

The Artisanal Sea Turtle Fishery in Daru, Papua New Guinea

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Abstract

Marine turtles are traditionally hunted by coastal and island people in Papua New Guinea for subsistence and cultural purposes. Today, artisanal fisheries for marine turtles operate at Daru (the provincial capital of the Western Province) and Port Moresby (the national capital) where they are an important source of income for many of the local people.

This paper describes the turtle fishery in Daru during 1984-1987 and discusses these findings in terms of management implications.

The fishery is largely operated by the Kiwais, the traditional turtle hunters and inhabitants of the coastal area around Daru. More than 500 fishermen were estimated to be involved in turtle hunting annually in 1985-1987. During this period, there has been an increase in the number of turtle fishermen, with an increasing proportion from areas which have no history of turtle hunting.

Turtle hunting is usually seasonal, with generally more than 60% of the annual catch taken during September to December, the period corresponding to the summer breeding season in eastern Australia. However, this varied according to the local abundance of turtles and/or lobsters. The motorised canoe and harpoon are the most popular method used in turtle hunting.

Turtles harvested in the Daru area are believed to be taken from at least three groups: one which is resident in Torres Strait, another which migrates to the area to breed and a third which migrates through the area to various rookeries on the Great Barrier Reef.

During 1984-1987, fishermen from Daru caught turtles at four major reefs: Podomaza, Bobo, Auomaza and Wapa. Podomaza and Bobo are fringing reefs around the islands of Parama and Bobo respectively, and are traditional fishing grounds for Parama, Kadawa and Katatai villages. Although Parama villagers accounted for up to 100% of the catch from Podomaza, an increasing proportion of the catch from Bobo was taken by the non-traditional turtle fishermen. Similarly, although, Auomaza and Wapa are traditional common fishing grounds of the coastal Kiwais, there was also increasing non-traditional usage at these reefs.

Most of the turtle catch in Daru is butchered and sold as "strings" which are approximately 2kg of meat, fat and offal tied together. Strings are sold for A\$2.30-2.70 each. Some turtles not butchered were sold whole for A\$56.00-71.00 each. In economic terms, the turtle fishery which grossed between A\$32,729 - 55,379 in 1985-1987, is only minor compared to the lucrative lobster fishery which grossed A\$672,750 - 866,250 annually during the same period. The gross earnings from turtle sales by village group shows that although the traditional villagers were generally receiving the greater proportion, the proportion of the earnings by the non-traditional villagers increased from 1985-1987.

Although four species of marine turtles were caught by Daru fishermen: the flatback, loggerhead, hawksbill and green turtle, green turtles were most dominant in the catch. This probably reflects both the high local abundance of this species (which was increased considerably during the breeding season, when a large seasonal migration of turtles transit through the area to Great Barrier Reef rookeries) and the local preference for the meat and fat of green turtles, especially females in breeding condition. The annual catch in Daru was estimated to be 953 in 1985, 1323 in 1986 and 1363 in 1987. Based on estimates of a total annual subsistence harvest in Torres Strait (4000) and the mean turtle consumption rate of residents in the Daru region, the total annual harvest of the Torres Strait region was estimated to be between 5100-6700.

Examinations of gonadal specimens from turtles butchered in Daru indicated that over 60% of the females examined were preparing for breeding. Tag returns and the reproductive status of turtles at the time of capture indicated that most of the Daru catch is being taken from the eastern Australia breeding assemblage, in particular the Raine Island breeding unit. These results suggest that a significant proportion of the eastern Australian breeding assemblage is being removed each year by the Daru turtle fishery. There are also some indications that some components of breeding assemblages in the Gulf of Carpentaria and Indonesia are also being harvested by Daru fishermen. Unfortunately, the impact of this harvest rate on the breeding stock from which it was taken cannot be answered without much more research.

Some changes detected in the fishery between 1984-1987 may have potential management implications. These included an increasing number of fishermen who catch turtles; with an increasing proportion from areas with no traditional history of turtle hunting. The catch composition is dominated by large females. Gonadal examinations indicated that over 60% of the females were preparing to breed. Tag returns and the reproductive status of turtles at the time of capture indicated that most of the catch is being taken from the eastern Australian breeding assemblage, in particular the Raine Island breeding unit, whose international significance requires special attention. The turtle stock harvested in Daru is also being extensively harvested in its foraging areas in Indonesia where the annual harvest is in the tens of thousands.

Unfortunately, it was not possible to determine the impact of the Daru turtle harvest on the turtle resources of Torres Strait. Consequently restrictive measures were considered unjustified. However, continued monitoring of the turtle fishery is strongly recommended.