TRACKING POST-RELEASE MOVEMENT PATTERNS OF NEW YORK'S REHABILITATED SEA TURTLES PROVIDES INSIGHTS INTO THEIR UTILIZATION OF NEW YORK WATERS

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Introduction

The aim of this project is to monitor the post-release movement patterns of sea turtles that have been rehabilitated at New York Marine Rescue Center (NYMRC) utilizing satellite tags. Using data obtained from these tags, we seek to further understand sea turtle utilization of New York waters and identify potential important habitats and foraging grounds for four species of turtle. Data obtained from these devices will be able to address action items outlined within the Comprehensive Conservation and Management Plan (CCMP).

Objective G *Expand scientific understanding of the Peconic Estuary ecosystem and deliver information that supports management decision-making*

- Action 23. *Conduct scientific studies to expand understanding of the Peconic Estuary ecosystem and support ecosystem-based management*
- Action 24. *Review and update data for rare, protected and endangered species in the Peconic Estuary to support the development of protection strategies*

Background

New York's waters are frequently utilized by four species of sea turtle; Kemp's ridley (*Lepidochelys kempii)*, green (*Chelonia mydas)*, loggerhead (*Caretta* caretta), and leatherback (*Dermochelys coriacea)* sea turtles (Morreale et al. 1992; Morreale and Standora, 2005). Long Island Sound and the Great Peconic Bay (New York, USA) contain southern barrier lagoons and eastern bays and are known habitats for foraging juvenile populations of sea turtles during summer months. All four species of turtles are listed as threatened or endangered and strand for various reasons including entanglement, vessel interaction, malnourishment, debilitation, and cold stunning. Many of the stranding cases can be linked to human activities in regions which overlap with sea turtle habitat. Information gathered from these stranded sea turtles can provide insight on age, size composition, diet, reproductive status, health, population trends and cause of mortality (Foley et al. 2005; Chaloupka et al. 2008). The New York Marine Rescue Center (NYMRC; formerly known as Riverhead Foundation for Marine Research and Preservation (RFMRP) is the primary response team for sea turtles and maintains the only facility permitted to rehabilitate sea turtles in New York State.

Due to the complex life cycle of sea turtles, limited information is known about habitat utilization specifically for juvenile and sub-adult turtles. With the advancement of technology, we can now gather more information about these transient species through tracking devices. Direct funding would support the purchase of satellite tags that would allow for the monitoring of post-release

movement behavior of selected sea turtle candidates. Data collected from these tags support the rehabilitation efforts put forth by NYMRC and illustrate the post-release movement behavior of the once stranded sea turtles (Caillouet et al., 2016; Robinson et al., 2020). Data from these turtles provides crucial information on local foraging areas used by these species in New York state and federal waters in the late summer and early fall. To date, NYMRC has deployed 31 satellite tags on juvenile and sub-adult sea turtles (Figure 1.0 & 2.0).

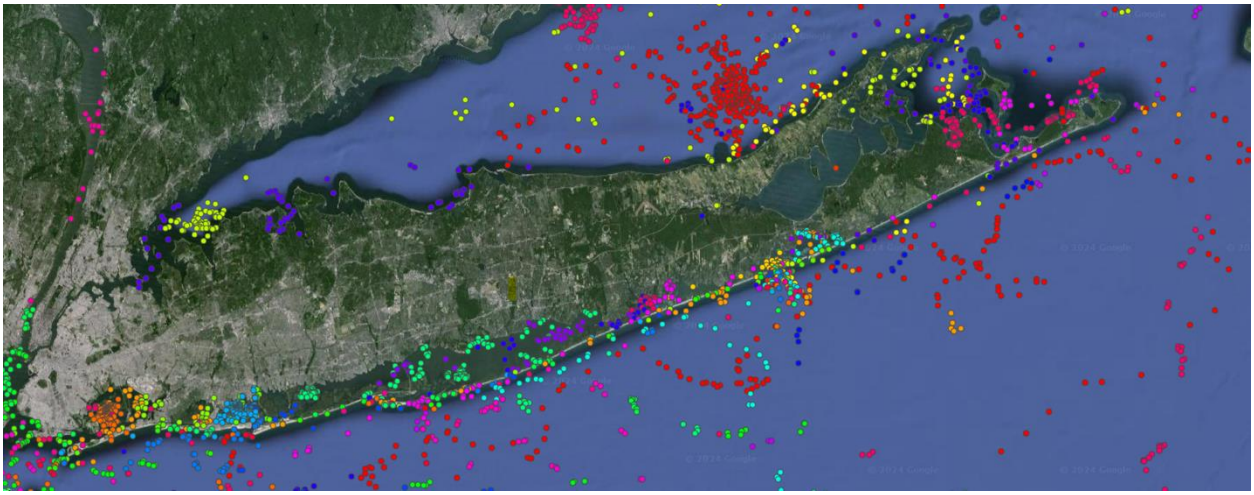

Figure 1.0 Utilization of New York waters by 31 sea turtles rehabilitated and released by NYMRC

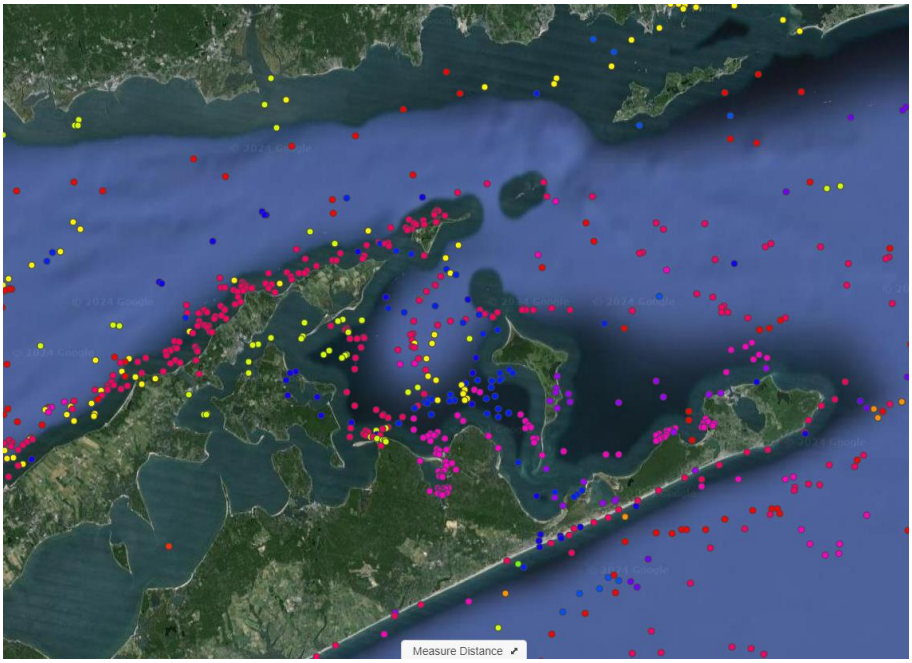

Figure 2.0 Utilization of Peconic by released sea turtles

Data Analysis: Data obtained from these tags will provide insight on turtle movement patterns and surface water temperature as well as depth (SPLASH tags only). Telemetry data will be analyzed in-house through Wildlife Computers portal (www.wildlifecomputers.com) and ARGOS system (www.argos-system.org). In addition, live maps will be accessible through NYMRC's website (www.nymarinerescue.org).

Data Sharing:

The sharing of data generated by this project will be conducted in several different ways. The NYMRC would make available, to interested stakeholders, all Level A Data inclusive of the following parameters: species, field number, location, date, morphometrics, condition and sex. Data will be made available upon request after the final report has been submitted and results are accepted for peer-reviewed publication, unless there is a direct request approved by the research team.

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