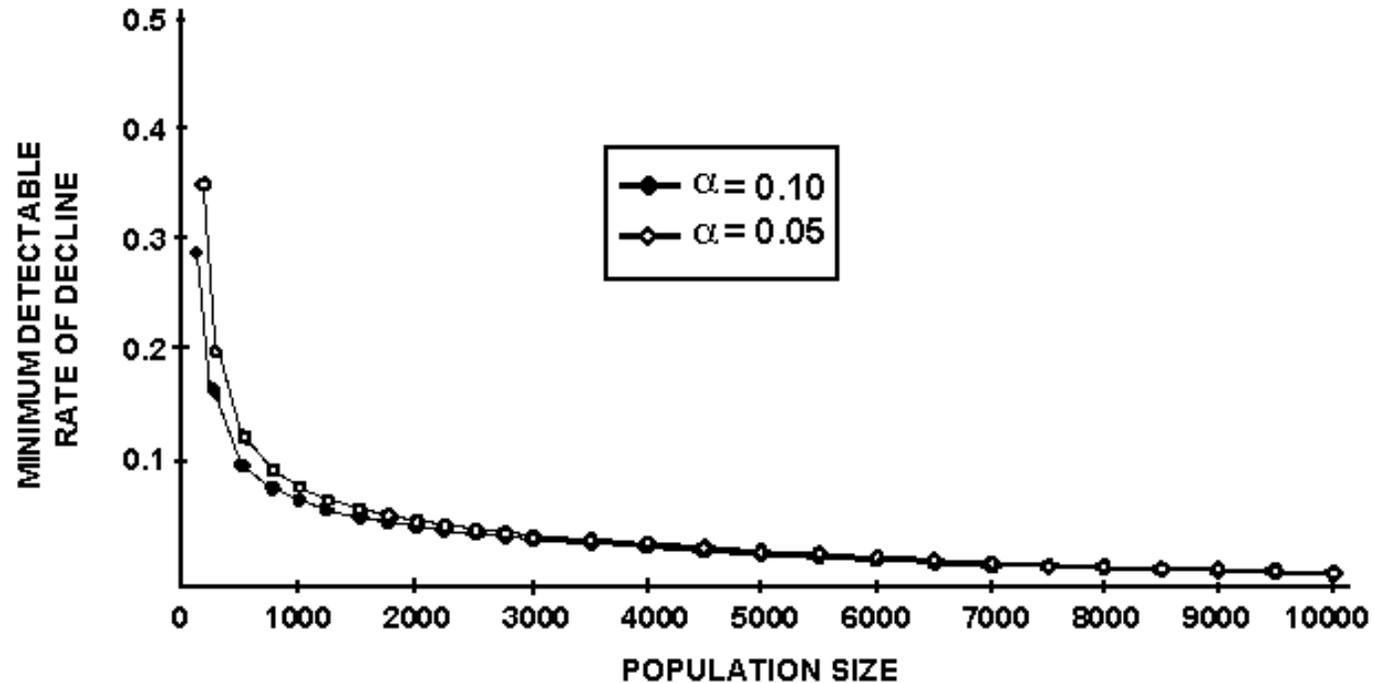
Life history information shows:  
survival of adults must be > 95% p.a. to  
maintain a dugong population

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

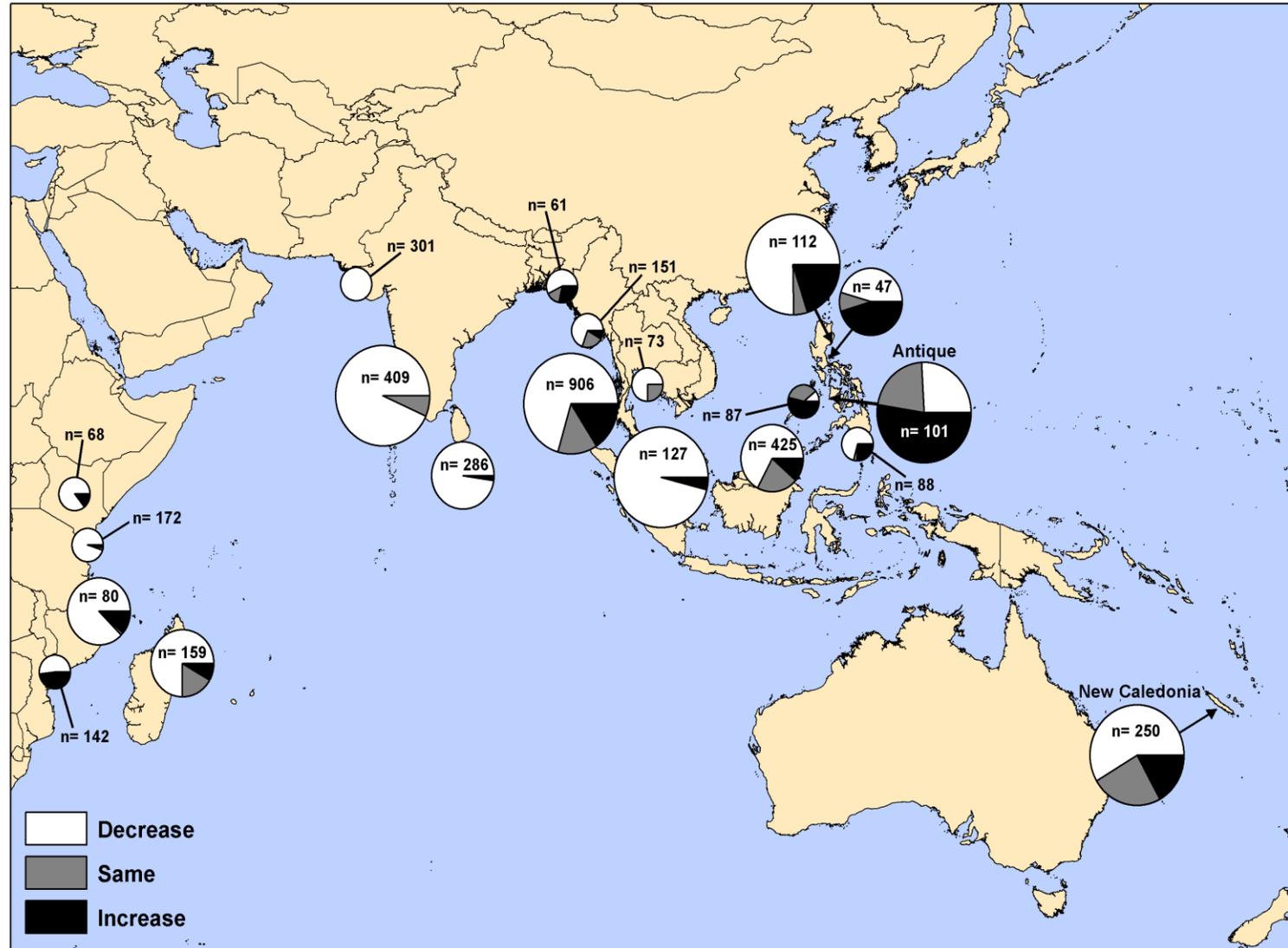
## Recovery also difficult to detect



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

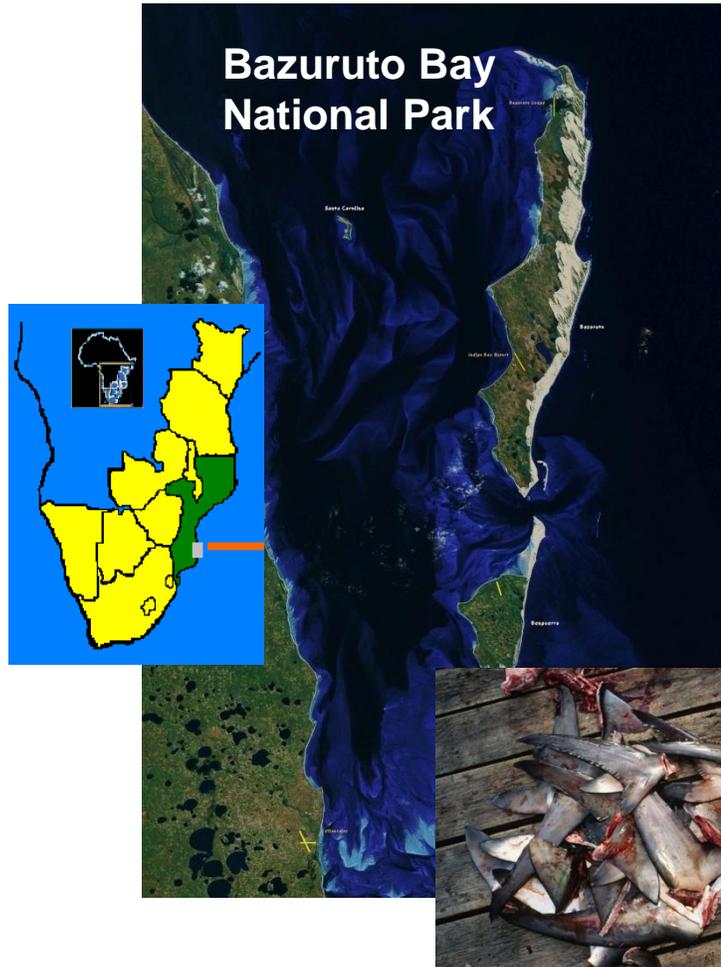
# Take care with interpreting performance indicators

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

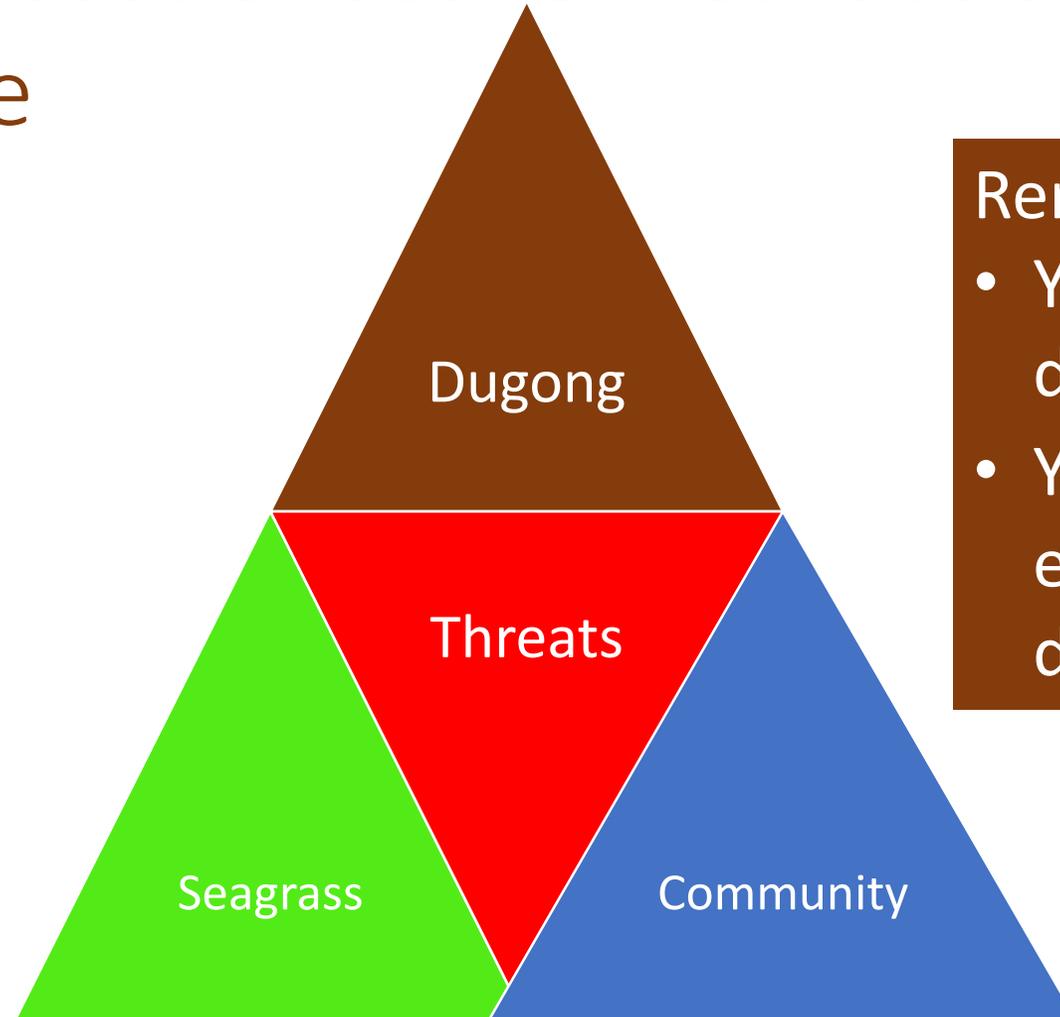


Mozambique Human Development Index 180/189 countries  
Kilo of shark fin or a whole dugong represents several months' wages

## Conclusion:

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

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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