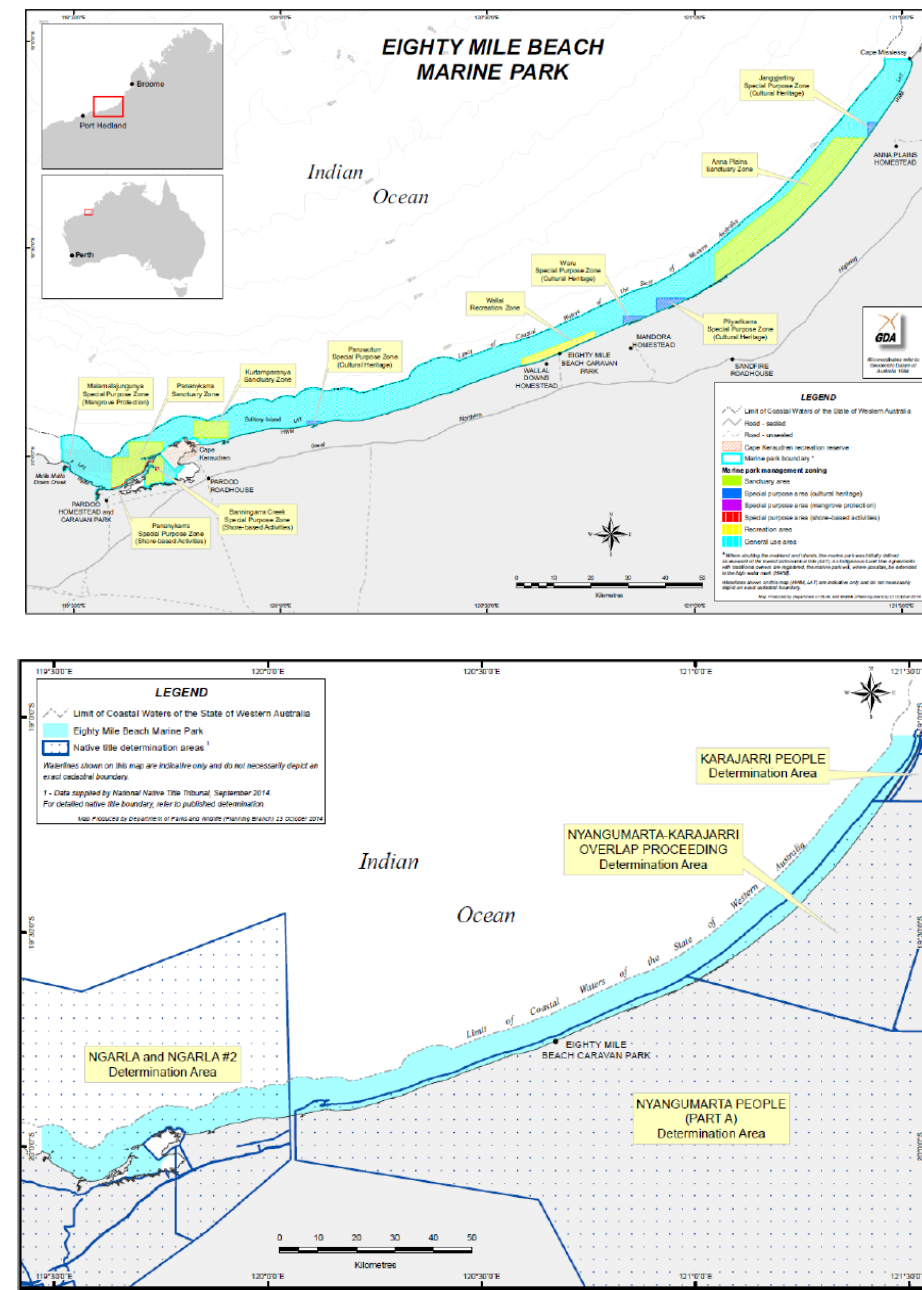


Eighty Mile Beach Marine Park

productive partnerships in flatback turtle management and science

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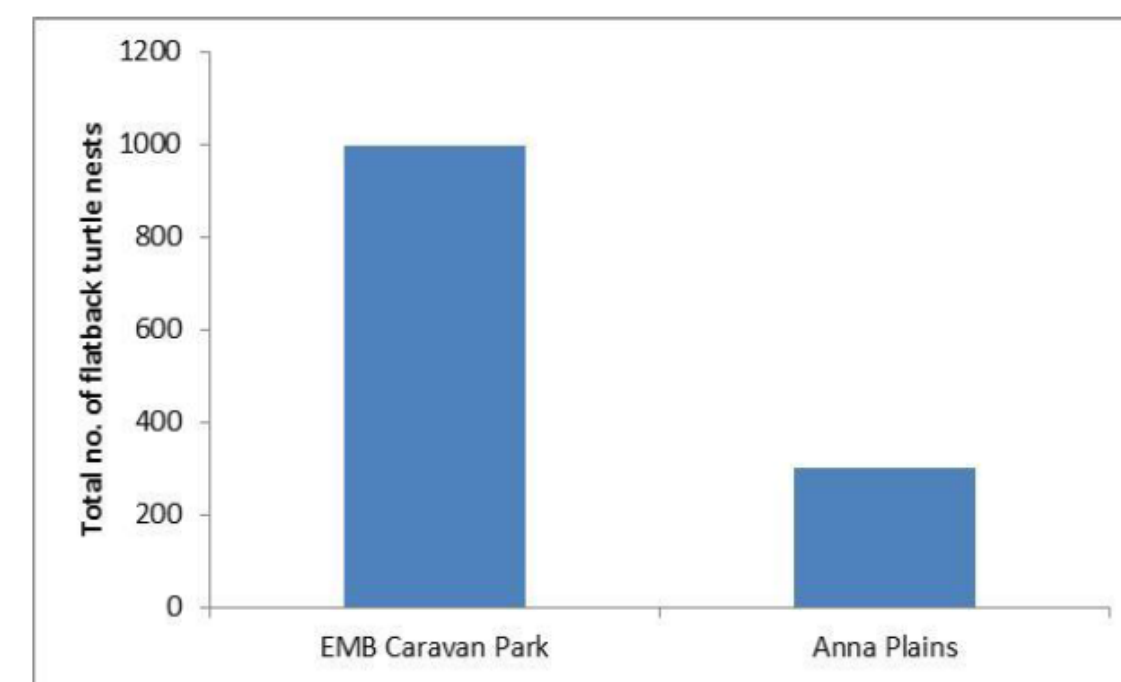
¹Eighty Mile Beach Marine Park-Department of Biodiversity, Conservation and Attractions; ²Nyangumarta Rangers; ³Ngarla Rangers; ⁴Karajarri Rangers; ⁵Florida Atlantic University; ⁶University of Western Australia; ⁷CSIRO; ⁸Griffith University; ⁹Pendoley Environmental; ¹⁰ Marine Science Program-Department of Biodiversity, Conservation and Attractions; ¹¹ Western Australia Marine Science Institute.



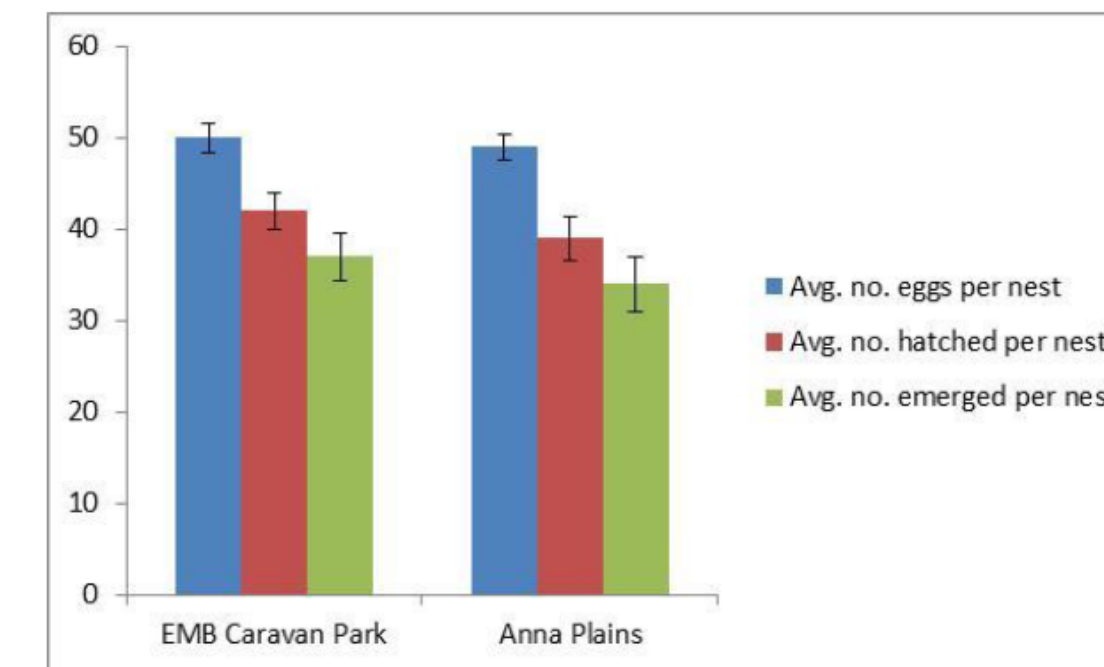
Eighty Mile Beach Marine Park (EMBMP) contains 220 km of coast between Broome and Port Hedland gazetted in 2013 as part of the Kimberley Science and Conservation Strategy. It contains high density nesting by flatback turtles and important foraging grounds for migratory shorebirds. The Park contains country for Karajarri, Nyangumarta, and Ngarla traditional owners. The Park is a field base for research for visiting researchers from Western Australia Marine Science Institute and the North West Shelf Flatback Turtle Conservation Project.

PROJECT HIGHLIGHTS

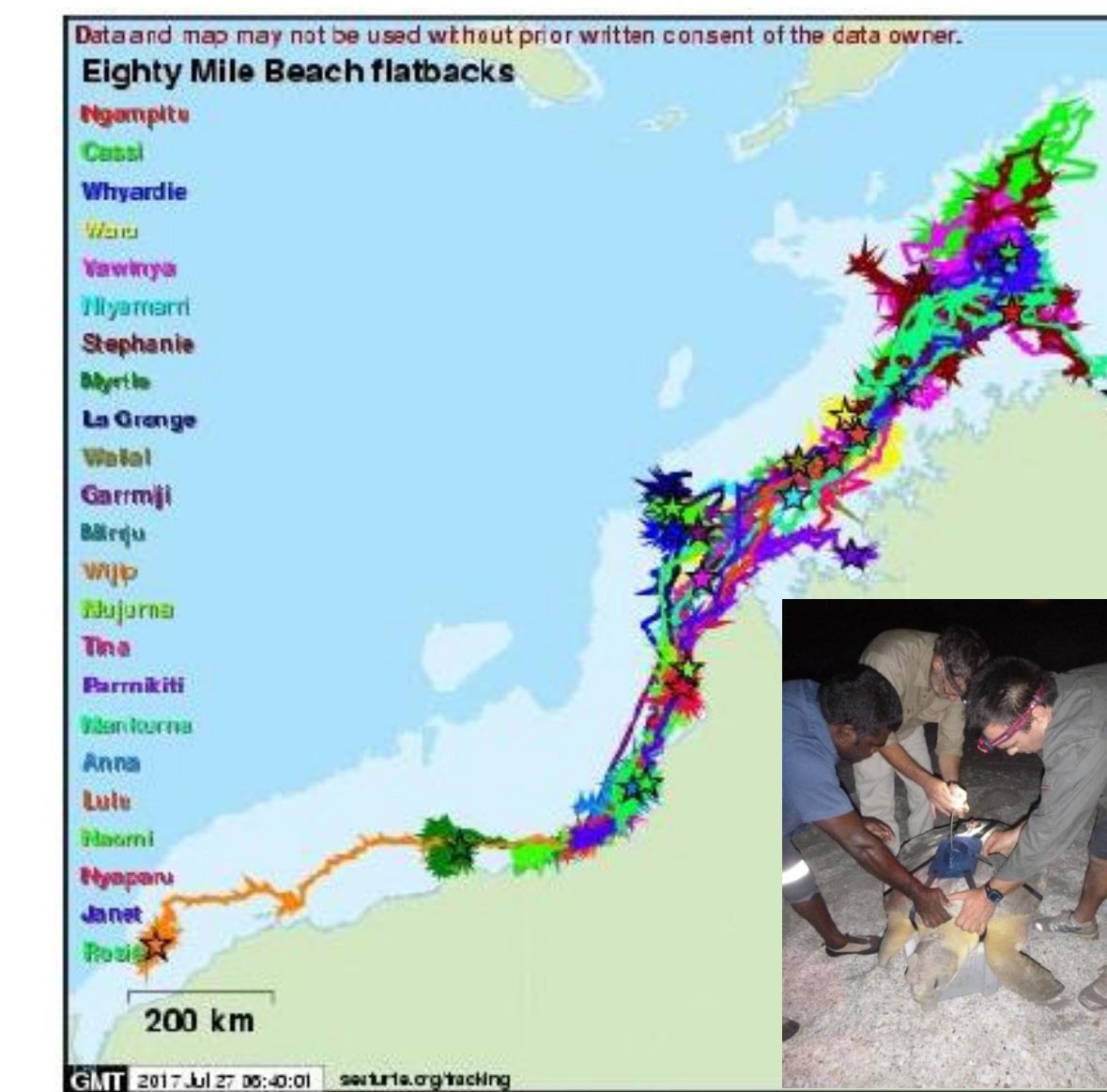
- 1- Aerial surveys (2012, 2014, 2016)
- 2- Daily track counts
- 3- Data on reproductive success
- 4- Flatback satellite tracking
- 5- Developmental migration
- 6- Thermal studies
- 7- Genetic studies



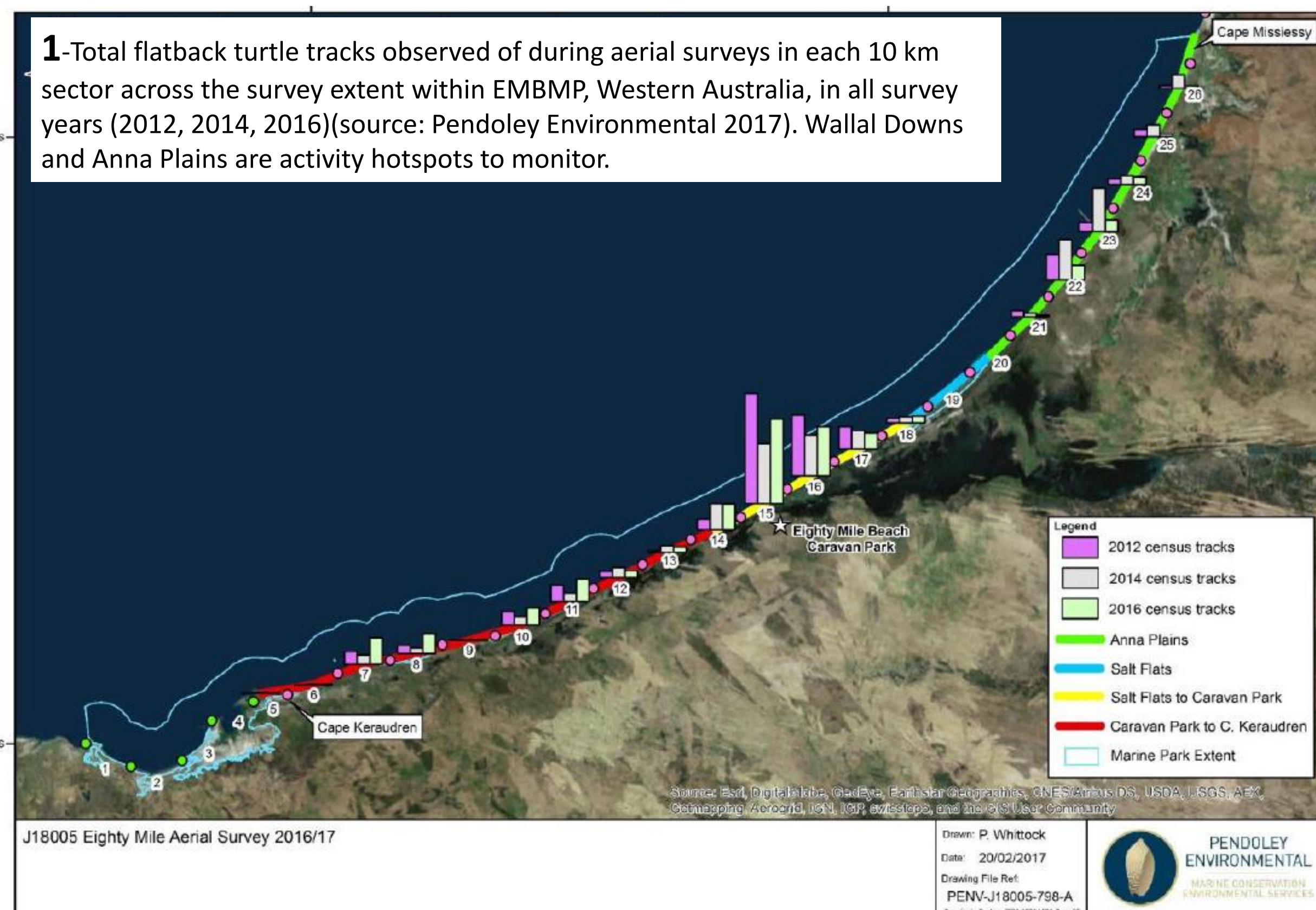
2- Flatback nests counted on track count surveys in EMBMP. EMB Caravan Park (15 d) and Anna Plains (13 d) survey periods are overlapped. Studies conducted rangers and DBCA.



3- Reproductive success of flatback turtles at two primary nesting concentrations within EMBMP. Error bars represent standard error of the mean. Studies conducted by rangers and DBCA.



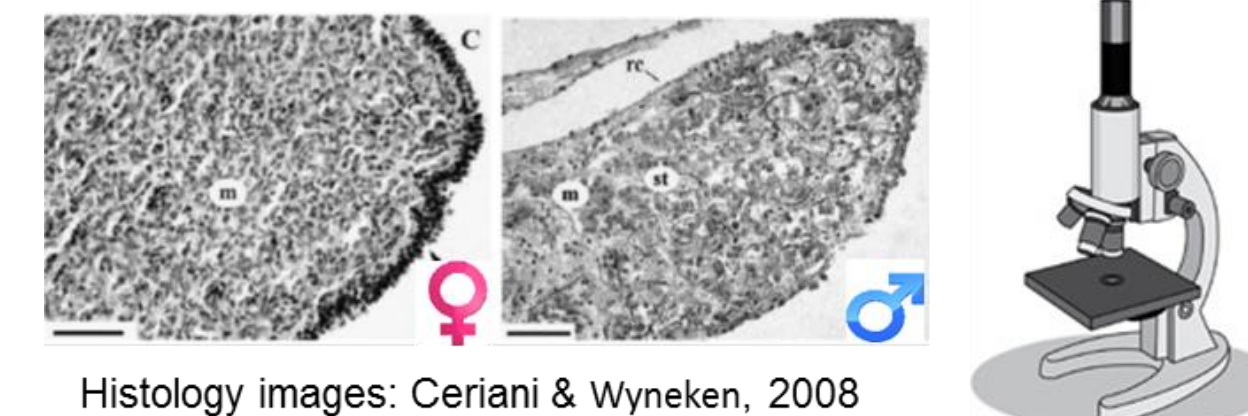
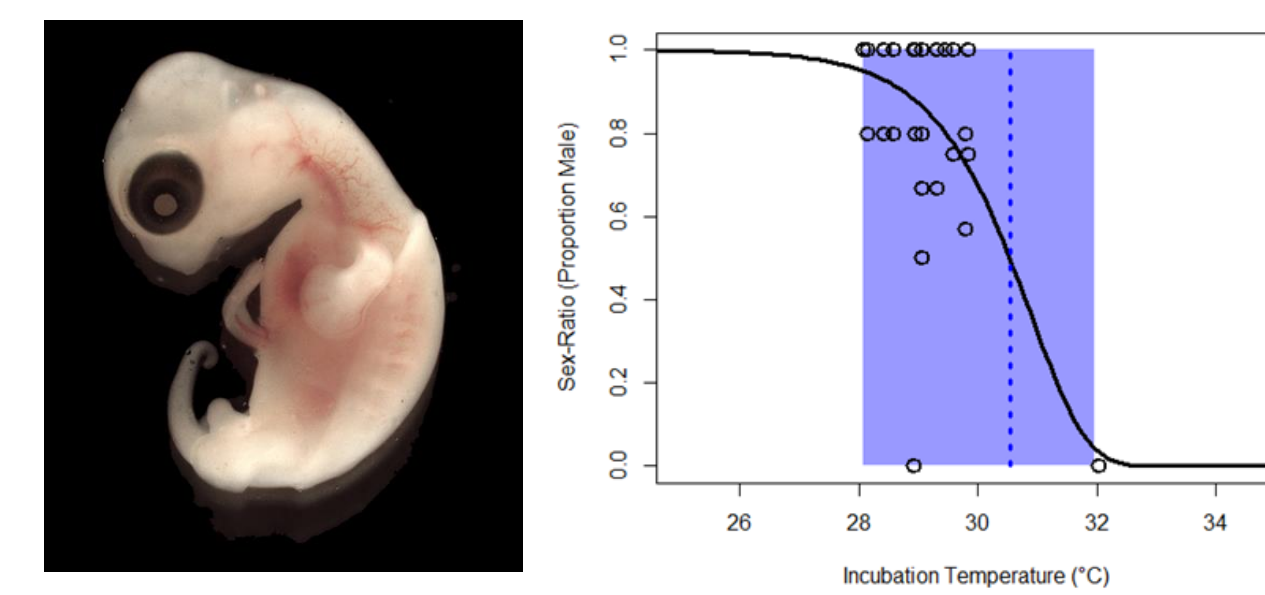
4- Movement patterns of 23 EMBMP flatback turtles tracked with satellite transmitters (source: seaturtle.org). Three of the turtles (13%) have returned on 1 year remigration intervals. Most females (21/23) headed to the West Kimberly or North Kimberly to forage. Project was supported by BHP Billiton and NW Shelf Flatback Conservation Program.



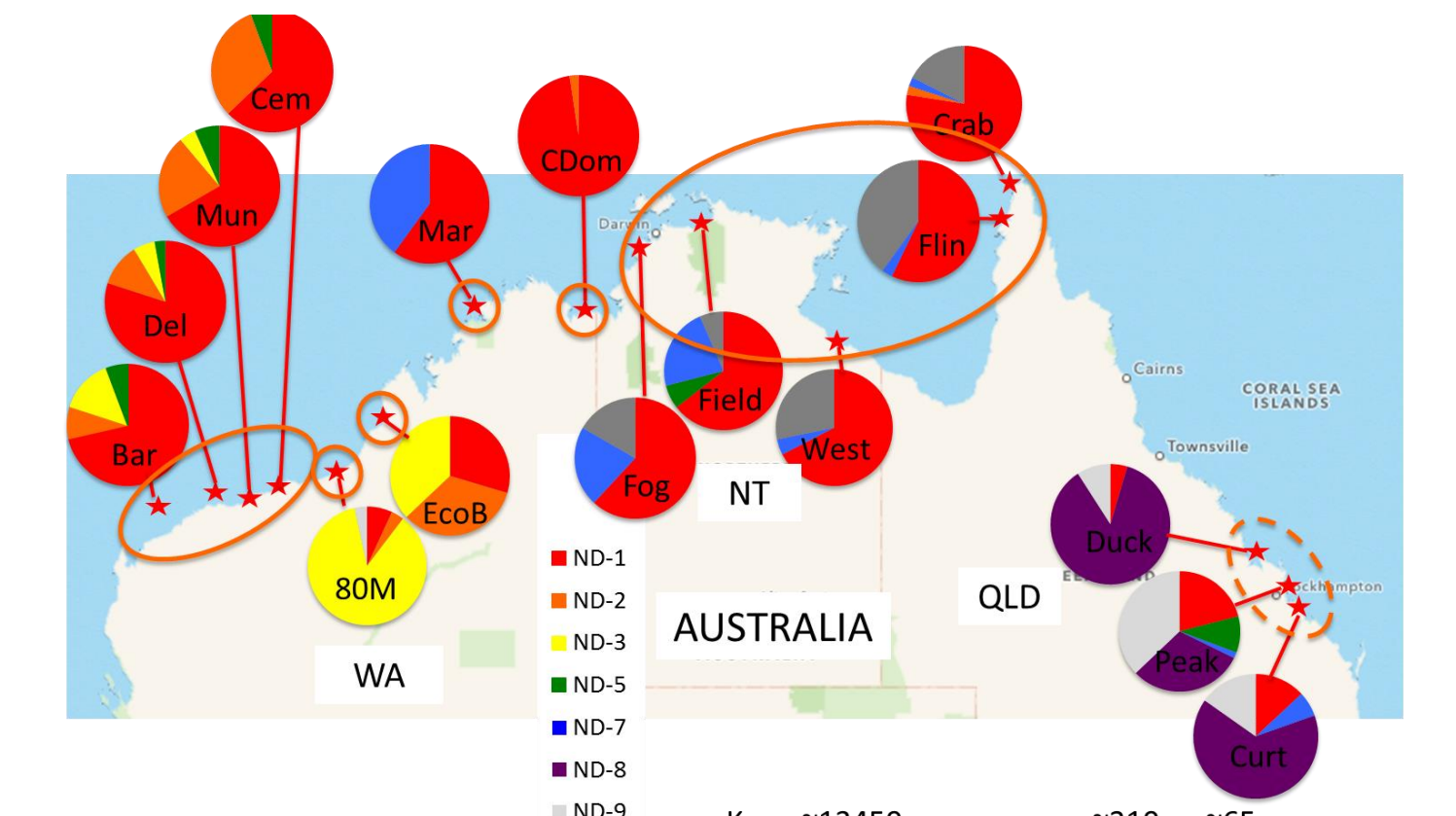
1- Total flatback turtle tracks observed of during aerial surveys in each 10 km sector across the survey extent within EMBMP, Western Australia, in all survey years (2012, 2014, 2016)(source: Pendoley Environmental 2017). Walla Downs and Anna Plains are activity hotspots to monitor.



5- Hatchling turtles reared for 3 months at AQWA (Aquarium of Western Australia) were released back at EMBMP and tracked by scientists from Florida Atlantic University and DBCA. Hatchlings were tracked for up to 4 weeks. The results showed that flatback hatchlings remain in nearshore waters as a developmental stage, in contrast to all other marine turtles that undertake an initial offshore developmental stage.



6- A small number of eggs (<0.01% of egg production) were transported to UWA laboratory for incubation to determine sex of hatchlings. Climate information from portable weather stations installed across the Kimberley allow modelling of climate warming and future effects on sea turtles. (Turtle embryo photo by Scott Gilbert and Judy Cebra-Thomas).



7- Genetic studies coordinated by CSIRO and Griffith Univ. through WAMSI 1.2.2 investigated management stocks of flatback turtles in the Kimberley through expanded samples that included Eighty Mile Beach. The pie charts show the genetic variation found in mitochondrial DNA at some of the Kimberley sample sites.

References

Pendoley Environmental. 2017. Eighty Mile Beach Marine Park. Marine Turtle Aerial Surveys 2012, 2014, & 2016. Report to Department of Parks and Wildlife.
 Whiting, S., Tucker, T., Pendoley K., Mitchell N, Bentley B, Berry O, and FitzSimmons N. 2017. WAMSI Kimberley Marine Research Project Final Report Project 1.2.2 Marine Turtles. Key biological indices required to understand and manage nesting sea turtles along the Kimberley coast
 Williams, C., Ferguson, A., and Kay N. 20017. Eighty Mile Beach Marine Park Turtle Monitoring Report, Annual Report 2016-2017. Department of Biodiversity, Conservation and Attractions, Perth.