

Satellite Tracking of Post-Nesting Movements of Green Turtles *Chelonia mydas* from the Gangkou Sea Turtle National Nature Reserve, China, 2001

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Previously distributed widely throughout the waters of China and commonly found on nesting beaches in South China, green turtle (*Chelonia mydas*) regional breeding populations have declined dramatically in recent years. Presently only seven natural beaches in China are used by nesting green turtles. The single remaining mainland nesting beach is located in the Gangkou Sea Turtle National Nature Reserve (114°52'E, 22°33'N) in Guangdong Province. Since 1987, nesting turtles at this Reserve have been flipper-tagged annually, but to-date there are no records of sightings of these tagged individuals. In order to discover the post-nesting migratory routes and the foraging grounds of this nesting population, we recently tracked three individuals using satellite telemetry.

The Green Turtle Satellite Tracking Project at the Gangkou Sea Turtle National Nature Reserve began on August 17, 2001. Three green turtle females (numbered as 'Gangkou 1', 'Gangkou 2', and 'Gangkou 3') were equipped with Platform Transmitter Terminals, PTTs (Telonics, ST-6 Model) after successfully nesting in the Gangkou Reserve. Our PTT attachment procedures followed Schroeder *et al.* (2000). The following is a brief summary of the movements of each turtle also illustrated in figure 1:

'Gangkou 1' was deployed with a PTT (No. 10673, Duty cycle constantly on) on August 17, 2001. She left the breeding site on August 28th, 2001, at first traveling parallel to the coast in an easterly direction, and then detouring through oceanic waters in the south to reach

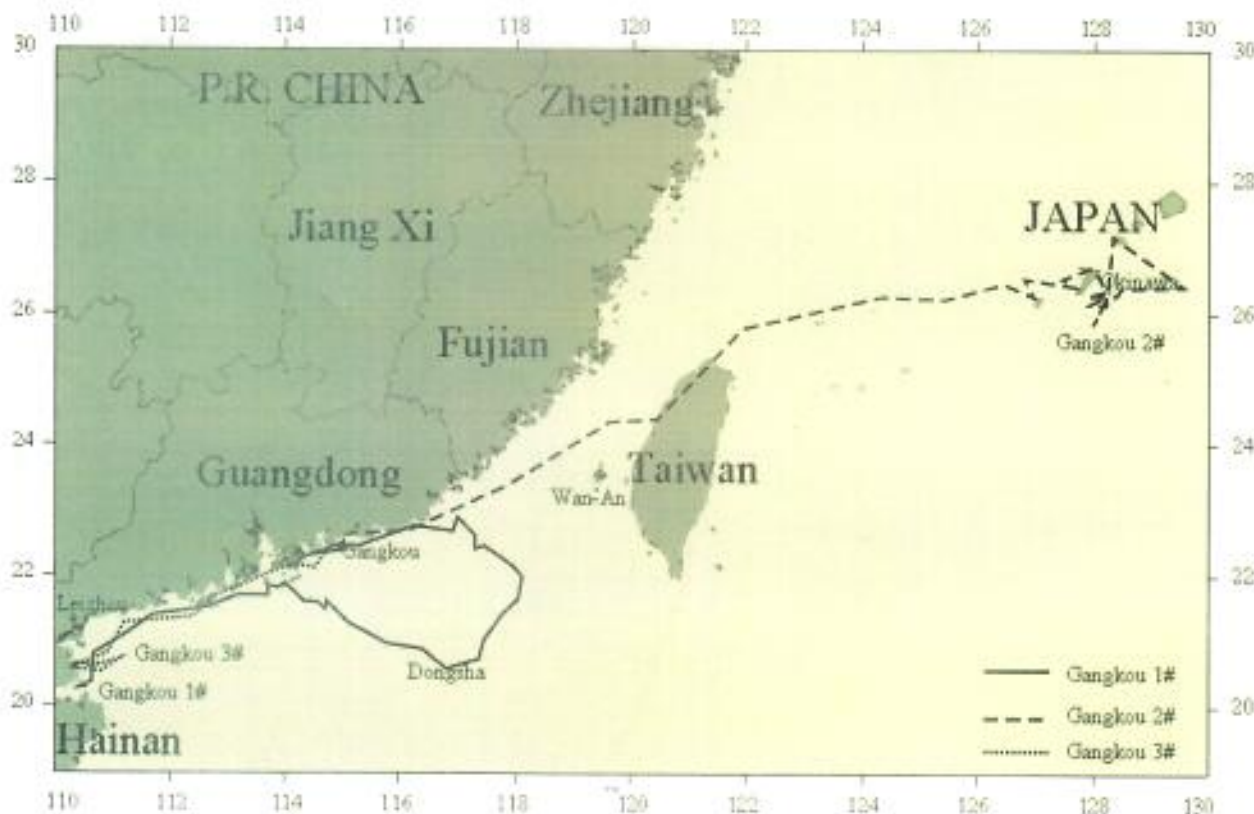


Figure 1. Routes of three green turtles tracked using satellite transmitters.

Dongsha Island, some 250 km southeast of Mainland China. She then began traveling in a northwesterly route towards the Mainland coast. Upon reaching the southwest coast of Mainland China, this female turtle continued to travel along the coast until she reached the waters near Leizhou Peninsula (111°38'E, 20°54'N) on September 23, 2001. The PTT ceased transmission on September 25, 2001. We were thus not able to ascertain with surety whether Leizhou Peninsula was her final destination. The total distance traveled by 'Gangkou 1' is estimated to be 1855 km, and the average swimming speed was 3.0 km.hr⁻¹.

'Gangkou 2' was deployed (Duty cycle 50%, 3 hours on, 3 hours off) on August 24, 2001. She left the breeding site on September 15, 2001 and initially moved northeastward along the Taiwan Strait, then moved along the northwest coast of Taiwan, before continuing her migration in oceanic waters in the same direction, eventually reaching Okinawa, Japan (127°13'E, 26°21'N) on October 9, 2001. As of December 5, 2001, the PTT was still transmitting data showing that the turtle remained in the waters near Okinawa. The estimated total distance traveled by 'Gangkou 2' was 1465 km and the average swimming speed during migration was 2.5 km.hr⁻¹.

'Gangkou 3' was deployed (No. 10676, Duty cycle constantly on) on August 28, 2001. She started her migration on August 29, 2001, moving along the southwest coast of Mainland China, and she arrived in the waters near Leizhou Peninsula (110°52'E, 20°55'N) on September 11, 2001. She remained there for 23 days until her PTT stopped transmission on October 4th, 2001. The estimated total traveling distance of 'Gangkou 3' was 484 km and the average swimming speed was 1.4 km.hr⁻¹.

The 3 turtles we tracked from the Gangkou Reserve migrated in two opposite directions, one direction was to the southwest to waters near the Leizhou Peninsula, China, and the other to the northeast to waters off Okinawa, Japan. Our results are similar to the migratory patterns of the green turtle population at Wan-An Island, 470 km northeast of the Gangkou Reserve. In that study, Cheng (2000) observed variable migratory patterns of post-nesting green turtles, with different turtles moving in different directions and traveling variable distances. Considering that 'Gangkou 1' made an unusual detour to the Dongsha Islands, which is another green turtle nesting site as reported by Cheng (1995), more studies, including mtDNA analysis, are needed to understand the relationship of the breeding populations at Gangkou

Reserve, Wan-An Island and Dongsha Island. The individual distances traveled by the 3 Gangkou turtles are comparable to those reported for yet another green turtle population in the South China Sea (Luschi *et al.* 1996).

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