

## Relationship of Social Vocalizations to Pod Size, Composition and Behavior in the Hawaiian Humpback Whale\*

Ann M. Zoidis<sup>1</sup> Marsha L. Green<sup>1,2</sup>

1) Ocean Mammal Institute, Po Box 14422, Reading, PA 19612

2) Albright College, PO Box 15234, Reading, PA 19612

There is a paucity of published data on social vocalizations for humpback whales (*Megaptera novaeangliae*). Social sounds (defined as non-song, non-repetitive, non-rhythmic sounds) were recorded in Maui during the 2001 season from humpback whale pods (n=113) using underwater video photography in order to assess pod characteristics. Social sounds were documented in pods of all sizes and compositions except singletons. Percentages of pods vocalizing were as follows: surface active groups 64%; mother/calf 58%; mother/calf/escort 50%; adult pairs 29%. Social sounds were recorded during various behavioral states including resting under the surface, milling, slow surface travel, surface active, and competitive behaviors. Social sounds were not obtained from fast, surface traveling pods. Mean vocalization rates (sounds/whale/hour) were compared in pods of different size, composition and behavioral state. Mean vocalization rates were not significantly different in pods of different size or behavioral state. Vocalization rates did differ according to pod composition. Mother/calf pods had the highest vocalization rate (10.91 sounds/whale/hour) which was significantly higher than surface active groups (4.18 sounds/whale/hour,  $p < .05$ ) or adult pairs (1.67 sounds/whale/hour,  $p < .05$ ). Results of this study differ from previous social sound studies on Hawaiian humpback whales. Tyack (1983) and Silber (1986) reported that social sounds were produced mainly in groups of 3 or more adults engaged in competitive behavior, and Silber recorded no sounds from mother/calf pods. This study indicates that social sounds occur in pods of various sizes, different compositions, and across a broad spectrum of behavioral states. The data shows vocalizations are not mainly limited to competitive interactions.

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