

Overcoming the challenge of conserving dugongs



John Reynolds



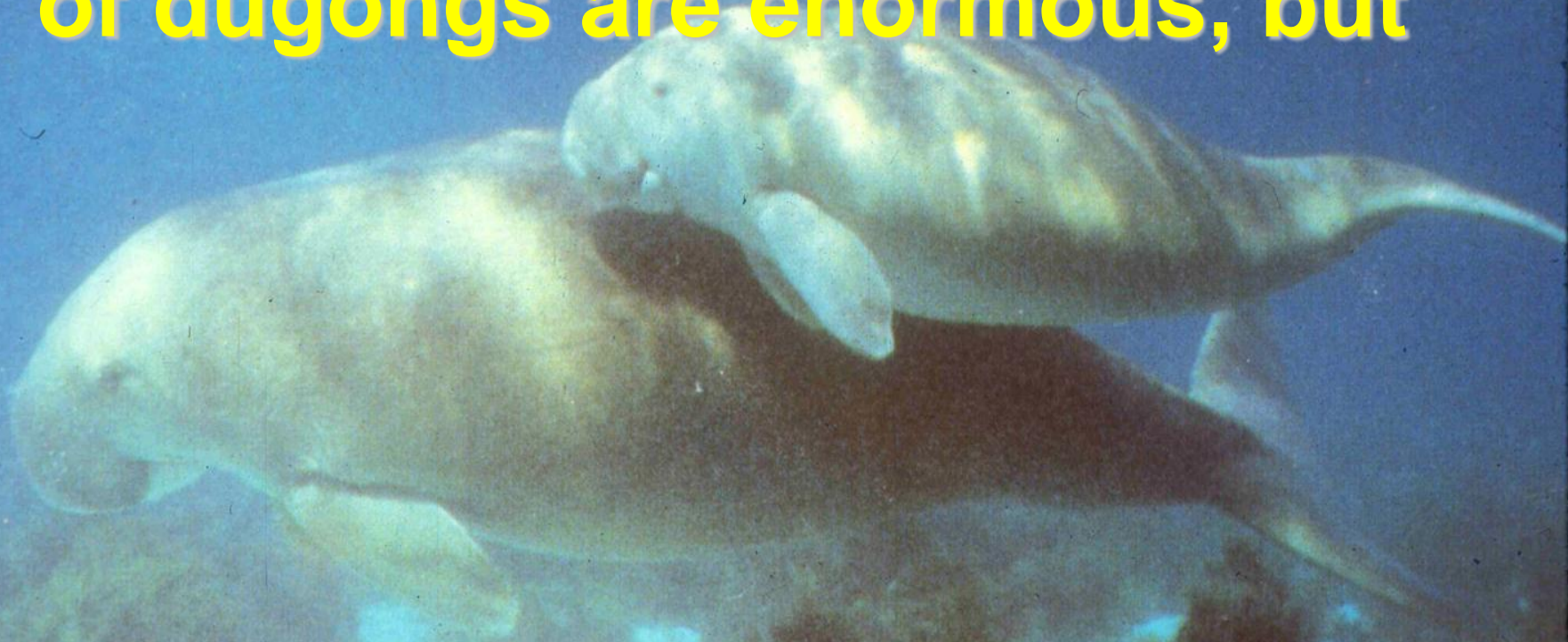
How do you respond to Professor Marsh's presentation?



- Overwhelmed?
- Anxious?
- Energized?

- All of the above?

The challenges for conservation of dugongs are enormous, but



A set of emerging tools and a reassessment of what conservation entails provide hope

Pew Oceans Commission (2003)

- “...oceans are in crisis and the stakes could not be higher...without reform our daily actions will increasingly jeopardize a valuable natural resource...”
- Undue criticism or an exhortation to do better?

A report card: how well have we conserved marine mammals?

- 2.5% of marine mammal species (3/~120) have become extinct in the last 60 years
- Several species (e.g., northern elephant seals; eastern N. Pacific gray whales) have experienced remarkable recoveries
- Some taxa remain in critical condition and may not persist much longer (e.g., vaquita; Mediterranean monk seals; AT1 pod of killer whales in Alaska)

How well have “we” succeeded?

Marsh et al. (2003), the US Marine Mammal Commission (2007), and Reynolds et al. (2009) concluded that unless fundamental changes occur...

The future for marine mammals “looks bleak”

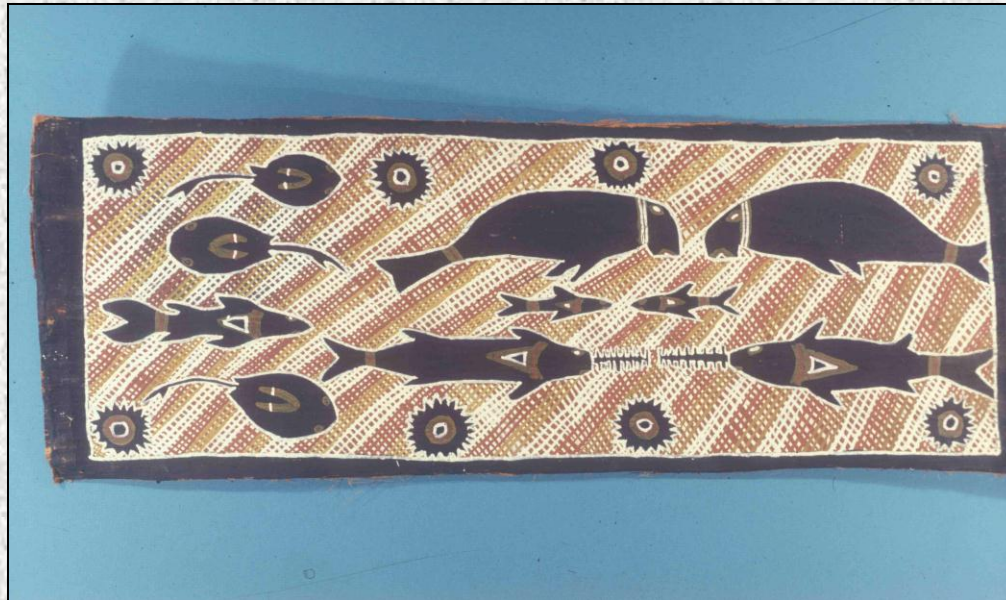


Isn't lack of scientific data the primary impediment to conservation?

- In general, the answer is no!
- Science DOES play a crucial role in conservation BUT for many taxa, scientific information is sufficient to understand and mitigate threats
- Conservation requires much more than good science
- Conservation strategies must achieve their objectives even with scientific uncertainty

The question for science and scientists:

How can we communicate our results in a way that is compelling to decision makers and that ultimately speaks to human values and affects human behavior?



And the question for societies is:

What are societies willing to do, based on available science and human values, to protect the future?



So what is science...and how does it differ from conservation?

The American Heritage Dictionary states that science is:

The observation, identification, description, experimental investigation, and theoretical explanation of phenomena.



Conservation:

Meffe et al. (1999): “An ideal relationship between humans and nature would safeguard the viability of all biota and the ecosystems on which they depend, while allowing human benefit, for present and future generations, through various consumptive and non-consumptive uses.”

In the face of urgent conservation threats, how shall society use limited human & financial resources?



Traditional “solutions”: Guiding principles for dugong conservation— we must acknowledge that:

- 1) Maintenance of healthy populations is inconsistent with ever-growing human consumption of resources**
- 2) Regulation of uses of dugongs must be based on understanding of the structure and dynamics of the ecosystems they occupy**
- 3) Humans affect every marine ecosystem**

Guiding principles (continued):

- 4) Assessment of possible ecological, economic, and social effects of using dugongs as resources should precede both proposed use and proposed restrictions of use
- 5) Conservation requires communication and education that are interactive, reciprocal, and continuous

Ok...nice rhetoric, but...

In developing countries the issues are more fundamental, and most range states occupied by sirenians rank low on the HDI

In such countries, the value of a dead animal often exceeds the value of the same animal alive

Keys to success must include alleviation of poverty and creation of alternative livelihoods

In the real world, it is often important to “**stop the bleeding**” not document the rate of blood flow!

The Mozambique/Bazarutu Archipelago example:



A blueprint for dugong conservation should include:

Establish clear **goals**

Recognize that conservation is **value based**

Adopt a geocentric conservation **ethic**

Recognize the central role of **values** in forming public policy

Establish fundamental **principles** for 21st century conservation

Identify problems and seek **solutions!**

A blueprint for dugong conservation should include:

Clarify and address issues of **scale**

Establish long-term funding programs

Develop a coherent **ideology**

Proactively frame the debate

Provide inspired and inspiring **leadership**

Build infrastructure

Be **proactive**, not reactive

A blueprint for dugong conservation should include:

Be **creative**, not tied to traditional approaches

Build **interdisciplinary** teams

Err on the sides of too much, not too little **communication**



Blueprint from: Marsh et al. 2011. Ecology and Conservation of the Sirenia Dugongs and Manatees. Cambridge University Press.

Regulatory tools

- Legal protection
- Enforcement
- Aquatic protected areas



Enabling tools

- Education/awareness
- Community partnerships
- Cross-species initiatives
- Flagship/umbrella species
- Reinforcement of cultural protocols
- Research
- Managing for multiple threats
- Spatial management of risks
- Adaptive management
- Economic incentives and other economic tools

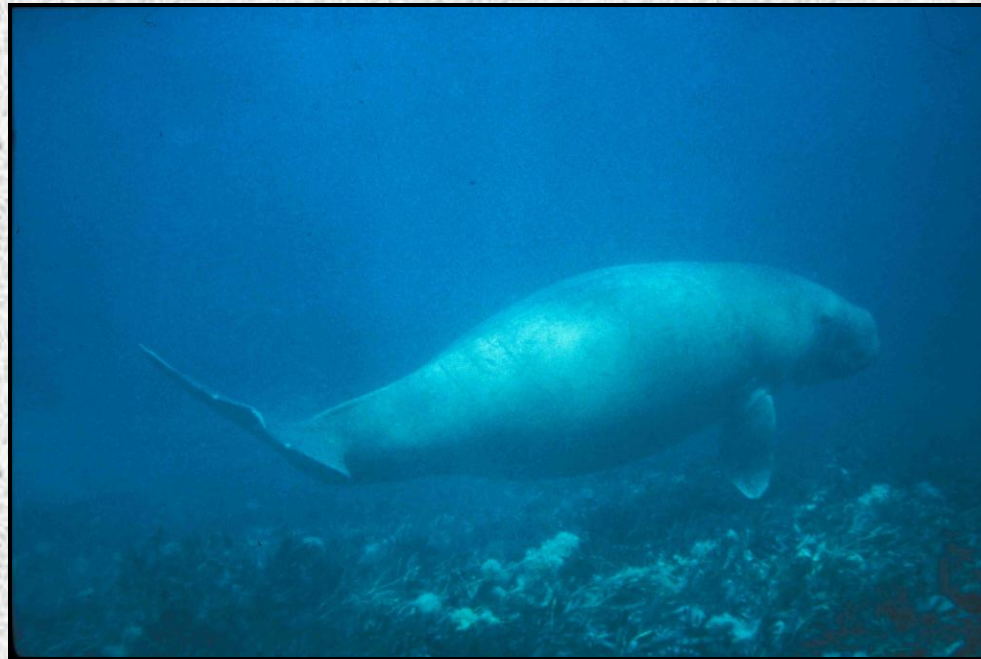
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Community partnerships

Case study: Kanjana Adulyanukosol
Phuket, Thailand



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Research

Case study: Moore et al. (2010)

Interviews to assess marine mammal/ sea turtle capture in artisanal fisheries



Enabling tools

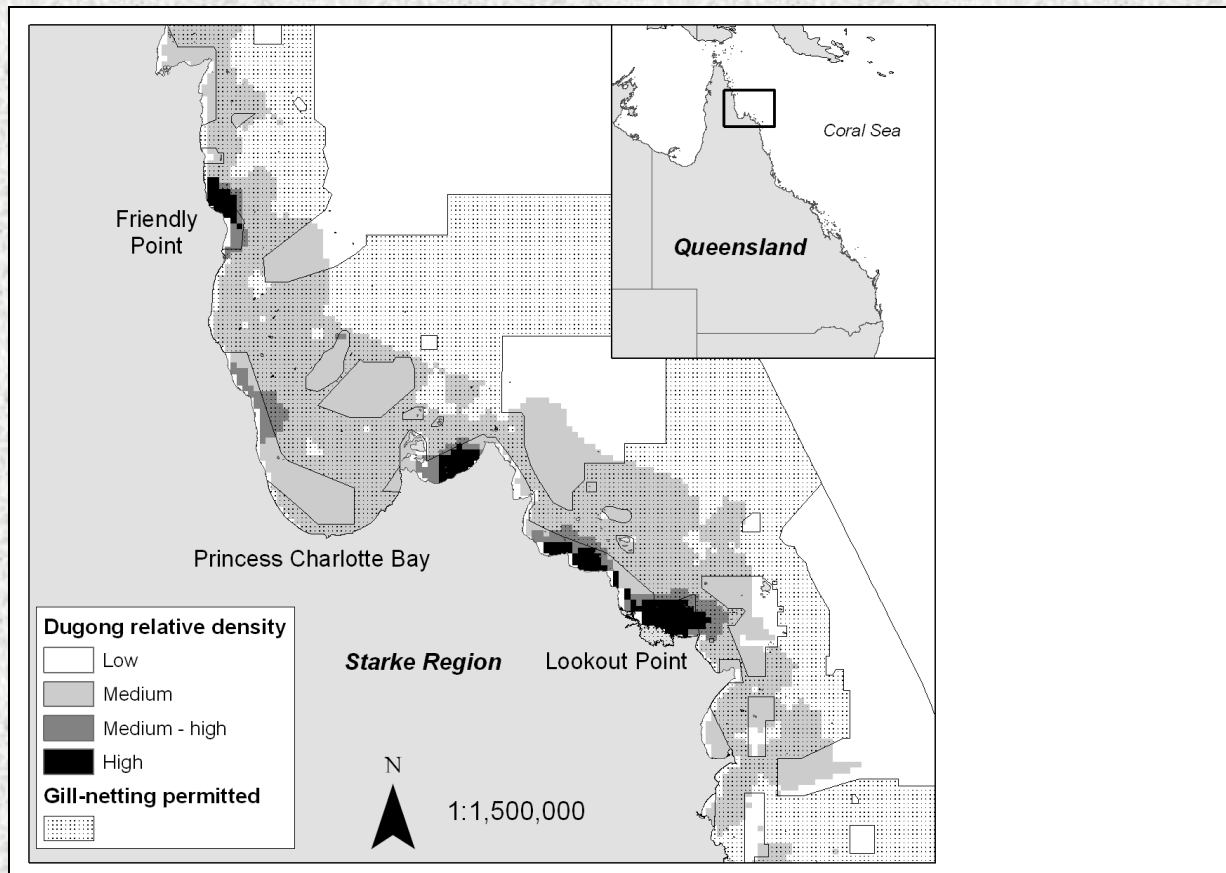
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Spatial management of risks

Case study---Grech, Marsh et al.

Location: Great Barrier Reef World Heritage Area



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Economic incentives and other economic tools

Possibilities—environmental mortgages; cash payment incentives; alternative livelihoods; conditional cash transfers

Case study: Sea Sense
Location: Tanzania



If dugongs are to be conserved, the new way of doing business must incorporate these general tools:

- **Recognize multiple value systems**
- **Place a high value on conservation**
- **Include options for all stakeholders to interact to reach solutions**
- **Be transparent and proactive**
- **Use the best available information but don't wait to act**

AND

- **Recognize current obstacles to conservation and have the social will to change**

SUMMARY:

Personal requirements for conservation

- **Proactive approach**
- **Guts**
- **Creativity and imagination**
- **Opportunism**
- **Addressing human values and behaviors**
- **Focus on winning wars, not every battle**
- **Using finite human and financial resources in ways that make a mark**
- **Seek solutions, not just more information**

And never forget what a dedicated individual
can do



Marjory Stoneman Douglas (1890-1998)
The Everglades: River of Grass (1947)