CALIFORNIA KILLER WHALE PROJECT

2023 Field Guide

CaliforniaKillerWhaleProject.org

Introduction

California Killer Whale Project (CKWP) is a nonprofit group committed to continuing the long-term study of the ecology, natural history, and conservation of killer whales off the coast of California.

We have archived killer whale sighting reports back to the 1950s, and have been collecting data on killer whales off California since the late 1970s - with a special emphasis on Bigg's (Transient) killer whales, which are mammal hunters. We have also collected data on the Offshore ecotype of killer whale (shark hunters) since 1992, and the occasional K and L Pod sightings (salmon hunters, from the endangered Southern Resident killer whale population) since 2000. We are dedicated to protecting Southern Resident orca critical habitat - which has recently been extended from the Pacific northwest down to Monterey Bay, based on our sighting data.

CA51A4 (Eclipse)

Our first killer whale photo-identification catalog was published by NOAA (National Oceanic and Atmospheric Administration) in 1997, entitled: Killer Whales of California and Western Mexico: A Catalog of Photo-Identified Individuals (NOAA-TM-NMFS-SWFSC-247), September 1997. Nancy A. Black, Alisa Schulman-Janiger, Richard L. Ternullo, Mercedes Guerrero-Ruiz. This 2023 Field Guide is an updated and extended version of our 2022 Field Guide Sample. Many of the whales in this 2023 Field Guide were featured in our original Photo-ID catalog; this Field Guide also includes the offspring of those matriarchs. Our focus for this document is to bring awareness to some of the more frequently sighted Bigg's killer whales in Monterey Bay, and to share what we have learned about their family relationships (matrilines). This work is possible due to the California Killer Whale Project's more than 30 years of detailed observations for many of our whales.

This 2023 Field Guide features 73 individuals from multiple matrilines, along with some of their closest associates. We have arranged this Field Guide primarily in order of their individual ID designations. We hope that this 2023 Field Guide will be used by members of the public as a helpful resource to aid with killer whale identification, and to encourage observers to report sighting information to support our ongoing research efforts. Hopefully this resource will help you better understand and love the orcas that we are trying so hard to protect!

Acknowledgements

Our data analysis is based on the massive number of photos, videos, and sighting reports submitted over several decades. We thank the many photographers, whale watching captains, marine biologists, naturalists, deckhands, passengers, fishermen, and other organizations that continue to support our work and submit data. We are very grateful for their generous and continuous support! We would also like to thank our scientific advisors, the late Ken Balcomb (Center for Whale Research) and Jared Towers (Fisheries and Oceans Canada [DFO] and Bay Cetology) for their guidance and support.

CA140B (Louise)

Photo Identification Credit

We would like to extend our heartfelt thanks to everyone who has provided identification photos for our 2023 Killer Whale Field Guide. Contributions like yours have helped us develop accurate and informative content. Our work would not be possible without your efforts. We appreciate your support and your participation in our community!

Nancy Black (CKWP)

Evan Brodsky (CKWP)

Ted Cheeseman (Happywhale)

Jerome Frand

Mark Girardeau (Newport Coastal Adventure)

DJ Hardy (Morro Bay Whale Watching)

Tim Huntington (Blue Ocean Whale Watch)

Eric Martin (Manhattan Beach Roundhouse Aquarium)

Michelle McCune (Monterey Bay Whale Watch)

Dane McDermott (Monterey Bay Whale Watch)

Alison Moors

Michael Pierson (Oceanic Society)

Morgan Quimby (CKWP)

Stephen Rink (CKWP)

Alisa Schulman-Janiger (CKWP)

Tomoko Shimotomai (CKWP)

Gary Sutton (Ocean Wise)

Colleen Talty (CKWP)

Patricia VanOver Indicator (Monterey Bay Whale Watch)

Jane Wilson (CKWP)

CA51A3 (Dipper)

Legend

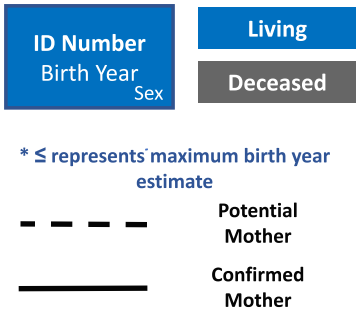
The legend seen below is a reference point for our 2023 Killer Whale Field Guide. Each killer whale is given a unique ID number designation by our team. Some individuals are given nicknames based on their personality traits, appearance, or other affiliations. Most ID numbers of older whales were originally published in our 1997 NOAA photo-identification guide. We identify killer whales using perpendicular dorsal fin photos showing the left and right sides of the saddle patch and eye patches.

Killer whales thought to be alive are labeled in blue, while deceased killer whales are labeled in dark gray.

Some killer whales were first encountered as adults; their birth years are noted by a less than or equal to sign, to (very conservatively) denote the maximum year that the individual could have been born.

Within a matriline tree, known mothers and their offspring are indicated by a solid line between the female and her offspring. In contrast, a broken line connecting a female and a younger individual indicates that there is evidence of a maternal relationship, but it is unconfirmed.

In cases where a matriline or individual associates extensively with one or more individuals, those associates are denoted in the “Associates with” section.



Citation

This field guide is the culmination of decades of firsthand and archived observations aimed at being a resource for the general public to observe and better understand killer whales. Any papers or publications that utilize this field guide should reference: California Killer Whale Project 2023 Field Guide

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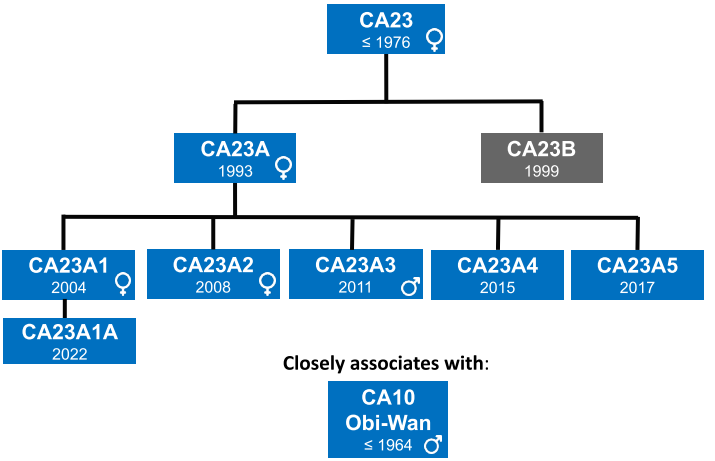
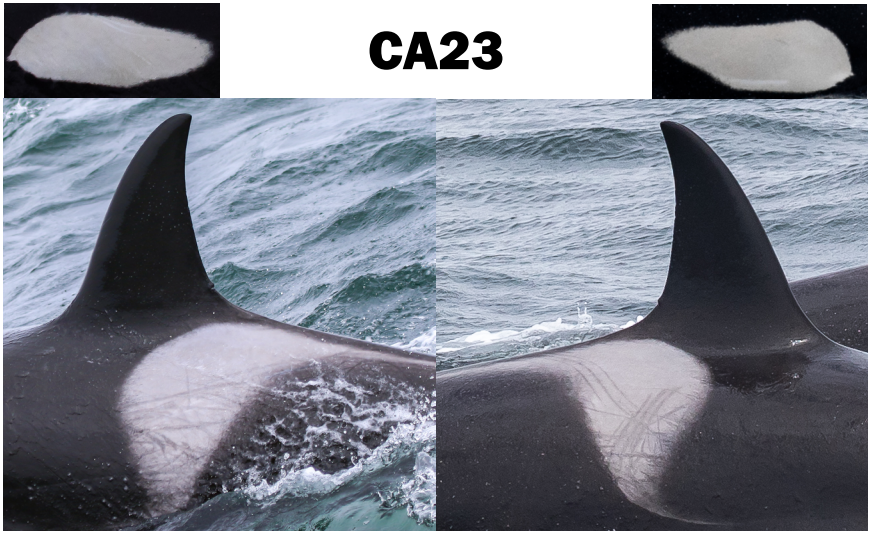

CA23
≤ 1976 ♀
CA23A
1993 ♀
CA23B
1999
CA23A1
2004 ♀
CA23A2
2008 ♀
CA23A3
2011 ♂
CA23A4
2015
CA23A5
2017
CA23A1A
2022
Closely associates with:
CA10
Obi-Wan
≤ 1964 ♂


CA10: Obi-Wan


CA23


CA23A

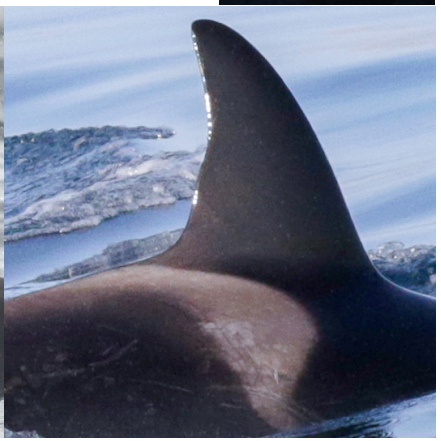
CA23A1

N/A

CA23A1A

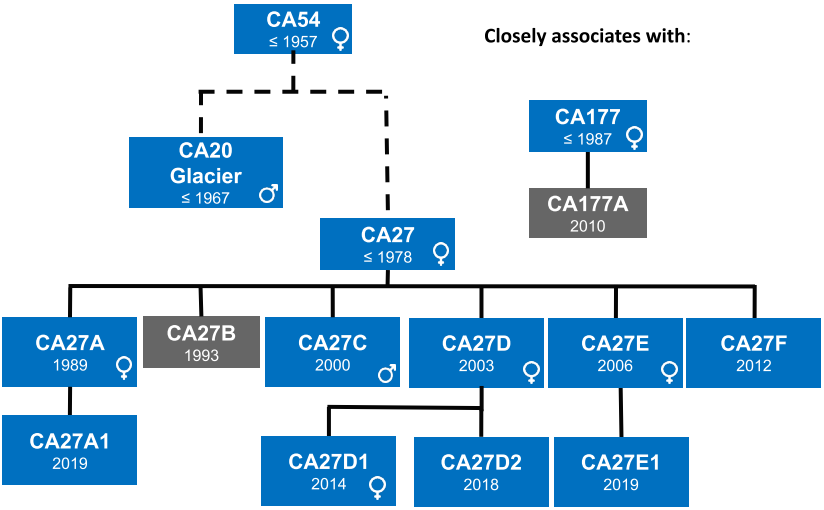
CA23A2

CA23A3



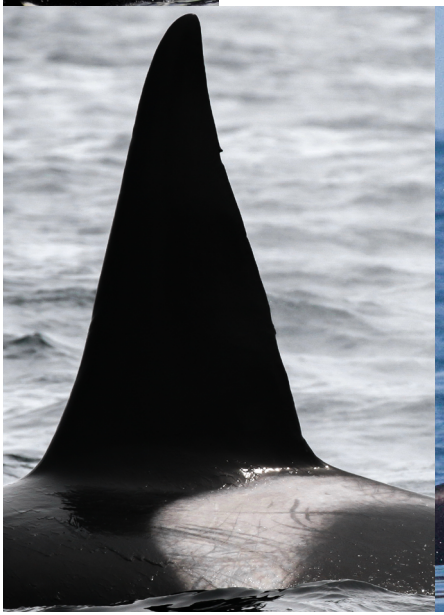

CA23A4

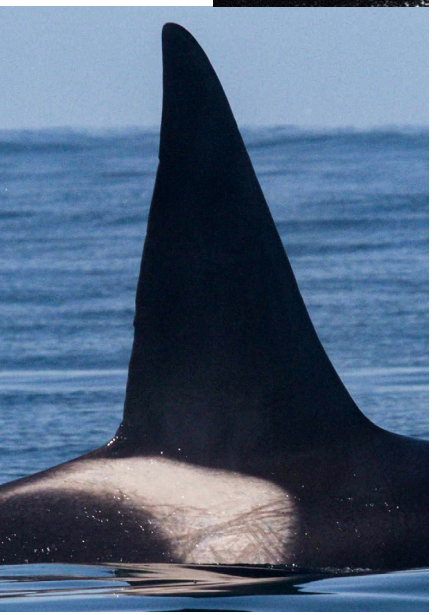

CA23A5


CA54
≤ 1957
Closely associates with:
CA20
Glacier
≤ 1967
CA177
≤ 1987
CA177A
2010
CA27
≤ 1978
CA27A
1989
CA27B
1993
CA27C
2000
CA27D
2003
CA27E
2006
CA27F
2012
CA27A1
2019
CA27D1
2014
CA27D2
2018
CA27E1
2019


CA54

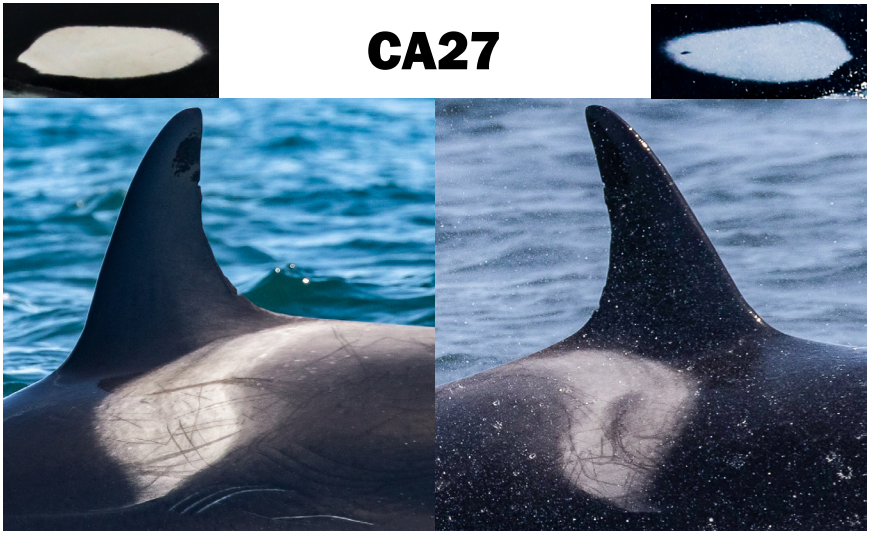
CA20: Glacier



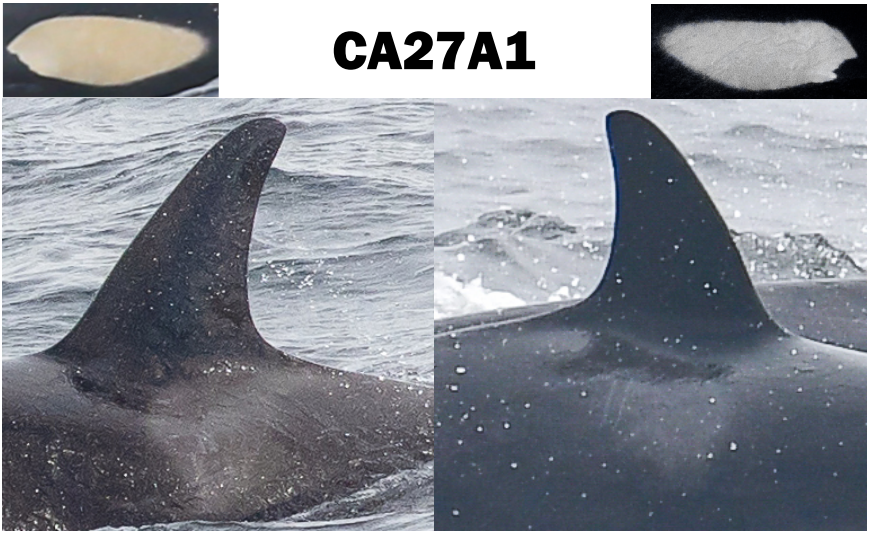


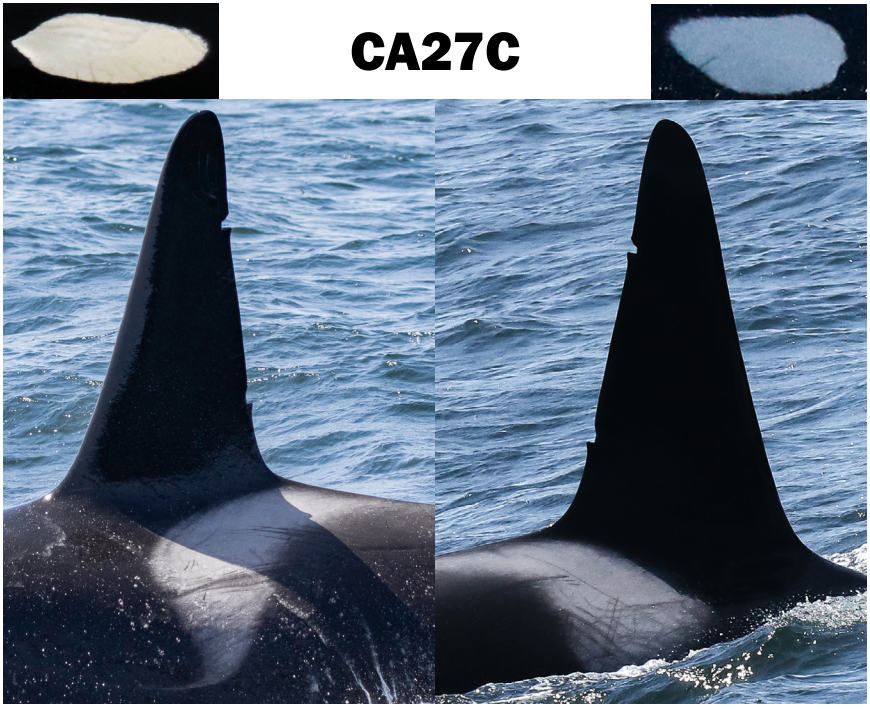
CA177

CA27

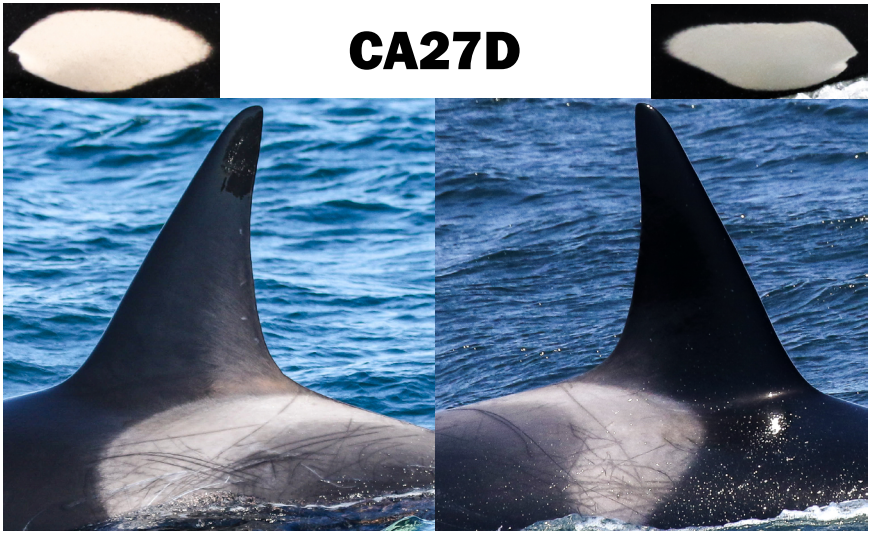


CA27A


CA27A1


CA27C

CA27D



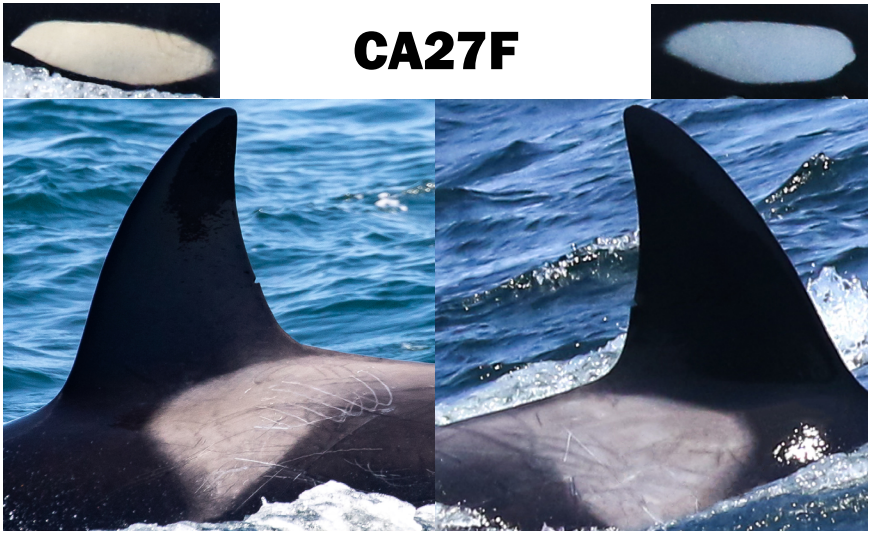
CA27D1

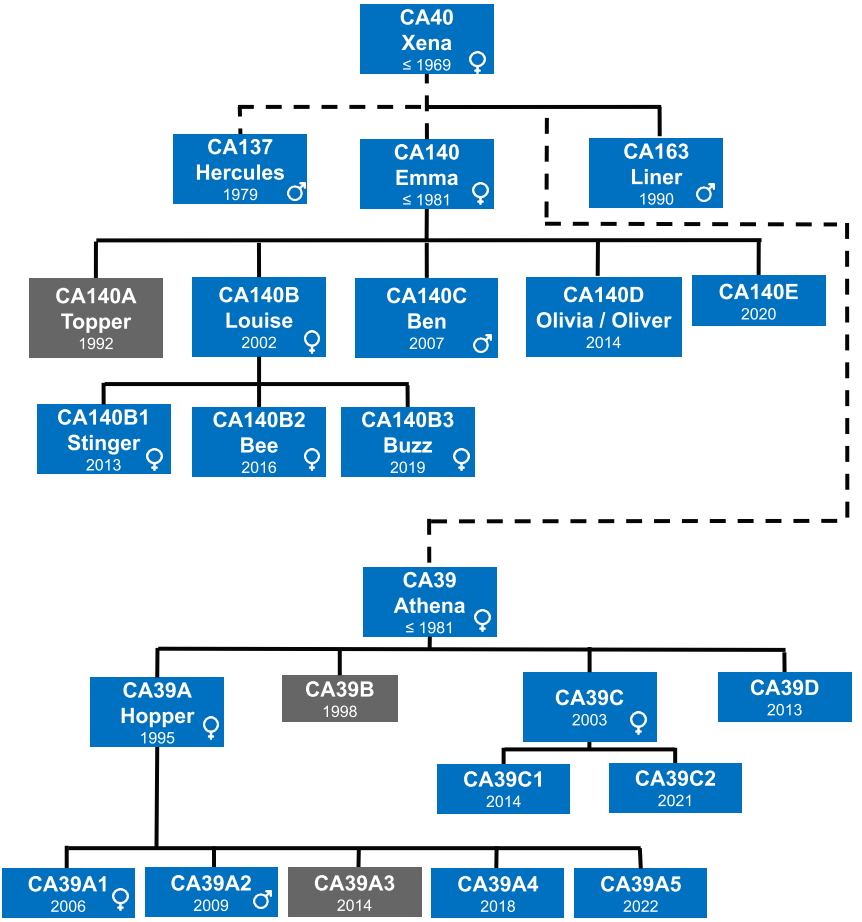
CA27D2

CA27E

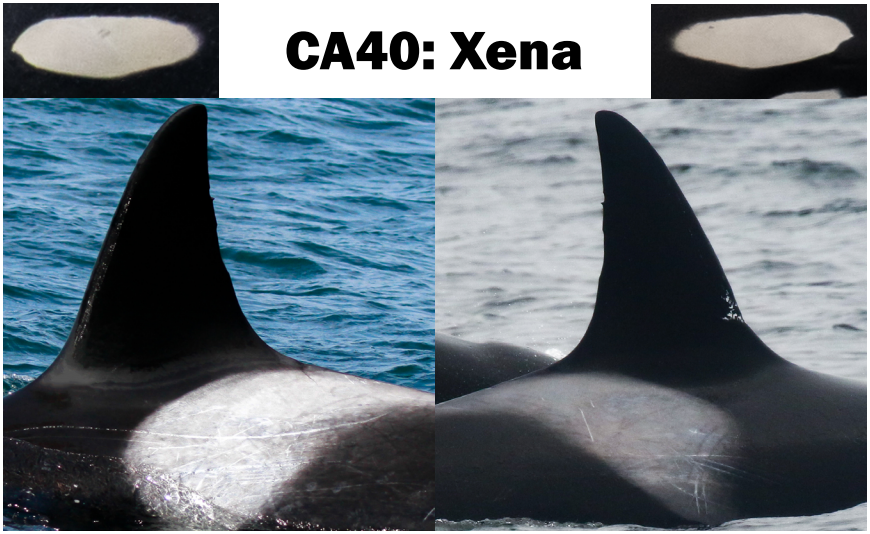
CA27E1

CA27F

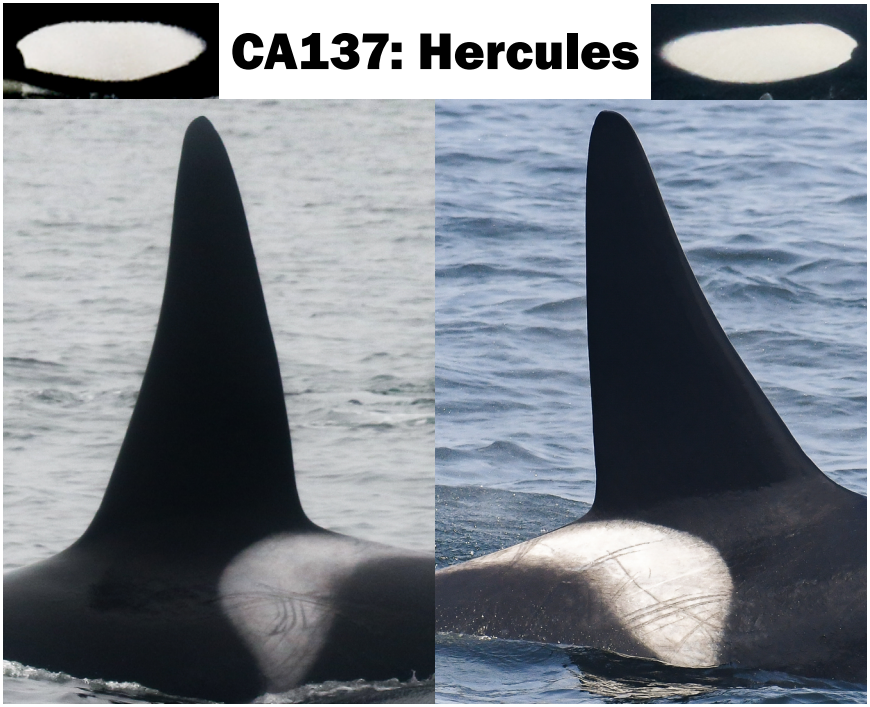


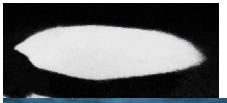

CA40
Xena
≤ 1969
CA137
Hercules
1979
CA140
Emma
≤ 1981
CA163
Liner
1990
CA140A
Topper
1992
CA140B
Louise
2002
CA140C
Ben
2007
CA140D
Olivia / Oliver
2014
CA140E
2020
CA140B1
Stinger
2013
CA140B2
Bee
2016
CA140B3
Buzz
2019
CA39
Athena
≤ 1981
CA39A
Hopper
1995
CA39B
1998
CA39C
2003
CA39D
2013
CA39C1
2014
CA39C2
2021
CA39A1
2006
CA39A2
2009
CA39A3
2014
CA39A4
2018
CA39A5
2022

CA40: Xena



CA137: Hercules





CA163: Liner

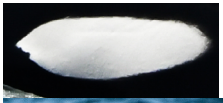
CA140: Emma


CA140B: Louise


CA140B1: Stinger

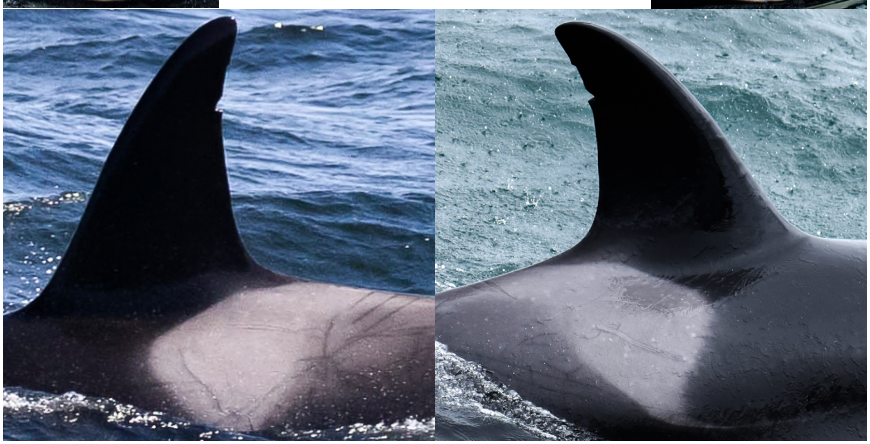
CA140B2: Bee

CA140B3: Buzz



CA140C: Ben

CA140D: Olivia / Oliver



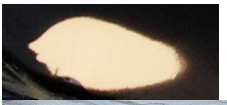
CA140E

CA39: Athena

CA39A: Hopper

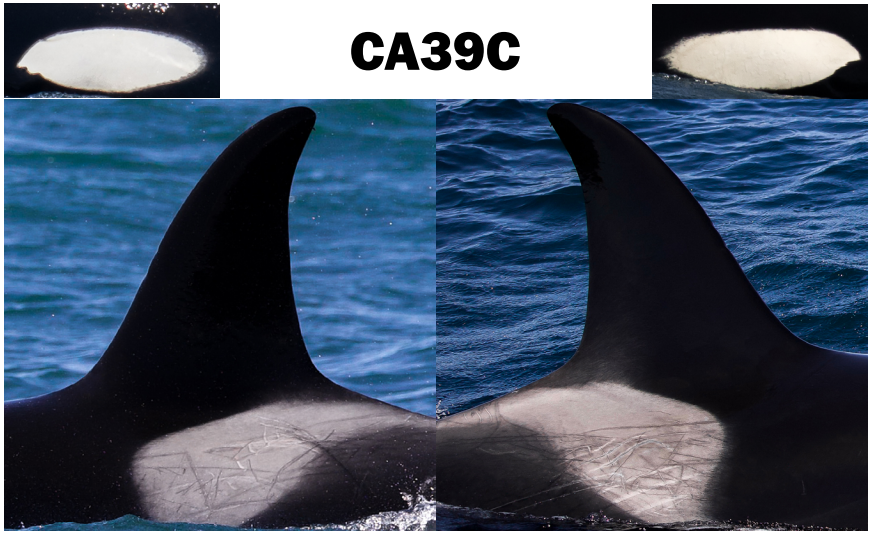
CA39A1

CA39A2



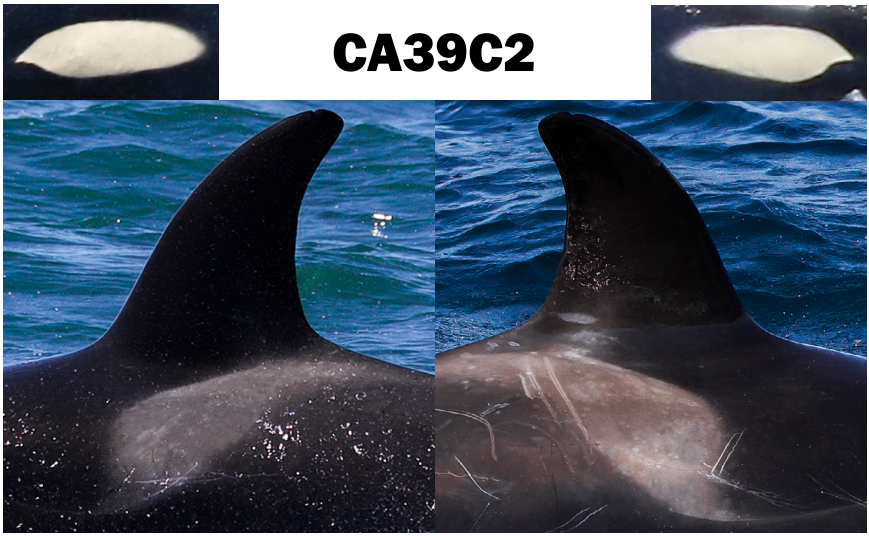
CA39A4


CA39A5


CA39C

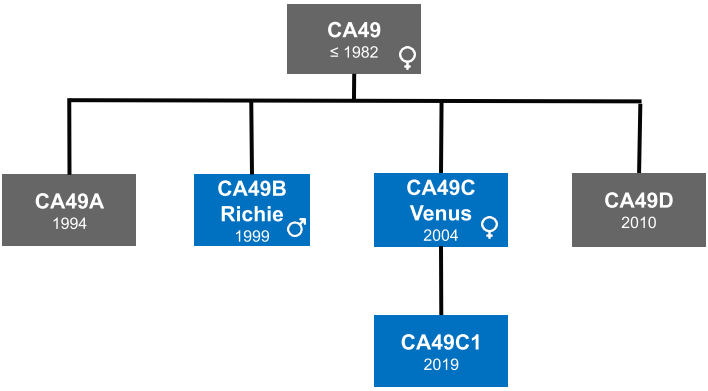
CA39C1

CA39C2



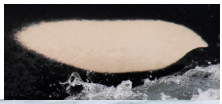
CA39D

CA51A4 (Eclipse)

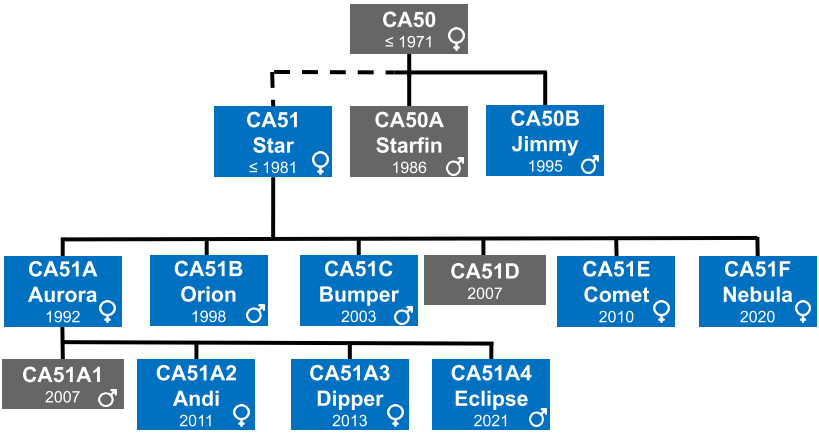

CA49
≤ 1982 ♀
CA49A
1994
CA49B
Richie
1999 ♂
CA49C
Venus
2004 ♀
CA49D
2010
CA49C1
2019


CA49B: Richie

CA49C: Venus



CA49C1

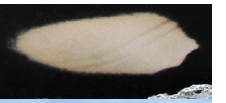

CA50
≤ 1971 ♀
CA51
Star
≤ 1981 ♀
CA50A
Starfin
1986 ♂
CA50B
Jimmy
1995 ♂
CA51A
Aurora
1992 ♀
CA51B
Orion
1998 ♂
CA51C
Bumper
2003 ♂
CA51D
2007
CA51E
Comet
2010 ♀
CA51F
Nebula
2020 ♀
CA51A1
2007 ♂
CA51A2
Andi
2011 ♀
CA51A3
Dipper
2013 ♀
CA51A4
Eclipse
2021 ♂


CA50B: Jimmy

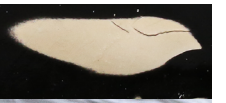
CA51: Star

CA51A: Aurora

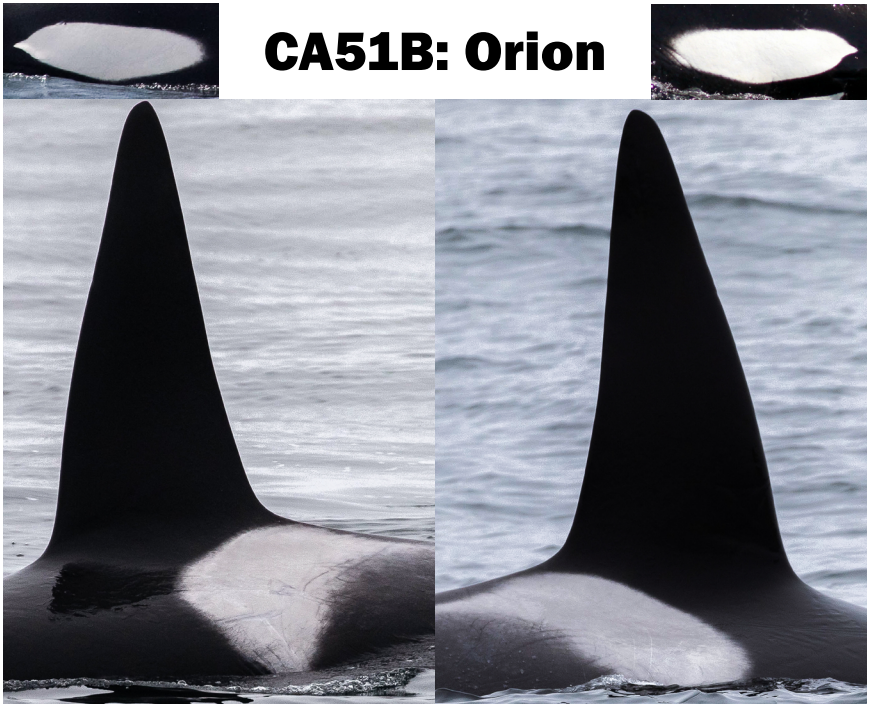
CA51A2: Andi



CA51A3: Dipper




CA51A4: Eclipse

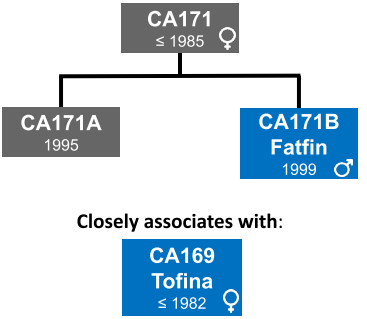

CA51B: Orion

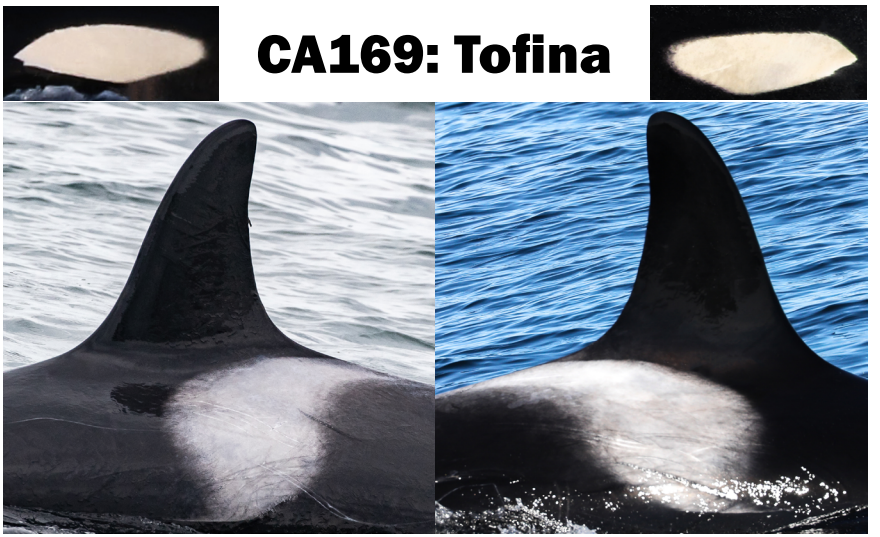
CA51C: Bumper

CA51E: Comet

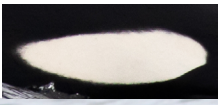
CA51F: Nebula

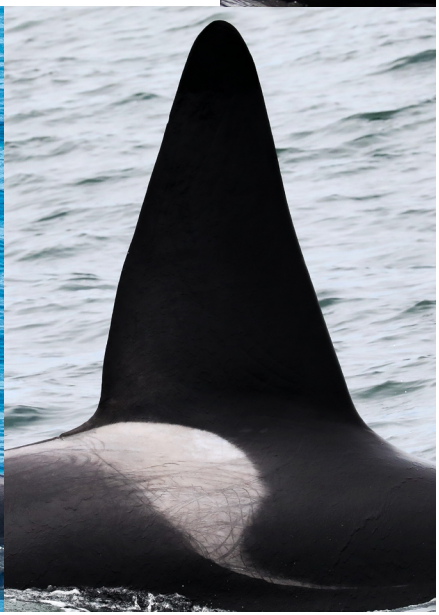
CA140B1 (Stinger)


CA171
≤ 1985 ♀
CA171A
1995
CA171B
Fatfin
1999 ♂
Closely associates with:
CA169
Tofina
≤ 1982 ♀

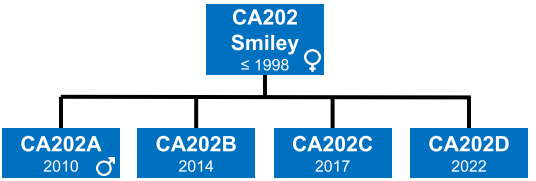

CA169: Tofina

CA171B: Fatfin





CA23A2


CA202
Smiley
≤ 1998 ♀
CA202A
2010 ♂
CA202B
2014
CA202C
2017
CA202D
2022

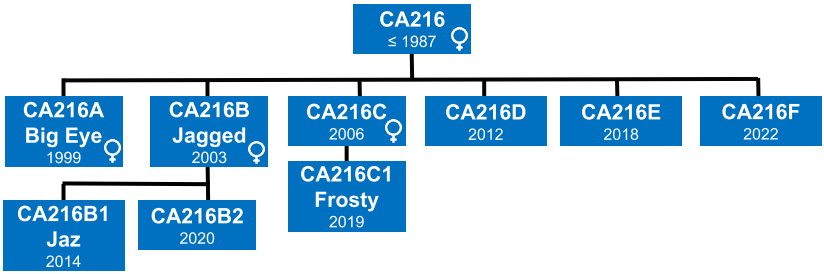

CA202: Smiley

CA202A

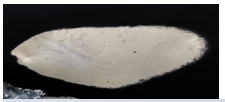
CA202B

CA202C

CA202D

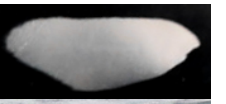

CA216
≤ 1987
CA216A
Big Eye
1999
CA216B
Jagged
2003
CA216C
2006
CA216D
2012
CA216E
2018
CA216F
2022
CA216C1
Frosty
2019
CA216B1
Jaz
2014
CA216B2
2020


CA216

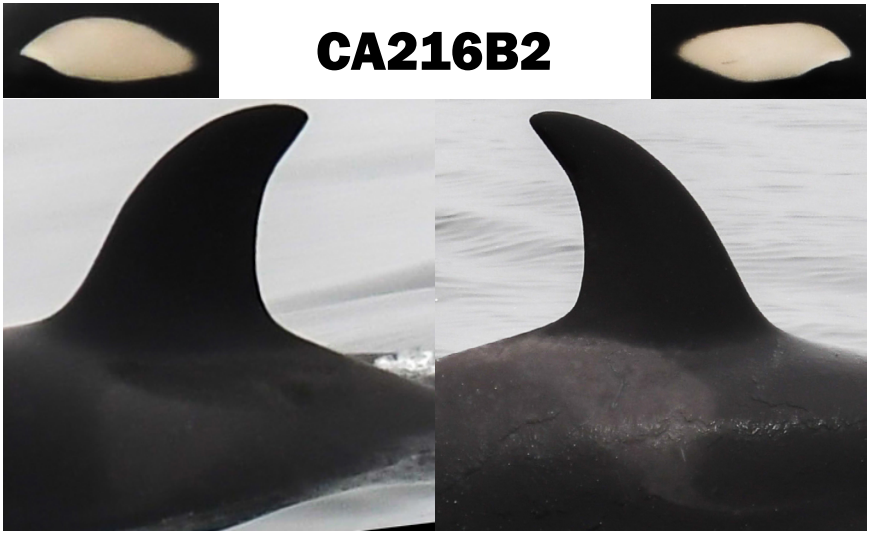


CA216A: Big Eye

CA216B: Jagged



CA216B1: Jaz



CA216B2

CA216C

CA216C1: Frosty

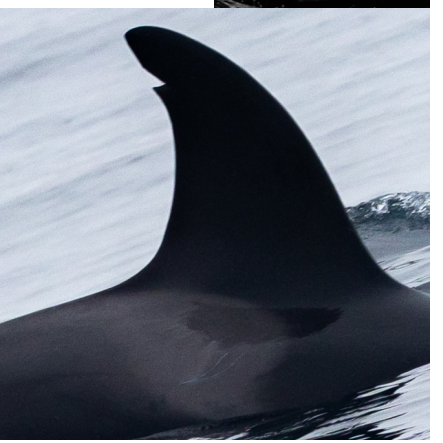
CA216C1: Frosty

Pale gray CA216C1 (Frosty) is a very unusual leucistic orca who was first spotted as a newborn calf in August 2019, in Monterey Bay. Frosty and mom CA216C have been seen from Baja, CA. to Alert Bay, B.C.! Frosty's head is darkening, a color change that also occurred in male orca calf T046B1B Tl'uk in B.C. (who passed away between April-June 2021). Now Frosty is the only known leucistic orca in our West Coast Bigg's killer whale population!

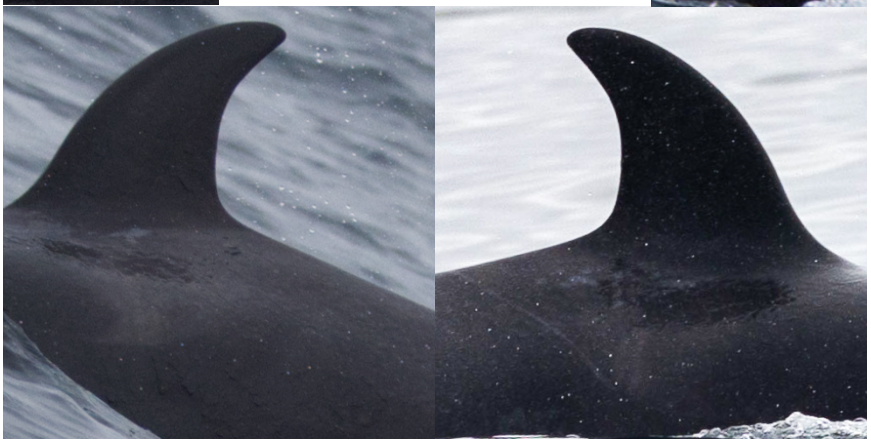
CA216C1 (Frosty) | Photo by: Gary Sutton (Ocean Wise)

CA216D

CA216E



CA216F



CA51B (Orion)

In Memorium of Ken Balcomb

We would like to acknowledge our respect and admiration for Ken Balcomb, who recently passed. He was one of our scientific advisors and mentors for the California Killer Whale Project, where he provided much guidance, passion, and advice to all members. He dedicated his career to research and monitoring of the endangered Southern Resident killer whales through the Center for Whale Research in Washington, USA. Ken was known as "the father of killer whales," as he has studied them longer than anyone else and has followed this group of whales since 1976, resulting in the longest study of any whale population in the world. In fact, Ken's house sits in a prime location on the coast of Friday Harbor, Washington in the Salish Sea and was able to spot the whales as they traveled past during spring and summer months feeding on salmon. When Ken first started his study, salmon were very abundant, but have since drastically decreased in numbers, causing strong concern for the survival of the killer whales depending on them.

These "Southern Resident" killer whales, or fish-eaters, prey primarily on Chinook salmon and have become endangered as they experience increased mortality as salmon populations have greatly dwindled in number and size in the whale's home waters of the Salish Sea due to habitat destruction, damming, and overfishing. In addition, these whales carry high loads of toxic chemicals such as PCB's and DDT's, which can increase mortality and impair their immune system. These whales consist of three pods, J, K and L Pods. If measures are not taken to increase the salmon population along the west coast from British Columbia down to California, then these whales will not survive.

We first encountered members of K and L Pods in January 2000 in Monterey Bay, the furthest south they had ever been sighted, and most likely the first time they had traveled such a distance from their summer range! Clearly, they were in search of more abundant sources of Chinook salmon in other areas. Everyone was very surprised to hear of this sighting, as it indicated that a big change had occurred in the range and movements of these whales. We also encountered members of K and/or L Pods in Monterey Bay during the years 2003, 2007, 2008 (twice), 2009, 2011, 2019 and just recently in March 2023.

Ken was interested in learning more about the movements of these killer whales during the winter after he heard of our 2000 report. He would regularly travel down the west coast by car, posting flyers in all the harbors along the way and always ended up in Monterey Bay and stopped in to see us, often joining us on several Monterey Bay Whale Watch trips in hopes of finding the Southern Residents.

We always looked forward to his visits and the stories he would tell about the whales and his early work on research and as an observer on whaling boats along the coast. Although he spent several years driving down the coast looking for the whales from shore, he never spotted them during his travels. However, that changed on February 10, 2011, when he again joined one of the whale watches in Monterey Bay and this time was lucky enough to find the Residents! Ken said at the time "Thanks to Monterey Bay Whale Watch – for first spotting them, and thanks to L Pod for being perfectly on schedule. Wow! This is the first time I have seen the Southern Residents in California, but I hope not the last. We must collect prey and fecal samples in the future encounters."

Ken told us "Since these whales are endangered, it is of critical importance to study them year-round to determine if they are successfully finding prey, what type of prey they are catching and if that prey population is abundant enough to support the whale population. What is clear now is that Chinook salmon numbers are drastically low everywhere along the west coast due to habitat destruction and water diversion and if the whales are to recover then strong measures need to be implemented to protect the salmon."

We have followed Ken's interest in these whales and continue to document any sightings and look for prey and feeding events. In fact, our work documenting these whales in Monterey Bay was credited for the federal government's (NOAA) official extension of the critical habitat for these whales designated in 2021 south to Pt. Sur, California, providing increased protection for the whales and their primary prey. We will always remember Ken, and will always think of him while we are out conducting research on the water, especially when the Southern Residents are around. We hope to continue just a small part of his work in helping to protect these very special whales.

Nancy Black (Left) & Ken Balcomb (Right)

California Killer Whale Project

Our mission is to continue the long-term study of the ecology, natural history, and conservation of killer whales off the coast of California

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Report <u>Any</u> Killer Whale Sightings, Or Send Us Your Killer Whale Photos For Our Records By:

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