

Responses of humpback whale singers to playback of similar and different songs

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The purpose of this study was to determine if variability in interactions between neighboring singers could be a function of song composition. In Hawaii, on 32 days from 2005-2007, encounters with 67 singers led to 23 playback trials, 19 of which were used in analysis. Songs similar to, or different from, the subject's were played back from a calibrated source at 600-800 m. While one boat conducted the playback, a second boat in close, often visual, contact with the subject singer recorded its song; the playback sounds; and its behavior (underwater video) and movements (GPS), before, during and after the trial. Ten playbacks of similar song resulted in nine neutral to positive (attraction) responses, with the singer joining the playback speaker in five of these trials. Playback of seven different songs all led to neutral to negative (repulsion) responses, as did two non-whale sounds. In one compound trial: on playback of different song the singer moved away and continued singing; when the playback was changed to similar song, it stopped singing and joined the playback speaker. Singing stopped during 70% of playbacks, ranging from immediately (7 sec) to after a full song (16 min). Stop time in similar song playbacks tended to be shorter (median: 2.5 min) than different song (median: 11.5 min). Challenges in isolating the playback trial from wild communication and interactions complicated interpretation, and introduced the potential for false positives and negatives. This study indicated that singing whales: 1) were immediately aware of a new song added to their surroundings; 2) could pinpoint a 25 cm speaker from 800m; 3) may respond to similar song by stopping and joining its source, which did not occur with playbacks of different songs. The hypothesis that singer interactions are mediated by song composition warrants further investigation.