

Movement and Habitat Selection by Migratory Fishes Within the Maryland Wind Energy Area and Adjacent Reference Sites

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Funded by: Bureau of Ocean Energy Management (BOEM)

Seasonal transit and habitat occurrence of striped bass and Atlantic sturgeon in offshore wind energy areas are important baseline information needed to assess potential impacts to these species from offshore wind energy development. Biotelemetry was used in a before after-gradient design centered in the Maryland Wind Energy Area to measure seasonal patterns of migration by Atlantic sturgeon and striped bass. Models were used to relate these patterns to gradients of depth, temperature, and other oceanographic variables. Acoustically tagged striped bass and Atlantic sturgeon were monitored with an extensive telemetry receiver array. From November 2016–December 2018, the array logged 745,385 detections of 1,286 acoustically tagged fish, most of which were target species of the study: striped bass (315 individuals) and Atlantic sturgeon (352 individuals). An additional 18 species were identified, including Atlantic cod; Atlantic bluefin tuna; black sea bass; blacktip, bull, dusky, sand tiger, tiger, and white sharks; and cownose ray.

Images | (left & right) Maryland research team in the field | (center) Atlantic sturgeon hot spots in Maryland wind energy area

Findings

- Detections of Atlantic sturgeon occurred in autumn, early winter, spring, and early summer.
- Striped bass occurrence was more concentrated during winter months, with a rapid pulse in spring.
- Both species moved through the study area in an average of 1.6 and 2.5 days for Atlantic sturgeon and striped bass, respectively.
- Single-variable analyses and habitat models alike identified depth and temperature as key variables; Atlantic sturgeon tended to occur at shallower sites and warmer temperatures while striped bass were more likely at great depths and cooler conditions.

How BOEM will use this information

- Design future post-construction telemetry studies of fish
- Provide baseline information for environmental assessments of future offshore wind development

Additional information

- Final report: https://espis.boem.gov/final%20reports/BOEM_2020-030.pdf

