COMPARATIVE SOCIOECOLOGY OF THE DUSKY DOLPHIN (*LAGENORHYNCHUS OBSCURUS*) IN NEW ZEALAND

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WENDY JANE MARKOWITZ

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ABSTRACT

Behaviour and social groupings of animals are often closely tied to habitat structure. Ecological factors (e.g., predation pressure, resource distribution) and social pressures profoundly influence behaviour and social organization. This study examined the socioecology of dusky dolphins (*Lagenorhynchus obscurus*) off Kaikoura, one of the most productive submarine canyon habitats in the world, supporting marine mammal populations and a thriving tourism industry. Behavioural data were collected during 332 dusky dolphin group follows from a small research vessel and onboard 174 dolphin tours during 2006-2009. Continuous and interval sampling were used to document behavioural states, behavioural events, and changes in group composition. Data from small groups (n=197) were compared with similar data collected from 67 small group encounters with Hector's dolphins (*Cephalorhynchus hectori*) in the same habitat. In winter, dusky dolphins formed larger groups that ranged more widely and small groups that primarily rested during the day near shore. Although resting, small groups increased dispersion and swam in parallel formation in winter. In summer, dolphins formed small groups for calf-rearing, mating and resting. Groups with calves were the largest and most stable of these small groups, and were found closest to shore, in relatively shallow water, often near river mouths. In mating groups, rapid chases decreased intromission rates as competition among males increased. Sexual selection may favour traits improving male success in behavioural contests as well as sperm competition in this species. Apparent mechanisms for female choice included 'escape' strategies that prolonged chases. Hector's dolphins formed smaller groups with higher fission-fusion rates, less cohesion, and fewer social bond reinforcement behaviours than dusky dolphins. Interactions with tour vessels had short-term effects on the behavioural state, heading, dispersion, and leaping rate of large dusky dolphin groups. Resting was disrupted during tour

interactions and dolphins increased travel away from approaching tour vessels following tour interactions. Assertive approach methods reduced the duration of swimmer-dolphin interactions, particularly in summer when dolphins may be sensitised to high levels of tourism. These large-brained, highly social mammals form intricate societies that are responsive to changes in habitat, predation pressure and resource distribution. Understanding these responses is vital for protection of dolphins in the wild.

DEDICATION

This dissertation is dedicated to my mentor

Dr. Daisaku Ikeda

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