into the coastal area of the mainland of Japan with narrow home range (660 km2 in the MCP). Meanwhile, the other smaller females (78.5 cm and 79.8 cm in SCL) migrated on the way of Kuroshio Current and Kuroshio Extension Current, and then to oceanic area in the North Pacific. After entering oceanic region (around 150° E to 165° E), their trajectories sometimes showed clockwise/ counterclockwise rotations, presumably indicating they were transported by eddy. These results indicate the size related migration dichotomy also appeared for the females nesting on the beaches in the southern part of Japan.

WHAT'S A NICE GUY LIKE YOU DOING IN A PLACE LIKE THIS? SATELLITE-TRACKING MALE GREEN TURTLES AT THE ARCHIE CARR NATIONAL WILDLIFE REFUGE, THROUGHOUT THEIR MIGRATION, AND AT THEIR FORAGING GROUNDS*

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Male green turtles were encountered and outfitted with GPS-enabled satellite transmitters within the Archie Carr NWR in east central Florida, USA, prior to or at the outset of the nesting season. Males ranged in size from 90.7-101.1 cm scl (n=9, mean 93.7). Days spent in "mating mode" averaged 33 days (n=9; range 10-49 days) before departing. It is evident from tracking data that much of their time at night was spent immediately off the shoreline. We examined breeding areas used by these males and observed several patterns in their behavior, so that making generalizations remains difficult. Some males spent all of their time off the beach near the deployment location before returning directly to foraging areas (n=4). Other males made movements north and/or south, but returned to near the deployment location before making their migration to foraging areas (n=3). Two males left the Refuge within a very few days and spent time off other nesting beaches on the way to their foraging grounds. Eight of nine turtles returned to different locations in the Florida Keys before one continued on to the Yucatan. One turtle migrated to forage just 43 km south of the Carr Refuge nesting beach. Migration time from the Carr Refuge to foraging destinations averaged 14 days (range 1-20) but the first foraging area was not necessarily the final destination. Total distance traveled by each turtle averaged 1,183 km (n=9; range 256-2,387 km). We conducted kernel home range density analysis on locations off the nesting beach and at foraging grounds.

OCEAN PATHWAYS AND RESIDENTIAL FORAGING LOCATIONS FOR SATELLITE-TRACKED GREEN TURTLES BREEDING AT FRENCH FRIGATE SHOALS IN THE HAWAIIAN ISLANDS

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From 1992-2014 the breeding migrations of 20 green turtles, *Chelonia mydas*, were satellite tracked either from or to the geologically ancient colonial nesting site of French Frigate Shoals (FFS) mid-point in the 2400 km arc of Hawaiian Islands. Using the Argos System, ocean routes and travel schedules were mapped and the home ranges of foraging area destinations were calculated and portrayed by Minimum Convex Polygons. None of the turtles migrated outside the Central North Pacific (CNP) region of Hawai'i, consistent with prior long-term results of comprehensive flipper tagging and genetics research. Fifteen of

the 17 turtles tracked from FFS migrated to the Main Hawaiian Islands (MHI) to the southeast, while one turtle went directly south to the foraging site of Johnston Atoll within the CNP, and another ceased transmitting midway between FFS and the MHI. Transit times from FFS to the MHI ranged from 16-94 days; the turtle that traveled to Johnston also took 16 days. Distances covered during each migration ranged from 830-3936 km with travel rates of 1.2-2.5 km/hr. Upon arrival at residential locations transmissions continued for 2-314 days. The post-breeding pathways taken by the turtles to the MHI from FFS comprised two general corridors. Thirteen of the turtles moved southeast of the island chain staying over deep oceanic waters until arriving in the MHI. In contrast, two turtles traveled a more direct pathway over the banks and reefs of the Hawaiian chain to reach the MHI. In both cases once the turtles arrived in the MHI they traveled coastally until crossing the deep channels separating each of the MHI. However, inconsistent with all others, one turtle traveled 3936 km over a 94-day period on the high seas in a huge circular route before arriving at the Island of Kaua'i in the MHI. Three turtles tracked to FFS from a MHI foraging site on O'ahu swam from 10-200 km to the west past FFS before reversing course to arrive at the FFS breeding destination. Nine widely separated home range foraging destinations for the migrant breeding turtles were identified. Two of the largest bays in the Hawaiian Islands- Kane'ohe Bay on O'ahu and Kahului Bay on Maui- were the destinations for ~60% of the turtles, thereby emphasizing the conservation importance of these two locations for adults in the Hawaiian green turtle population. Our study brings together for the first time tracking data collected over the span of 22 years. Novel and as yet unanswered aspects of our results point the way for future telemetry with this globally isolated genetically discrete green turtle population that has shown significant improvements in conservation status over the past 45 years of intense investigation (see http://www.iucnredlist.org/16285718/0).

PISCIVORY BY LOGGERHEADS IN VIRGINIA, USA

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Loggerhead turtles (*Caretta caretta*) occur seasonally in Virginia and primarily strand from May-November. During 2009-2015, 1,036 non-hatchling, dead loggerhead strandings were reported. Of these, gastrointestinal tract (GI) contents were examined from 372 turtles (36%) that measured 50.5-115.1cm straight carapace length (SCL; mean±SD=73.7±14cm). Percent of GIs containing fish ranged from 21%-57% annually (35% overall). In an earlier study of Virginia loggerhead diet over three time periods, Seney and Musick (2007) found fish in GIs similar to this study from 1983-1992 but reported that ~60% of GIs from 1993-2002 contained fish, nearly double the earlier time period. The SCL of loggerheads that had consumed fish (n=133; 68.3±8.6cm) was significantly less than SCL for those that had not (n=239; 78.4±15.6cm) (Wilcoxen rank sum W=21,713, $p<0.0001$). When separated into 15cm SCL bins, fish presence was significantly affected by bin (KW X2=50.457, $p<0.0001$) with 56-70cm and 71-85cm bins more likely to have fish than 86-100cm (56-70 $p<0.0001$; 71-85 $p=0.0005$) or 101-115cm (56-70 $p=0.0017$; 71-85 $p=0.008$). No fish were found in the GIs of turtles >95cm SCL (n=41), similar to Seney and Musick (2007). Occurrence of fish was also significantly affected by season (KW X2=38.968, df=2, $p<0.0001$). Summer (July-Sep) and fall (Oct-Dec) had a smaller ratio of examined GIs containing fish than spring (Apr-Jun). Fish were more common in turtles that stranded within Chesapeake Bay than those from Atlantic Ocean coasts (W=20,033, $p<0.0001$). The overall F:M sex ratio of stranded loggerheads was 63%:37%, and sex ratios of loggerheads with and without fish were nearly identical. Index of relative prey importance (IRI) and %IRI were calculated for 71 whole loggerhead GIs from 2010-2012. The five most important

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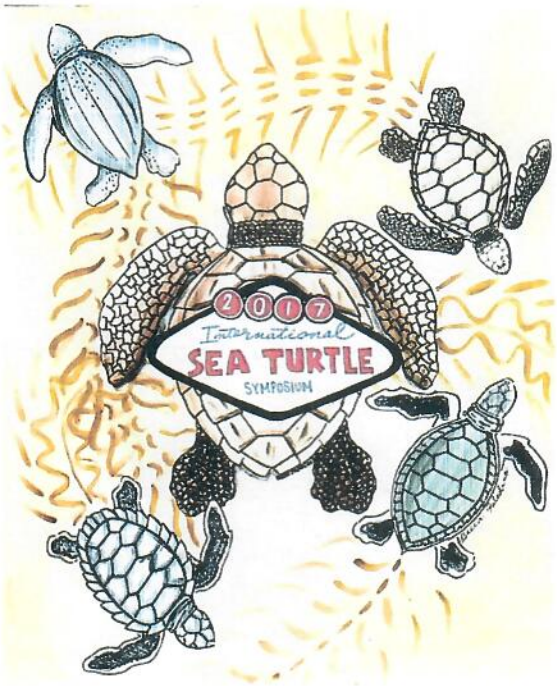

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