different retracting drapery design by the theatre contracting firm. And if it proves to be possible, the on-site sound absorption measurements will be made at another college auditorium which uses cotton velour retracting drapery produced by the theatrical contracting firm. These data will be useful in specifying sound absorbing vertically retracting drapery for future projects.

THURSDAY AFTERNOON, 3 NOVEMBER 2011 PACIFIC SALON 1, 1:30 TO 3:15 P.M.

Session 4pAB

Animal Bioacoustics: Long-Term Acoustic Monitoring of Animals II

Simone Baumann-Pickering, Cochair
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Invited Papers

1:30

4pAB1. Diel and lunar variations of marine ambient sound in the North Pacific. Simone Baumann-Pickering (Scripps Inst. of Oceanogr., Univ. of California, San Diego, 9500 Gilman Dr., La Jolla, CA 92093, sbaumann@ucsd.edu), Ana Širović (Scripps Inst. of Oceanogr., La Jolla, CA 92093), Marie A. Roch (San Diego State Univ., San Diego, CA 92182), Anne E. Simonis, Sean M. Wiggins (Scripps Inst. of Oceanogr., La Jolla, CA 92093), Erin M. Oleson (Pacific Islands Fisheries Sci. Ctr., NOAA, Honolulu, HI 96822), and John A. Hildebrand (Scripps Inst. of Oceanogr., La Jolla, CA 92093)

Marine ambient sound was recorded on autonomous high-frequency acoustic recording packages (bandwidth 10 Hz to 100 kHz) during long term deployments at multiple sites across the North Pacific, from the high latitude Aleutian Islands to tropical Palmyra Atoll in depths of 600–1 000 m. Most intertropical but no temperate locations showed a distinct diel pattern in ambient sound. The soundscape at each location was unique, yet there was a similar recurring sound of unknown origin in lower latitude locations. This sound had a peak frequency around 3–5 kHz and was recorded only for several hours after sunset. Additionally, at some locations, a broadband acoustic signal with bandwidth up to 60 kHz was recorded at night with crepuscular peaks. Both sound patterns were lunar dependent with lower acoustic levels during full moon phases. Site-specific diel and seasonal acoustic patterns have been observed for various odontocete species. Correlations between odontocete presence and levels of ambient sound are investigated. [Work supported by NOAA-Pacific Islands Fisheries Science Center, US Navy-N45/PACFLT, ONR, Pacific Life, Ocean Foundation, University of California, San Diego.]

1:50

4pAB2. Long-term passive acoustic monitoring of nearshore ecosystems in the Northwestern Hawaiian Islands. Marc O. Lammers, Lisa Munger (Hawaii Inst. of Marine Biology, P.O. Box 1346, Kaneohe, HI 96744, lammers@hawaii.edu), Pollyanna Fisher Pool (Univ. of Hawaii, Honolulu, Hawaii), Kevin Wong (Pacific Islands Fisheries Sci. Ctr., Honolulu, Hawaii), Whitlow W. L. Au (Hawaii Inst. of Marine Biology, Kaneohe, HI 96744), and Russell E. Brainard (Pacific Islands Fisheries Sci. Ctr., Honolulu, Hawaii)

Monitoring the changing state of marine habitats in remote areas is, in most cases, a challenging task due to limited and/or infrequent opportunities to make direct observations. Passive acoustic monitoring is sometimes the best means of establishing long-term biological trends in such areas. Since 2006, an effort has been underway to monitor the neashore ecosystems of the Northwestern Hawaiian Islands (NWHI) using a network of Ecological Acoustic Recorders. A wide range of acoustic signals are being monitored to infer biological trends and to gauge the relative stability of the ecosystem. Among the variables measured are the acoustic activity of snapping shrimp, the incidence of cetaceans and the extent of spectral and temporal partitioning of the acoustic space by different taxa, measured as the "acoustic entropy" of the habitat. Multiyear time series of the different measures provide baseline levels of biological activity at each location and also reveal periods of anomaly. Observed trends are then examined for corollary relationships with oceanographic and meteorological parameters measured both in situ and remotely. The data obtained thus far are providing valuable insights that will help assess the long-term response of ecosystem in the NWHI to both natural and anthropogenic factors

2:10

4pAB3. Eavesdropping on coconut rhinoceros beetles, red palm weevils, Asian longhorned beetles, and other invasive travelers. Richard W Mankin (USDA-ARS-CMAVE, 1700 SW 23rd Dr., Gainesville, FL 32608, richard.mankin@ars.usda.gov)

As global trade increases, invasive insects inflict increasing economic damage to agriculture and urban landscapes in the United States yearly, despite a sophisticated array of interception methods and quarantine programs designed to exclude their entry. Insects that are hidden inside soil, wood, or stored products are difficult to detect visually but often can be identified acoustically because they produce 3–30-ms, 200–5 000-Hz impulses that are temporally grouped or patterned together in short bursts. Detection and analysis of these sound bursts enables scouts or inspectors to determine that insects are present and sometimes to identify the presence of a particular target species. Here is discussed some of the most successful acoustic methods that have been developed to detect and monitor hidden