



Habitat selection of juvenile green turtles (*Chelonia mydas*) in the Arabian Gulf

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Introduction

- Animal habitat selection is important for making inferences and predictions on the distribution of organisms over geographic and environmental space.
- Climate change has raised the average temperature of water bodies forcing marine life such as sea turtles to adapt to the changing conditions or migrate elsewhere to survive (Wabnitz et al., 2018; Griffin et al., 2020).
- Currently, little is known about habitat selection of green turtles (*Chelonia mydas*) in the Arabian Gulf, which can reach temperatures at the upper edge of this species' physiological limits (Marshall et al., 2020).
- This study seeks to determine the habitat preferences of juvenile green turtles in a region that likely imposes thermal stress on this species.

Hypothesis

- 1) Green turtles are likely to be found at nearshore shallower areas because they will prefer to be in regions that have dense beds of seagrass and algae to forage.

Methods

- 10 juvenile green turtles (*Chelonia mydas*) were captured near the coast of Qatar and fitted with satellite tags.
- Turtle tracks were cleaned and filtered to remove duplicate locations and account for location error.
- The temperature and primary productivity data were obtained from ERDDAP and the bathymetric data was obtained from GEBCO.
- The models demonstrate habitat selection of juvenile sea turtles given the sea surface temperature, depth, and primary productivity in an area.

References

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Results

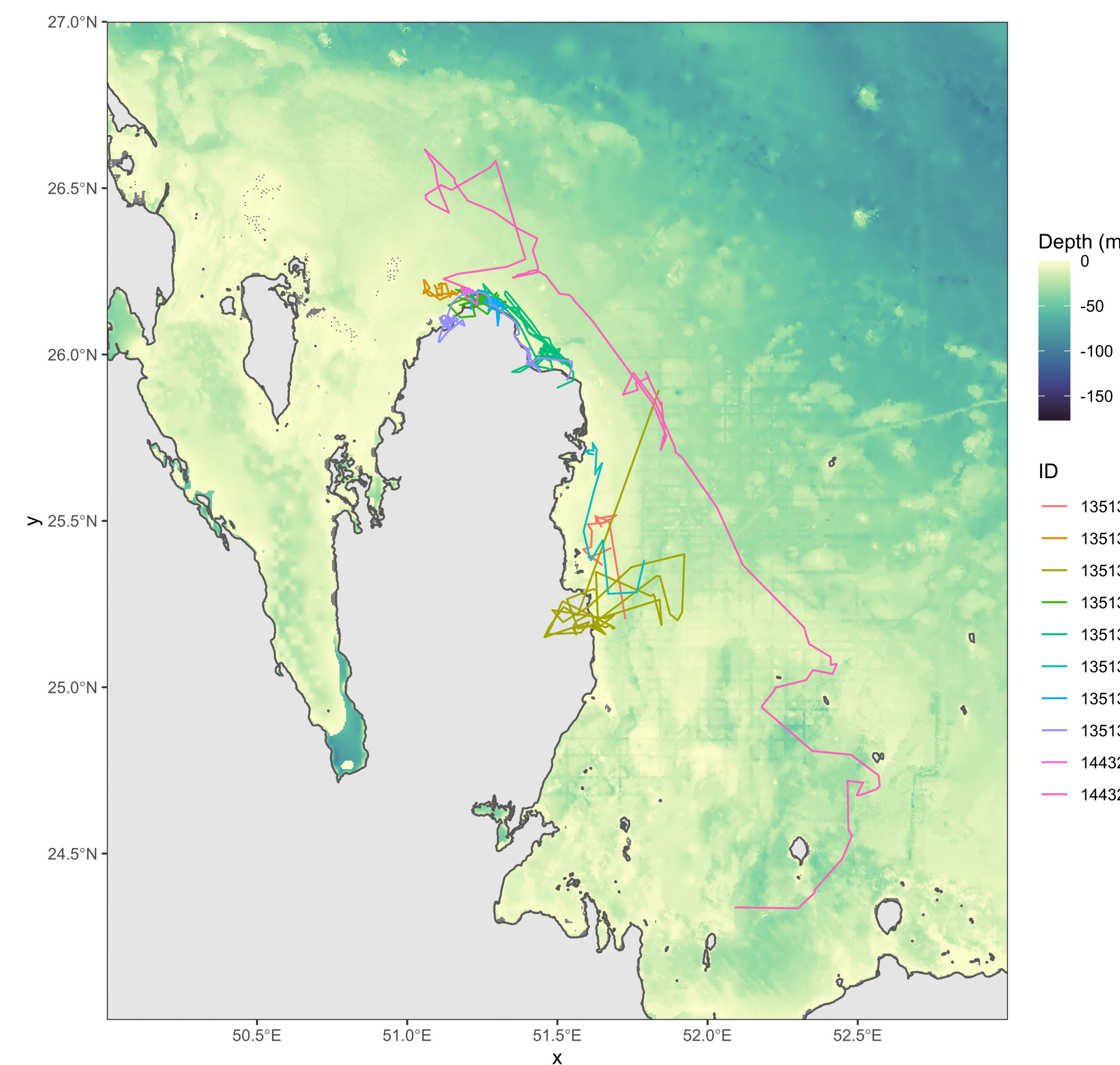


Figure 1. The figure depicts the bathymetry of the Arabian Gulf.

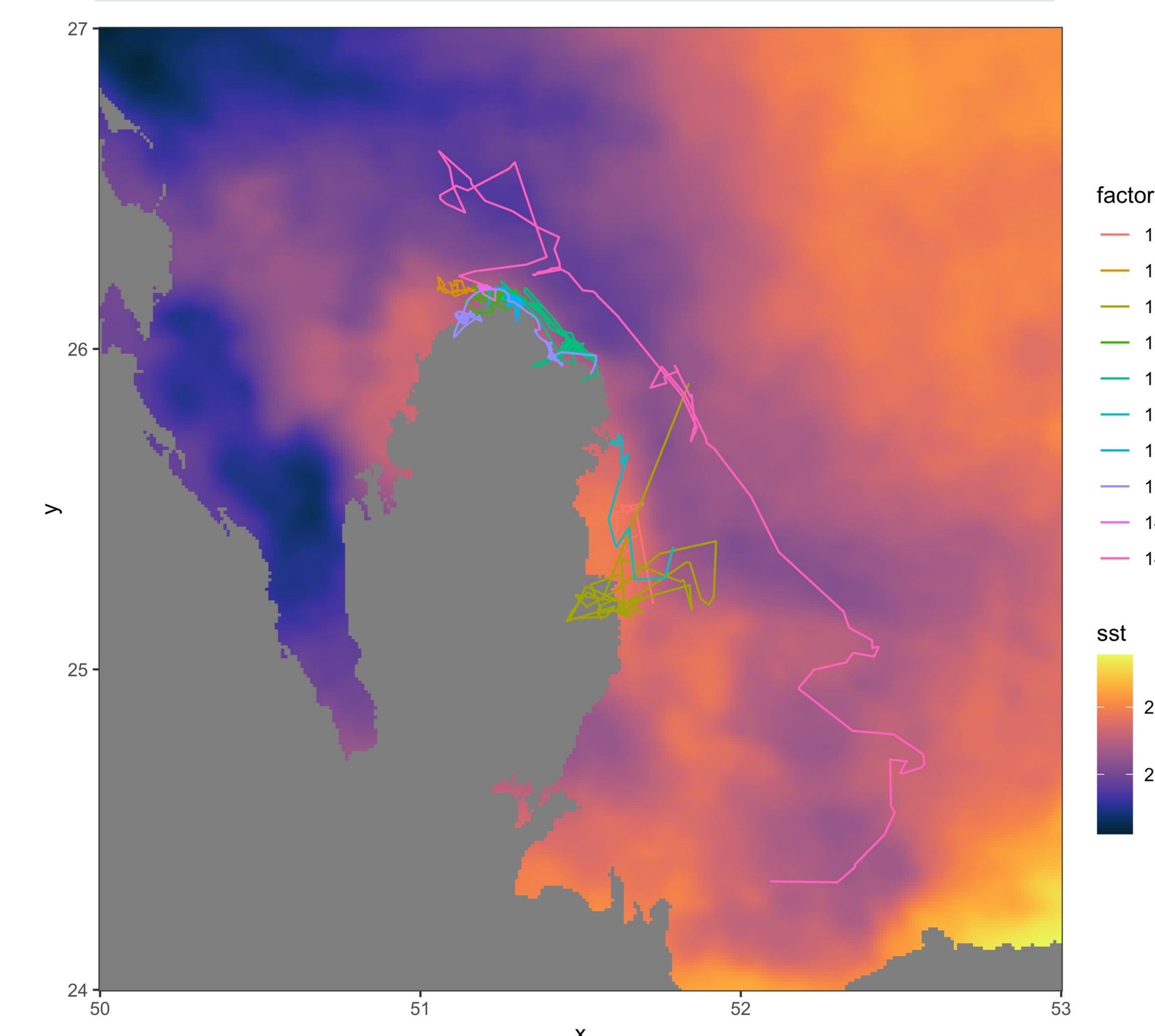


Figure 2. The figure depicts the tracks of green turtles (*Chelonia mydas*) at varying sea surface temperatures (°C). The temperature layer is from March 2014.

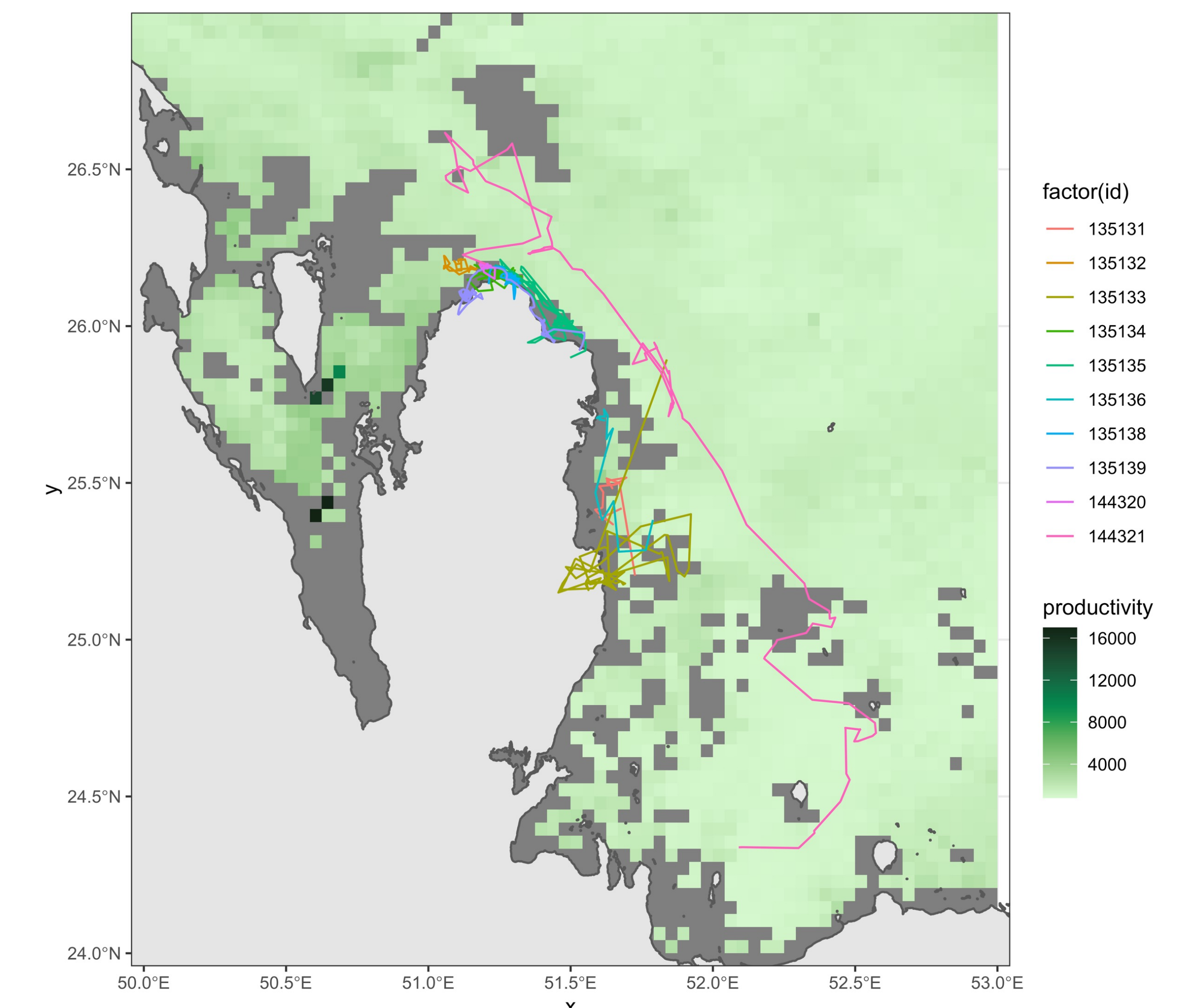


Figure 3. The figure above represents the primary productivity (mg C/m² day) available in the Arabian Gulf in March 2014.

Future Directions

- The model needs simulated tracks to represent available habitat.
- Develop logistic regression model to analyze selection of habitat of green turtles in the Arabian Gulf.

Acknowledgements

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