

# TRACKING “DAWN” INTO THE HORIZON OIL SPILL

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## Introduction

In 2004, a joint study by Sea Turtle Conservancy (formerly the Caribbean Conservation Corporation), Asociacion ANAI and Reserva Pacuare analyzed data from track surveys, night patrols and aerial surveys to estimate that the leatherback (*Dermochelys coriacea*) rookery of the Caribbean coast of Central America represents the fourth largest leatherback nesting population in the world. (Troëng, Chacón & Dick 2004)

The study also summarized tag recoveries of leatherbacks, including one animal captured by researchers in-water off the Atlantic coast of Canada. Tags were recovered from the Caribbean, Gulf of Mexico and North Atlantic. The tag recoveries in the Gulf of Mexico and North Atlantic likely represent both transient and foraging animals.

Even though the Caribbean population is one of the largest in the world, some beaches have witnessed a decline in nesting since 1995. More detailed information on leatherback movements and habitat use was needed to identify locations where anthropogenic threats, such as commercial fisheries and oil drilling, may cause leatherback mortality.

## Methods

From 2003-2010, the Sea Turtle Conservancy has tracked 20 adult female leatherbacks from nesting beaches located along the Caribbean coast of Costa Rica and Panama (Fig 1).

Fourteen of the satellite transmitters were KiwiSats 101 supplied by SirTrack, four were Series 9000x SRDLs by the Sea Mammal Research Unit, and two were MK-10A Ridgemounts by Wildlife Computers.

The KiwiSats and the SRDLs were attached dorsally to female turtles during nesting, using a custom-fitted harness made of nylon webbing and polyvinyl tubing, and designed to be released within approximately two years (S. Eckert protocol, Fig 2a). The MK-10A Ridgemounts were attached directly to the dorsal ridge with wire cables and designed to be released within approximately one year (K. Dodge protocol, Fig 2b).



Figure 1. Locations of leatherback nesting beaches in Costa Rica (Tortuguero and Gandoca) and Panama (Chiriquí Beach) used for satellite deployments.



Figure 2a. Leatherback with harness attachment.



Figure 2b. Leatherback with direct dorsal ridge attachment.

## Results

Seventeen of the 20 tracks provided sufficient tracking data to establish a migratory route out of the Caribbean. Of these, 11 individuals were tracked traveling from the Caribbean Sea into the northern Atlantic Ocean, through one of three passages: either

between Cuba and Haiti (3), between the Dominican Republic and Puerto Rico (6), or between the British Virgin Islands and Anguilla (2) (Fig 3).

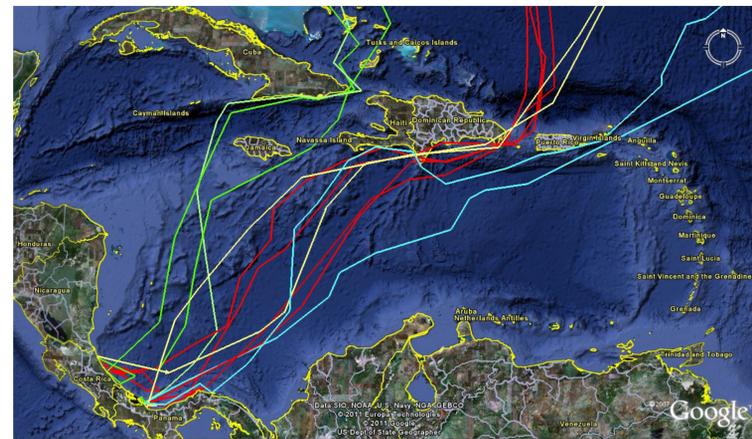


Figure 3. Eleven female leatherbacks were tracked from three Central American nesting beaches traveling from the Caribbean Sea into the northern Atlantic Ocean, through one of three passages: either between Cuba and Haiti (Green Tracks), between the Dominican Republic and Puerto Rico (Red Tracks and Yellow Tracks), or between the British Virgin Islands and Anguilla (Blue Tracks).

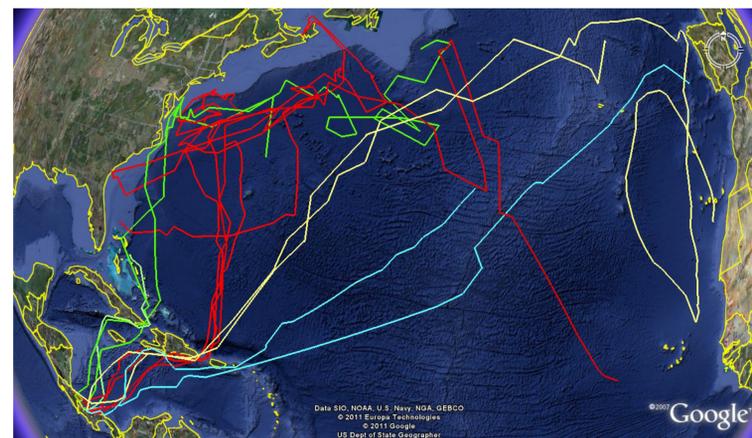


Figure 4. In the Atlantic, leatherbacks stayed close to the Atlantic coast of North America (Green Tracks) or traveled near Bermuda (Red Tracks) to reach waters off North America, or traveled north-northeast (Yellow Tracks) and east-northeast (Blue Tracks) straight across the North Atlantic Ocean.

Once in the Atlantic, the leatherbacks either stayed close to the Atlantic coast of North America (3) or traveled near Bermuda (4) to reach waters off North America, or traveled northeast straight across the North Atlantic Ocean (4) (Fig 4).

The remaining six leatherbacks were tracked into the Gulf of Mexico by traveling between the western tip of Cuba and the Yucatan Peninsula of Mexico (Fig 5).

In June of 2010, STC tracked a leatherback turtle named “Dawn” from her nesting beach at Chiriquí Beach, Panama, into the Gulf of Mexico during the oil spill (Fig 5, Green Track). Her track followed a similar route

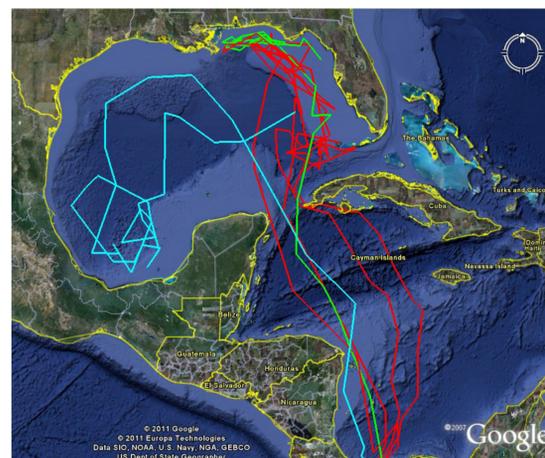


Figure 5. Within the Gulf of Mexico, five leatherbacks stayed within the eastern part of the Gulf off the coasts of Florida and Alabama (Red Tracks and Green Track) while the sixth moved into the western Gulf of Mexico (Blue Tracks).

to that observed in previous years, which lead right into the oil slicks off the coasts of Alabama, Mississippi, and Louisiana.

Dawn’s movements did not seem to change once she entered areas with visible oil slicks (as represented by NOAA oil spill data layers). Between July 23 and September 27, 2010, Dawn entered into the oil spill area on two separate occasions (Fig 6).

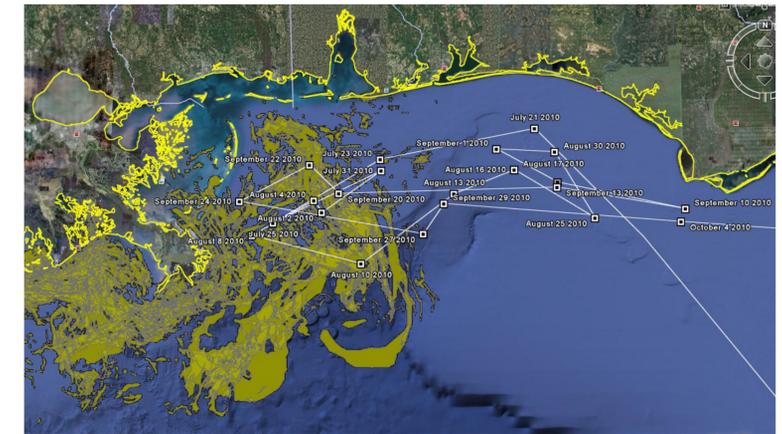


Figure 6. In 2010, a leatherback named “Dawn” was tracked moving into the Gulf of Mexico during the oil spill. Her movements did not seem to change when she entered, and moved within, areas with visible oil between July 23 and September 27, 2010. The visible oil is represented in yellow-green. The darker the color the more oil observed over Dawn’s time in the area (NOAA oil spill data layers).

## Conclusions

While there have been recorded sightings of leatherbacks and flipper tag recoveries from females tagged on Caribbean Central America nesting beaches in the Gulf of Mexico, our tracking research was the first to suggest that these animals may be foraging throughout the year rather than just migrating through the area (Davis et al. 2000, Fritts et al. 1983, Thompson et al. 2001).

In a presentation at the 27th Annual Sea Turtle Symposium, STC concluded that the Gulf of Mexico may represent a significant foraging ground for leatherbacks from the Caribbean coast of Central America. We also identified oil drilling and exploration as a potential threat to these turtles while in the Gulf of Mexico. The results of our long-term project tracking leatherbacks into the Gulf, and the recent Deepwater Horizon oil support these conclusions and highlights our concerns over oil drilling and exploration activities in these sensitive marine environments.

Our continued nest monitoring and satellite tracking program at Chiriquí Beach, Panama, may reveal information about the survival of leatherback turtles that were in the Gulf of Mexico in 2010 and were potentially exposed to oil. It is possible that monitoring programs at nesting beaches might observe reduced survival or reduced nesting success of turtles exposed to oil.

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