1:30

3pAO3. Baleen whale presence in northern Mariana islands in 2015–2017. Camille Ollier (Dept. of Marine Biology, TAMUG A&M Univ., P.O. Box 1675, Galveston, TX 77553, ollier.cam@gmail.com), Megan A. Wood (Dept. of Marine Biology, TAMUG A&M Univ., Galveston, TX), Erin M. Oleson (Pacific Islands Fisheries Sci. Ctr., National Oceanic and Atmospheric Administration, Honolulu, HI), and Ana Širović (Dept. of Marine Biology, TAMUG A&M Univ., Galveston, TX)

Many baleen whale vocalizations are species, and in some cases, population−specific. Although baleen whale occurrence has been studied in different parts of the ocean, little is known about the seasonal distribution of baleen whales in the Western Pacific. Since 2010, more concerted visual and acoustic survey effort has been occurred around a very remote region of the western Pacific Ocean, the Northern Mariana Islands. Passive acoustic data were collected at two locations in the Northern Mariana Islands, Tinian and Saipan, from 2015–2017 and they were analyzed for call characteristics and occurrence of different baleen whale call types from blue whales, fin whales, and Bryde's whales. There was a clear seasonal pattern in fin whale calls, with peak call detections during winter and spring. Low levels of blue whale calls were detected year-round with peaks in winter (December) and summer (June). Bryde's whales were detected sporadically at both locations. Moreover, two low-frequency sounds with currently unknown origin were detected, one tonal and one pulsed sound. The former was more common at Tinian and the latter at Saipan. This work enhances our understanding of the species' vocal repertoire and population structure.

1:45

3pAO4. Long-term analysis of ocean ambient noise recorded at the northeast Pacific continental margin. Matthew Munson (School of STEM, Univ. of Washington, 185 Stevens Way, Paul Allen Ctr., Rm. AE100R, Seattle, WA 98195, mmunson2@uw.edu), Felix Schwock, and Shima Abadi (Elec. and Comput. Eng., Univ. of Washington, Seattle, WA)

Long-term underwater ambient noise analysis provides valuable insight into the changing soundscape of the ocean. This study evaluates four years of hydrophone data recorded at four locations off the Oregon coast between 2015 and 2019. The hydrophones record the soundscape continuously with a sample rate of 64 kHz and are deployed at depths ranging from 80 to 2900 m. The size of the dataset required processing to be distributed between 32 separate cloud machines. To facilitate long-term analysis, the data are averaged into sequential fifteen minute power spectral density (PSD) estimates. The PSD estimates are used to create long-term spectrograms and time series for various frequencies, which are analyzed for long-term trends and seasonal patterns. Spectrograms and ambient noise time series are used to identify different sound sources such as storms and periods of intense shipping and marine mammal activity. Furthermore, cross-element comparisons of the noise level are made to evaluate the site and depth dependence of the ambient noise. [Work supported by ONR.]

2:00–2:30 Discussion

THURSDAY AFTERNOON, 10 JUNE 2021 12:55 P.M. TO 2:25 P.M.

Session 3pBAa

Biomedical Acoustics: Instrumentation and Simulation in Biomedical Acoustics: Rapid Prototyping for Focused Ultrasound Sources

Adam Maxwell, Cochair
Dept. of Urology, Univ. of Washington, Seattle, WA 98195

Timothy J. Hall, Cochair
1153 WIMR, UW-Medical Physics, Madison, WI 53705

Chair's Introduction—12:55

This panel discussion will review current methods in prototyping therapeutic ultrasonic sources. State of the art techniques will be outlined and current limitations addressed. While principally targeting therapeutic transducers, these design and fabrication techniques apply to other ultrasound sources as well.

Panelists: Gilles, Thomas, Univ. of Washington; Jeremy Brown, Dalhousie University; Kyle Morrison, Sonic Concepts, Inc.; Noé Jiménez, Univ. Politècnica de València; Sandy Cochran, Univ. of Glasgow; Timothy Hall, Univ. of Michigan