

APPENDIX 1: POSTER ABSTRACTS

Behavior of the North American river otter (*Lontra canadensis*) in relation to human disturbances

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From the degradation of critical habitat to the overexploitation of resources, it is obvious that humans have made a negative impact on the natural world. Even in relatively remote areas, such as the western coast of Vancouver Island, human populations and activities are increasing and may have an effect on the local wildlife: a plethora of species including the North American river otter, *Lontra canadensis*. Preliminary studies suggest that otters may display avoidance behaviors when exposed to human disturbance, and that they may even switch from diurnal to nocturnal activity patterns in areas with greater human exposure. From July 15 through August 31, 2011, I attempted to investigate human impacts on the behavior of the local river otter population in Ahousaht, British Columbia. I performed 90 hours of effort via shore-based observations and kayak transects, during which I made 26 direct observations of otters and located three active latrine sites. Otter group size ranged from 1–5 otters, and sightings of activity occurred most frequently in the evening between 18:00–20:00. At active otter hotspots I placed both still and motion-based remote cameras, which collected 22 otter videos over the course of the study. All video data will later be analyzed using Noldus Observer, a software program for animal behavior. This data will provide a valuable supplement to the limited knowledge of wild river otter behavior worldwide, and further studies could give indispensable insight into human impacts on both river otters and the fragile coastal ecosystem as a whole.

Comparison of Blue and Fin Whale Behavior, Headings and Group Characteristics in the Southern California Bight during Summer and Fall 2008–2010

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Baseline undisturbed behavior and social patterns of blue (*Balaenoptera musculus*) and fin whales (*B. physalus*) are not well described and are needed to identify and understand potential effects of anthropogenic activities. Behavioral data for blue and fin whales were collected during aerial survey line-transect and focal-follow effort. Initially-observed behavior state, group size, heading, and minimum and maximum inter-individual dispersal distance were recorded during line-transect sampling and/or subsequent verification circling by the aircraft. Focal groups were circled for 3–60+ minutes and videotaped from outside Snell's sound cone to avoid disturbance. During 24,736 km of survey effort, 51 fin whale sightings (86 individuals) and 49 blue whale sightings (84 individuals) were seen. Over 7 hours of video was collected for 16 blue and 15 fin focal follows. During the summer, blues (n=48) were seen more commonly than fins (n=35); in fall, fins (n=16) were seen much more frequently than blues (n=1). Mean group size was 1.7 whales for both species. Initially observed blue behavior was usually travel (85%) or mill (11%). Observed fin whale behavior was also mostly travel (87%), mill (6%), or surface-active travel (3%). Both species were seen socializing (e.g., touching) in fall but not summer; foraging was observed in summer through fall. Mean initial dispersal for blues and fins was 8 and 16 body lengths, respectively. In summer, blues were most frequently (26%) seen headed S; in fall (n=2), they were headed only inshore (E). In summer, fin whales were most commonly headed SSW (26%) or WNW (26%); in fall, they were headed mostly NE (38%) or WSW (38%). Both species directly compete for food based on observations of inter-specific maneuvering for a bait ball. Data represent the most extensive record of systematic undisturbed behavior on these species in SOCAL and include social interactions not previously documented in this region. Dive/respiration/behavioral event rates were also collected and are currently being analyzed.

Interactions Between Sperm Whales and Risso's and Northern Right Whale Dolphins off San Diego, CA

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Aerial surveys provide a valuable platform to record and document behavior of marine mammals above and below the sea surface. This approach is advantageous in avoiding disturbance from the observational platform while circling outside the sound cone of the plane. Since 2008, the U.S. Navy has instituted a marine mammal monitoring program in southern California from several platforms, including aerial surveys, and has successfully captured previously undocumented behaviors and species interactions during the aerial effort. This included focal behavioral interactions between sperm whales, northern right whale dolphins, and Risso's dolphins on 14 May 2011, 24 nm west of San Diego, CA. This ~1.5-hour encounter was documented in detail with high-definition digital photographs and video as the group traveled NE along the edge of a steep underwater drop-off. Risso's dolphins initiated charges towards the heads of the sperm whales on multiple occasions, followed by fast retreats. Sperm whale adults responded by displaying an open lower jaw. Risso's dolphins appeared to direct this behavior only toward adult sperm whales that had recently surfaced from long (> 20 min) dives; it was not directed toward the four calves in the group. Northern right whale dolphins intermingled with the Risso's dolphins and sperm whales, although they did not approach sperm whales as closely or abruptly as the Risso's dolphins. While similar apparently aggressive Risso's dolphin behavior has been documented toward other cetacean species, this is the first known occurrence of head-on charging by Risso's dolphins, accompanied by the elicited jaw display response from sperm whales. The interaction may be similar to aggressive pilot whales behavior towards sperm whales, and may function in acquiring regurgitated sperm whale food, or other needs by the Risso's dolphins.

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PROGRAM CONTENTS:

WORKSHOP SCHEDULE (P. 1-2)

SPEAKER BIOGRAPHIES (P. 3-11)

LIST OF ATTENDEES (P. 12-15)

ACKNOWLEDGEMENTS (P. 16)

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APPENDIX 2: EVALUATION FORM