Session 010: Movement Ecology and Ecosystem-Based Management in the Gulf of Mexico: Lessons Learned and Solutions for Moving Forward

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Session Overview
This session drew on lessons learned from the past five years of the Gulf of Mexico Integrated Tracking of Aquatic Animals (iTAG) network and satellite tracking studies to address how movement data can help inform management, identify data gaps and emerging technology, and begin forming a Gulf-wide strategy to improve our understanding and protection of Gulf ecosystems.

Session Highlights
- Movement ecology is important to understand as the Gulf ecosystem is changing due to climate change and being impacted by periodic spatial stressors such as oil spills and red tides
- Limitations in the technologies commonly used to study movement are being overcome by combining technologies and utilizing regional data sharing networks
- A new technology that is being piloted to more accurately track marine animals is the RAFOS Ocean Acoustic Monitoring (ROAM) tag; this tag potentially has advantages over both acoustic and satellite tracking technology
- 3-D acoustic monitoring arrays can be used to characterize movement signatures and identify predation events
- For migratory species, tagging location matters; Marlin tagged in the eastern Gulf seem to be more likely to leave the Gulf than individuals tagged in the Western Gulf
- There is often a mismatch between the scale at which ecological processes take place and the scale of management; we should consider adding more local governance management layers
- Our movement models are able to predict the destination of a simulated marine animal fairly well, but not the journey (path)
- Future movement models will need to go beyond random walks and incorporate individual decision making; we will have to be able to predict changes in movement
- There is a disconnect between movement data collection, movement data analysis/modeling, and management
- There is a need for funding to support a cross-disciplinary working group who can lay the foundation for connecting the pieces; this working group needs to draw on experts in state and federal governments, academia, and industry; specifically it should bring together ecologists tracking a range of species with multiple technologies, stock assessment scientists, modelers, and state and federal managers