Tracking turtle and dugong

NERP Tropical Ecosystems Hub Marine Wildlife Team:
Mark Hamann, Mariana Fuentes and Helene Marsh

Assisted by:
Ron Fuji, Alana Grech, Christian Gredzens, Julia Hazel, Frank Loban, Stan Lui, Shane Preston, Susan Sobtzick and Torres Strait Rangers
Photo: Burnet River in flood by Chris Hadfield
Green turtles have genetic stock structure in GBR
Dugong have regional differences in status & threats
Coastal impacts from cyclones + floods

1. Risks should be considered, and interventions implemented, at stock/region level.
2. Actions aimed at 1 stock may influence other stocks.
Green turtle – space use & patterns of connectivity

Dugong – space use & spatial management
What information is needed to understand futures of dugongs and turtles?

1. How many breeding adults in population? ✔
2. What are recruitment rates of juveniles? ✔
3. What are survivorship rates of each age class? ✗
4. Where do they live in relation to threats?
Research goals

What habitats do dugong & turtle use in relation to threats?

How do green turtles and dugong share space?
If you take a turtle away from its foraging area does it go back? 

Turtles and site fidelity

78 satellite tracked turtles (JCU, TSRA, QDEHP, GHD)

4 rehab turtles Reef HQ

3 decades of mark-recapture data from QDEHP
All non-displaced turtles stayed around capture site.
Following migration – turtles tracked back to capture site
79 of 82 displaced turtles returned to the area of capture.
How do dugongs and green turtles share space?
Turtle and dugong sharing space
Dugongs make individualistic, wide ranging movements across sea country boundaries & turtles stay.
Turtles have more varied diet than dugong

Marine Turtle Newsletter

Mangroves in the Diet of *Chelonia mydas* in Queensland, Australia

Colin J. Limpus & Duncan J. Limpus
Queenland Parks and Wildlife Service, P.O. Box 155, Brisbane, 4002, Australia.
Foraging turtle – policy implications

Protecting habitat for dugong will benefit green turtles.

Management plans need to be coordinated across Govt, communities & with PNG.

Dugong sanctuary also important for green turtles.
Policy implications

Linking management goals across communities and also into southern PNG is essential.

Continuing support for community-based management initiatives & ranger programs in northern Australia is essential.

Need to consider cumulative risks to animals and also habitats at various scales
Research & monitoring priorities

• Developing tools to prioritise management actions (among and within stocks/regions).
• Communication of research findings and key messages to communities.
• Improving population estimates through use of dive and GPS trackers.
• Continued monitoring of mortality, hatchling production (annual), juvenile recruitment & impacts of climate change.
Emerging issues / priorities

• Impacts of plastic pollution – all marine wildlife (e.g. Vegter et al. (2014))
• Lack of framework for prioritising risk mitigation
• Need for international collaboration (e.g. hawksbill turtles)
• Need to understand noise pollution impacts on marine wildlife
• Need to evaluate the efficacy of management interventions
Thank you - questions

Mark Hamann
James Cook University
mark.hamann@jcu.edu.au