



# NEWSLETTER

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## Introduction

This newsletter is intended to provide information about progress of the project for persons who have assisted with the work in any way, and as a general information sheet for restricted distribution. It will be produced when sufficient new information becomes available from time to time.

This first issue includes information available from work to mid-way through the third tagging season (1988/89) and indicates desirable future directions for the project.

## Tagging work - 1988/89

### Green turtle

Further tagging of green turtles at the Lacepede Islands and Barrow Island rookeries has proceeded. A major effort to ensure that good numbers of turtles nesting in the Exmouth Gulf area are tagged this season has also been made.

To date, the numbers of green turtles tagged at these major rookery sites have been:-

	Progress 88/89	Previous Total	Progress Total
Lacepede Is	916	1 546	2 462
Barrow I	621	1 145	1 766
Exmouth area			
S Muiron I	105	52	157
Ningaloo MP	558	6	564
<b>TOTAL</b>	<b>2 200</b>	<b>2 749</b>	<b>4 949</b>



In addition to the above, smaller numbers of green turtles have been tagged at a number of other locations - Total to date = 82.

#### Other species

Limited tagging of flatback, hawksbill and loggerhead turtles has been done along the Western Australian coast in conjunction with the major work focussed on the green turtle.

Loggerhead turtles have mainly been tagged at nesting sites in the Exmouth area - Total 21, including 10 this season. One other individual has been tagged this season at Varanus I in the Lowendal group. Nesting has been observed in the Shark Bay area, but no tagging has been done.

Flatback turtles have been reported as far south as Exmouth Gulf. Tagging has been confined to sites northward of this area - Total = 103. Important rookery sites include Cape Domett, the Slate and Helpman Is in the Kimberley, and coastal (Munda and Cowrie Beaches) and insular sites in the Pilbara.

Hawksbill turtles have been tagged at sites off and along the Pilbara coast - Total = 109. The best documented rookery is at Varanus I in the Lowendals; most of the tagging (93 turtles) has been done at this site by a volunteer participant.

'WA series' tags have not been used at Ashmore Reef this season.

#### Dispersal of Tagged Turtles

Two additional recoveries of dispersing green turtles have been reported, including the first recovery of a Barrow Island tagged animal. This turtle was taken near Cape Borda on the west Kimberley coast mid-July 1988, but was only reported in January 1989. It was tagged at Barrow on 21 Oct 1987. The second report was received from the Warruwi Community on South Goulburn I, NT. This animal was taken early-Dec 1988, having been tagged at the Lacepedes on 30 Nov 1987.

Total recoveries to date include 8 Lacepede nesters and the 1 from Barrow (above). The Lacepede group recoveries have been split equally between Western Australian and Northern Territory waters, and dispersed from King Sound, WA, to east of Elcho I off north-east Arnhemland, NT (Fig. 1, attached).

Turtles tagged in both the 1986/87 and 1987/88 seasons have been recovered from NT waters.

These initial recovery data suggest some N-S movement of adult green turtles off the WA coast on a seasonal basis, and also that important feeding grounds for the Lacepede Islands nesters may be in the NT. Feeding grounds for the Barrow I nesters may include areas off the Kimberley coast.

## Remigrants - Green Turtle

No green turtles tagged in the 1986/87 and 1987/88 seasons have yet been observed re-nesting. A remigrant interval of greater than two years is suggested for these Western Australian nesting populations.

## Seasonal Variation in Nesting Activity

### Green Turtle

The Lacepede tagging work and other information for the Kimberley region accumulated so far suggest some quite wide variation in green turtle nesting activity from one season to the next. The greatest intensity of activity observed occurred in the 1987/88 season. Activity during the 1986/87 season was much less, while the activity during the current season has been intermediate between that of the previous two seasons.

Information from the Barrow I work has not suggested any clear between season differences.

There are insufficient data pertaining to other sites, where work patterns achieved have not permitted adequate documentation of within season variations in activity.

### Other Species

Information on species other than the green turtle is fragmentary, principally because these other species are much less abundant than the green turtle.

Flatback turtles have been observed nesting in significant numbers at Cape Domett in June-July, the middle of the northern dry season. Flatbacks nesting in the King Sound area may also nest as early as July, but it is not clear when peak activity occurs. It is possible that there is latitudinal variation in suitability of conditions for nesting, with those turtles nesting down the west coast having a peak later in the year.

Hawksbill turtles certainly seem to commence major activity in the Dampier Archipelago and Lowendal Islands area earlier than the green turtle, but continuing activity overlaps the green turtle season.

The small number of loggerheads observed does not provide a firm basis for judgement of seasonality of nesting. The animals marked have been tagged in parallel with green turtle work. An apparently unusual event, however, was the nesting of a loggerhead observed at Turtle Bay, Dirk Hartog Island on the morning of 24 July 1988 (Woldendorp, pers. comm.). Environmental and beach temperatures at the time would have been well below those believed suitable for commencement of incubation.

Further information is needed for the loggerhead, hawksbill and flatback turtles.

#### **Genetic Studies - Green Turtle Populations**

Tissue samples have now been taken from adult female green turtles nesting at the three major tagging locations (Lacepedes, Barrow I, and Exmouth area) in both the 1987/88 and 1988/89 seasons. Results emerging from isozyme electrophoresis are suggesting some differentiation between the Lacepede nesters, and those from the Barrow I and Exmouth areas. These analyses are not yet complete.

Hatchling samples are also being collected this season, and being shipped to the University of Queensland for mitochondrial DNA analysis. Dr Craig Moritz is doing the work. Results from this study should complement the information from the adult tissue work.

These genetic analyses should provide information complementary to tag return data in the long term, and assist in understanding the relationships between nesting stocks.

#### **Further Development of the Project**

The Western Australian Marine Turtle Research Project aims to provide a better understanding of the biological characteristics of the species populations frequenting the Western Australian coast, and of the requirements for management of these important conservation stocks. The initial focus on the abundant green turtle has now placed us in a position where we have a firm foundation for learning much more about the relationship of these nesting stocks to other Australian and regional green turtle populations, and for developing better knowledge of the dynamics of these Western Australian dependent populations.

To capitalize on the foundation now provided, it will be necessary to continue release of tagged green turtles from the major rookeries for another three seasons at least, and to continue surveillance to detect remigrant nesting for a longer period. Additional work to properly identify the major feeding grounds is also required. Nothing is presently known of areas important for growth and recruitment of young turtles.

Work to achieve the above targets will be labour intensive. Necessary resources are not available to the conservation authorities. The assistance of volunteer workers will therefore be crucial, and should assume even greater importance than has been the case to date. Previous contributions of those already involved are gratefully acknowledged. Your continued participation is also most welcome. Recruitment of further volunteer participants is a current objective. Help in this regard is sought.

Means necessary to permit documentation of feeding areas important for the green turtle are being investigated. Study of

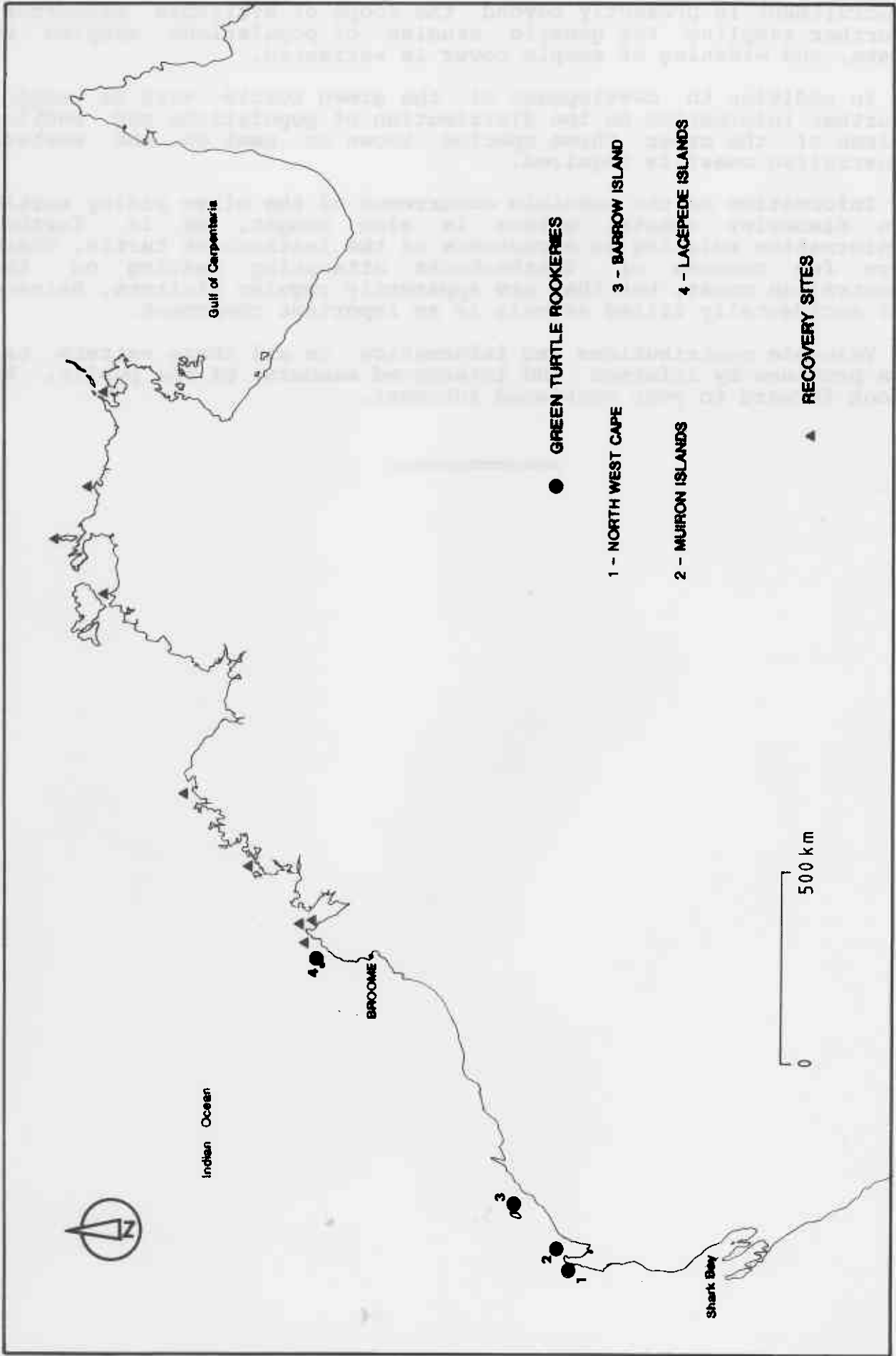


Fig. 1 TOTAL RECOVERIES - GREEN TURTLES - TO MARCH 1989

recruitment is presently beyond the scope of available resources. Further sampling for genetic studies of populations sampled to date, and widening of sample cover is warranted.

In addition to development of the green turtle work as noted, further information on the distribution of populations and nesting sites of the other three species known to nest on the Western Australian coast is required.

Information on the possible occurrence of the olive ridley turtle in Kimberley coastal waters is also sought, as is further information relating to occurrence of the leatherback turtle. There are few records of leatherbacks attempting nesting on the Australian coast, but they are apparently regular visitors. Salvage of accidentally killed animals is an important component.

Valuable contributions and information on all these matters can be provided by informed and interested members of the public. We look forward to your continued interest.

