



National Environmental  
Research Program

TROPICAL ECOSYSTEMS *hub*

# Developing Indigenous management outcomes from dugong research in Torres Strait

Helene Marsh, JCU



Forum : What does the future hold for Torres Strait and its Indigenous peoples?

 Lifespan similar to humans > 70 years



First calf at 7-17 years



Nurse for at least 18 months



# Low sustainable human-caused mortality

Survival of adults must be  $> 95\%$  p.a. to maintain a dugong population

Modeling in 2004 suggested harvest may not be sustainable

New research suggests this result not correct

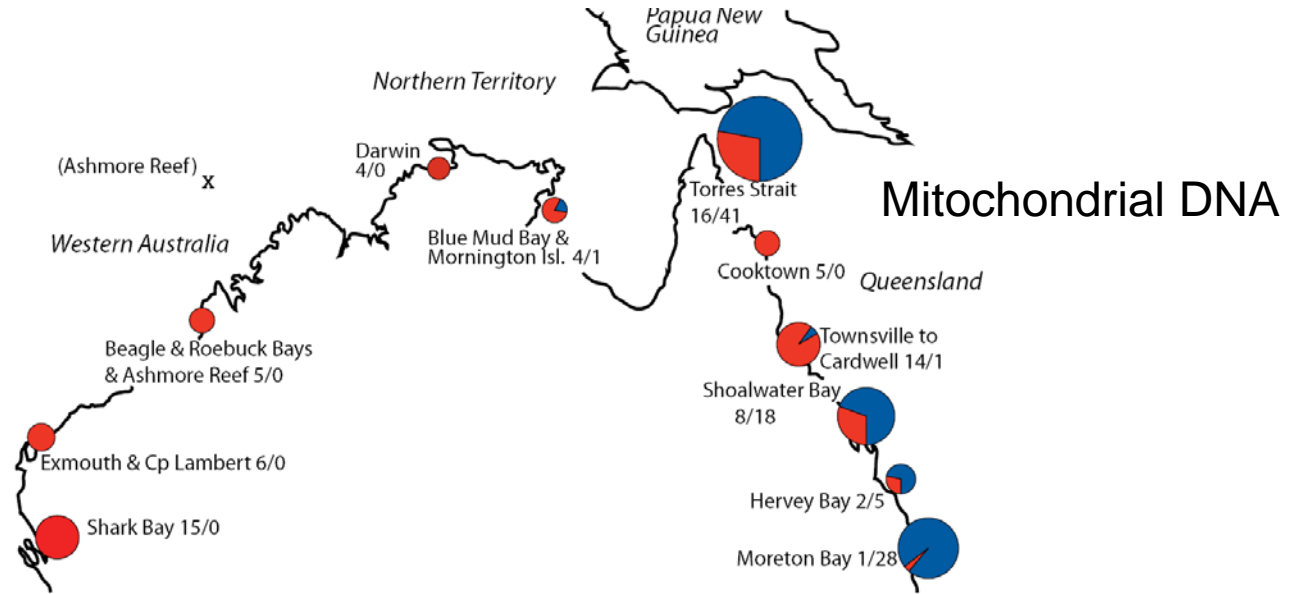
Dugong population size	Sustainable human-caused mortality per year*
100	0
1000	$<13$
10000	$<130$

\*using PBR technique mandatory in US

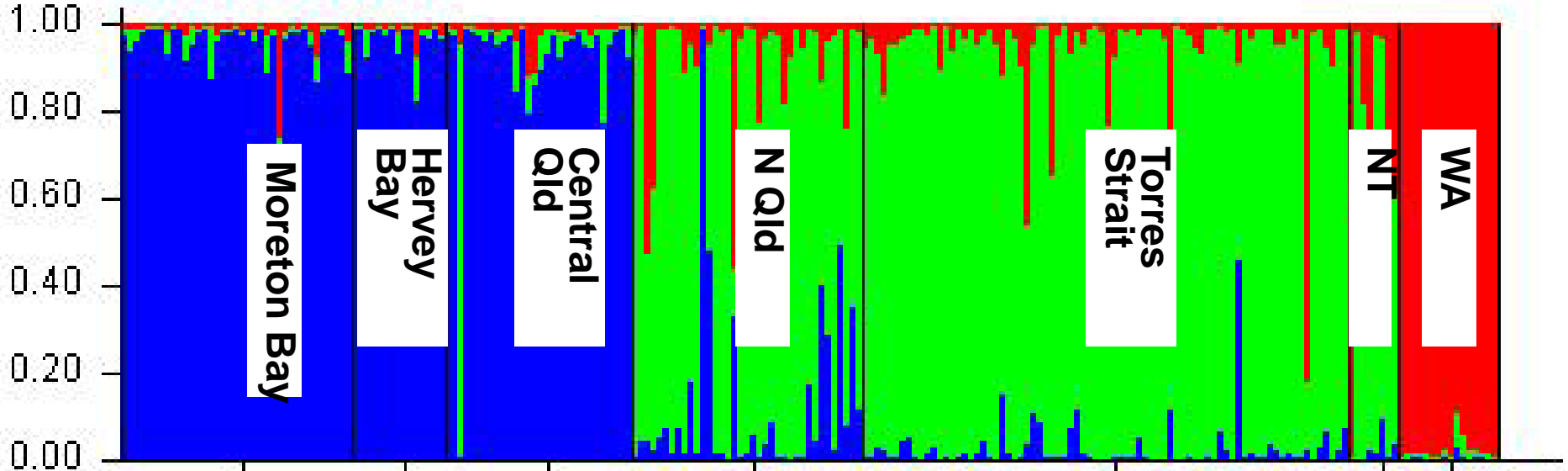


# Torres Strait dugongs genetically healthy and connected with east and western Australia

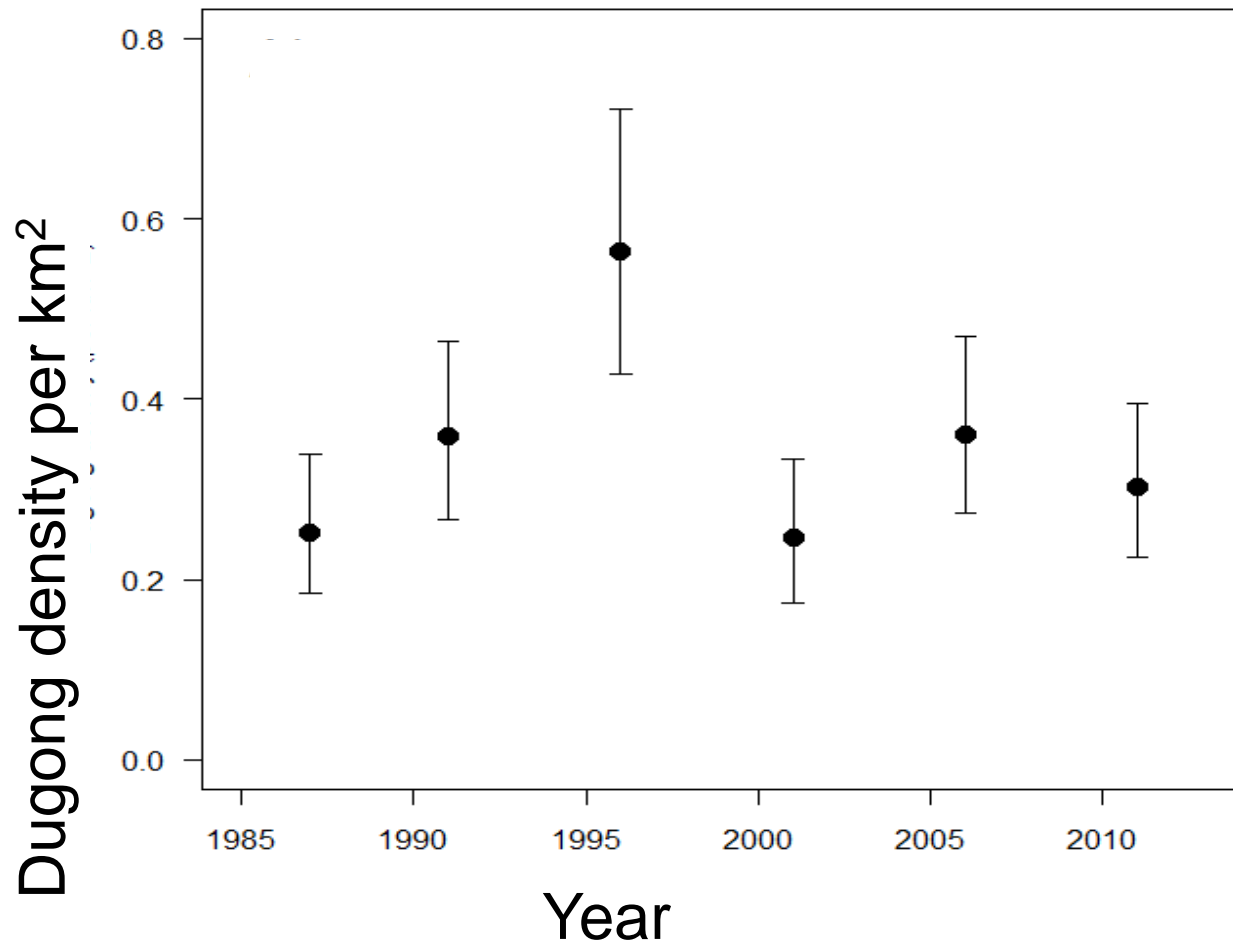
David Blair et al. data



## Microsatellite DNA



# Torres Strait dugong population apparently stable over 25 years



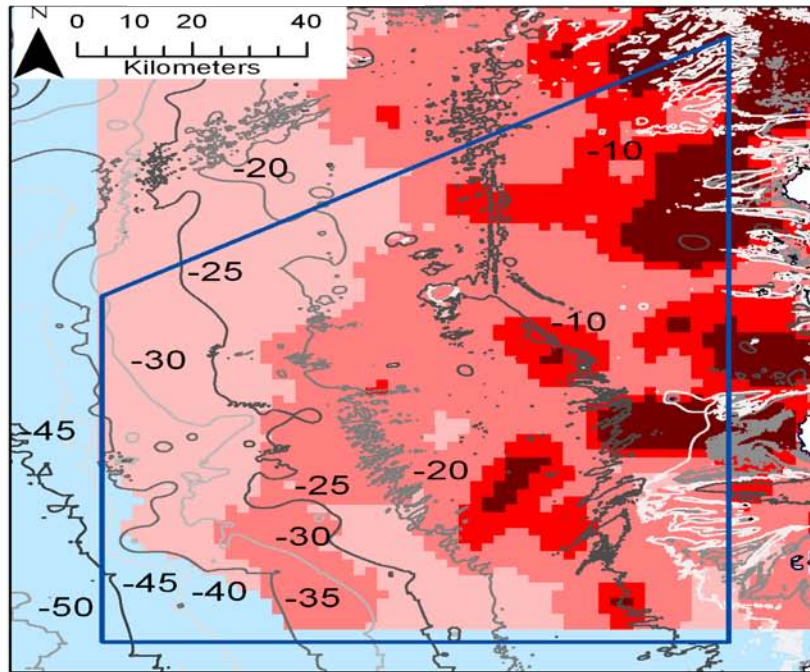
Marsh et al. 2011



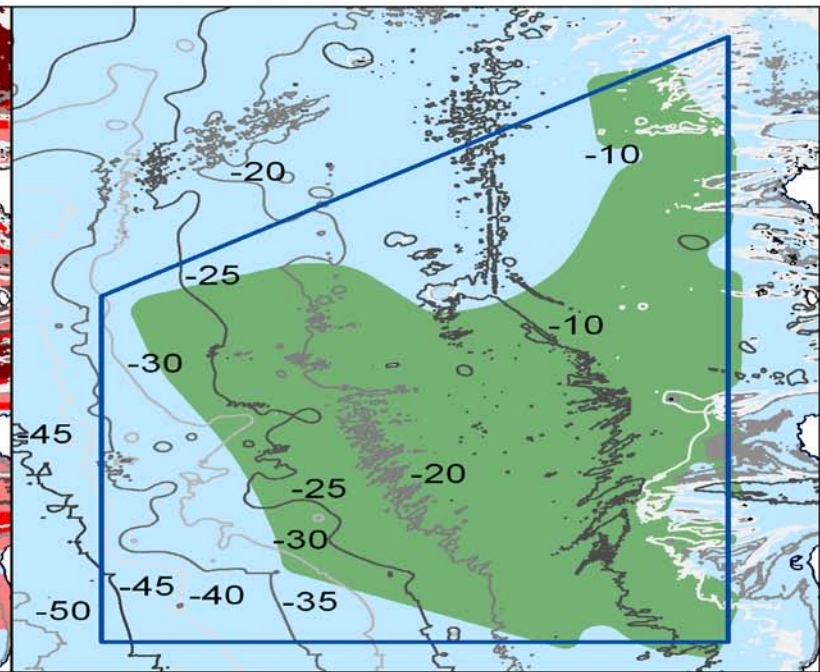
Slow declines hard to detect: need good catch data

# Western Torres Strait: Australia's largest continuous seagrass meadow discovered by QDPI/TSRA in 2010

## Dugongs

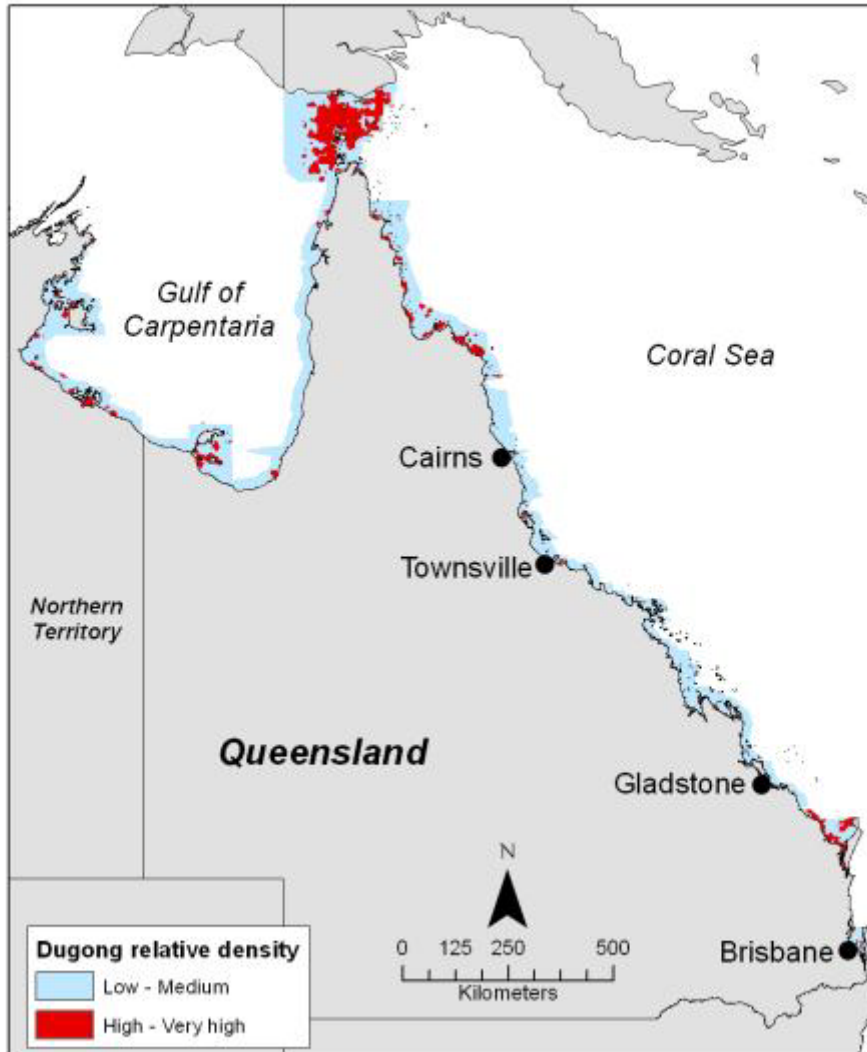


## Seagrass



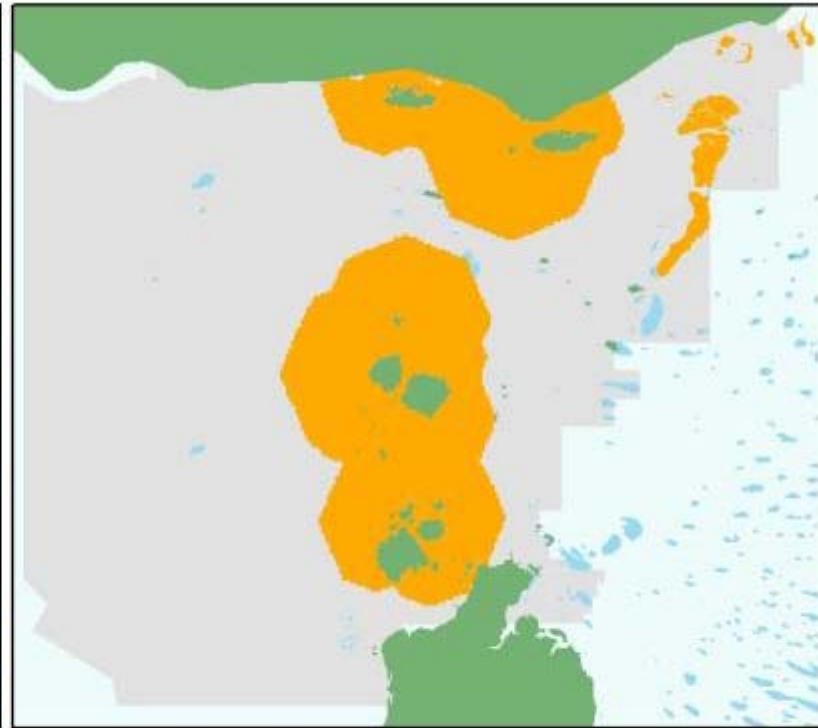
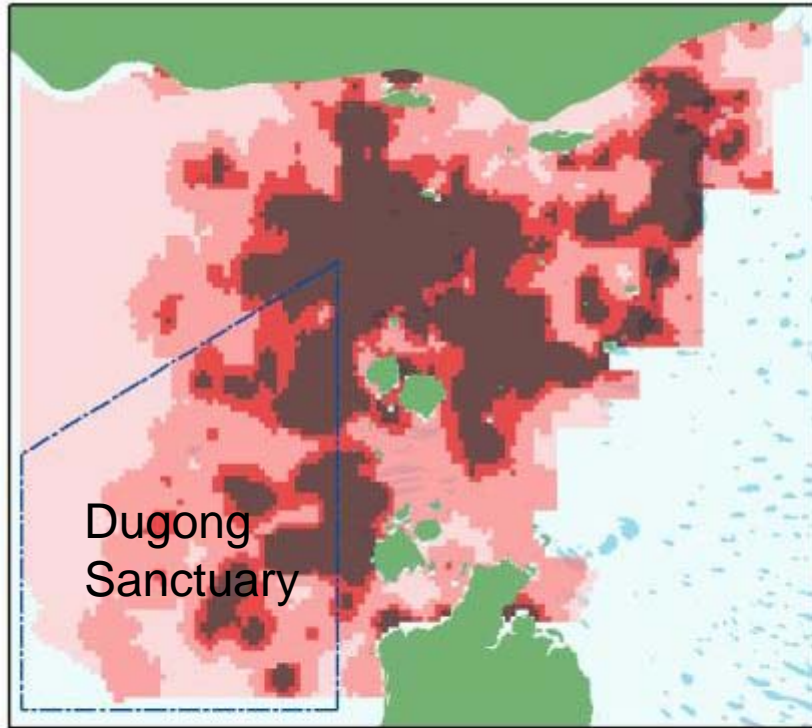
Seagrass map Helen Taylor; dugong map Alana Grech

# Torres Strait: dugong capital

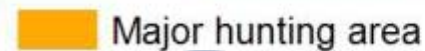


Large scale aerial surveys have enabled spatial models of dugong distribution and abundance at huge spatial scales

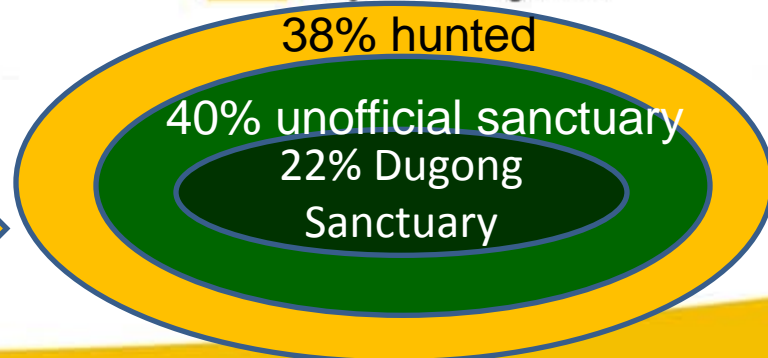
# 62% of best dugong areas rarely hunted



Grayson (2011)



Community based management →







# Tracking dugongs from space

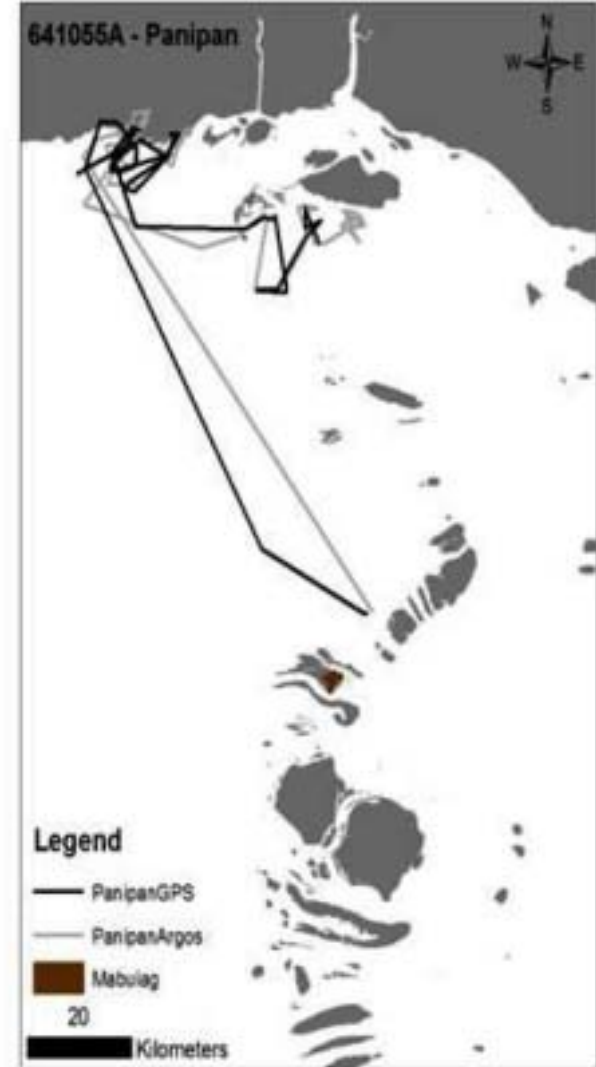


Mabuiag and Biogu rangers and community members involved in all aspects

Islanders provided expert advice and assisted with catching.



# Caught on Orman Reef the dugongs moved widely showing need for co-ordination of management across communities and countries





## Catch monitoring



- TSRA established data base and developing catch monitoring as part of Community Management plans
- Research by Dr Jillian Grayson shows that using trained Indigenous rangers to monitor catches by interview can reduce reporting burden on hunters and provide accurate results
- Methodology being refined in consultation with Professor Ken Pollock



## What next?

TSRA consulting with Islander leaders and PNG about implementing research recommendations. especially expanding Dugong Sanctuary into PNG waters

