NOVA SCOTIA ENERGY
R&D CONFERENCE 2014
ENERGY FOR CHANGE

"Environmental Innovation in the Offshore"

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Monitoring bird interactions with offshore oil and gas platforms: new approaches with automated sensors.

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Difficulties associated with direct observations from offshore platforms and the episodic nature of bird-platform interactions mean that there is limited documentation of bird activities at offshore oil and gas installations. Assessment of bird-platform interactions could be improved by incorporating instrument-based approaches with traditional environmental monitoring. We review some of the advantages and limitations of instruments that could be used for monitoring bird-platform interactions, and we present the development of new, open-source, automated radio-telemetry receivers (sensorgnome.org) for tracking birds in coastal and offshore areas. Using this system, and other tracking technologies, we studied five seabird and two landbird species to quantify the frequency, timing, and duration of bird-platform interactions in Nova Scotia waters. Tracking of Terns, Leach's Storm-petrels and Blackpoll Warblers showed limited spatial and temporal overlap with offshore platform areas. During migrations between Sable Island and mainland Nova Scotia, radio-tagged Ipswich Sparrows were detected by platform vessels during spring migration but not during fall migration. Gulls showed frequent associations with platform supply-vessels, typically at night, and the frequency of interactions peaked in July and August post breeding. GPS-satellite telemetry tracked gull foraging trips ranging from 5 to 275 km from the colony and apparent "specialization" by a few individuals attending platforms regularly. We demonstrate the versatility of telemetry devices to quantify landscape-scale movement patterns and bird interactions with offshore industrial installations.