

Session 4pABa

Animal Bioacoustics, Signal Processing in Acoustics, and Speech Communication: Sequence Information in Mammalian Vocal Call Production II

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1:00

4pABa1. Fin whale call sequence analysis from tracked fin whales on the Southern California Offshore Range. Glenn Ierley (Scripps Inst. of Oceanogr., Houghton, MI) and Tyler A. Helble (SSC-PAC, 2622 Lincoln Ave., San Diego, CA 92104, tyler.helble@gmail.com)

Time difference of arrival (TDOA) methods were utilized to localize and track fin whales on the Southern California Offshore Range (SCORE). In several instances two whales were shown to converge at the same location on the range. Analysis of 20 Hz call sequences revealed changes in call type and intercall-interval coinciding with changes in swim kinematics of the nearby transiting whales. Call sequence analysis may provide some insight on the ability of fin whales to convey information to conspecifics on location and bearing of travel.

1:20

4pABa2. Blue whale song sequencing off Southern California. Leah A. Lewis (Scripps Inst. of Oceanogr., Univ. of California, San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0205, lalewis@ucsd.edu), John Calambokidis (Cascadia Res. Collective, Olympia, WA), John A. Hildebrand, and Ana Širović (Scripps Inst. of Oceanogr., Univ. of California, San Diego, La Jolla, CA)

Blue whales off Southern California produce a unique song consisting of pulsed A unit and tonal B unit calls. These units are either sequenced in an alternating AB pattern, or a single A unit is followed by multiple B units (here denoted ABB). To investigate whether there is geographic variation in the occurrence of these different sequence types, data were analyzed from four High-frequency Acoustic Recording Packages deployed at two sites each inshore and offshore of the Channel Islands from September 2009 to June 2010. Additionally, fine-scale behavior associated with song and its sequencing was analyzed from acoustic tags deployed on blue whales in Southern California since 2000. A higher proportion of song bouts detected in offshore recordings were type ABB, whereas the dominant song type observed inshore was AB. This pattern may indicate geographic variability in song function. Most song units recorded on tags were produced during surface-travel dives, with the whale less than 30 m deep. Song bouts detected on tags occurred primarily at night, and whales did not interrupt their calling sequence with breathing intervals. The observed differences in calling and song preference off Southern California may be useful in identifying regionally distinct behavioral contexts for blue whales.

Contributed Papers

1:40

4pABa3. Central and western Pacific blue whale song and occurrence.

Pollyanna I. Fisher-Pool, Erin Oleson (NOAA Fisheries, Pacific Islands Fisheries Sci. Ctr., 1845 Wasp Blvd., Bldg. 176, Honolulu, HI 96818, pollyanna.fisher-pool@noaa.gov), and Ana Širović (Scripps Inst. of Oceanogr., La Jolla, CA)

Blue whale (*Balenoptera musculus*) occurrence in the central and western Pacific is not fully understood. However, passive acoustics offer an effective way to monitor remote sites. Blue whale songs are regionally distinct, and their stereotyped characteristics may be used to distinguish populations. Most blue whale song consists of multiple, pulsed and tonal units. However, song in the central and western Pacific consists of only simple tonal units. We investigated song variability of Hawaii, Wake Atoll, Palmyra, and Tinian in the Mariana Islands Archipelago, and highlight differences between blue whale songs amongst sites. Song calls of two different

frequencies were recorded by High-frequency Acoustic Recording Packages. Detailed measures of call frequency were taken along the contours of tonal calls and patterning of song sequences was evaluated for recordings from the four locations during 2012 and 2013. The spatial and temporal occurrence of these patterns is discussed.

1:55

4pABa4. Stereotyped, repetitive gunshot call patterns produced by the North Pacific right whale, *Eubalaena japonica*. Jessica Crance and Catherine Berchok (AFSC/NMFS/NOAA, National Marine Mammal Lab., 7600 Sand Point Way NE, Seattle, WA 98115, Jessica.Crance@noaa.gov)

The Marine Mammal Laboratory has deployed long-term passive acoustic recorders along the 50 m and 70 m isobaths throughout the Bering Sea since 2007. Instruments recorded at either 4 kHz on a ~7-11% duty cycle, or 8 kHz on a 30-45% duty cycle. In addition, directional sonobuoys were