

## Detection of blue whale calls from 7 years of data in Southern California

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Spectrogram correlation has been used successfully for automatic detection of baleen whale calls. However, applying this method consistently on long time series presents a number of challenges. To illustrate these potential impacts on the automatic detection process, recordings collected in the Southern California Bight between 2007 and 2012 were used for detection of Northeast Pacific blue whale (*Balaenoptera musculus*) B calls. The effects of the following factors were investigated: blue whale B call frequency shift and appropriate kernel modification, seasonal variability in call abundance, analyst variability, and noise. Due to intra- and interannual changes in call frequency of blue whale B calls, seasonal and annual adjustments to the call detection kernel were needed. To account for seasonal variability in call production, evaluation of the detector against ground truth data was performed at multiple times during the year. Analyst variability did not affect overall long-term trends in detection, but it had an impact on the total numbers of detections, as well as call rate and density estimation. Noise, particularly from shipping, was negatively correlated with detections at hourly time scales. A need for a more detailed accounting of the variability in the performance of spectrogram correlation detectors when applied to long-term acoustic datasets will be discussed.

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