REPORT TO ANPWS ON THE WESTERN AUSTRALIAN MARINE TURTLE PROJECT NO. 4459 1986-87

During the 1986-87 nesting season, some 977 marine turtles were tagged by, or under supervision of officers of the W.A. Department of Conservation and Land Management at locations as far apart as the Lacepede Islands Nature Reserve (north of Broome) and North West Cape.

Major tagging sites were: West Island, Lacepede Islands Nature Reserve (422 greens + 1 flatback, through November 1986); and beaches on the western side of Barrow Island (463 greens and 2 flatbacks, from October 1986 through to the beginning of March 1987). Smaller numbers of turtles were tagged at: the Muiron Islands Nature Reserve (31 greens and 8 loggerheads); North West Cape (4 greens); Thevenard Island Nature Reserve (3 greens); in the Dampier Archipelago (4 hawksbills); at the Lowendal Islands Nature Reserve (2 greens, 12 flatbacks, and 19 hawksbills); and on the mainland coast at Mundabullangana (6 flatbacks).

All animals were double tagged on the inboard trailing edge of the fore flippers with titanium metal tags as previously used in north Queensland. These tags were identified by a series of letter and number combinations specific to this project.

In total, tags were applied to:

908 F + 17 M	green turtles
21 F	flatback turtles
23 F	hawksbill turtles
8 F	loggerhead turtles

In addition to CALM staff, tagging operations have involved volunteers and also Aboriginal assistants. Expansion of this aspect of the project work is envisaged.

Apart from tagging operations, project work also included regular surveillance of nesting activity within the Dampier Archipelago from September 1986 through March 1987, aerial surveillance of possible nesting sites off the north-west Kimberley coast in early December 1986, plus cooperative work with COASTWATCH at Broome. COASTWATCH work provided information on remote sites such as Browse Island and Ashmore Reef and further information on other near coastal situations that would otherwise have been unobtainable. Participation of groups such as COASTWATCH in obtaining information from remote areas should be promoted further.

Carapace measurements of tagged turtles were the main data obtained. In addition lesser numbers of observations were made on numbers of eggs laid by individual females, inter-nesting intervals, and injury patterns and levels of infestation by barnacles.

Main data sets were for green turtles at Barrow Island and West Island, Lacepedes. Relevant information is summarized below:

Carapace measurements: ($\bar{x}$ ± s.e.m.)

	Barrow Island	West Island
CCL	978 ± 3 mm	996 ± 3 mm
CCW	902 ± 3 mm	912 ± 2 mm

Clutch size: Average eggs laid (n of obs.)

No.	76 (15)	72 (14)
Range	(37-112)	(48-101)

Inter-nesting intervals:

The Lacepede Islands program was the only one where observers were present for an extended period (18 days total). Barrow Island work was done over a number of short

duration (up to 4 days) regular trips spread through the nesting season. Opportunity to gather data on inter-nesting patterns and intervals was thus restricted.

At the Lacepedes, observations on 20 turtles suggested inter-nesting intervals of from 10-13 days, e.g.;

no. of turtles	interval (days)
8	13
4	12*
7	11
1	10**

* 1 observed laying first up, laid another 75 eggs second encounter.

** this turtle observed to lay 55 eggs first up, then seen again on beach after this period.

The information available suggested that timing within a tidal cycle may have influenced the return time here.

The Barrow Island program only favoured observation of recurrent cyclic behaviour over longer periods than those suggested from the Lacepedes work. Sixteen individuals provided data as follows:

no. of turtles	interval (days)
4	29-32
1	54
11	63-66

If these data are representative and turtles laid eggs on each return visit, the Lacepedes observations suggest that turtles nesting at Barrow Island could have been laying somewhere between 2 and 6 clutches for the season.

Physical damage: - Lacepede Islands data only available.

Whole flippers missing	5 individuals	(1.2%)
Large parts of flippers missing (excluding above)	15 individuals	(3.6%)
[Total with damage as above	20 individuals	(4.7%)]
Damage to flippers other than loss of parts	47 individuals	(11.1%).

Barnacle infestation: - Lacepede Islands data only available.

No barnacles present	312 individuals	(73.9%)
(Chelonibia)*	102 individuals	(24.2%)
Burrowing barnacles+	11 individuals	(2.6%)

*2 individuals had large numbers (50^{+} est), but most had small numbers; some had mixed size classes but probably most had same size (not scored directly). Most located dorsal position but some on plastron around edge. Very few on flippers.

+Three individuals severely affected eg. mass of barnacles and hyperplastic tissue growth, dimensions:

1) 520 mm (L) x 360 mm (B) x 35 mm (H)
2) 350 mm (L) x 250 mm (B)
3) 280 mm (L) x 170 mm (B)

2 others had large areas affected, but very small barnacles only; one other had the infestation of small size individuals on top of head. The large masses mentioned were all on the carapace.

A very few individuals had both types of barnacles present.

Recovery of one tagged turtle has been reported to date. The female green turtle involved was tagged at West Island in the Lacepedes on 21-xi-86, captured at Croker Island, NT on 6-iv-87 and released to sea alive with tags still attached on 8-iv-87. The points of tagging and initial

recovery of this animal practically connect two locations where Indonesian tagged green turtles have been recovered on the northern Australian coast. A mixed Indonesian/Australian green turtle stock is suggested. International management implications are obvious, given the existence of a large Indonesian-based adult turtle fishery in the region.

Data presented above are preliminary, and will be added to as the project develops further in the next few years.

Suitable data will be prepared for publication as they become available and copies forwarded to ANPWS as printed.

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