Assessing Marine Turtle Habitat and Movement Within an Important Marine Corridor, the Florida Current

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Sea Turtles in Florida

- 5 of 7 species in Florida & Southern Gulf Stream waters
- Migratory throughout life
- Florida coast serves as one of the world’s largest nesting rookeries
- Nearshore waters are feeding grounds

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Complex Life History

Gumbo Limbo

Photo by M. Wozny

Photo by M. Lamont
Sea Turtles as Protected Species

- **Endangered Species Act**
  - Magnuson-Stevens Fishery Conservation and Management Act - in water activities require a NOAA National Marine Fisheries Service (NMFS) Permit
- **Take** – “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.”

Photo by M. Lamont  
Photo by J. Perrault  
Photo by D. Baron
Migratory

Eckert et al. 2006
Migratory Pathways

- Seasonal migration of juveniles
- Adults migrate to and from southwest Florida
- Migrate from Atlantic coast to Keys, Bahamas, southwest Florida
- Marine corridors
Turtles & Ocean Features

- **Currents**
  - Hatchling dispersal – Gulf Stream
  - Juvenile and adult migrations

- **Important oceanic habitats for juveniles and adults**
  - Gyres & eddies
  - Convergence zones
  - Frontal boundaries

- **Temperature**
Limited In-water Information
Turtles in the Florida Current

- How can ocean energy technologies avoid takes?
- Where are they?
- Who are they?
  - Species / size classes
- When are they there?
- What are they doing?
Objectives

• Baseline data
  • Assessing abundance and distribution of turtles prior to deployment of OET structures
• During deployment
  • Identify how structures/vessels affect turtle movement & migration
  • Determine downstream and upstream effects
• Evaluate potential long term effects
• Further our understanding of how marine turtles utilize the Florida Current
• Identify ways to minimize takes
Methods: Aerial Surveys
Detection Issues with Marine Animal Assessments

- **Availability** - Sea turtles spend most of their time underneath the surface.
- **Divers**
  - up to 1200m
- **Weather**
  - changes visibility
- **Apply correction factors & variance adjustments as defined by conditions during sampling**
Co-Benefits to Turtle Conservation

- Information on surface currents, water column, and temperature
- Deployment of off-shore sensors
- Info on turtles in the Florida Current
- Further our understanding of how turtles using the Florida Current & Southern Gulf Stream
- Applications to other turtle habitats
- Development & access to new technology
- Enables evidence-based mitigation plans
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