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# Got Milk? Aircraft Observations Provide Rare Glimpses into Whale Calf Nursing and Back Riding



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## ABSTRACT

Nursing behavior by large cetaceans in situ is not well described. During ~30,000 km of aerial surveys off Southern California to monitor marine mammals relative to U.S. Navy military training activities (2008-2011), nursing behaviors were documented for three species: Eastern Pacific gray whale (*Eschrichtius robustus*), fin whale (*Balaenoptera physalus*) and killer whale (*Orcinus orca*). Photographs, video, notes and audio recordings were used to analyze mother-calf interactions. Back riding occurred in gray and fin whales, as described for bowhead whale (*Balaena mysticetus*) mother-calf pairs by Würsig et al. (1999). During slow sub-surface travel, a fin whale calf swam alongside mother's peduncle area, touching her head-first for short (<1 min) bouts at a 45° angle. During the sighting (~50 min) the calf switched from one side of the mother's peduncle to the other 12 times, usually by "riding" (n=8) the mother's back or swimming underneath her (n=4). Nursing was assumed based on the persistent (~1 min) position of the calf's head relative to mother's peduncle/teat area. Observations of the gray whale pair showed similar behavior (~19 min) with calf riding mother's back 3 times, except mother was resting not traveling. During nursing, the calf faced mother at a 45° angle while mother held up her flukes. Two apparent nursing positions of a traveling killer whale mother-calf pair were also photo-documented (~40 min). One position showed both whales lying parallel, facing one another, in the same orientation. The second position showed the same mother lying on her back, with calf nursing on top of mother, ventral side to ventral side. These positions were similar to those described among captive killer whales. Observations indicate nursing occurs during travel and calves of other whale species back ride. Data contribute to rare documentations of whales nursing in the wild, furthering the understanding of cetacean mother-calf interactions.

## INTRODUCTION

- Nursing in non-captive, medium- to-large cetaceans is sparsely documented in literature and only for 5 species: humpback, sperm, beluga, right, and bowhead whales

- Captive mother-calf interactions have been documented in detail for 4 species: bottlenose dolphin, beluga, false killer whale, killer whale

- Our aerial surveys off southern California allowed for monitoring nursing behaviors of three free-ranging species: Eastern Pacific gray whale (*Eschrichtius robustus*), fin whale (*Balaenoptera physalus*) and killer whale (*Orcinus orca*).

**Detailed nursing behaviors of these 3 species has not been previously documented in a natural environment**

## OBJECTIVES

Further our understanding of cetacean mother-calf interactions by quantifying number, lengths and positions of presumed nursing and back-riding bouts by calves

## METHODS

- ~30,000 km of line-transect and focal behavior surveys (circling) flown summer-fall 2008 – 2011 off southern California

- Aircraft circled at 1200-1500 ft altitude and 0.5-1 km radial distance (outside sound cone of plane ) to avoid disturbance of animals

- All-occurrence focal behavior sampling method

- Behavioral data documented with HD video and audio recordings, photography, note taking

- Data recorded:
  - viewing angle, altitude, start/end time of sighting, Beaufort sea state
  - travel direction, group size, distance between individuals, behavior state, individual behavioral events, respirations, and any reaction to plane

## RESULTS



**Figure 1.** June 6, 2009. Subsurface travel by fin whale mother-calf pair. The pair stayed within close proximity of one another and the calf was observed back-riding. Nursing was documented.



**Figure 2.** June 6, 2009. Fin whale mother-calf pair (same as in Fig 1) traveling behind a group of over 1,000 northern right whale dolphins (*Lissodelphis borealis*) for ~1 hr. Dolphins bow rode off whales' heads and calf observed trying to touch dolphin tails.



**Figure 3.** Northbound migrating gray whale mother-calf pair photographed in 2011. Back riding and nursing were observed. Mother rested at the surface while the calf nursed.



**Figure 4.** Nov. 21, 2009. Observed nursing of a killer whale calf during slow travel. Mother and calf are on their sides, parallel to each other while calf was at peduncle region.



**Figure 5a.** Second observed nursing position of killer whales. Mother and calf are ventral to ventral with mother swimming on her back and calf above her, remaining at her peduncle region.



**Figure 5b.** Same nursing position as seen in 5a, with the calf's dorsal fin to the tail notch above the water surface.

## RESULTS (cont.)

| Species                      | Duration of Observation (min) | Video? | # Back Rides Observed | Duration of Nursing Bouts (min) |
|------------------------------|-------------------------------|--------|-----------------------|---------------------------------|
| <i>Balaenoptera physalus</i> | 49:54                         | Yes    | 12                    | 0:20                            |
|                              |                               |        |                       | 2:16                            |
|                              |                               |        |                       | 1:50                            |
| <i>Orcinus orca</i>          | 40:00                         | Yes    | N/A                   | N/A                             |
| <i>Eschrichtius robustus</i> | 19:13                         | No     | 3                     | N/A                             |

## CONCLUSION

- Back riding by calves on their mother was common and documented for the first time for fin and gray whales

- Two nursing positions were recorded for the first time for killer whales in the wild and were similar to a nursing position described for captive killer whales

- Observations indicate that nursing occurs during both travel and rest

## FUTURE WORK

- Further surveys planned to add to this database

- Review more video in detail to identify/describe nursing in other species videotaped (e.g. common and Risso's dolphins, blue whales, etc.)

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