

## Notes and Records

### Recaptures of marine turtles tagged in East Africa: evidence for a non-migratory green turtle population?

Between 3 February 1974 and 24 September 1975, 117 marine turtles were tagged while nesting on Maziwi Island, Tanzania (39°4'E, 5°30'S) (Fig. 1). These included two olive ridleys, *Lepidochelys olivacea* (Eschscholtz), eight hawksbills, *Eretmochelys imbricata* (L.), and 107 green turtles, *Chelonia mydas* (L.). The tags used were monel 'cattle ear tags', attached to the trailing edge of a front flipper, usually the left, near its base. Stamped with a serial number on one side and 'Return to Zurich Zoo, Switzerland', on the other, a tag weighs less than 8 g and is about 4 cm long when attached.

Recaptures of tagged animals are of two types: those at the original site of tagging (Maziwi Island), and those distant from this site. Four *Eretmochelys* were recaptured on the Island nesting a second time, with intervals of 16 to 19 days, and one of these nested a third time after another 17 days. Sixty-six female *Chelonia* are known to have returned to the Island to nest more than once in a single season, and at least three individuals nested at least four times in one season. The most common intervals between nestings were 14, 15, or 16 days, and the greatest period between first and last sightings of an animal at Maziwi was 93 days. No individuals were seen at Maziwi during the year following their tagging. This pattern of multiple nestings, at approximately fortnightly intervals, on a non-annual cycle is usual for these species (Hirth, 1971; Frazier *et al.* in prep.). As studies on Maziwi ended in March 1976, there has been little chance to recapture individuals nesting on the Island in more than one season.

After 5 years, only three recaptures away from Maziwi have been reported, and all were *Chelonia*. On 11 December 1975, number 415 was caught in 'Zanzibar Channel', 40–150 km south of Maziwi Island. It nested successfully on Maziwi on 17 June, and again on 1 July 1975, 164 days before recapture.

On 17 November 1977, at 22.00 hours, number 270 was caught near Ras Kigomasha, at the north end of Pemba Island, some 110 km north-northeast of Maziwi Island. Caught in a net and later butchered, it was reported on recapture to have been a male. Number 270 nested successfully at Maziwi on 27 August 1974 and made an unsuccessful nest attempt on 12 September 1974, when last recorded. The interval between last sighting and recapture was 1,162 days, more than three years.

On 6 September 1980, number 282 was caught in a gill net at Kijibwe Mataa, Uroa, Zanzibar. Although the original tagging record was lost, the animal was probably a *Chelonia* nesting on Maziwi between February and July 1974. The shortest possible distance from Maziwi to Uroa is about 80 km south-southeast, and the elapsed time was evidently between 1,750 and 1,920 days, or more than 5 years.

It is difficult to interpret the rate of recapture, for monel tags are lost from misapplication and corrosion in varying degrees in different studies (Mrosovsky, 1976;

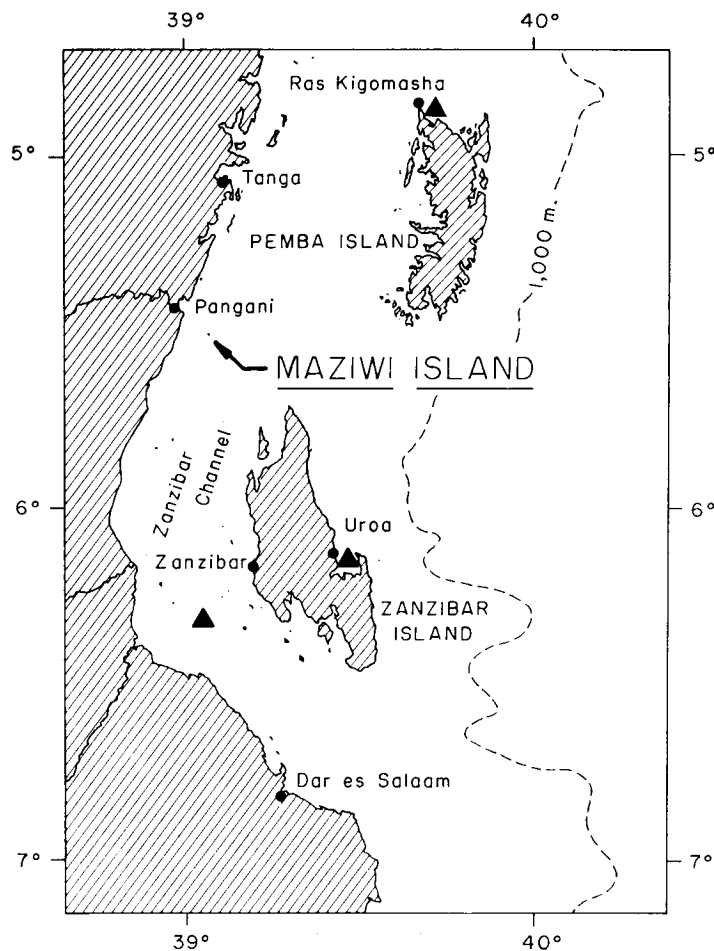


Fig. 1. Coastal Tanzania, showing major geographical features and coastal towns, including: Maziwi Island—the site of tagging; Zanzibar Channel, Ras Kigomasa, Pemba Island, and Uroa, Zanzibar Island—sites of recapture (triangles).

Owens, 1977; Siow *et al.*, 1977; Hughes, 1978; Green, 1979; Marquez & Villanueva, personal communication). Also, some fishermen may not report tags because it is illegal to capture turtles in neighbouring Mozambique (Hughes, in press) and Kenya, and an expensive licence is required (but rarely purchased) in Tanzania (Frazier, 1979). However, this marking technique, developed in 1953 (Hendrickson, 1958), is widely used on most species of sea turtles in many localities and seems to be one of the best now available.

The three 'distant' returns indicate short post-nesting movements, for no recapture was more than 150 km from the nesting ground. This contrasts with the general pattern, for marine turtles are well known for their lengthy post-nesting (migratory) movements, covering thousands of km, often across open ocean (Meylan, in press). East Africa has provided valuable data on long distance tag returns from other studies. Loggerheads, *Caretta caretta* (L.), tagged while nesting in northern Natal are caught

in Madagascar, Mozambique and as far north as Zanzibar, having covered distances on 2,600 km in as little as 2 months (Hughes, 1974, in press). Green turtles tagged while nesting in South Yemen have been recaptured 2,100 km away in southern Somalia (Hirth, 1971, 1978). Although the numbers of recaptures reported from these studies are small, five *Chelonia* and 20 *Caretta*, of which five appeared in Tanzania, the migration routes seem clear.

The tag returns from Maziwi indicate a resident breeding population of green turtles in Tanzania; Hirth (1978) suggested that there may be a resident breeding population in Somalia and Carr (1980) proposed that there may be feeding areas where both migratory and non-migratory populations co-exist. In cases involving Indian Ocean populations, it would be possible for the turtles to feed on the extensive marine pastures that cover the continental shelf and to nest on nearby island or mainland beaches, thus omitting long migrations. However, many more tag returns will be needed to substantiate these seeming exceptions to the general rule. Anyone finding a tagged turtle is requested to write to the address on the tag or to this author. A reward will be paid.

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#### Note added in proof

On 4 December, 1980, Mr Addio Aweeso caught a turtle, tagged 472, at Fumo Island, Somalia. This is about 650 km north of Maziwi, where the animal was tagged on 12 September, 1975.

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