

- A. **NOAA Award Number: NA18NMF4540011**
- B. **Grantee: Coonamessett Farm Foundation, Inc.**
- C. **Award Period: 4/01/2018 – 3/31/2019**
- D. **Project Title: Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles**
- E. **Award Start Date: 4/01/2018**
- F. **Period Covered by Report: 4/01/2018 – 9/30/2018**
- G. **Progress to Date:**

Coonamessett Farm Foundation's (CFF) 2018 project "Understanding Impacts of the Sea Scallop Fishery on Loggerhead Sea Turtles" has continued to add invaluable data to our already abundant dataset on loggerhead sea turtles. The focus of this project is to evaluate the distribution and behavior of loggerhead sea turtles to better understand their interactions with the scallop fishery. This improved understanding will help reduce turtle bycatch in scallop dredges.

We participated in one trip this summer. This trip occurred from May 20 – 26 on the F/V Kathy Ann. We did not conduct a second late-season trip due to their generally lower success rate in past projects.

During the trip, we focused efforts in the southern Mid-Atlantic region. During this trip we tagged 35 total turtles and spotted an additional 21. We also spent a day within Gulf Stream waters at approximately 36.5° latitude, -73.5° longitude (**Figure 1**). Sea surface temperature reached ~25°C in these offshore waters, while closer inshore, temperatures ranged between ~15°- 20°C. All turtles were caught in the western portion of the Delmarva Access Area. We collected lavage samples from all caught turtles, and identified the presence of nematodes in 7 turtles.

Tagged turtles behaved similarly to previous years in that they continued to meander north through the summer, reaching their northernmost foraging grounds in August and September (**Figure 2**). Turtles foraged within all Mid-Atlantic Bight scallop access areas throughout the entire summer. Interestingly this year, turtles were more dispersed, with a portion of turtles moving north beyond the range of the Megatron, while others stayed within these Access Areas. Elephant Trunk and Delmarva had consistent turtle presence through the summer months. Turtles positive for nematodes did not move as far north beyond the range of the Access Areas, with concentrations of turtles in western Delmarva and Elephant Trunk (**Figure 3**). This is similar to distributions of nematodes found in scallops as presented by Rudders et al. (2018) at the 2018 Atlantic Sea Scallop Plan Development Team meeting.

This year we deployed nine tags from Wildlife Computers for longer term deployments (**Figure 4**). We were able to deploy one during August 2017 as well. This tag does not record depth, but does record temperature and time at surface due to a wet/dry switch. It also transmits Argos locations, and due to the limited data output, the battery is meant to last three years. It is a smaller and less expensive tag than the tags we typically deploy from SMRU. By providing data over several years, we hope to improve understanding on foraging site fidelity for loggerheads within the MAB. Currently, five of these tags are still transmitting, including the one deployed in 2017.

A tag deployed in 2016 was also recovered by a scalloper fishing in the Mid-Atlantic in August (**Figure 5**). This tag transmitted location for 6 months before losing signal. As expected, this turtle spent time diving to the bottom and in temperatures below 10°C. After transmissions ended, data continued to be collected and indicated that this tag went to the bottom with the turtle remaining there for approximately a month. Then data indicates the tag surfaced, most likely still attached to the turtle, and remained on the surface for ~2.5 months until the battery died. The tag is negatively buoyant, so for it to return to the surface, it is likely the turtle died, became bloated through decomposition, and started to float with the tag still attached. Over time, the tag returned to the bottom as either the turtle continued to decompose or by eventually falling off the turtle. Due to the recovery, we have very high data resolution for this turtle, with sampling occurring every 4 seconds. This will give us an extremely detailed understanding of this turtle's dive behavior and the associated oceanographic conditions. These data will help with other funded projects looking at these aspects of our tagged turtles within the region, specifically the mapping of the seasonal distribution of the Cold Pool water mass.

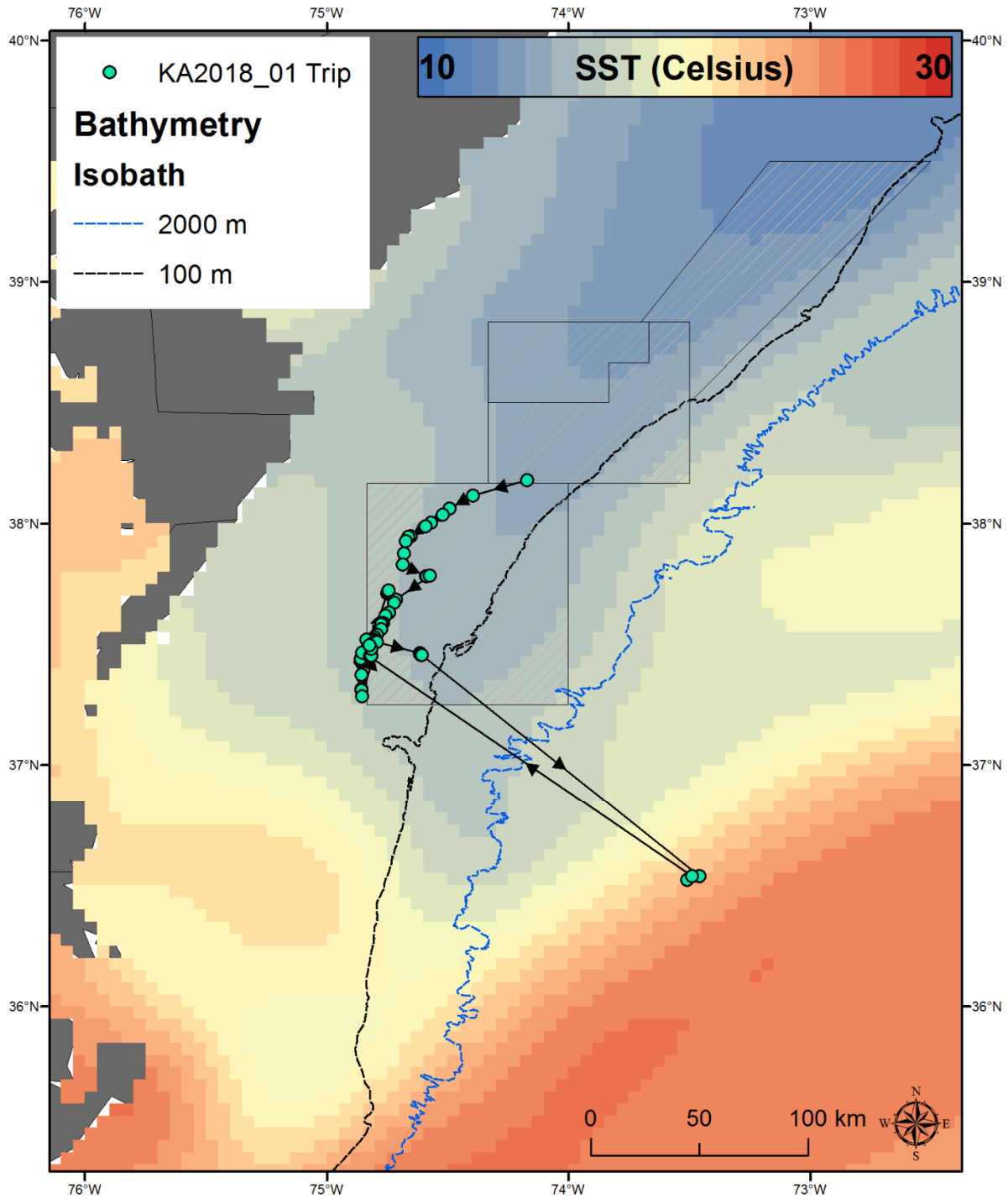
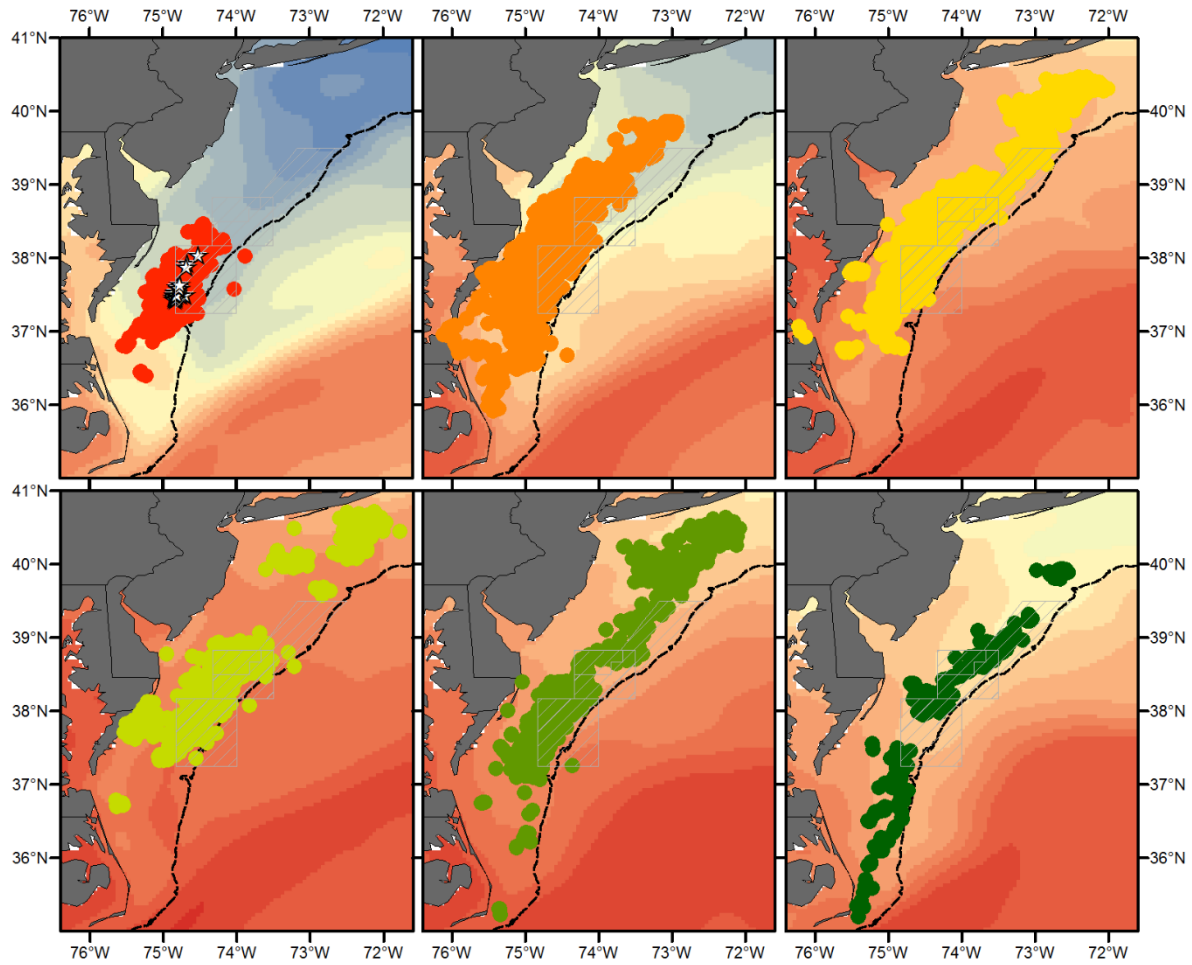


Figure 1: Trip path for the May 2018 turtle tagging trip aboard F/V Kathy Ann with overlaid average SST for those days, May 21 – 25.

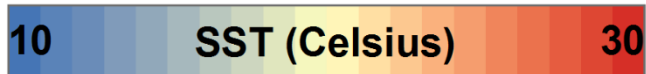


2018 Turtle Locations

- May 20
- June
- July
- Aug
- Sept
- Oct 15
- ☆ 2018 Deploy Locations



0 325 650 km



Isobath

----- 100 m

Figure 2: Turtle locations for all tags deployed during the May 2018 trip overlaid with average SST during that time.

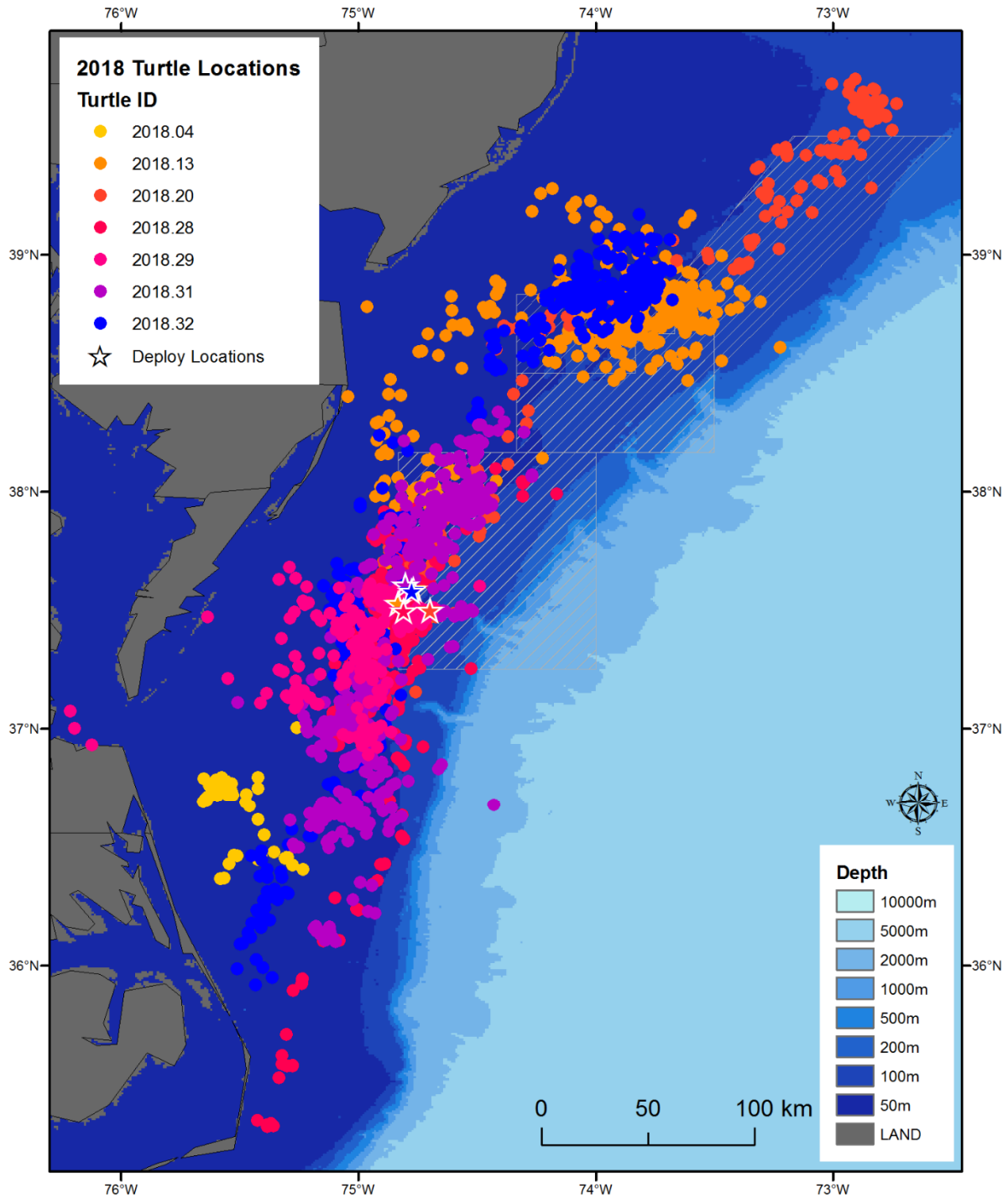


Figure 3: Locations for turtles positive for nematodes tagged in 2018.

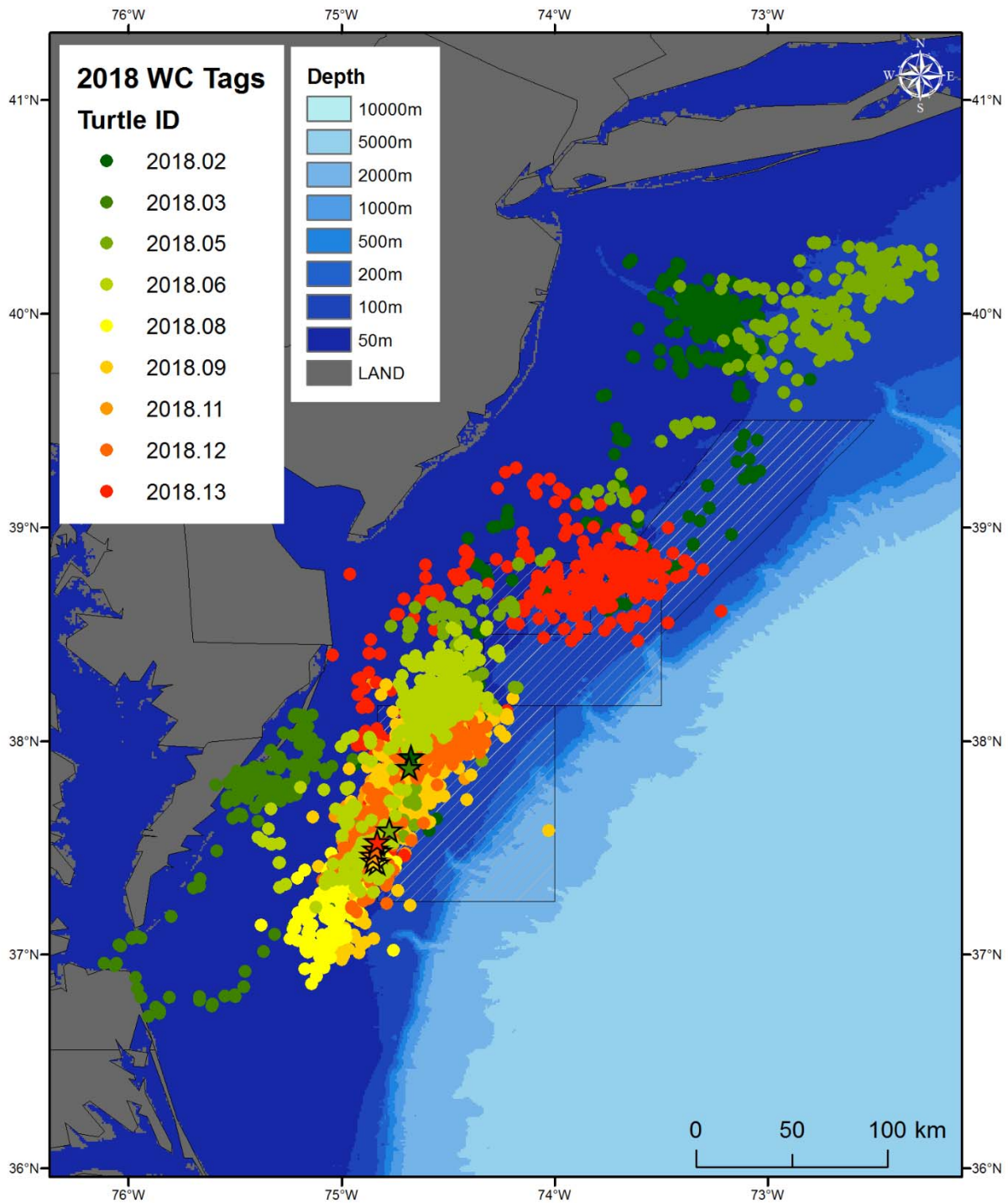


Figure 4: Locations of turtles tagged with low-cost, long term tags from Wildlife Computers.

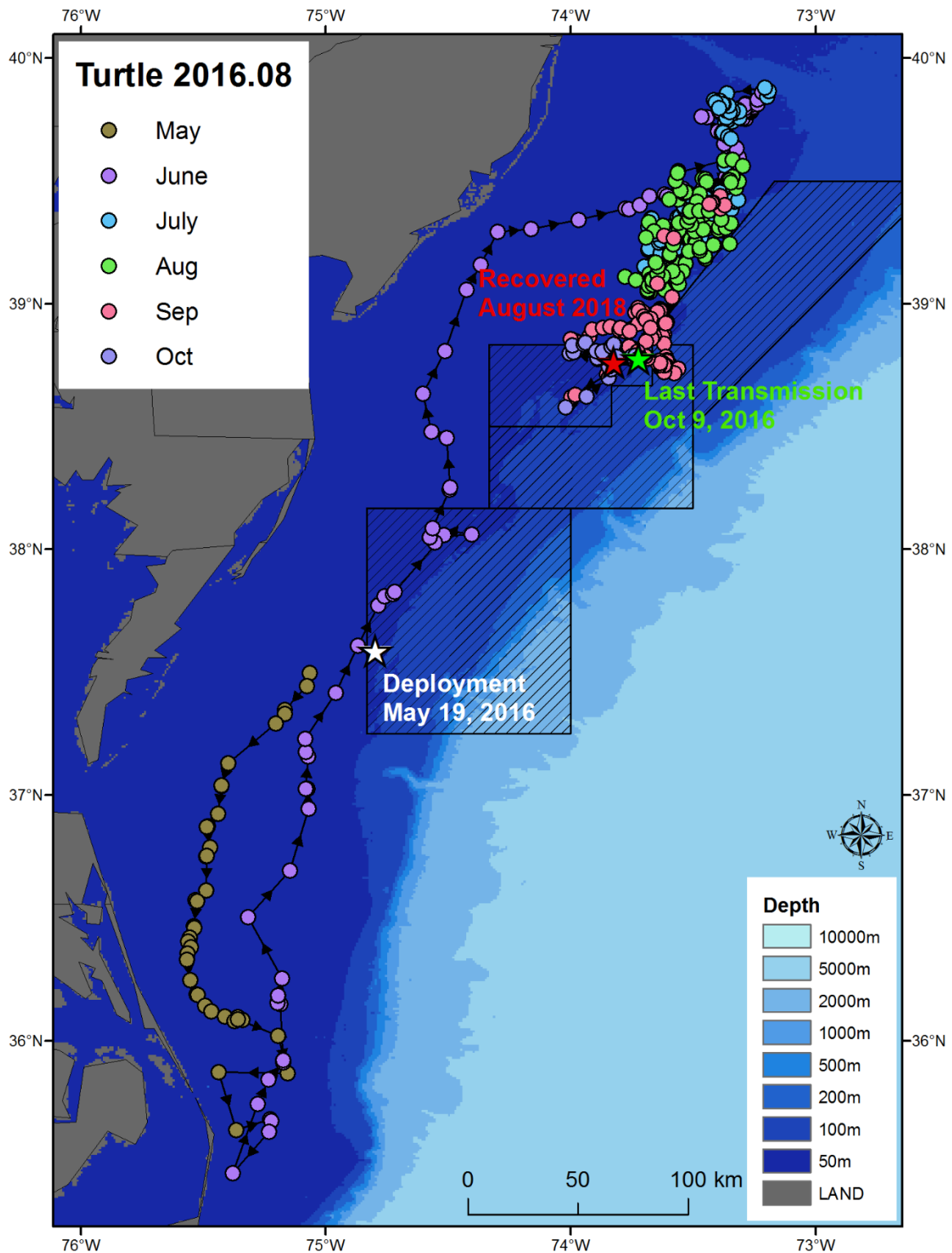


Figure 5: Locations of turtle tagged with transmitter recently recovered.