MOVEMENTS AND DISTRIBUTION OF FLATBACK TURTLES (NATATOR DEPRESSUS) IN WESTERN AUSTRALIA AND OVERLAP WITH MARINE PROTECTED AREAS*

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Flatback turtles (*Natator depressus*) nest exclusively on remote Australian beaches that are logistically challenging to access, which has historically hampered efforts to effectively quantify movement patterns across genetic stocks. The proximity of industrial developments to key rookeries and improvements to satellite transmitter technology, however, mobilised research and monitoring efforts in Western Australia between 2005 and 2020. Here, we compile the largest satellite tracking dataset available to-date for a single marine turtle species. Tracked flatbacks (total n = 280; 268 females, 10 males, 2 unknown sex) spent 99.5% of their time in Australian waters, where we quantified the extent of overlap of the five identified stocks (listed from west to east: North West Shelf, Eighty Mile Beach, Eco Beach, West Kimberley, East Kimberley) relative to inter-nesting, migratory and foraging behaviour (10, 10 and 80% of 288,075 records, respectively) and existing protective measures. Areas of importance for each behaviour were delineated relative to both the amount of time individuals spent within an area (i.e. occupancy index) and how many individuals visited each area. Flatbacks were tracked for a median of 275 days (range 11 – 820 days) and travelled a median distance of 2,832 km (range 66 – 11,158 km) within predominantly shallow, coastal waters (< 50 m water column depth; 77.1% of records). Areas of importance identified for the species, particularly those relevant to multiple stocks, were used to inform review of existing reserve boundaries and the design of future spatial protections (e.g. marine reserves and Biologically Important Areas). Additionally, our extensive dataset was used to identify priorities for future research and monitoring efforts for the species at remote nesting beaches and offshore foraging grounds in northern Western Australia.

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