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The potential of using data-logging acoustic receivers to study the movements and residency patterns of dugongs in port environments: a comparison with satellite tracking

Daniel holds a BSc (hons) in Mathematics Education from the State University of New York. He earned his MSc in Conservation Biology from Antioch University New England, concentrating on GIS analysis of wildlife habitat use and completing a two-year study of the North American wood turtle, *Glyptemys insculpta*. In 2011, Daniel volunteered at a marine science camp in Quebec where he introduced wildlife radio-tracking and GIS. Daniel also contributed whale ID photos, including some of blue whales, to regional catalogues.

Dugong (*Dugong dugon*) are an important iconic and protected species in Australia. But, as with many marine animals, little is known about their movements. Daniel's research compares dugong location data collected using two data technologies; GPS ("live") satellite and acoustic archiving, to determine dugong habitat use. Daniel will also determine the influences of diel and tidal patterns, tidal currents and sea temperature on dugong movements. Modelling these variables with the dugong location data is expected to help managers protect dugongs and other marine animals.

Acoustic technology may have significant advantages over ARGOS/GPS technologies for studying dugong habitat use in port environments;

- the acoustic transmitters are much less expensive allowing at least a five-fold increase in sample size for the same outlay;
- individual dugongs can potentially be tracked for much longer using the acoustic technology;
- the absence of a tether should greatly reduce animal welfare issues and the potential to track fast swimming animals should be improved.

One of the most exciting things to come out of Daniel's research so far is the first confirmed movement of dugongs from Moreton Bay, through the Pumicestone Passage, to Hervey Bay and the Northern tip of Fraser Island.

Publications

Zeh, D. et al., 2012. *The potential of using data-logging acoustic receivers to study the movements and residency patterns of dugongs in port environments: a comparison with satellite tracking.*

Zeh, D., 2013. Using data-logging acoustic receivers to study dugong movements in coastal environments: A comparison with satellite tracking. In *Australian Marine Sciences Association*. Gold Coast, QLD:

