NORTH WEST SHOALS TO SHORE

Theme 3: Protected and Iconic Species Movement, Distribution and Threats

Understanding the distribution and important areas for hawksbill and green turtles on the NW Shelf and overlap with potential threats

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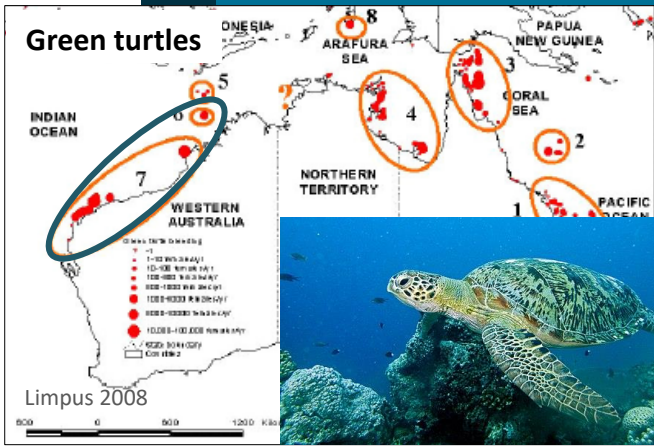
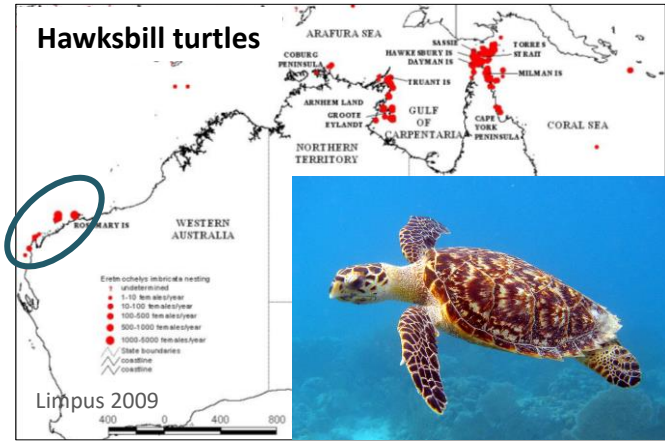
Collaborating Agencies include:

- Department of Biodiversity, Conservation and Attractions - Scott Whiting, Sabrina Fossette, Tony Tucker, Graham Loewenthal, Marissa Speirs, Joanne King
- Pendoley Environmental - Kellie Pendoley, Paul Whittock
- ERM Vietnam - David Waayers
- Charles Darwin University – Michael Guinea
- University of Western Australia – Phillipa Wilson

Marine turtles

- Listed by EPBC as Vulnerable
- Limited understanding of movement, distribution and important areas
- Populations potentially overlap with industry activities
- Understanding overlap between distribution and threats is essential for management





Objectives

Movement, distribution and Biologically Important Areas:

- Quantify the spatial and temporal **distribution of adult females**
- Identify **important areas** during inter-nesting and post-nesting phases of female hawksbill and green turtles on NW Shelf

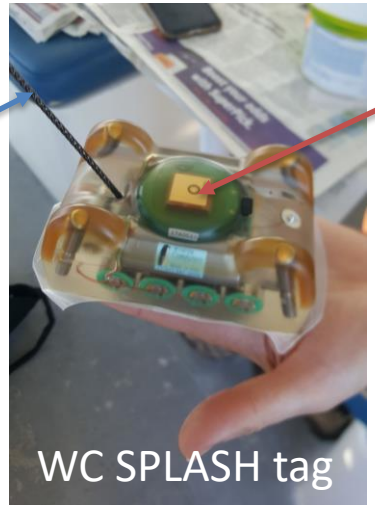
Threats:

- Identify **'hotspots'** of potential interaction between vessels, industrial infrastructure and activities (seismic) and sea turtles

Satellite tracking

- Understand species distribution
- Define important areas (nesting, foraging)
- Overlap with potential threats
- Existing satellite tracking data from different nesting sites

Methods

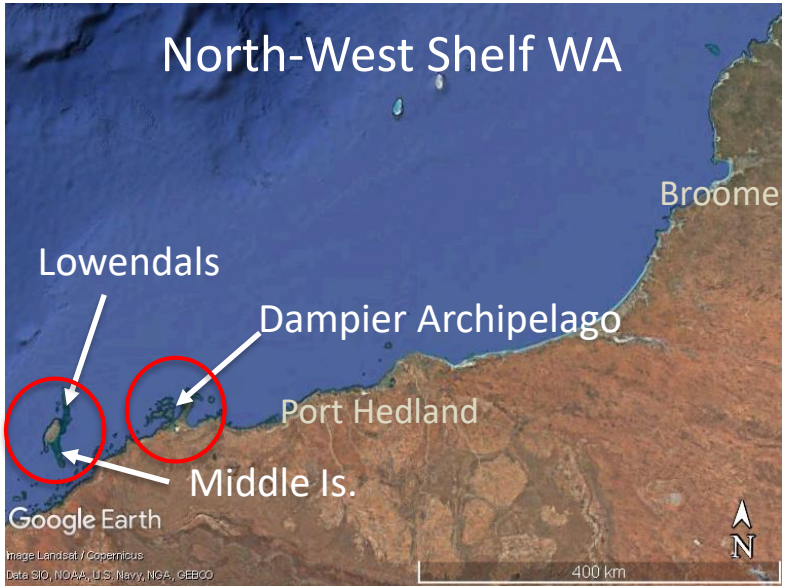


Hawksbills mid Oct 17 (peak)

- 10 tags, Beacon Is. Lowendals
- 10 tags Delambre Is., Dampier Archipelago

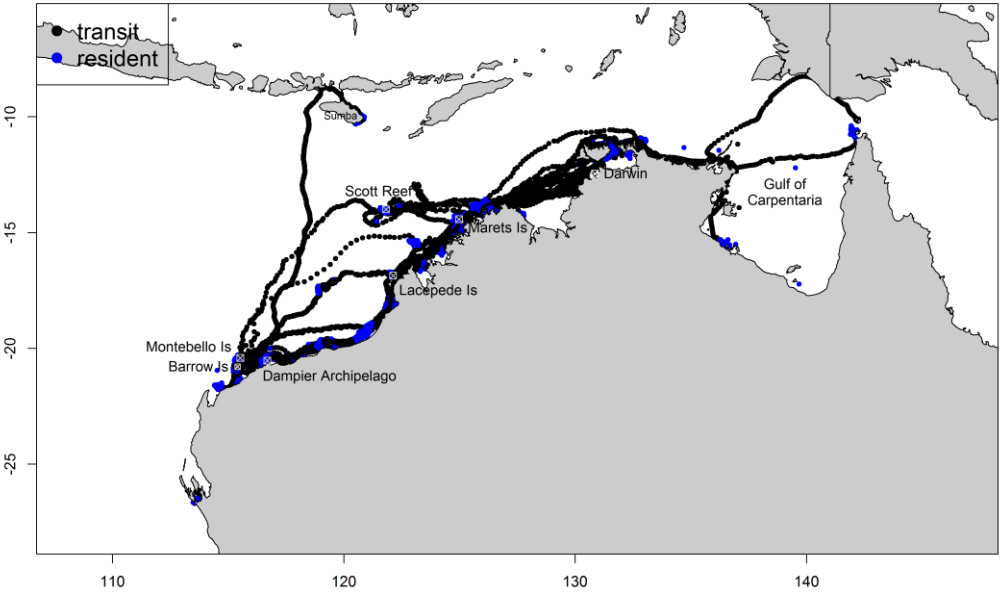
Greens: mid Nov 17 (before peak)

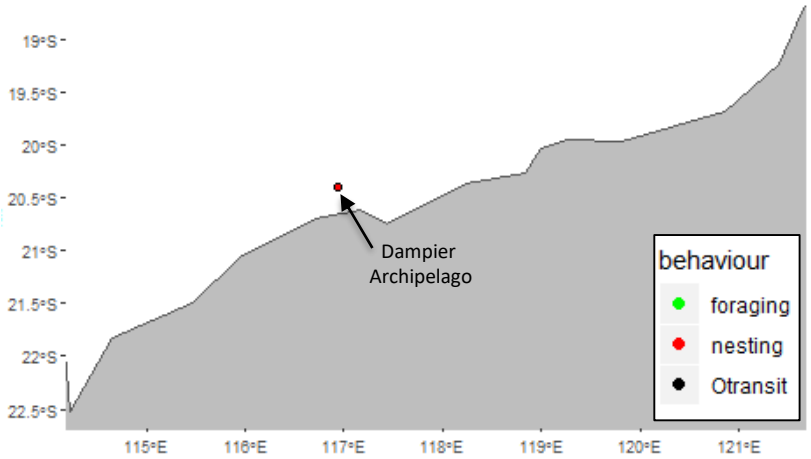
- 10 tags Middle Is
- 10 tags Legendre Is and Rosemary Is., Dampier Archipelago



Residency and transit behaviours

- Nesting, foraging areas and migration pathways
- Definition of important areas



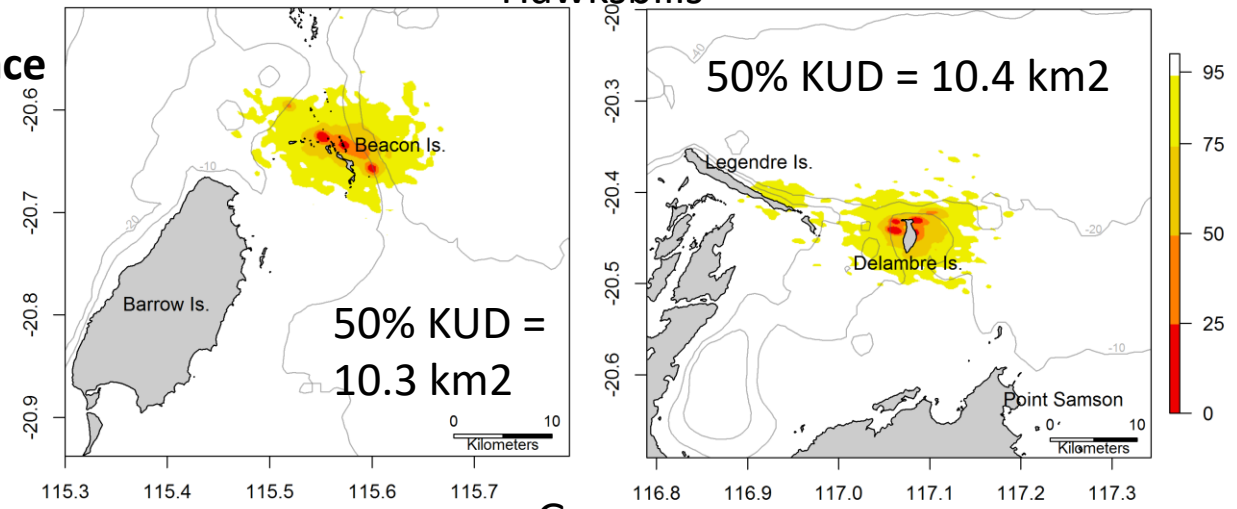


Median residence time during the inter-nesting

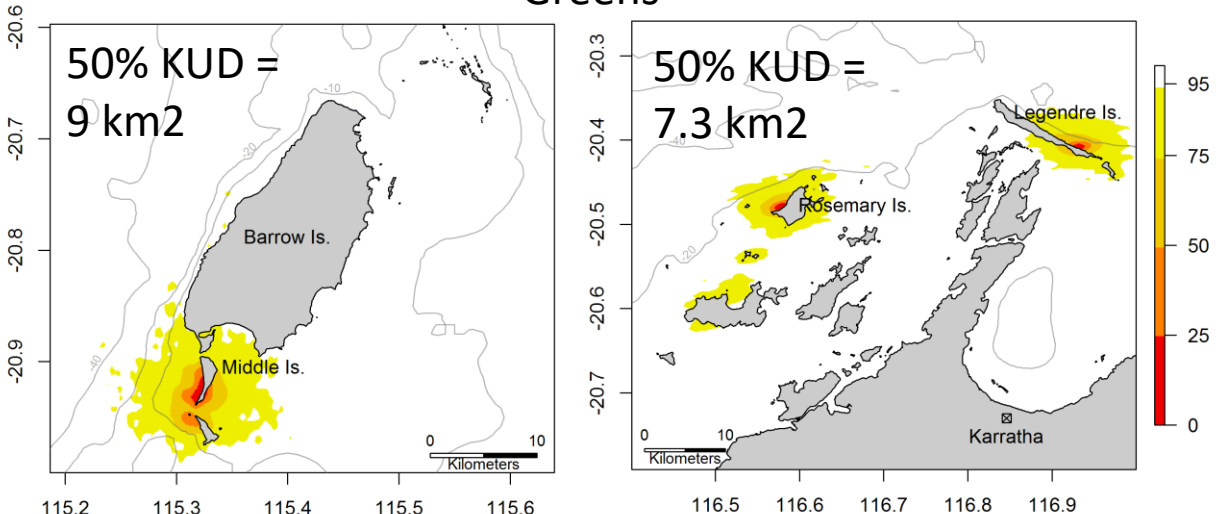
Hawksbills:
39 d (6-84)

Greens:
38 d (4-82)

Hawksbills



Greens

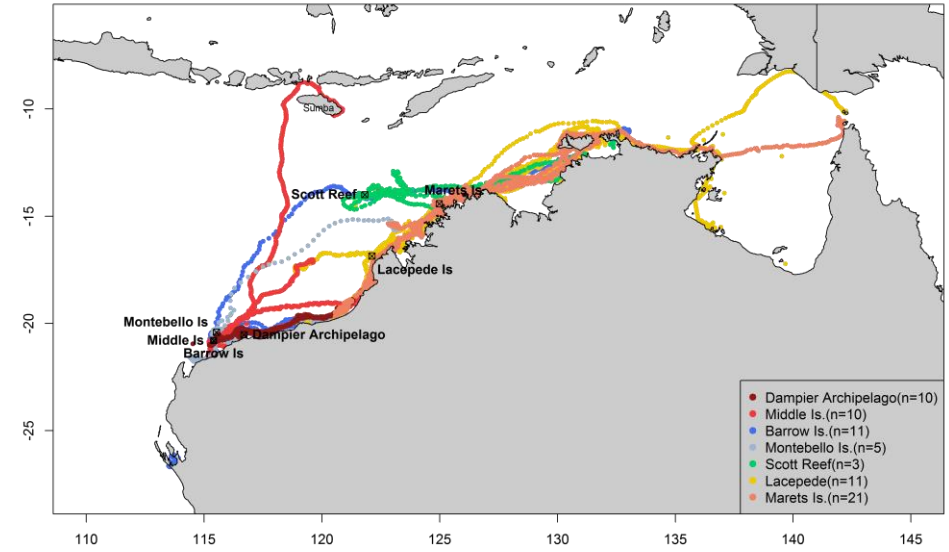


Hawksbills located on the reef edge, whereas greens stayed near the nesting beach

Tracking datasets

Green turtles (n = 71)

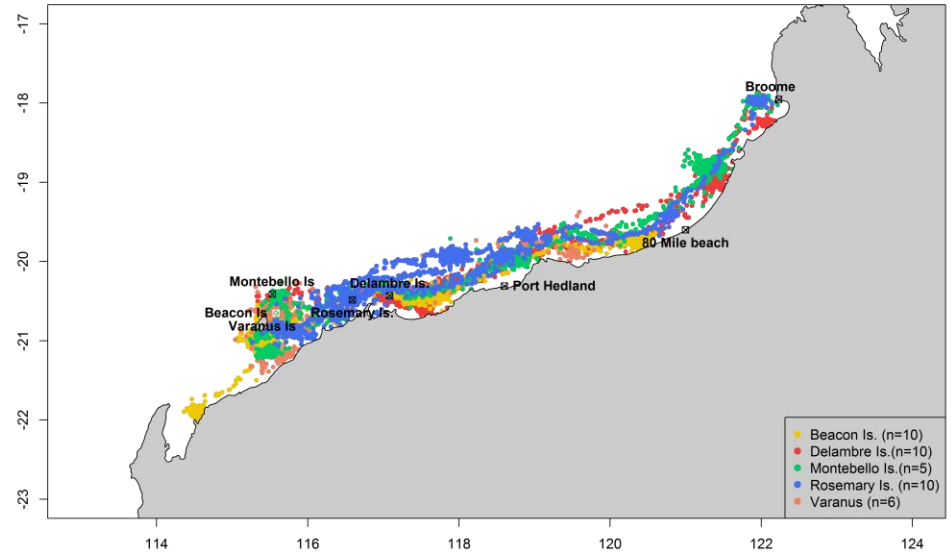
- 5 datasets from collaborators
- Maret Is, Lacepede Is, Barrow Is, Montebello Is, Scott Reef

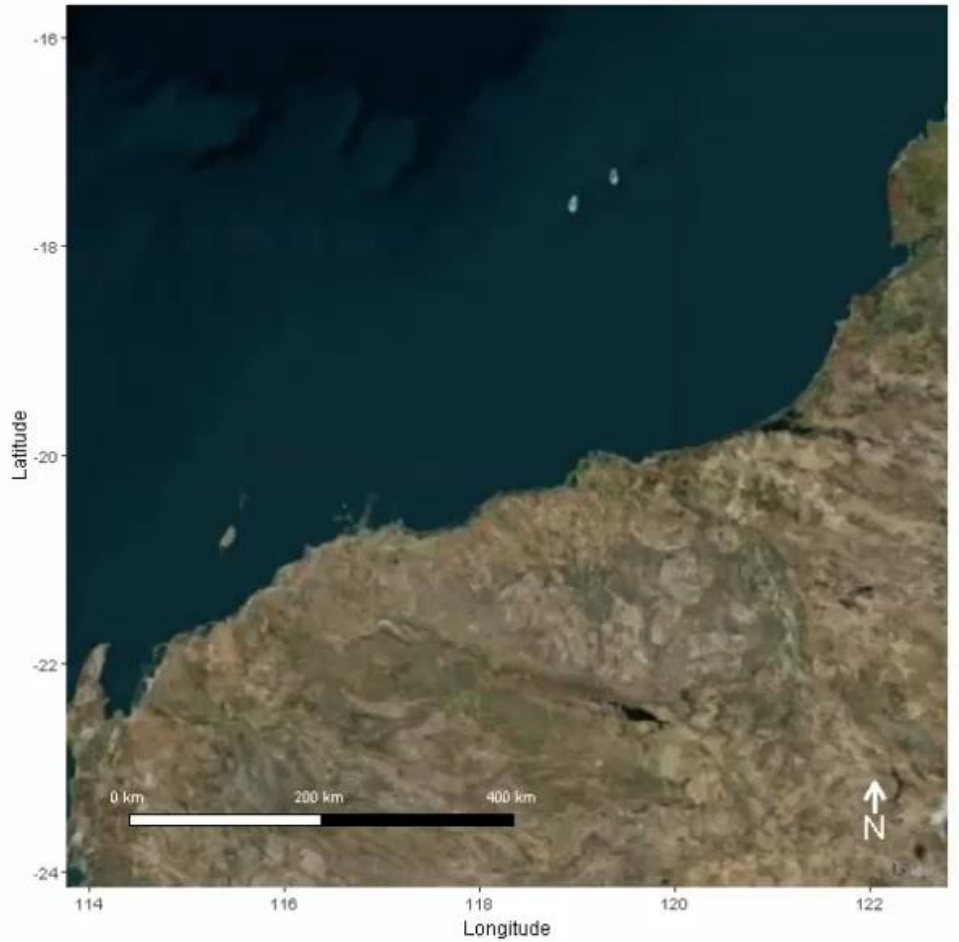


Tracking datasets

Hawksbill turtles (n = 41)

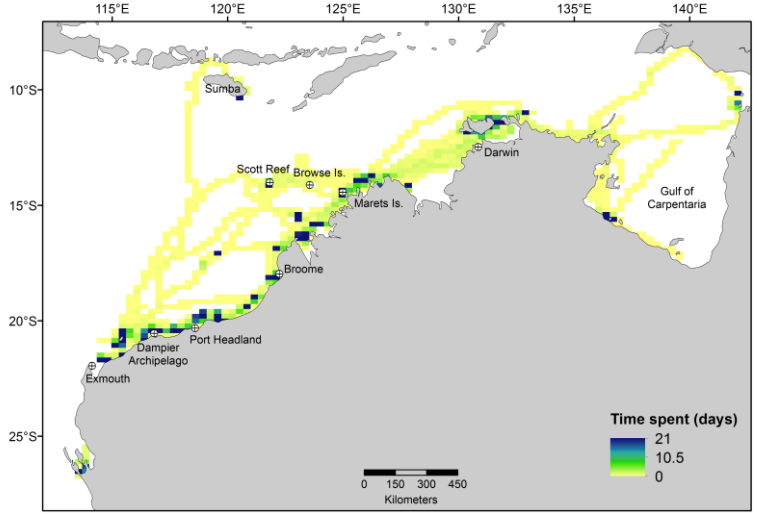
- 4 datasets from collaborators
- Varanus Is, Rosemary Is, Montebello Is

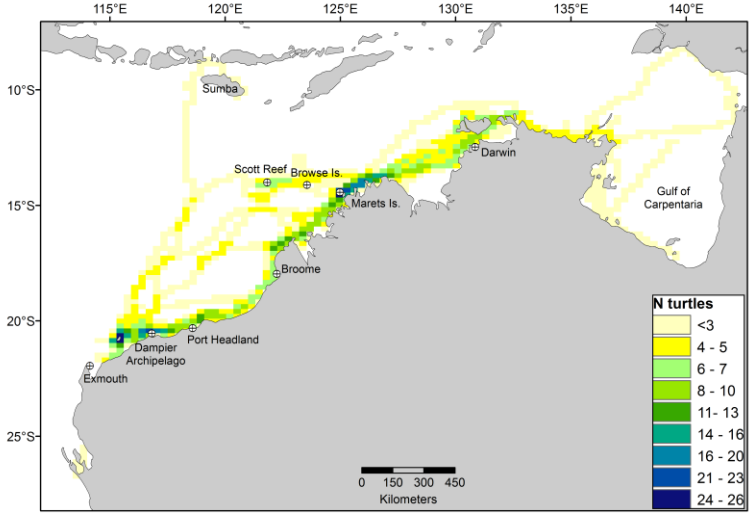




Time spent analysis

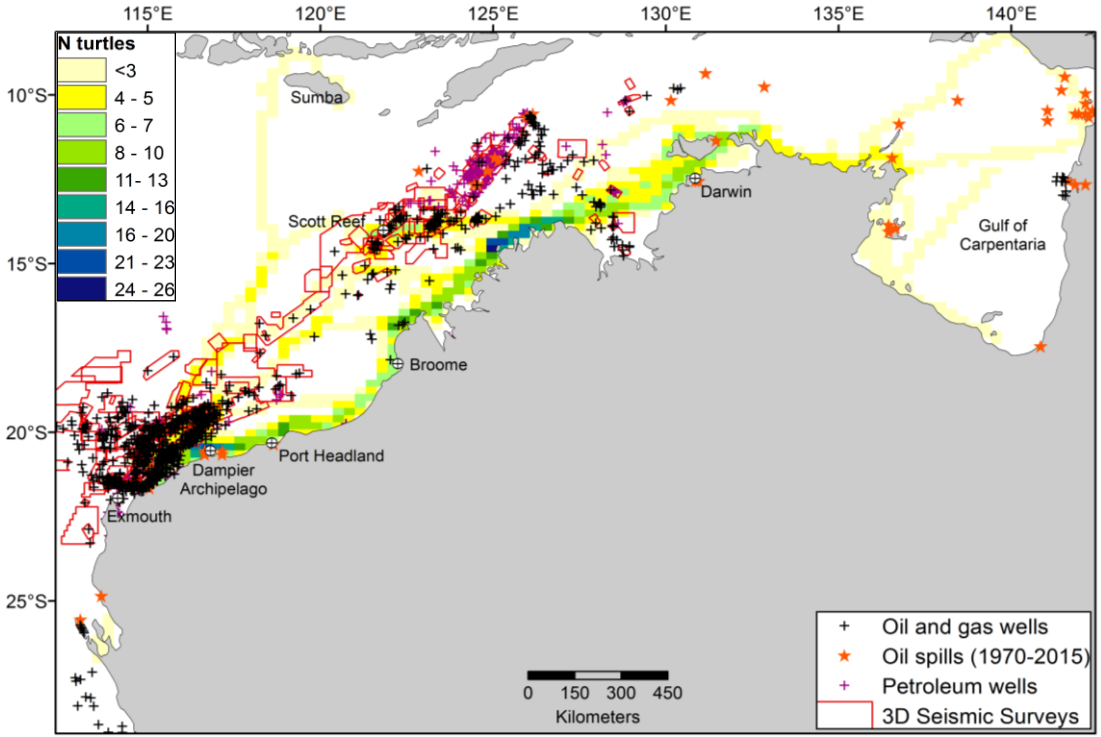
- Average days and number of turtles per grid cell
- Bias: number of tagged turtles, tagging site, length of tracks
- Next step: Time spent for each behaviour (nesting, migration, foraging)





Disclaimer: This is an example of the analysis we will be presenting for each behavioural mode separately (nesting, migration, foraging)

Overlap with industrial activity



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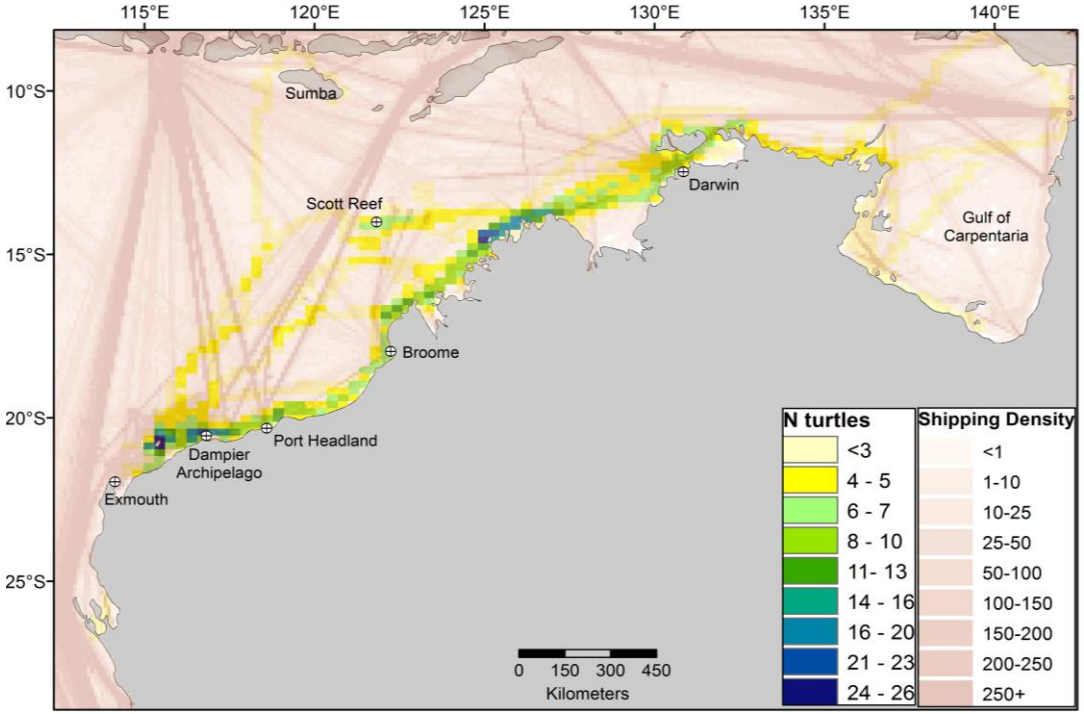
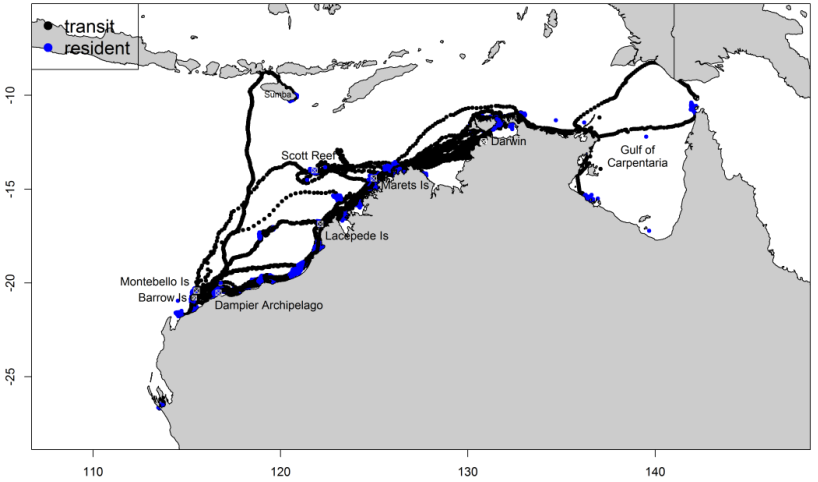
Overlap with shipping



Disclaimer: This is an example of the analysis we will be presenting for each behavioural mode separately (nesting, migration, foraging)

Next steps

- Undertake analysis for inter-nesting, migration and foraging separately
- Quantify biologically important areas
- Quantitative measure of overlap with industrial activities, shipping and others
- Repeat the methodology for hawksbill turtles



Acknowledgements

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