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Understanding the early offshore migration patterns of turtle hatchlings and the effects of anthropogenic light

BCS Marine Science

Project Core Team

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X X Completed and closed

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X X
Project Team granted
Program Leader granted
Directorate granted

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Context

This pilot study will track hatchling sea turtles as they cross the nearshore marine environment by using acoustic array technology with transmitter tags. The miniature transmitter technology is a recent innovation which produced transmitter tags small enough to attach to hatchling sea turtles without impacting on their welfare. This project will test this technology and also test some basic hypotheses regarding hatchling orientation in the water under natural and artificial conditions.

Aims

- Evaluate the efficacy of new acoustic technology for tracking the in-water movements of hatchling turtles.
- Examine the influence of artificial lighting on in-water movement of hatchling turtles from the nesting beach to the sea.
- Provide an understanding of the oceanographic factors that influence the movement of hatchling turtles.

Progress

- A series of acoustic receivers were set up in a grid pattern in the coastal zone adjacent to a turtle nesting beach. A total of 29 hatchlings were fitted with miniature transmitters, released at the water's edge and their progress automatically recorded by the receivers as they passed through the grid on their migration offshore.
- Final report has been completed and scientific publication is in preparation.
- The results showed the suitability of this technology to track sea turtle hatchlings with no adverse impact on the welfare of the hatchling.

Management implications

The use of automated tracking technology for sea turtle hatchlings provide a cost-effective means of tracking sea turtle hatchlings with the samples sizes required for robust experimental design, and enables evaluaiton of impacts on hatchlings in the near shore environment.

Future directions

This project is completed except for the submission of a peer-reviewed paper. However, the next stage of this work is to test this technology with other sea turtle species and in different locations and also in the presence potential impacts at an industrial scale.