

APPENDIX 1: POSTER ABSTRACTS

Mixed-species associations seen in the Southern California Bight during aerial surveys 2008–2012

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Fifteen aerial surveys (72,647 km) occurred during 2008–2012 to monitor occurrence, abundance, and behavior of marine mammals in the Southern California Bight (SCB) on behalf of the U.S. Navy. Thirty-six (2%) of 2,151 total sightings of at least 11 species were mixed-species associations (i.e., at least two different species swimming together/interacting). Little is known about these associations. Risso's dolphins were most frequently associated with another marine mammal species (19 [7%] of 238 total Risso's sightings) as follows: with sperm whales (1x), California sea lions (CaSL) (3x), and bottlenose (7x), northern right whale (NRWD) (4x), long-beaked common (1x), unidentified (1x), and common dolphin sp. (2x). Up to 3 species occurred together on 3 different occasions: (1) sperm whales/Risso's/NRW dolphins, (2) Risso's/unidentified dolphins/CaSL, and (3) Pacific white-sided/common dolphins with CaSL. The most unusual mixed species sighting was 24 sperm whales (including 4 calves) with 11 Risso's and ~50 NRW dolphins: Risso's repeatedly charged adult sperm whales' heads who responded by dropping their lower jaw, perhaps related to kleptoparasitism. Potential reasons for mixed-species associations include increased protection from predators via dilution, increased prey detection/consumption, and "play" (i.e., fin whale calf touching NRW). Data include interactions not previously documented in the SCB among these socially complex animal groups.

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Risso's Dolphins (*Grampus griseus*) in Santa Monica Bay and nearby areas, CA

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Risso's dolphin ecology in the Santa Monica Bay has not been previously investigated. A total of 19 group follows suggested that this species was only found in offshore water (distance from shore > 500 m). The most observed behavior was traveling (67%, n 5-min samples = 118). Risso's were often recorded in mixed-species aggregations (52%, n sightings = 21). Average group size was 10.9 individuals.

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Contaminants in coastal dolphins from central and southern California

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Marine mammals are considered sentinels of the marine environment. They are especially useful in monitoring contaminants due to their abundant blubber content and high trophic level. Anthropogenic toxins have been routinely analyzed from stranded cetaceans as part of our bio-surveillance program since 2005. Blubber from 11 species have been analyzed for DDTs, PCBs, and PBDEs, but for this study we focused on a comparison of two coastal dolphins, long-beaked common dolphins (*Delphinus capensis*, n=11) and harbor porpoises (*Phocoena phocoena*, n=9). In addition to comparing between the two species, we were able to conduct a preliminary analysis comparing contaminant concentrations in adult female common dolphins to calves. Overall, the concentrations of DDTs (48,200 vs 11,356 ng/g), PCBs (8434 vs 2522 ng/g), and PBDEs (3468 vs 910 ng/g) were significantly higher in common dolphins than harbor porpoises (p<0.05). These contaminants were also higher in common dolphin males than conspecific females and male harbor porpoises. There was no significant difference between female common dolphins and harbor porpoises. Contaminant concentrations in common dolphin calves were higher than adult females but sample size prevented statistical analysis. The ratio of ppDDE/tDDT indicates an older source of DDT contamination in both common dolphins (0.93) and harbor porpoises (0.89). These preliminary data indicate contaminants continue to infiltrate prey and upper trophic level marine animals. There is clear evidence of maternal transfer which also correlates with higher concentrations in males.

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The QuikScience Challenge

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The QuikScience Challenge is a competition for teams of middle school and high school students that create projects and portfolios on a science subject related to marine or freshwater environments. The challenge is in its 10th year and is sponsored by the USC College Wrigley Institute for Environmental Studies in partnership with Quiksilver Inc., an international producer and distributor of surfing apparel, and the Quiksilver Foundation. The challenge uses a team competition to encourage students to learn more about scientific research and to enhance the students' capacity for leadership. Each team teaches a Lesson Plan, creates a Community Service, solves an Environmental Challenge and the high school teams will complete a Research Proposal. Scientists, researchers and educators collaborate with students to communicate science and social issues to their local communities.

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SOUTHERN CALIFORNIA MARINE MAMMAL WORKSHOP

FEBRUARY 1-2, 2013 · NEWPORT BEACH, CA



Zalophus californianus

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