

## **Report #2: Photo-Identification of Beluga Whales in Cook Inlet, Alaska:**

### **Summary of survival and mortality of identified individuals in 2023**

#### **Prepared by:**

The Cook Inlet Beluga Whale Photo-ID Project  
Anchorage, Alaska, USA  
[tamaracookinletbeluga@gmail.com](mailto:tamaracookinletbeluga@gmail.com)



**Contract Number:** 1305M321CNFFS0040-P22001-Mod1

**Contract Title:** Cook Inlet Beluga Whale Photo-Identification Studies  
(2023 field season/cataloging)

**Principal Investigator:** Tamara McGuire

**Co-Investigator:** John McClung

#### **Project Period:**

**Draft Report Submission Date:** July 17, 2024

**Final Report Submission Date:** September 27, 2024

**Updated Final Report Submission Date:** December 19, 2024

**Prepared for:** National Marine Fisheries Service, Alaska Region

#### **Citation:**

**McGuire, T. L., J. R. McClung, G. K. Himes Boor, and Chandera Tolley.** 2024. Report #2: Photo-Identification of Beluga Whales in Cook Inlet, Alaska: Summary of survival and mortality of identified individuals in 2023. Report prepared by the Cook Inlet Beluga Whale Photo-ID Project for National Marine Fisheries Service, Alaska Region. 5 pp.

*2023 field team: Debbie Boyle, Kyoko Hada, Brian McGurgan, John McClung, Chandera Tolley, Gina Himes Boor, and Amy Willoughby. Thanks to JBER, ADF&G, NMFS, AKBMP, BWA, and the public for sharing sightings and photos.*

*2023 photo-processing team: John McClung, Amy Willoughby, Chandera Tolley, Mackenzie Garner, Samantha Murk, and Tamara McGuire.*

**Background:** The Cook Inlet Beluga Whale (CIBW) Photo-Identification (ID) Project was contracted by National Marine Fisheries Service (NMFS) to use non-invasive photo-ID techniques to help fill data gaps regarding individual and population characteristics of this endangered beluga population, with the goal of providing information to aid NMFS in conservation and management actions. The contract specified that the CIBW Photo-ID Project would conduct a minimum of 25 photo-ID surveys in 2023, identify individual whales from photographs, and summarize results in a series of six reports. This report, the second in the series, is entitled *Summary of survival and mortality of identified individuals in 2023*. Detailed background information and methods for this long-term project are included in previous annual reports, available at [www.cookinletbelugas.com](http://www.cookinletbelugas.com).

## Results

### Right-side catalog 2005–2023

The 2005–2023 right-side catalog contains records for 543 individuals (Table 1; Figure 1a), with 149 of these individuals photographed in 2023. Forty whales in the right-side catalog (7%) have sighting histories spanning the full 19 years of the study (i.e., they were photographed in both 2005 and in 2023; Table 1). Because 12 years is the maximum gap between resightings of any individual in the catalog, an individual was presumed to have died if it had not been photographed after 2011. There are 96 individuals in the right-side catalog presumed to have died by 2023 based on the lack of sightings after 2011, and nine confirmed dead (from stranding records) have been matched to individuals in the right-side catalog, leaving 438 individuals in the right-side catalog that may still be in the population in 2023.

### Left-side catalog 2005–2023

The 2005–2023 left-side catalog contains records for 565 individuals (Table 1; Figure 1b), with 135 individuals photographed in 2023. There were 21 individuals added to the catalog that had been photographed in previous years but did not meet the criteria to become catalog individuals until the photos from 2023 were added to their sighting records. Thirty-six whales in the left-side catalog (6%) were seen over the 19-year period spanning 2005 to 2023 (i.e., they were photographed in both 2005 and in 2023; Table 1). Using the same 12-year maximum sighting gap criteria used for the right-side catalog, there are 112 individuals in the left-side catalog presumed to have died. There are 11 confirmed dead (from stranding records) belugas that have been matched to individuals in the left-side catalog, leaving 442 individuals in the left-side catalog that may still be in the population in 2023.

### Dual catalog 2005–2023

The 2005–2023 dual-side catalog contains records for 247 individuals whose right- and left-side catalog records are linked and who meet the criteria to be catalog individuals on at least one side (Table 1; Figure 1c). In 2023, there were 20 new dual linkages made for individuals in the catalog. One dual-side individual who was photographed as recently as 2023 was identified in photographs taken by NMFS in 1998, giving it a 26-year sighting history (Table 1).

Table 1. Summary of individual CIBWs and their sighting histories in the 2005–2023 photo-ID catalog.

Number of:	Left-Side Catalog	Dual-Side Catalog	Right-Side Catalog
Individuals in the 2005–2023 catalog	565	247	543
Individuals photographed in 2023	135	121	149
Individuals first photographed in 2023	0	0	0
Individuals photographed before 2023 who achieved catalog criteria with inclusion of 2023 photos	12	20	21
Maximum years between sightings of an individual	11	10	12
Individuals presumed dead based on lack of resightings <sup>1</sup>	112	5	96
Confirmed-dead individuals matched to the catalog 2005–2023	11	7	9
Individuals presumed alive at end of 2023 field season <sup>2</sup>	442	235	438
Individuals seen in each year of the 19-year study	2	5	0
Individuals photographed in 2005 and 2023 (19-year span)	36	47	40
Longest sighting record, in years <sup>3</sup>	26	26	26
Maximum number of days any single individual photographed	73	130	58

<sup>1</sup> i.e., not photographed since 2011 - using 12-year gap as most conservative.

<sup>2</sup> Individuals alive = (individuals in catalog - individuals presumed dead - individuals confirmed dead).

<sup>3</sup> First photographed by NMFS in 1998, Beluga D109.

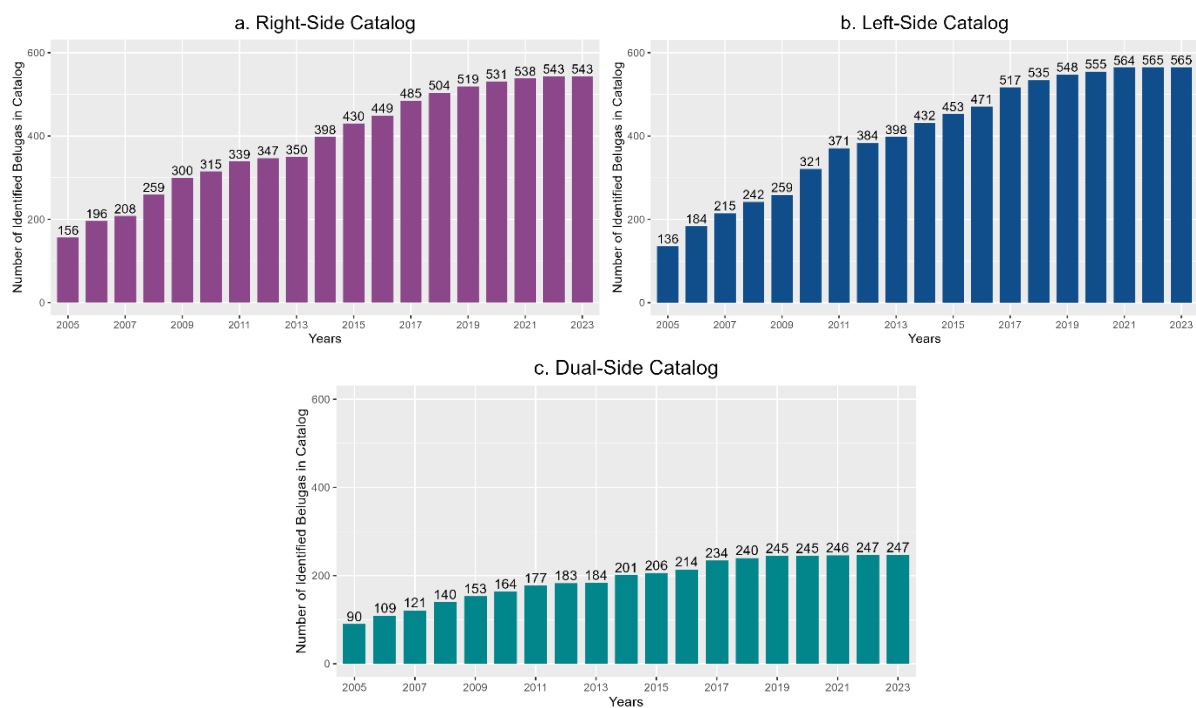


Figure 1. The cumulative number of identified individual belugas in the 2005–2023 (a) right-side, (b) left-side, and (c) dual-side catalogs, according to the year an individual was first photographed. This includes the right and left sides of dual-side individuals as well as those individuals that have died.

### Stranded belugas photographed in 2023

A total of 15 reports of stranded belugas were made to NMFS in 2023 (Table 2), comprising 14 dead strandings of individual belugas and one live stranding of seven individuals. One of the dead belugas was matched to an

individual in the catalog, beluga D211, who had been photographed yearly since 2005. Two dead whales were possible matches to the catalog, but too little of their bodies were clearly visible in the stranding photographs to confirm the matches; these were belugas R3138, and R4253, first photographed in 2009, and 2010, respectively. Belugas D211 and R3138 had been presumed females based on photographs taken while alive in which they were accompanied by calves and were then confirmed to be females upon examination of the carcasses.

The reported dead belugas in 2023 were seven adults, one subadult/adult, one calf, and five individuals of unknown age class. Three were males, five were females, and six were of unknown sex. The 2023 reported dead strandings are similar to the 2005–2017 reported dead strandings, which had followed general patterns of more adults than calves or subadults. Dead belugas reported by NMFS in 2020–2022 were dominated by calves rather than by adults.

### **Identification of stranded belugas 2005–2023**

Between 2005 and 2023, there were 154 dead belugas reported to the CIBW Photo-ID Project by NMFS. Thirteen of these dead belugas have been confirmed as individuals in the photo-ID catalog, and two more have been identified as possible matches. Twelve of the confirmed identified whales were adults and one was a subadult.

### **Photo-ID to monitor belugas after live strandings 2005–2023**

The seven individuals who live stranded in 2023 were of unknown age class and sex and were documented by the Photo-ID field team swimming away with the rising tide from the mudflat on which they had been stranded (Table 2).

Two belugas in the 2005–2023 catalog have been recognized during live-strandings. Both were adults and presumed to be females because they had stranded with live calves at their sides.

- Beluga D1032 was photographed from 2008 to 2014, and in 2015 at the time of the live-stranding. Although she and her calf were seen to swim away with the rising tide after the live-stranding event in 2015, she was not photographed again later that year or during the 2016 field season. She was later photographed with a calf alongside in 2017, 2018, 2019, and 2020. Based on its size, the accompanying calf may have been the same calf every year and the same calf that stranded in 2015, but a definitive match has not been made. The adult was photographed in 2021 but was not photographed with a calf. She was not photographed in 2022, but was photographed in 2023 with a calf that was smaller than the previous calf photographed in 2020.
- Beluga D3603 was photographed 2007–2019 in the Susitna River Delta and Knik Arm. In 2020, she was photographed in the Susitna River Delta during a photo-ID survey, then by the Alaska Marine Mammal Stranding Network and National Geographic when she live-stranded with a live calf at her side on September 11, 2020, in Turnagain Arm. She was later photographed on September 24, 2020, alive and free-swimming in Turnagain Arm, with a calf in the group, although it could not be determined if it was the same calf who had also live stranded on September 11. She was photographed in 2021 in Turnagain Arm with a non-neonate calf of unknown age. She was not photographed in 2022 or 2023.

Table 2. Summary of 15 dead-stranded Cook Inlet beluga whale stranding events reported to Dr. Mandy Keogh, National Marine Fisheries Service (NMFS) Alaska Region (AKR) Stranding Coordinator and shared with the CIBW Photo-ID Project in 2023. Dead-stranded beluga necropsies and sample collections were conducted by the Alaska Marine Mammal Stranding Network (AMMSN), who also assigned age class.

NMFS AKR Stranding ID	Date Reported	Location of Stranded Beluga	Type of Stranding	Examined by AMMSN	Age Class	Sex (female repro status)	Length (cm)	Utility of Photo for ID	Matched to Catalog Whale?
2023007	2023-FEB-27	Seldovia	Beached/dead	no	unknown	unknown	259	advanced decomp, no skin	no
2023157	2023-JUL-27	Between Lewis and Theodore River	Beached/dead	yes	adult	male	440	skin gone	no
2023248	2023-SEP-17	on mudflats between Bird Point And Girdwood	Beached/alive ( 7 belugas)	no	unknown	unknown	not measured	too far away	no
2023279	2023-SEP-28	Portage Creek, between the new and old Seward Highway bridge	Beached/dead	yes	adult	female (pregnant)	380	good	yes, beluga D211
2023281	2023-OCT-01	About two miles north of Moose Point, near Nikiski	Beached/dead	yes	adult	female (lactating)	360	scavenger damage to exposed side and no photos of other side	likely match to R3138
2023287	2023-OCT-01	Kalgin Island	Beached/dead	no	unknown	unknown	not measured	no photos	n/a
2023288	2023-OCT-13	Point Possession	Beached/dead	yes	adult	female (pregnant)	390	on back, scavenger damage, moderate decomp	no
2023294	2023-OCT-10	Bird Point MP 87.5	Floating/dead	photos only	adult	male	not measured	photographed from nearby helicopter, too far	possible match to R4253
2023295	2023-OCT-19	about 0.25 miles north of Chinulna Drive, Kenai	Beached/dead	yes	sub adult/adult	female (unknown repro status)	312.5	advanced decomp, on back, scavenger damage	no
2023296	2023-OCT-21	Point Possession, Nikiski	Beached/dead	yes	adult	male	408	advanced decomp	no
2023303	2023-OCT-21	Turnagain Arm, Chickaloon Bay, east of Pincher Creek Cook Inlet	Beached/dead	photos only	unknown	unknown	not measured	photographed from air, too far	no
2023306	2023-OCT-21	Turnagain Arm, Chickaloon Bay	Beached/dead	no	unknown	unknown	not measured	no photos	n/a
2023298	2023-OCT-25	Cook Inlet, between platforms A and C, Steelhead and Dolly 1, vicinity Nikiski	Floating/dead	photos only	unknown	unknown	not measured	photographed from air, too far	no
2023302	2023-NOV-01	near Nikiski	Beached/dead	yes	calf	female (immature)	172	too young (<2ya), advanced decomp	no
2023323	2023-DEC-07	south of Deep Creek, near Happy Valley	Beached/dead	yes	adult	unknown	462	advanced decomp and wrong angle	no