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The social organization of sperm whales in the Gulf of California and comparisons with other populations

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Intra-specific variation in social organization provides valuable insights into the selective forces driving social evolution. Sperm whales are distributed globally and live far from shore, thus obtaining large sample sizes on social organization in multiple areas is logistically challenging and few comparative studies exist. In order to address how ecological factors influence sociality, we investigated the social organization of sperm whales in the Gulf of California (GoC) using a long-term study (1998–2004) and compare our results to other published studies. Standard photo-identification and behavioural observation techniques were used. Group size was calculated from photographic mark–recaptures using a Petersen estimator. Social organization was investigated using SocProg 2.3. Mean typical group sizes in the GoC were similar to those in the Galápagos Islands, Chile and Seychelles (24.7, 24.8, 30.4 and 18 individuals respectively), but substantially larger than in the Sargasso Sea, Caribbean and northern Gulf of Mexico (12.0, 6.4 and 6.9 individuals respectively). Sperm whale social organization in the GoC best fitted a constant companion/casual acquaintance model, where permanent units sizes were 12.5 individuals and two units usually associated together to form a group. This structure is similar to the situation in the Galápagos Islands and Chile areas. However, groups were more stable in the GoC than in the South Pacific, as groups stayed together for periods of about 80 days versus about ten days in the Galápagos Islands and Chile. It is likely that differences in the social organization between the study areas in the Pacific and Atlantic Oceans were due to differences in predation pressure and/or food resources. We suggest that, site-specific ecological factors are likely to influence fundamental aspects of sperm whale social organization.

Palabras clave: antibacteriana, organización social, cachalote

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