



NEWSLETTER

NUMBER 2 MONTH JUNE YEAR 1990

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(PROJECT SUPPORTED BY AUSTRALIAN NATIONAL PARKS AND WILDLIFE SERVICE)

Seasonal Factors

The 1989/90 project work saw a number of changes occurring. The most important of these was a pre-season notification of reduction in committed support.

With an anticipated increased need for beach surveillance to detect potential remigrant visitors to the Barrow Island and Lacepede Islands rookeries in this fourth field-season, and the desirability of maintaining the core beach work, it was necessary to review the proposed seasonal work program and to attempt a restructure. This was successful because

- i) West Australian Petroleum Pty Ltd (WAPET) committed further direct support of work focussed on Barrow Island, and members of the island workforce volunteered to assist further with the beach work program;
- ii) with support of CALM Operations division, Exmouth District, and recruitment of selected volunteers, it was possible to maintain a regular beach surveillance and tagging effort on selected NW Cape beaches adjacent to the Ningaloo Marine Park from late November 1989 to late February 1990. This effort was supplemented by the efforts of other volunteers recruited from the town of Exmouth; and
- iii) continuing support for Aboriginal community participation in the West Kimberley segment permitted the Lacepede Islands work to continue. The continuing support received from the Contract Employment Program for Aborigines in Natural and Cultural Resource Management administered by ANPWS is acknowledged.

With progress of the seasonal work program as implemented, the major biological change noted was an appreciable reduction in nesting intensity of green turtles at the two southernmost study rookeries at Barrow Island and North West



Cape, and a peak in intensity of concurrent activity at the Lacepede Islands.

Tagging Work - 1989/90

Green turtle

Tagging of mostly adult female green turtles emerging onto rookery beaches of the Lacepede Islands, Barrow Island, and in the Exmouth Gulf area was continued during the main summer nesting period.

To date, the numbers of green turtles tagged at these major study rookeries have been:

	Progress 89/90	Previous Total	Progress Total
Lacepede Island	698	2 511	3 209
Barrow Island	291	1 719	2 010
Exmouth Gulf area			
Muiron Islands	30	158	188
Ningaloo Marine Park	446	564	1 010
TOTAL	1 465	4 952	6 417

In addition, 122 green turtles have been tagged at a number of other locations.

Other Species

Further tagging of smaller numbers of flatback, hawksbill and loggerhead turtles in conjunction with the main green turtle work was continued.

Small numbers of loggerheads were again found nesting on the Exmouth Gulf area beaches. Another 19 turtles were tagged - Progress total 40. The loggerhead was not observed nesting at other study sites this year.

Most the Flatback turtles were tagged at one mainland study site on the Pilbara coast and at Barrow Island; season total to date 55 - Progress total 175.

The major hawksbill tagging again focussed on Varanus Island in the Lowendal group. The more extensive effort focussed on Ningaloo Marine Park beaches also revealed a greater usage by hawksbills than previously documented. Season total to date 41 - Progress total 217.

A small number of 'WA series' tags were forwarded to ANPWS for emergency use at Ashmore Reef. Tagging data not yet returned.

Dispersal of Tagged Turtles

Reporting of chance encounters with tagged turtles away from the source rookeries remained the source of further dispersal data. It is however known that there are some problems in obtaining prompt and complete reporting of these events.

Despite the problems with incomplete reporting of recoveries in remote locations, a further 14 reports have been received from around the northern Australian coast over the past year.

The most notable new report was of a female loggerhead tagged originally at South Muiron Island in the Exmouth Gulf area being taken near Maningrida in the Northern Territory. At the time of recovery this animal was one of a total of only 21 animals tagged in WA waters and was 1 of only 3 tagged in the 1987/88 season.

The remaining 13 reports all related to green turtles tagged at the Lacepede Islands. The previously reported recovery of a Barrow Island tagged green turtle on the West Kimberley coast remains a singleton.

Of the 21 Lacepede nesting turtles now reported as recovered we have one from Queensland waters in the SE part of the Gulf of Carpentaria, another 10 scattered along the northern coast of the Northern Territory, including multiple recoveries from Croker Island (4), South Goulburn Island (2) and the Melville Island area (2), and 10 from Kimberley coastal areas of Western Australia. To date, the green turtles reported recovered outside of Western Australian coastal waters have been from the groups tagged at the Lacepede Islands in the 1986/87 and 1987/88 seasons only - latest reports, March - April 1990.

The multiple recovery reports noted above reinforce the view that important feeding grounds for some of the green turtles nesting at the Lacepede Islands are located in coastal waters of the Northern Territory.

The obvious continuing bias in the current recovery data points to the need to mount dedicated searches for tagged turtles further offshore, and also along the poorly visited parts of the Kimberley coast in the western Australian

region. Further attention to stimulate better reporting recoveries is also needed.

Remigrants (turtles returning to nest at known rookery) Green Turtle

The first remigrant green turtles were seen at our Barrow Island and Lacepede Islands study rookeries this season.

At Barrow Island, two individuals from 246 tagged while nesting at John Wayne Beach during the 1986/87 season were resighted. This low return rate must be judged against the low intensity of nesting at Barrow during the 1989/90 season.

Twenty turtles from the original 420 females tagged at the Lacepedes during 1986/87 were resighted there this season, along with another 3 turtles from the 1 130 tagged during the 1987/88 season. The apparently high return rate for 3 year remigrants and the detection of a small number of 2 year remigrants as well in this instance must be judged in light of the high intensity nesting effort at the Lacepedes during 1989/90. Most of the turtles present did not visit the Lacepedes in 1986/87 however.

Other Species

Some remigrant flatbacks and hawksbills have also been observed. One and two year remigrant intervals have been recorded for flatbacks; the only hawkbill record to date is for a 3 year interval.

The remigrant observations noted are generally in accord with expectations. Frequency of actual remigrants could have been greater than reported however because of tag loss problems. Our 1986/87 season animals were double tagged initially. Seven of the twenty remigrants from this group at the Lacepedes had lost one tag, and the single tag remaining on one of these turtles was so insecurely attached when the turtle was found that it would most probably been lost that same night. Another 2 or 3 turtles with bilateral (dual) tag loss might therefore have been expected to have turned up. One turtle believed to be in this condition was reported.

Seasonal Variation in Nesting Intensity

A major change in relative nesting intensity of green turtles did occur during the 1989/90 season. This was reflected in :

the lowest intensity of use of the Barrow Island rookery so far observed;

an apparent parallel response at the Exmouth Gulf area beaches where the intensive beach work was only in its second year, and;

the highest yet observed intensity of use of the Lacepedes rookery. Complete information is not available, but it is possible that perhaps 8-10 000 female green turtles visited this rookery during the 1989/90 season.

There are insufficient data pertaining to nesting of other species.

Severe beach erosion occasioned by the passage of two tropical cyclones close to the Barrow Island and Exmouth Gulf area beaches in late January and February 1990 practically destroyed the egg clutches laid at these rookeries from about mid-December 1989. Further nesting visits to these beaches dropped to very low levels after the passage of the first cyclone, and did not subsequently reapproach the previous mid-season levels.

A preliminary attempt to examine the developmental environment within green turtle nests and the sex ratio of hatchlings at one of the Ningaloo Marine Park beaches was aborted due to destruction of the instrumented nests by the first cyclone. We were fortunate to recover both data loggers after this event.

Genetic Studies

Further tissue samples were obtained from adult female green turtles nesting at the Lacepedes during the 1989/90 season. Analysis of these samples, and reexamination of some of the previous samples collected from this site and the Barrow Island and Exmouth Gulf area as well is nearly complete. The broad picture previously reported is not changed (i.e. some difference between Lacepedes and the two southern rookeries).

A small number of hatchling green turtles from the Lacepede Islands and Ningaloo Marine Park, and flatbacks from the Pilbara coast, have been presented for mitochondrial DNA analyses by colleagues at the University of Queensland. Preliminary reports suggest that the DNA complement of the WA source greens is quite distinct from that of eastern Australian animals, but that the flatback material is little different.

Further collection of adult and hatchling material planned for the Barrow Island and Ningaloo Marine Park sites was not completed due to the prior intervention of cyclone activity as noted previously. Two late season attempts to procure additional hatchlings from the Lacepedes were aborted due to rough weather.

Recovery of Tagged Turtles from Other Rookeries in WA

One tagged leatherback turtle believed to have come from an Indonesian rookery was captured and released alive during October 1986. The tag carried was 'plastic', but sketchy details only of the inscriptions carried were reported. The correct species identification was verified sometime later, but is reliable.

A green turtle bearing a tag with an Indonesian return address was also taken in the West Kimberley in September 1989. Written enquiries have failed so far to elicit any response regarding the history of this turtle.

These two reciprocal transfers reinforce the view that Western Australian nesting turtles are likely to include animals crossing into Indonesian waters.

Leatherback Turtles in WA Waters

Leatherback turtles do not attempt nesting anywhere on the WA coast as far as we know. However they do appear to be regular visitors. The previous capture and release of a tagged leatherback has been noted above. The need to gather more information on those turtles migrating into WA waters was noted in Newsletter No 1.

A number of good reports of further visits by leatherbacks were made late summer/autumn this season from the Perth coastal region. Whether this was the result of greater numbers of turtles being present, or of a greater public awareness of our interest in obtaining this information is not known. What is important is that entanglement in recreational fishing gear (crab and lobster pot lines) was involved in several instances, but attendance by fishermen near their equipment was responsible for live release of the animals. One animal was apparently killed by collision with a power boat (photograph of floating carcass forwarded by informant) in this area.

A number of deaths due to accidental entanglement of turtles in commercial lobster pot lines were also reported by fishermen. We were able to examine one of those turtles because of the care taken by the fisherman to secure the

carcass when found and industry help in holding it until it could be collected. This turtle was a female of similar size to most other animals having been reported previously (150-250 kg range). The significance of this apparent small steady loss of young adults or pre-recruits cannot be judged, particularly without knowledge of source rookery populations.

Efforts to improve reportage of sightings and salvage of carcasses that may become available are continuing. It is our hope that we may be fortunate enough to be able to tag some 'live release' animals in the future, with a view to later sightings on rookery visits being reported.

Extension Work

Further efforts were made to distribute project leaflets in Indonesian language to fishermen, and to coastal towns in the Indonesian islands. Substantial numbers of these leaflets have been distributed to fishermen visiting Ashmore Reef and similar places by AFZ Officers.

Substantial distribution of leaflets to PHPA offices in the neighbouring Indonesian islands of E Nusa Tenggara province plus Timor has been done recently by WA Museum personnel engaged on biological survey work in the region. Explanations of the importance of the work were given in discussion with the PHPA personnel.

Help noted above is greatly appreciated.

Further Development of the Project

Beach work focussed on tagging and monitoring of nesting female turtles at selected rookeries provides the foundation for our project. The success of the volunteer participation in this work during the 1989/90 season plus the experience gained now provides the required base for maintenance of the beach work at the Barrow Island and Ningaloo Marine Park rookeries. Other volunteer assisted work provides similar continuing essential support. The Lacepede Islands work rests on continuing Aboriginal involvement on a more formal basis. Secure funding plus our integrative management support will ensure adequate progress and enable further investigation of feeding ground and recruitment matters. Opportunities for student research project involvement are also opened up by maintenance of core project work at the more accessible sites.

General work aimed at obtaining further information on distribution of populations and nesting sites will be

continued. Observer network participation is also a vital component in this regard. We look forward to your continued interest and support.

[Editors Note: This newsletter is intended to provide information for persons who have assisted with the work in any way, and as an information sheet for restricted distribution. It is produced from time to time when sufficient new information is available.]

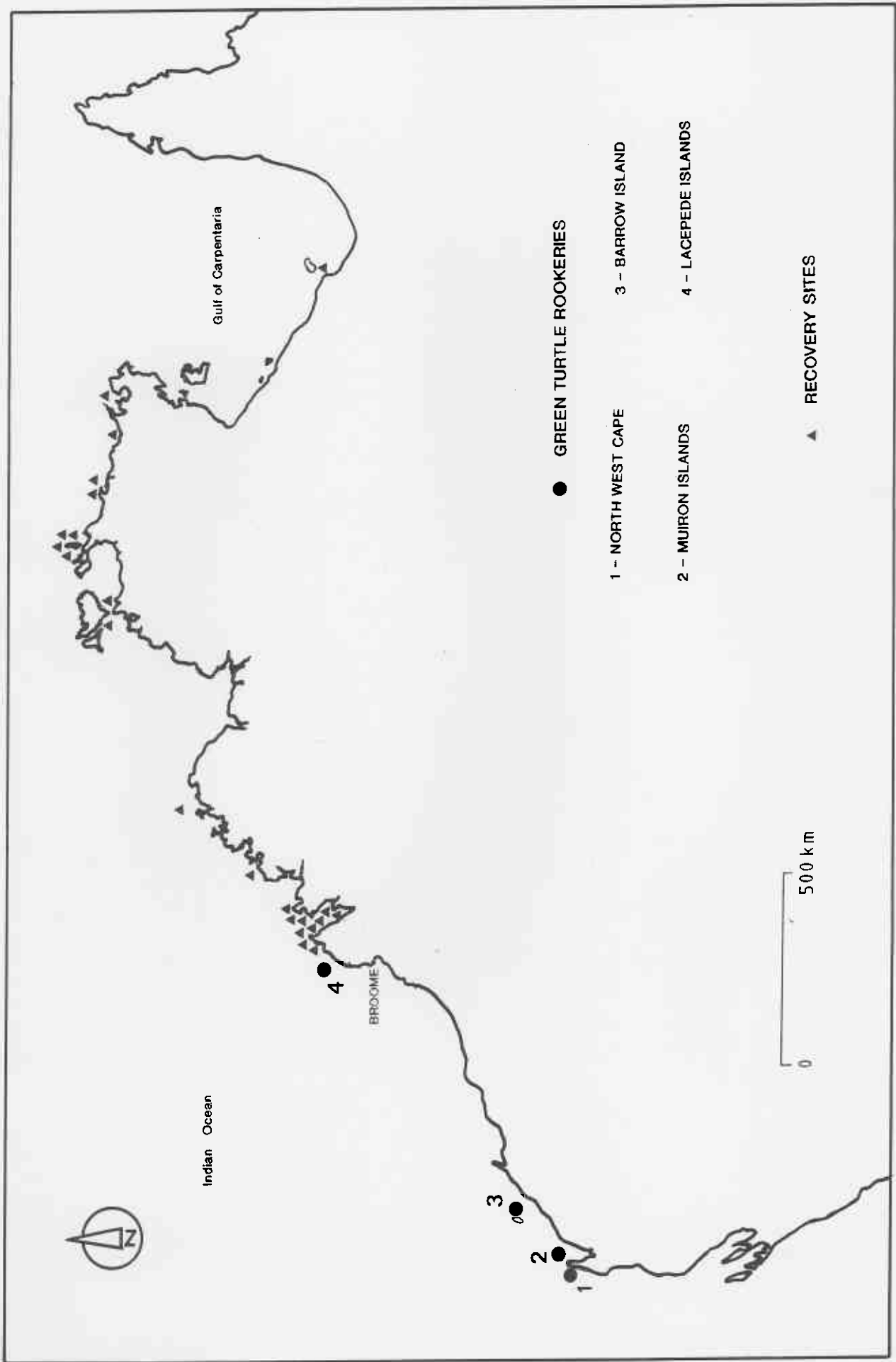


Fig.1 TOTAL RECOVERIES - GREEN TURTLES - TO JUNE 1990