

Common dolphins in Washington State waters: An increase in sightings and strandings

Authors: Laurie Shuster^{1,2}, Jessica L. Huggins¹, David Anderson¹, Annie B. Douglas¹, John Calambokidis¹.

¹ Cascadia Research Collective, Olympia, WA USA, ² Pierce College, Lakewood, WA USA. Author contact: (laurie.shuster@gmail.com)



Introduction

Common dolphins (*Delphinus* sp.), specifically long-beaked common dolphins, typically inhabit warmer temperate waters and are not usually present north of California with few shipboard survey sightings north of the California/Oregon border (Carretta et al). However, sightings of live and stranded common dolphins (both short and long-beaked) have been increasing in Washington waters since the early 2000s.

Sightings

Confirmed sightings of live long-beaked common dolphins throughout inside waters have been recorded in 2003, 2011-12, and 2016-17. Data were gathered from opportunistic sightings reported to Cascadia, citizen postings on Orca Network, and year-round boat based surveys (beginning summer 2016). Dolphin group size ranged from 2 (in 2003 and 2011-12) to 5-30 (in 2016-2017). Summer 2016 signals a noticeably different use of South and Central Puget Sound (SPS & CPS) habitats. Four to 12 dolphins were reported regularly and aggregations of ~ 30 animals occurred near the intersection of these two regions. 4-6 dolphins have remained in SPS since June 2016 and 4 animals with distinct markings have been seen multiple times and in every season of the year.

Photo ID Catalog	SPS Sighting Date
cd-0001-front-notch 	2016-06-21 2016-06-28 2016-11-11 2017-01-27 2017-03-31 2017-06-04 2017-07-11 2017-09-08 2017-09-12
cd-0002-big-back-notch 	2016-06-28 2016-11-11 2017-03-31 2017-06-04 2017-07-11 2017-09-08 2017-09-12
cd-0003-top-notch-fluke-scars 	2016-11-11 2017-01-27 2017-03-31 2017-06-04 2017-07-11 2017-09-08 2017-09-12
cd-0004-flag 	2016-06-28 2016-11-11 2017-06-04

Figure 1a. South Puget Sound identified animals and sighting dates.

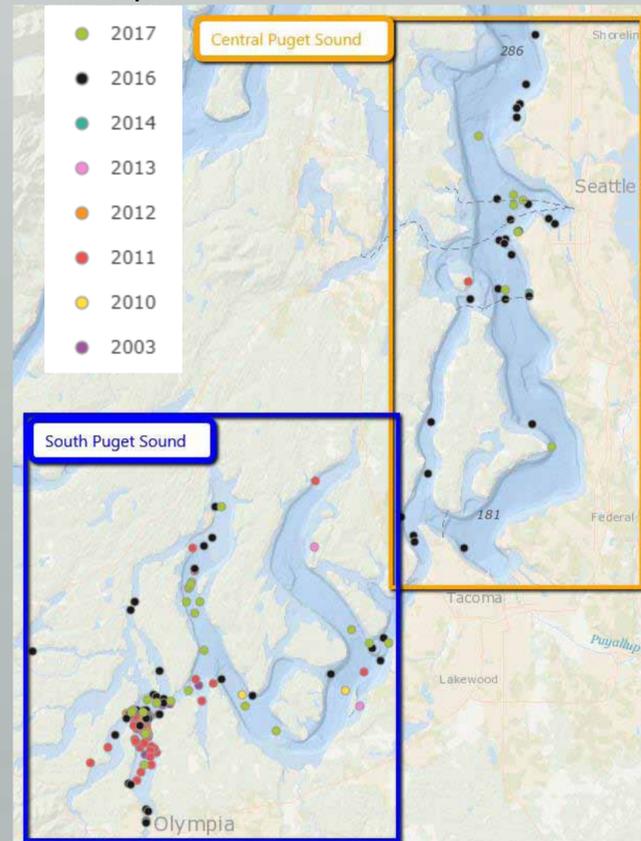


Figure 1b. Long-beaked common dolphin sightings in Central and South Puget Sound. Numerous sightings occurred in 2016-17.

Strandings

Since 2006, 9 common dolphin strandings have been recorded with 7 on the Pacific Coast (3 short beaked, 3 long-beaked, and 1 unclassified) and 2 in SPS (both long-beaked). Most strandings occurred in winter months (October to March) and included adult and subadult animals of both sexes. Neurologic diseases were identified as the cause of mortality in 7 of the 9 stranded individuals; of the remaining cases, one is pending and the other was undetermined due to decomposition. The exact disease etiologies are still under investigation but include bacterial, protozoal, and possibly viral agents. Many of these dolphins were either observed live-stranded, or showed internal signs of having come ashore alive.

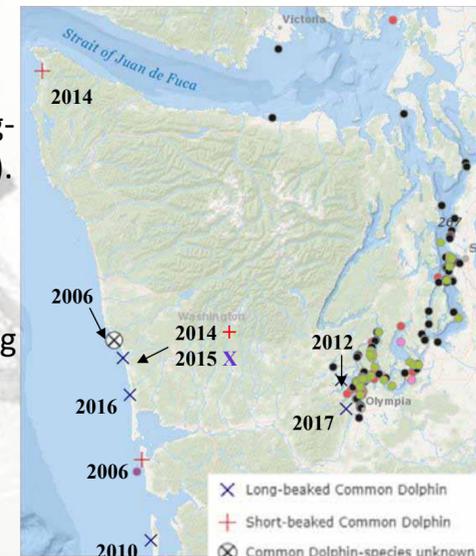


Figure 2. Common dolphin strandings and sightings in Washington State Waters. (Sighting legend in fig 1b.)

Condition

Live dolphins in 2011 showed significant diatom growth; however, in 2016-17 the SPS animals show less overall diatom coverage, with slightly more in the winter and less in summer. The majority of animals sighted in 2016-17 appeared to be in good body condition and displayed active surface behaviors including bow riding, leaping, and foraging and calves have been observed. The stranded dolphin in 2017 had a severe ulcerative skin condition and was not an animal we had previously photographed.



Figure 3a & b. Diatom growth comparison summer 2011 (top) and 2017 (bottom).

Ecosystem Factors

- Market squid and forage fish including, Pacific herring, Pacific sand lance, surf smelt, northern anchovy, and three-spine stickleback are present in Puget Sound.
- Harbor porpoise, which may share a similar diet, began returning to CPS and SPS in the mid 2000s after a long absence and continue to increase in numbers. (Evenson)
- Increases in most common dolphin stranding and sighting events occur proximally to El Niño events (data from National Weather Service).
- Seasonal and interannual shifts of short and long-beaked populations occur, potentially during warm water events and from changes in oceanographic conditions (Carretta et al).

Conclusions

Sightings of a few individuals in 2003 and 2011-12 were thought to be highly unusual (Huggins et al.), however, dolphins displaying good body condition have been present for 16 months throughout 2016-17 and observed repeatedly in SPS. Citizen reported sightings have been invaluable, however, sighting locations near popular land based locations tend to be overrepresented. Additional small boat surveys are needed to collect more systematic data, cover a wider area, and gather high resolution photo-id images. A pattern of long term warming trends may increase the occurrence of this and other species in the future.

References

- Carretta, J.V. et al. (2017). U.S. Pacific marine mammal stock assessments: 2016.
Evenson, J.R., Anderson, D., Murphie, B.L., Cyra, T.A., & Calambokidis, J. (2016). Disappearance and return of harbor porpoise to Puget Sound: 20 year pattern revealed from winter aerial surveys. Technical report.
Huggins, et al. (2011). Tropical cetaceans in southern Puget Sound: anomalous sightings and strandings in Washington State, 2010-2011.
National Weather Service Climate Prediction Center. (2017). Cold & warm episodes by season. www.cpc.noaa.gov
Orca Network's Whale Sighting Network. (2017). <https://www.orcanetwork.org/>

Acknowledgements

A majority of the sighting data was derived from the Orca Network Sighting Report Archive and compiled by Nathan Harrison of Cascadia Research. We would like to thank Howard Garrett, Susan Berta, the staff of OrcaNet, Kim Merriman, and citizens who report sightings as well as staff and volunteers from Cascadia Research, Washington Department of Fish and Wildlife, the Makah Tribe and Portland State University for the collection of stranding data. Stranding activities were supported by the John H. Prescott Marine Mammal Stranding Assistance Grant Program.