

Temporal characterization of humpback whales (*Megaptera novaeangliae*) group structure and behavior in Abrolhos Archipelago breeding area (Bahia, Brazil).

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Abstract

Humpback whales use the east coast of Brazil as a breeding and calving area. The waters surrounding Abrolhos Archipelago are important because of the high concentration of humpback whale groups with calves. A seven-year study (1998 - 2004) was conducted, from a land base station, to investigate temporal patterns of group structure and behavior of humpback whales. Depending on weather and sightability conditions, one-hour-scans were done followed by observations of animal or group focal follows. Concomitant with the observation of an increasing Brazilian humpback whale population, the number of adult whales sighted around the Archipelago increased, especially from 2002 to 2004. However, sightings of calves only increased during 2004 season. The humpback whales gradually arrive, concentrate and leave the region, reflecting segregated migration and individual social changes. As the season progresses, the frequency of different groups categories changes, from groups without calf to groups with calf, as well as the behaviors, which, within each group category, seems to be appropriate to calf development stages (for groups with calf) and reflect what seems to be related to the search for mating opportunities and other social interactions. During those 7 seasons, there were no changes in humpback whale group structure, nor were there strong behavioral changes. However, it was observed that, in the presence of vessels around 100 to 300 meters, mothers spent less time resting and calves spent less time in activities probably related to suckling. There is a concern that behavioral changes caused by anthropogenic factors may put the population at risk and changes at population level may take several years to be detected. So, it is suggested that studies following the same methodology

continues, allowing further future comparisons. A long-term study would permit continued investigation of humpback whale use patterns (or their alterations) showing their responses to anthropogenic pressures.