

First Confirmed East-West Transpacific Movement of a Loggerhead Sea Turtle, *Caretta caretta*, Released in Baja California, Mexico¹

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ABSTRACT: In July 1994 a loggerhead turtle (*Caretta caretta*) was released from the central Pacific coast of the Baja California peninsula. Four hundred and seventy-eight days later the turtle was found by a fisherman off the coast of Kyushu, Japan. This represents a one-way transpacific migration of more than 10,000 km. This report is a reminder of the importance of international collaboration in marine research and conservation.

THE OCCURRENCE OF LOGGERHEAD turtles, *Caretta caretta*, in the Gulf of California and along the Pacific coast of the Baja California peninsula, Mexico (Shaw 1947, Márquez 1969, Ramirez et al. 1991), has been puzzling. Because of the abundance of juvenile and subadult loggerheads there, it appears to be an important feeding and developmental area for this species (Ramirez et al. 1991). However, no nesting of loggerhead turtles is known to occur in the eastern Pacific (Márquez and Villanueva 1982, Frazier 1985, Bartlett 1989).

Bowen et al. (1995) established genetic affinities among eastern Pacific loggerheads and those nesting in Japan and, to a much lesser extent, Australia. Further, Bowen (1995) suggested that juvenile loggerhead turtles traverse the North Pacific Ocean and return at maturity to the western Pacific via the Northern Equatorial Current. Such a migration would involve a transpacific movement of more than 20,000 km across a vast area characterized by low productivity

(Briggs 1974). A tag return west to east (see Uchida and Teruya 1988, Balazs 1989) has been reported.

On 19 July 1994, we released a female loggerhead turtle into the eastern Pacific Ocean, approximately 5 km offshore of Santa Rosalita, Baja California, Mexico (28° 40' N, 114° 12' W). The turtle had been studied in captivity since July 1986 at the Sea Turtle Research Station, Instituto Nacional de Pesca, Bahía de Los Angeles, Baja California, after it was captured by a sport fisherman. At the time of capture this juvenile loggerhead sea turtle measured 32.9 cm (straight carapace length) and weighed 6 kg. Upon its release the turtle measured 85.6 cm and weighed 97 kg. The turtle was tagged with two green plastic tags numbered 27 and 310, on the right and left front flippers, respectively; both tags were engraved with the return address of A.P. 135, Ensenada, BCN, Mex. Coincidentally, this turtle was used in the initial genetic analysis of the Pacific loggerhead assemblage and it has been confirmed that its haplotype matches those of samples taken from females nesting on Japanese beaches (B. Bowen and A. Abreu, pers. comm.).

On 9 November 1995, the turtle was found by a Japanese fisherman, dead in a set net in waters near Gamoda Beach, Kyushu, Japan (33° 50' N, 134° 40' E). The time from release in Baja California to capture in Japan was 478 days and encompasses a minimum one-way travel distance of 10,600 km.

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This tag return provides direct evidence for the transpacific migration of the Pacific loggerhead turtle, the longest one-way dispersion for any marine turtle. The transpacific loggerhead migration is among the longest for marine vertebrates and is comparable with that of humpback whales (Darling et al. 1996), elephant seals (Tershy, pers. comm.), and gray whales (Rice and Wolman 1971). Assuming that turtles migrate along the path of least resistance, it seems likely that migrating loggerhead turtles could utilize the westbound Northern Equatorial Current as they move from feeding areas along the coast of Baja California to nesting beaches in the West Pacific.

A migration that encompasses the entire North Pacific emphasizes the importance of increasing the geographic scale of investigations and modifying our approach to sea turtle conservation to incorporate a life history involving oceanic dispersion and two-way migrations exceeding 20,000 km. This tag return supports the hypothesis that some Pacific loggerhead turtles occupy the coastal habitats of two continents and traverse the Pacific basin over the course of their development. This inference is based on both genetic analysis and direct observation from flipper tagging. However, we must be cautious about any conclusions drawn from the behavior of a captive-released turtle, particularly one held in captivity for 8 yr. Regardless, this finding illustrates the importance of an interdisciplinary approach to migratory studies and the benefit of cooperative multinational investigations of sea turtle biology.

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