



2017: A MARINE MAMMAL ODYSSEY, EH! 22nd Biennial Conference on the Biology of Marine Mammals



October 22-27, 2017 // Halifax, Nova Scotia, Canada

Day: Wednesday

Session Time: 13:30 - 15:00

Location: Scotiabank Centre - Poster Bays 22, 23 & 24

Program Track/Topic: Foraging Ecology

ID: Bay 23.2

Title:

Acoustic foraging behavior of beluga whales via combined technology: Satellite telemetry, passive acoustics, accelerometry, and stomach temperature sensing

Abstract:

In Nushagak Bay, within Bristol Bay, Alaska, seven temporarily restrained wild belugas were instrumented with a short-term multi-sensor tag (DTAG3), a long-term satellite tag (SPLASH 10) and a stomach temperature pill (STP3) in August 2014 and May 2016. DTAG deployments provided 20 to 40 hours of dive depth, 3D acceleration, and recordings of echolocation and vocalizations of tagged and nearby belugas. For all belugas, data consisted of a long period of silence (i.e., transit), until a beluga group was joined, followed by alternating periods of vocalizations (i.e., social interaction), quiet (i.e. resting at the surface), and episodes of intense echolocation activity related to feeding behavior, confirmed by sudden decreases in stomach temperature. Foraging periods occurred in the company of multiple individuals engaged in episodes of intense buzzing, which may indicate cooperative or competitive interaction, followed by long resting periods in deeper waters nearby. Satellite tag data showed these feeding periods occurred in both shallow mud flats and river channels during the flooding tide. Feeding behavior was not always associated with sudden changes in acceleration (jerks) as described in other odontocetes, but the whales often rolled their body sideways and sustained the body roll during capture attempts. Turning sideways is likely related to the need to maintain enough fluking amplitude to generate thrust while swimming in very shallow waters or near the seafloor, but could also be related to prey capture strategies involving dorsoventral head movements and mouth suction. Results also confirmed that beluga buzzes directed to prey show acoustic characteristics typical of other odontocete feeding buzzes. However, they buzzed longer and more often than other odontocetes, suggesting an avid prey scanning and selection before engaging in capture attempts. This combination of multiple instruments provided a comprehensive approach to study beluga whale foraging ecology, including behavior, feeding effort and feeding success.

Theme: Foraging Ecology

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