

RANGE-WIDE GRAY WHALE SCIENCE SYMPOSIUM



September 9-10, 2026

Hatfield Marine Science Center

Newport, Oregon



Oregon State University
Marine Mammal
Institute

Welcome and Opening Remarks

Lisa Ballance, Marine Mammal Institute, Oregon State University

Frances Gulland, Marine Mammal Commission



Range-Wide Gray Whale Science Symposium

September 9-10, 2026

Hatfield Marine Science Center, Newport, Oregon



Oregon State University
Marine Mammal
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Welcome

Steering Committee:



Oregon State University
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RANGE-WIDE GRAY WHALE SCIENCE SYMPOSIUM

September 9-10, 2026 | Hatfield Marine Science Center, Newport, Oregon



Day 1

- 9:00am: Welcome and Opening Remarks
- **9:10am:** **Session 1** Population Overview
- 10:20am: Coffee Break
- **10:35am:** **Session 2** Changing Ecology
- 12:15pm: Lunch
- **1:45pm:** **Session 3** Ecosystem Changes
- **3:35pm:** **Session 4** Lethal and Sublethal Threats
- 5:20pm: Day 1 Wrap Up and Prep for Day 2
- **5:30pm:** **Poster Session**

Day 2

- 9:00am: Welcome and Discussion Intro
- **9:10am:** **Panel Discussion 1**
- **10:00am:** **Panel Discussion 2**
- 10:55am: Coffee Break
- 11:25am: **Panel Discussion 3**
- 12:15pm: Lunch
- **1:45pm:** **Panel Discussion 4**
- **3:00pm:** **Future Directions and Next Steps**
- 4:00pm: Meeting Adjourned

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Animal Welfare Institute



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Session 1

Eastern and Western North Pacific Gray Whale Population Overview

Moderator: Aimée Lang, NOAA Fisheries, Southwest Fisheries Science Center



Photo Credit: NOAA Fisheries/SWFSC/Wayne Perryman

The ebb and flow of gray whales in the eastern North Pacific

From whaling to warming and a bumpy ride in between

Joshua Stewart, Ph.D.

OSU Marine Mammal Institute

David Weller, Ph.D.

NOAA SWFSC Marine Mammal & Turtle Division



SWFSC
Marine Mammal &
Turtle Division



Oregon State University
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Institute



Ocean Ecology
Lab

Photo © Wayne Perryman / NOAA Fisheries

Data Collection along the Gray Whale Migration



The value of long-term monitoring & collaboration

Abundance Surveys

Granite Canyon – Southbound Migration

1967 – 2006 **NOAA** AFSC

2006 – 2026 **NOAA** SWFSC

Calf Production

Piedras Blancas – Northbound Migration

1994 – 2025 **NOAA** SWFSC

Arctic Benthic Prey Biomass

Bering & Chukchi Seas

1970 – 2021 *UMCES / PACMARS / DBO*

Strandings

CA-OR-WA-AK Year round

1974 – 2025 **NOAA** *National Stranding Database*

Many regional stranding networks & coordinators

Body Condition

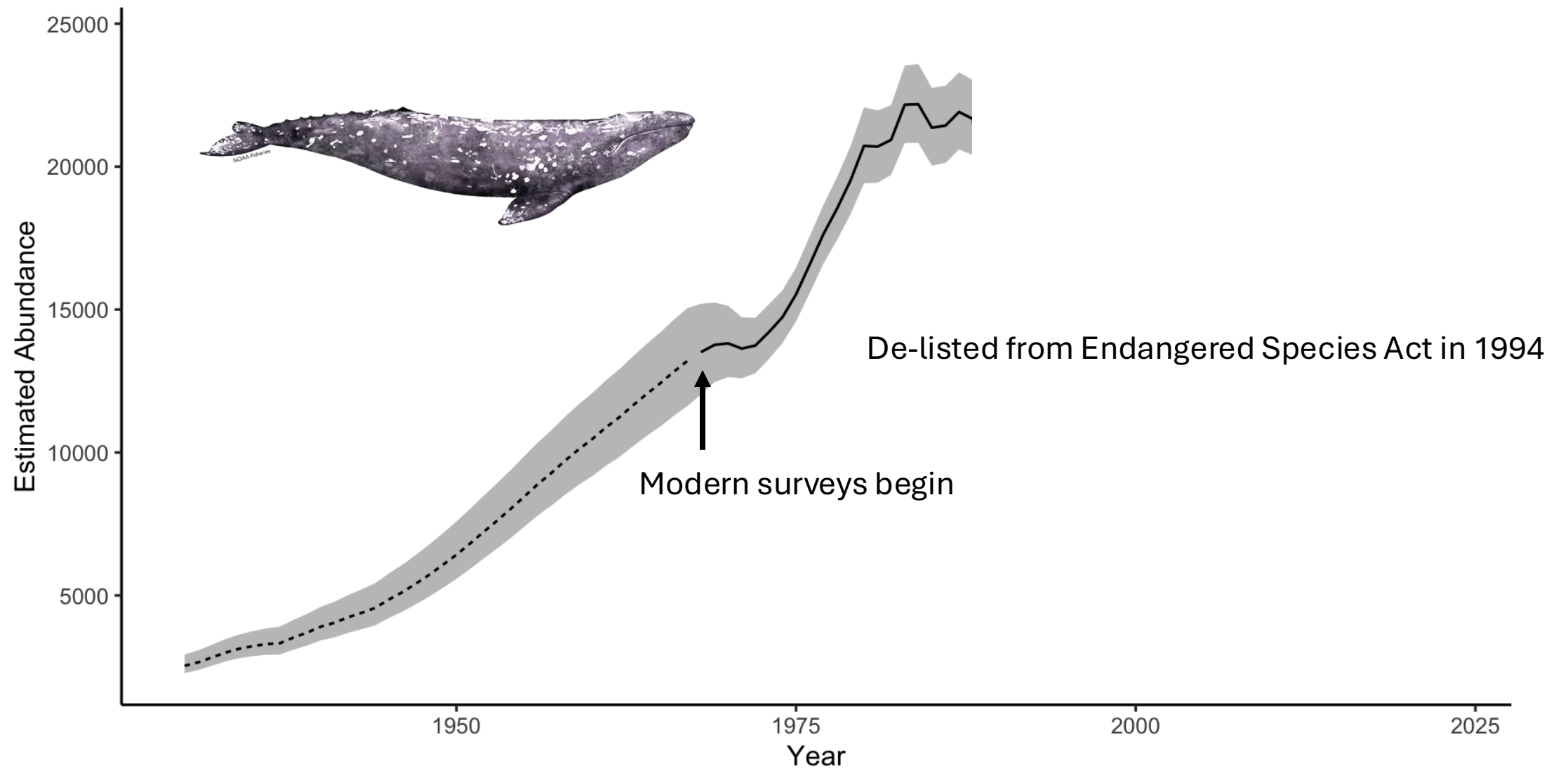
Central CA – SB & NB Migrations

1987 – 2019 **NOAA** SWFSC

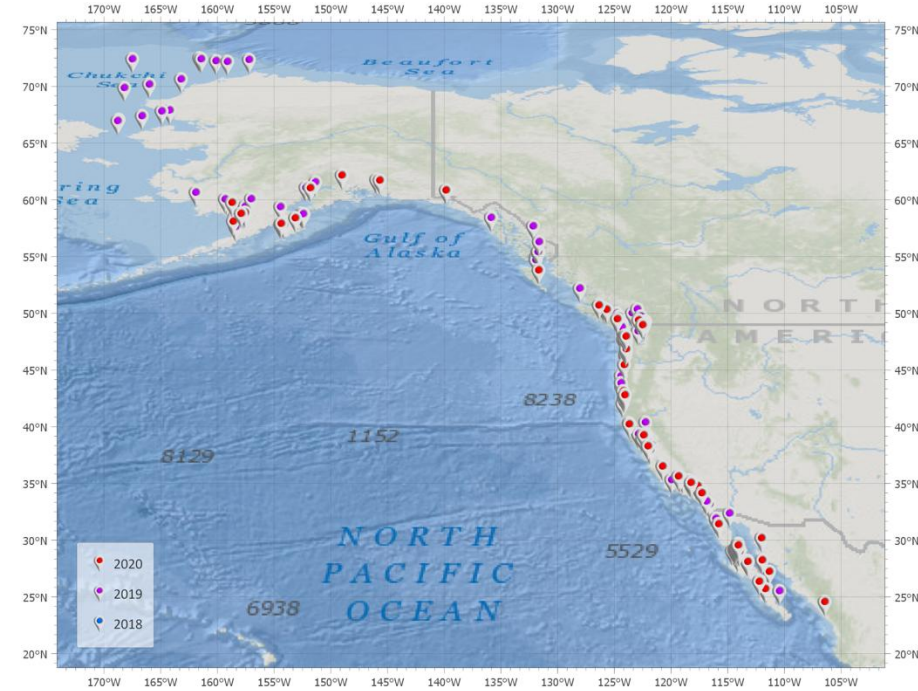
Sea Ice (Access Days)

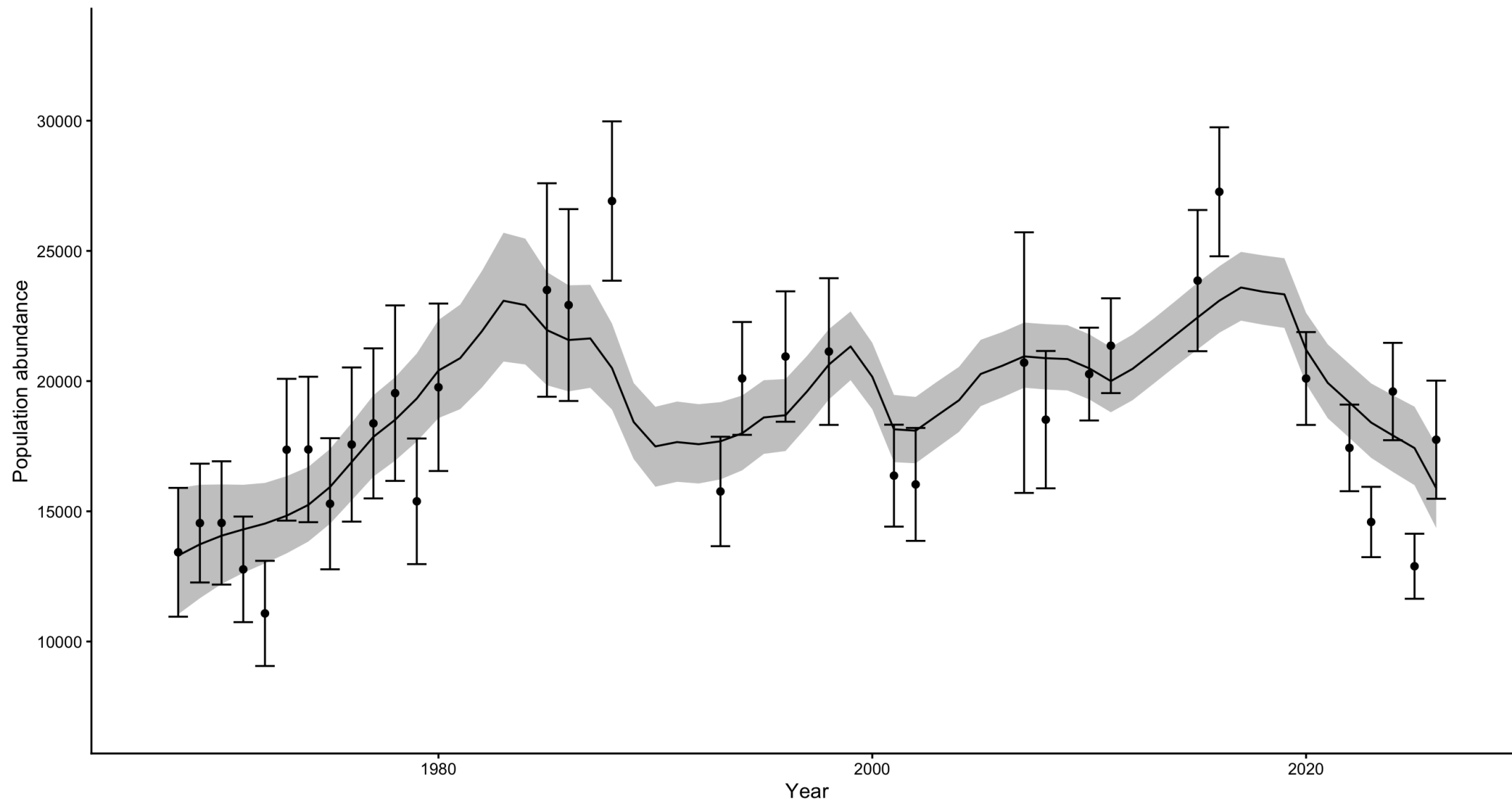
Bering & Chukchi Seas

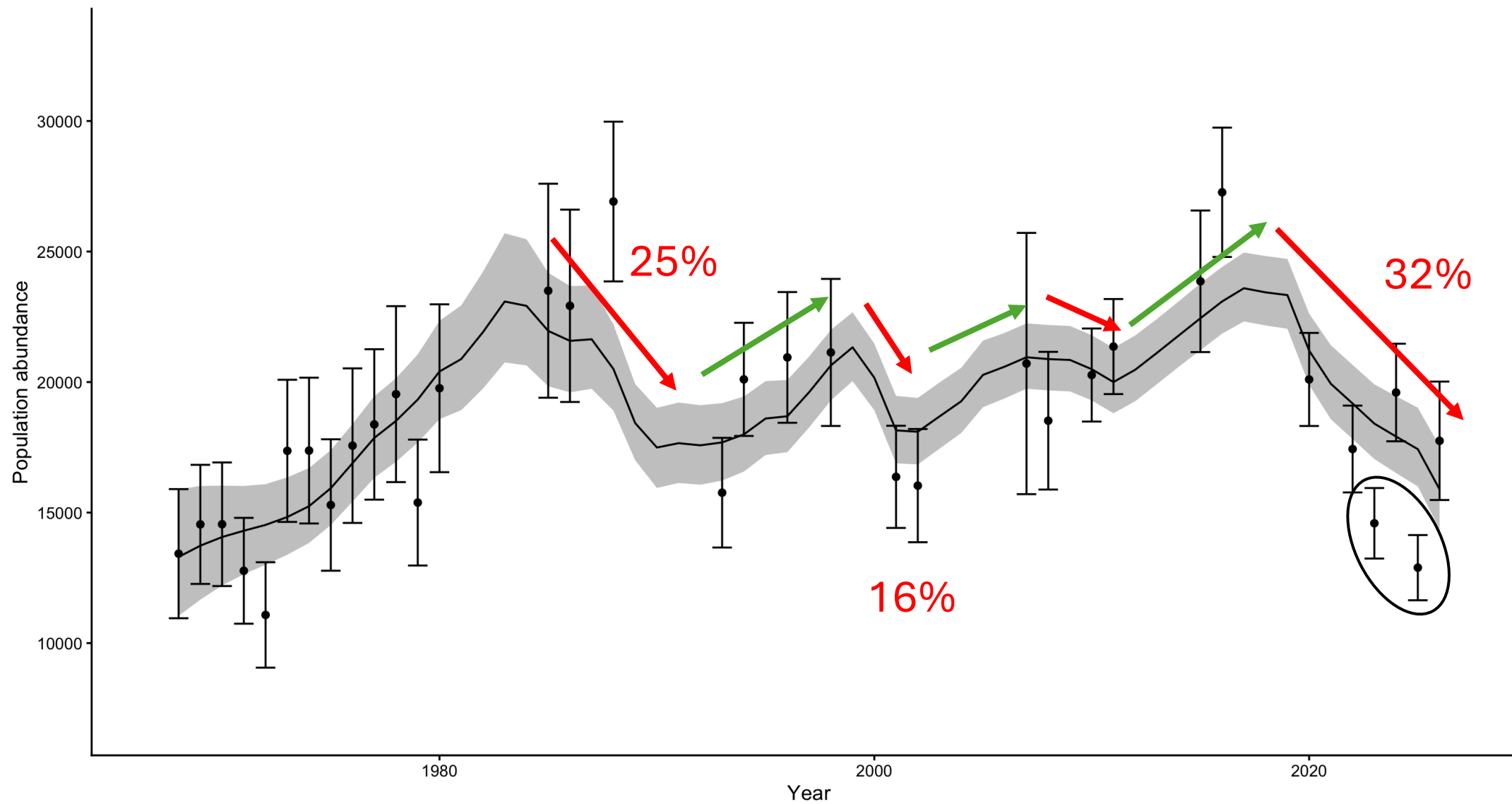
1979 – 2025 **NOAA** *National Snow & Ice Data Center*

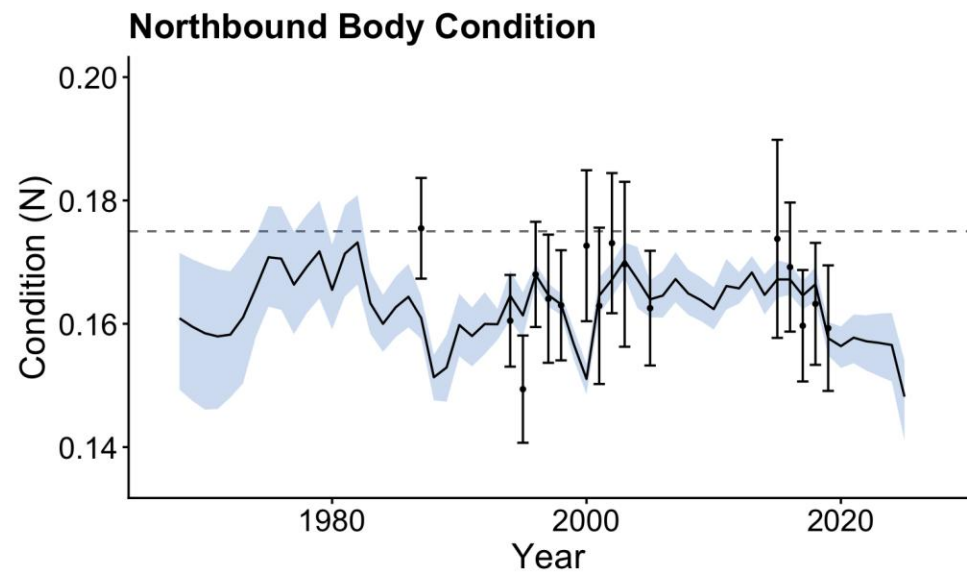
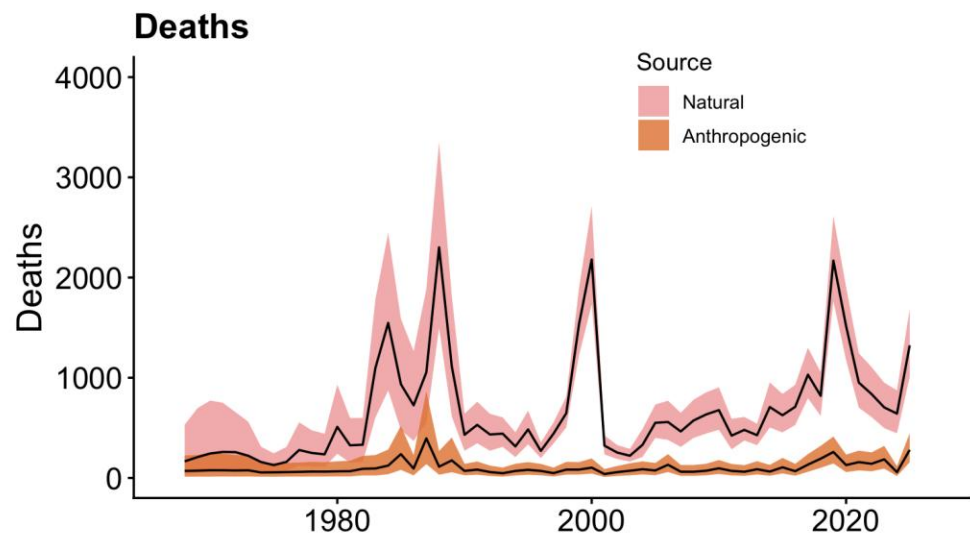
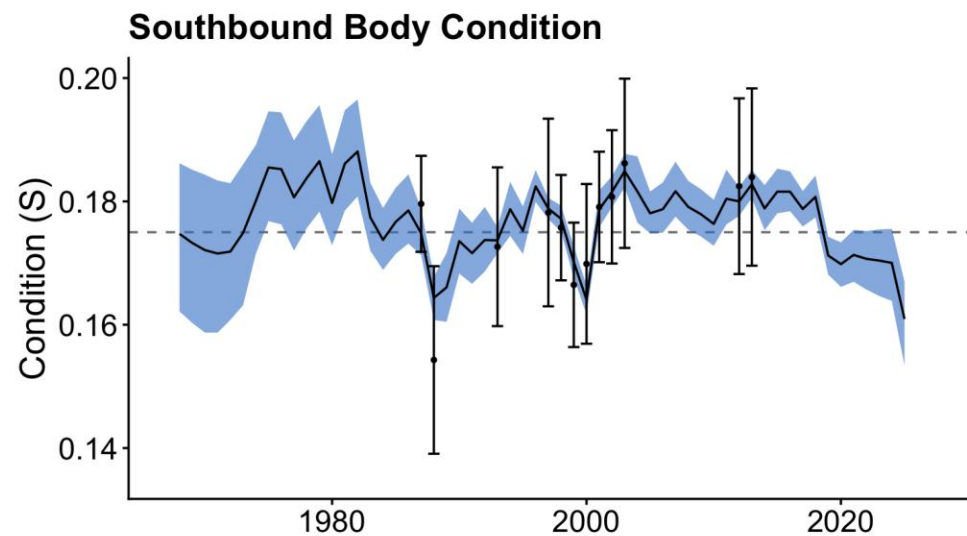
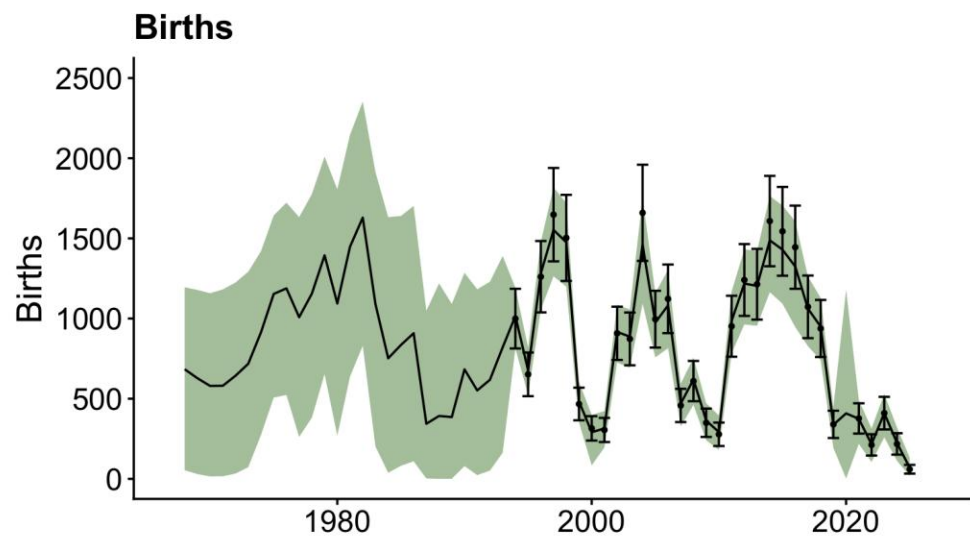


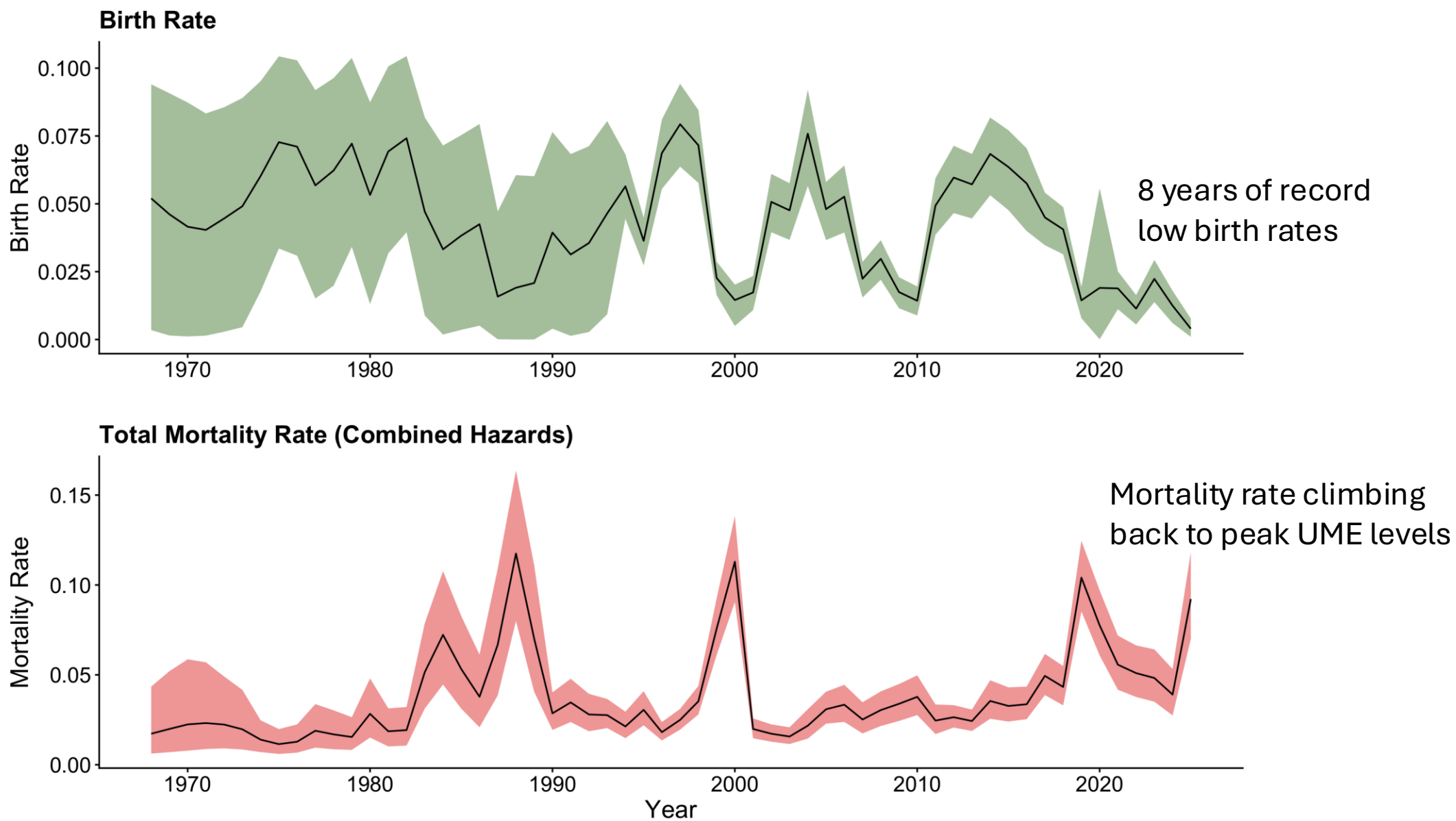
Gray Whale Unusual Mortality Events

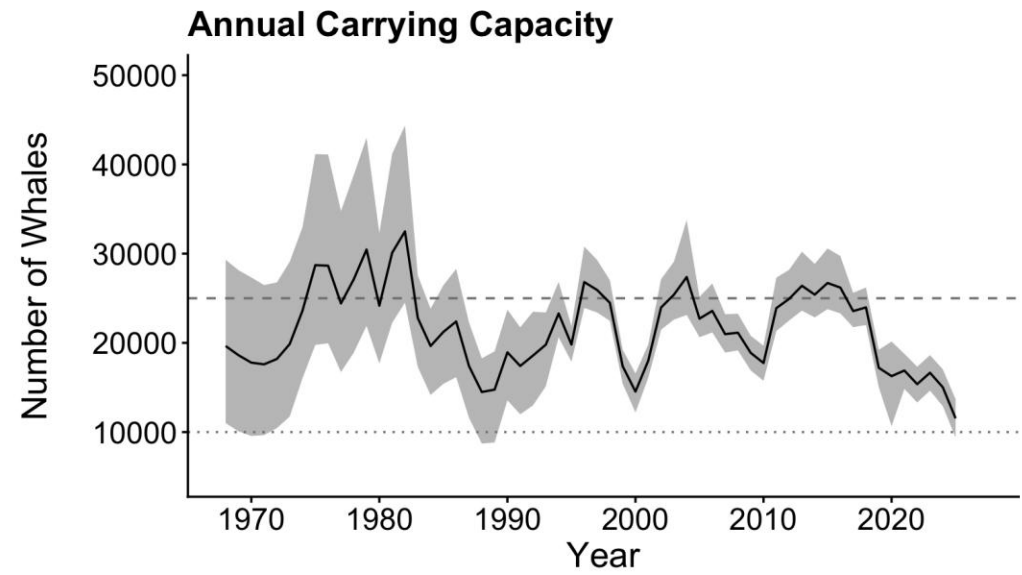


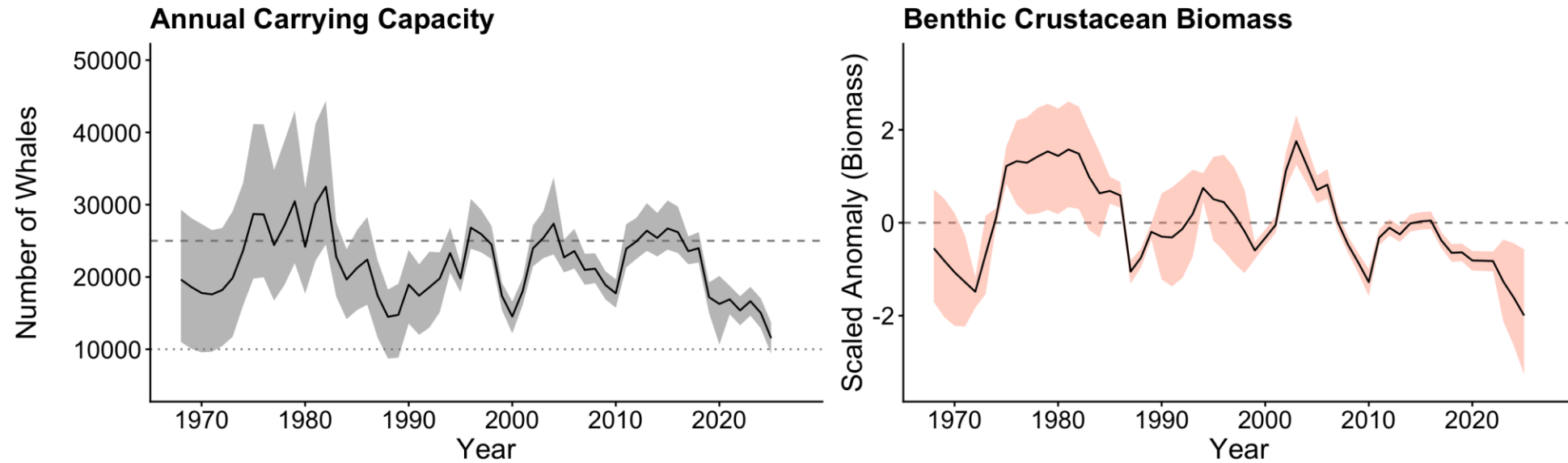








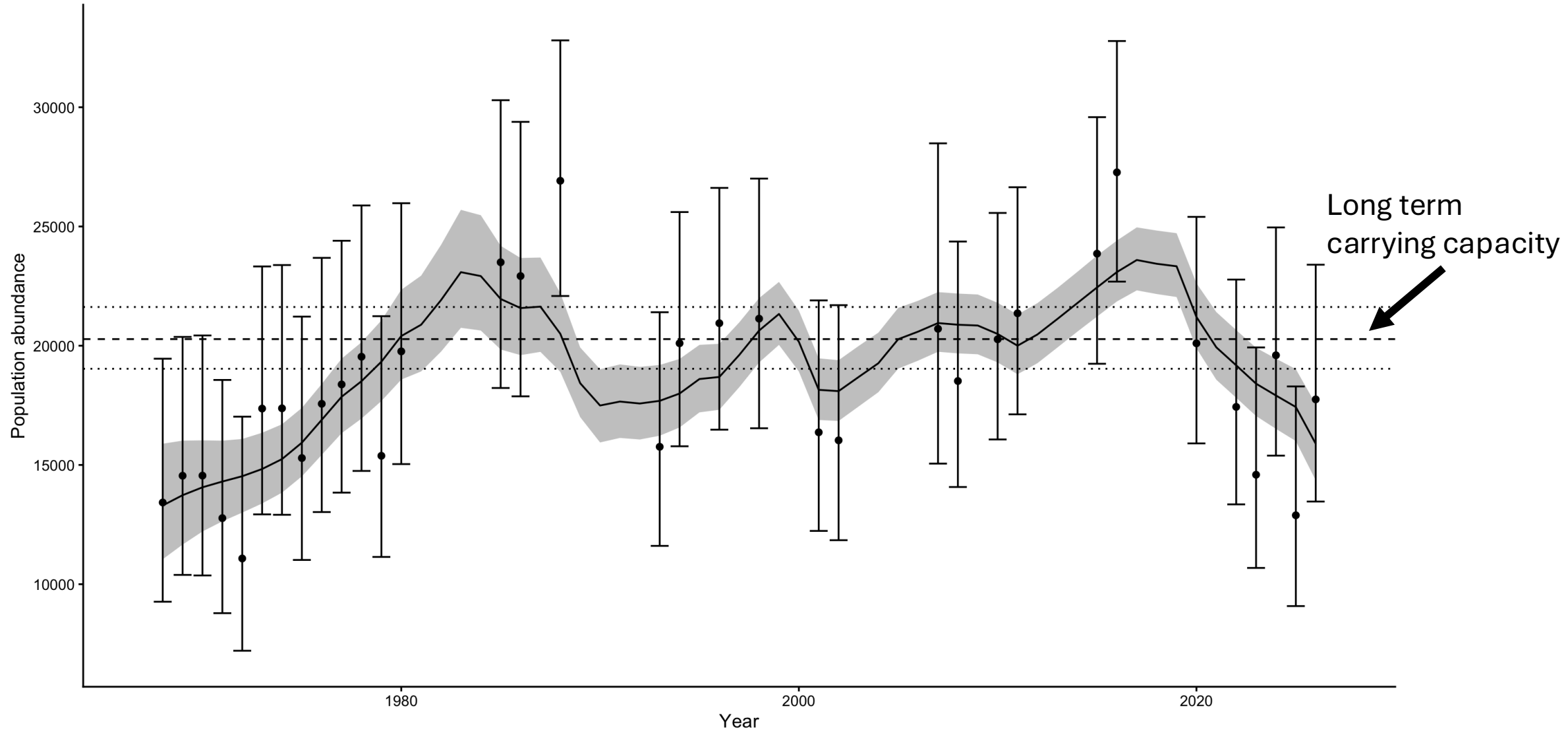




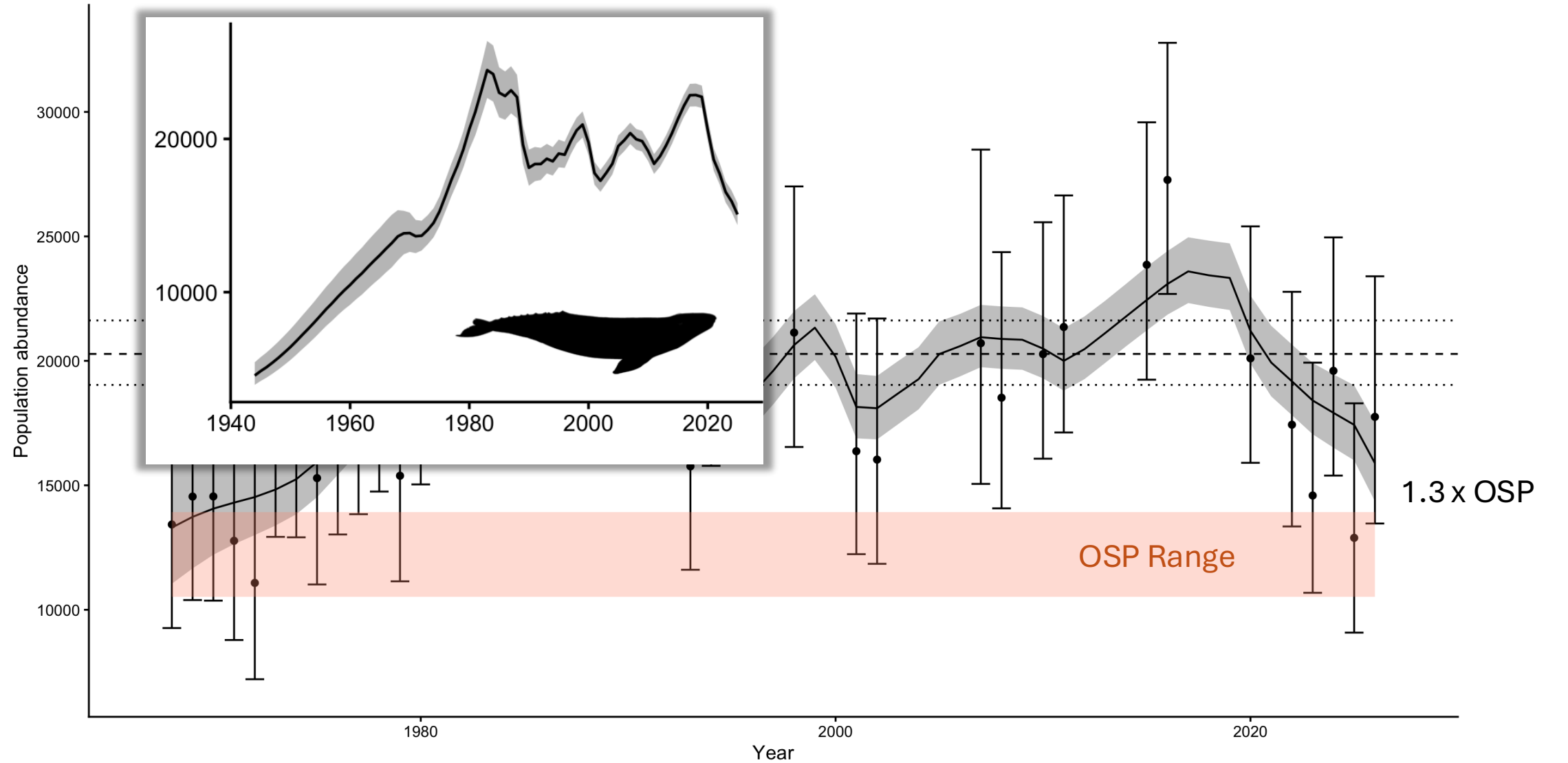
Unresolved Questions & Opportunities:

1. We can easily test other / additional covariates (but few 60-year datasets exist)
2. How can we predict future abundance / K under warming scenarios?
3. How does ecological flexibility contribute to carrying capacity?

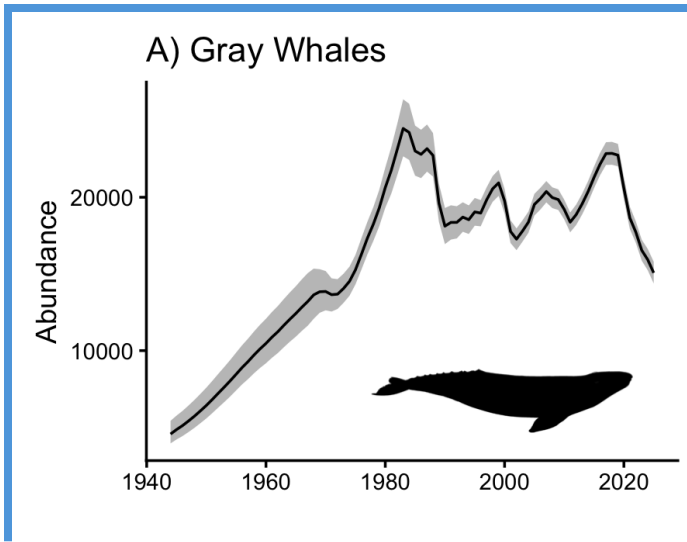
GW Status Relative to Management Reference Points



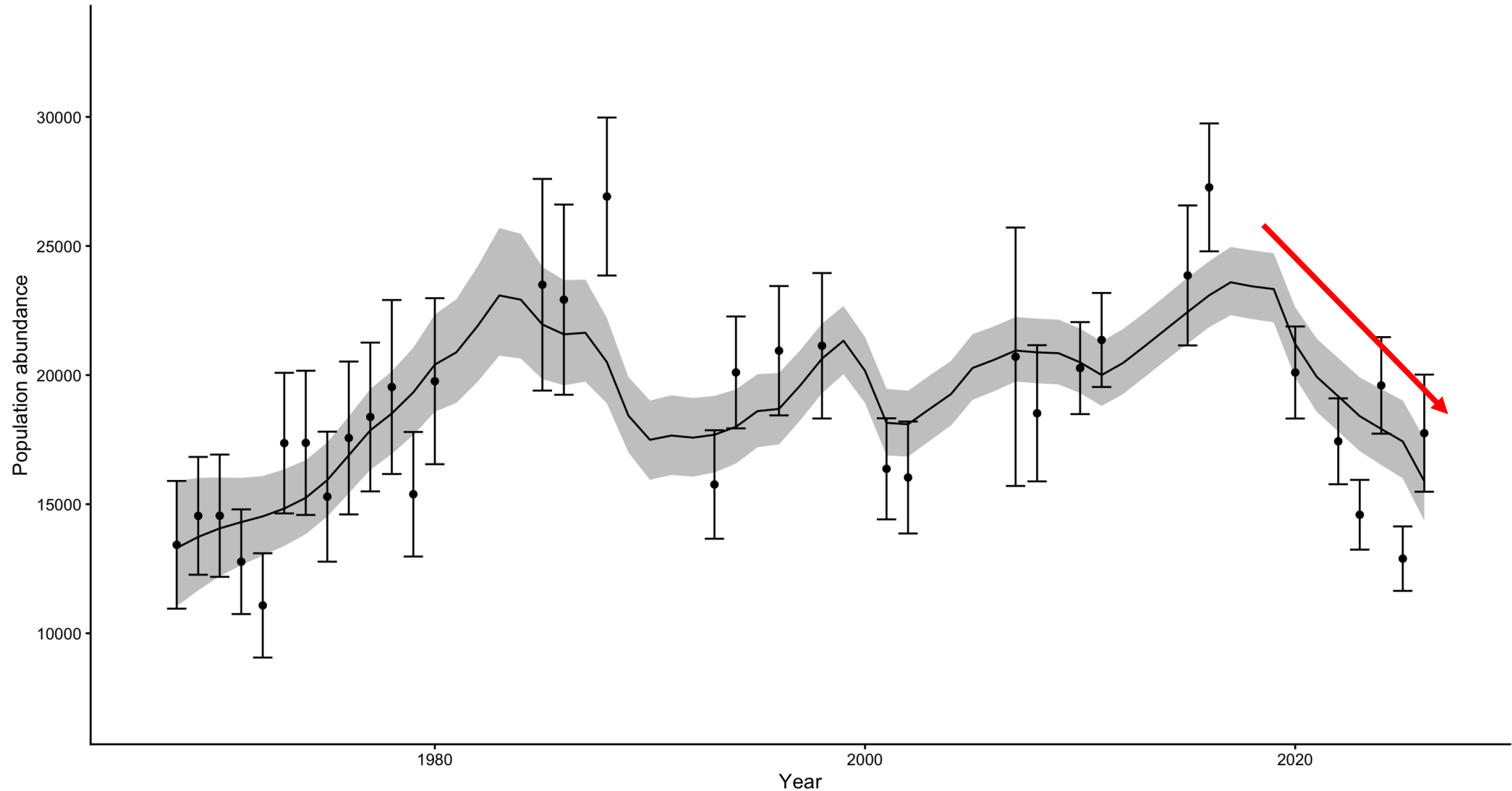
GW Status Relative to Management Reference Points



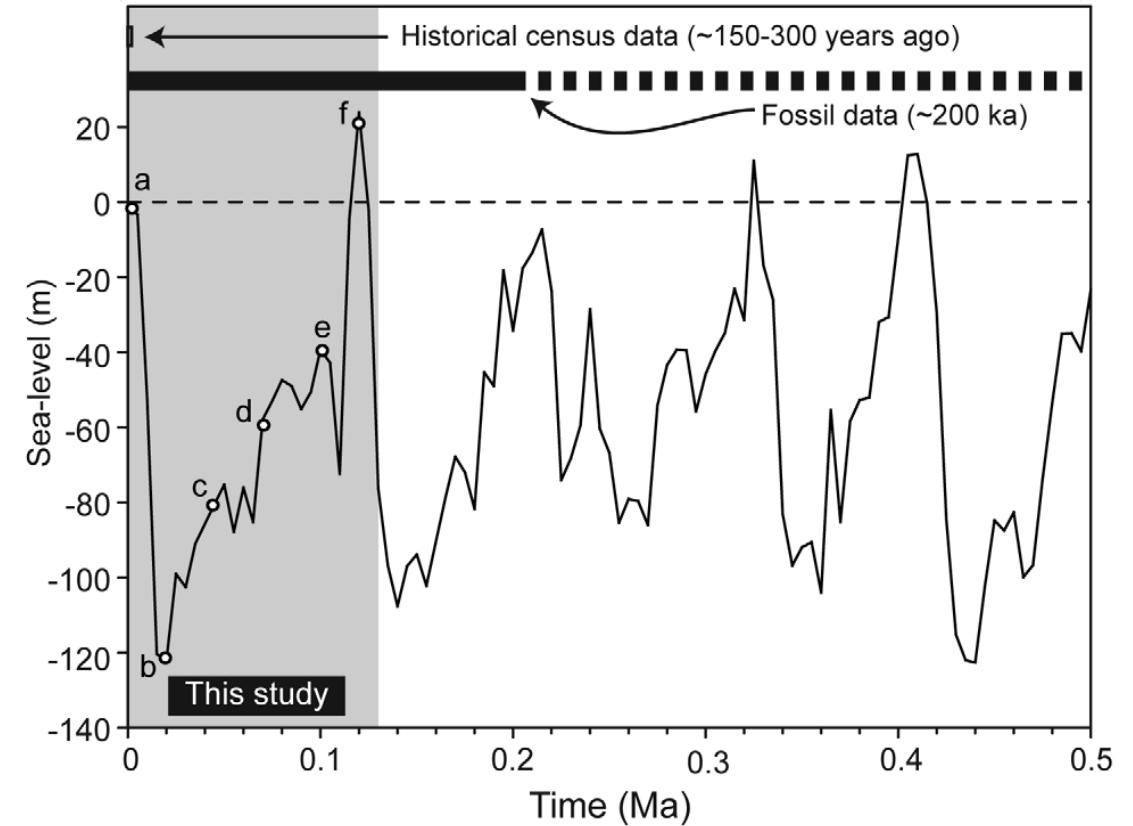
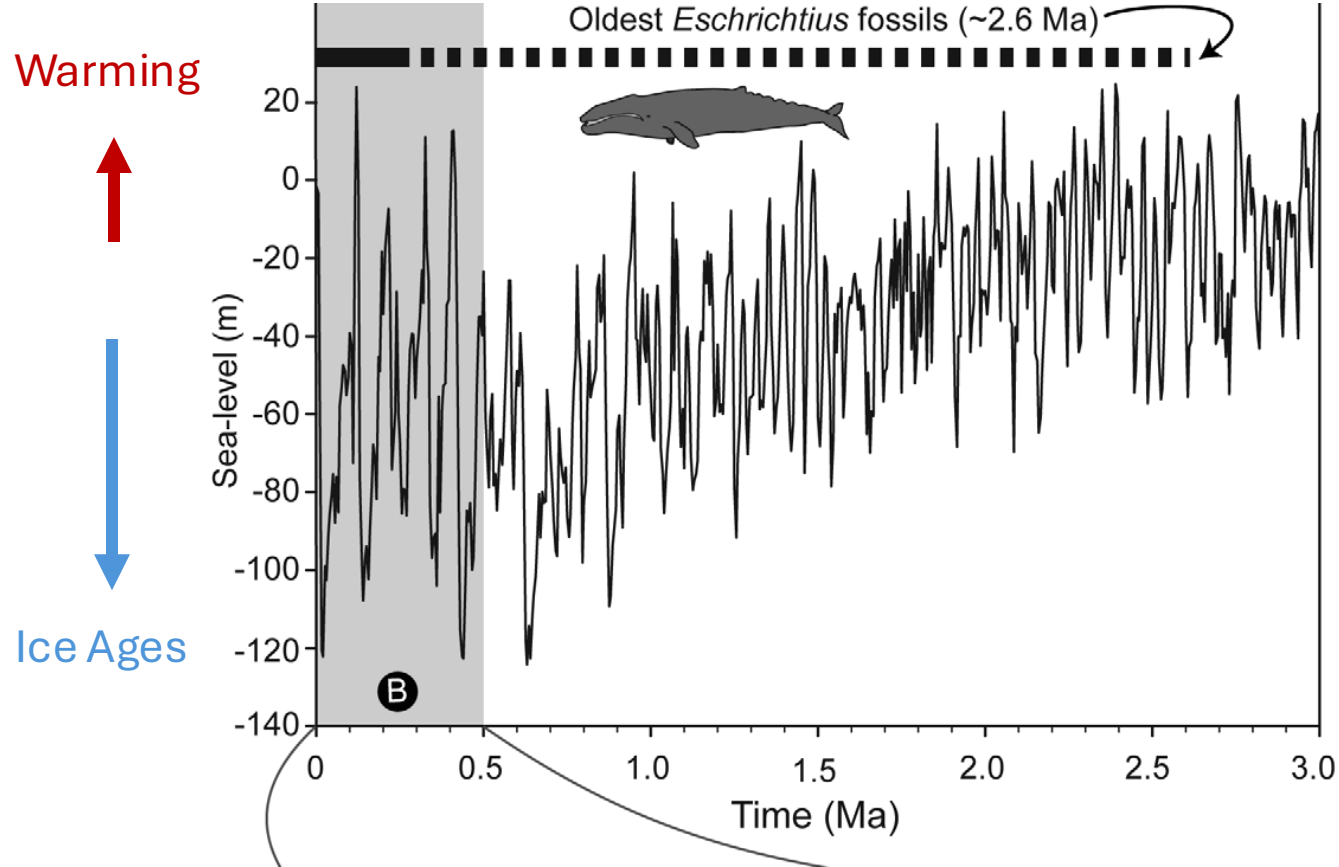
Is what we're seeing in gray whales unique?



How representative are the last 60 years?

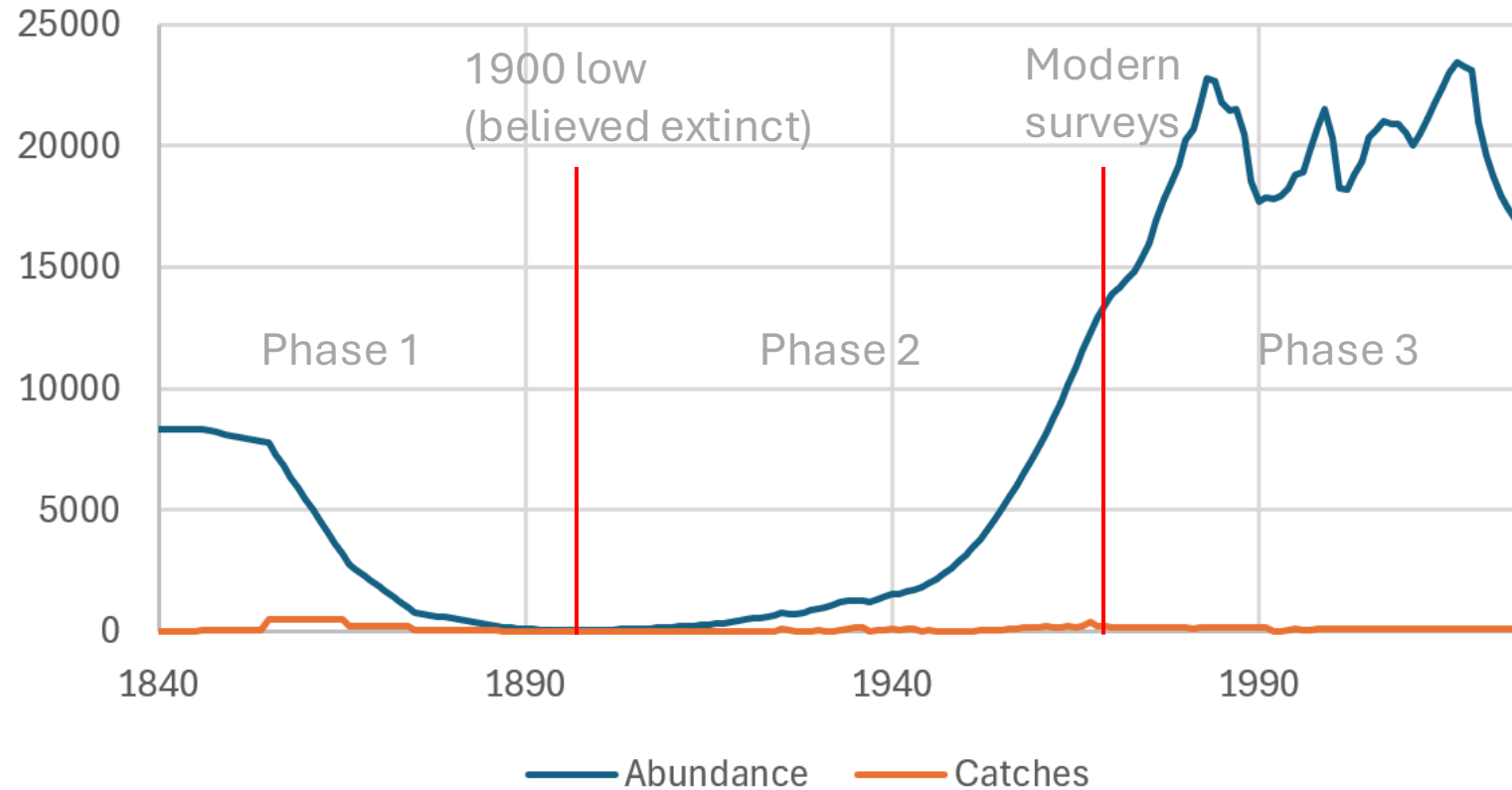


How representative are the last 60 years?



Trevor Branch's Frankenstein Model

Can't get the estimates up here unless catches are underestimated by **10x**



In Summary

- ENP GW have experienced significant variability over the last half century
- Abundance has declined ~32% from pre-UME high
- This is the largest decline since surveys began
- The population is still above MMPA management targets
- 'Normal' abundance levels may have been very different a few thousand (or even 200) years ago without access to the Arctic

Questions?

Some of the many people who contributed to this work:

Wayne Perryman

Trevor Joyce

Tim Tinker

Jackie Grebmeier

Tomo Eguchi

Aimee Lang

Deborah Fauquier

John Calambokidis

John Durban

Dave Rugh

Jeff Laake

Steve Reilly

Morgan Lynn

Holly Fearnbach

Don LeRoi

Jim Gilpatrick

Granite Canyon Observers

Piedras Blancas Observers

Regional Stranding Networks



SWFSC
Marine Mammal &
Turtle Division



Oregon State University
Marine Mammal
Institute



Ocean Ecology
Lab

Photo © Wayne Perryman / NOAA Fisheries

Monitoring gray whale status in the wintering lagoons of Baja California Sur, Mexico

UPDATED 2 SEPTEMBER 2026

Gray Whale Range-Wide Ecology
Symposium, MMC-OSU,
9-10 September 2026

Presented by

Jorge Urbán Ramírez Ph.D.

Lorena Viloria-Gómora Ph.D.

Sergio Martínez-Aguilar Ph.D.

Universidad Autónoma de Baja California Sur

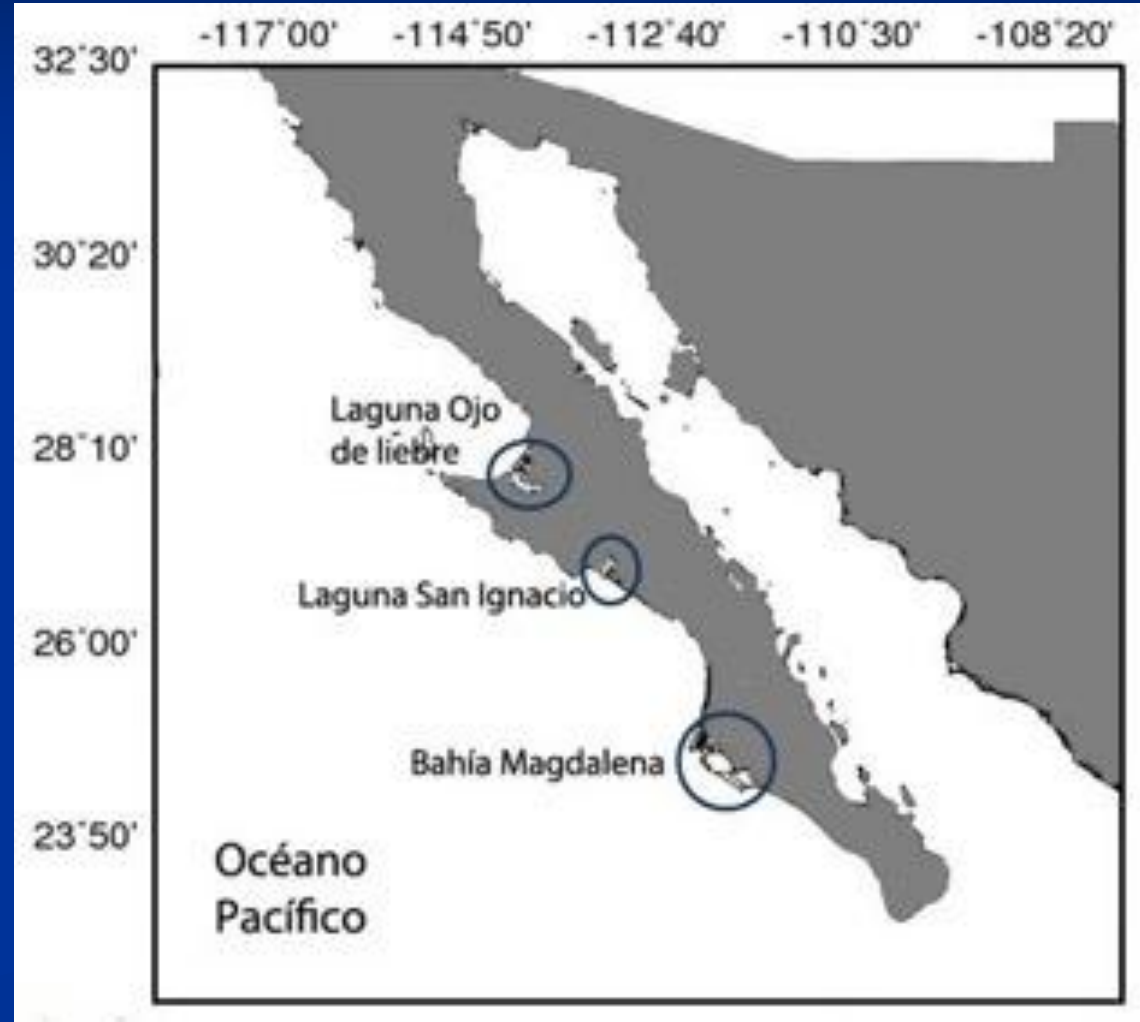
and

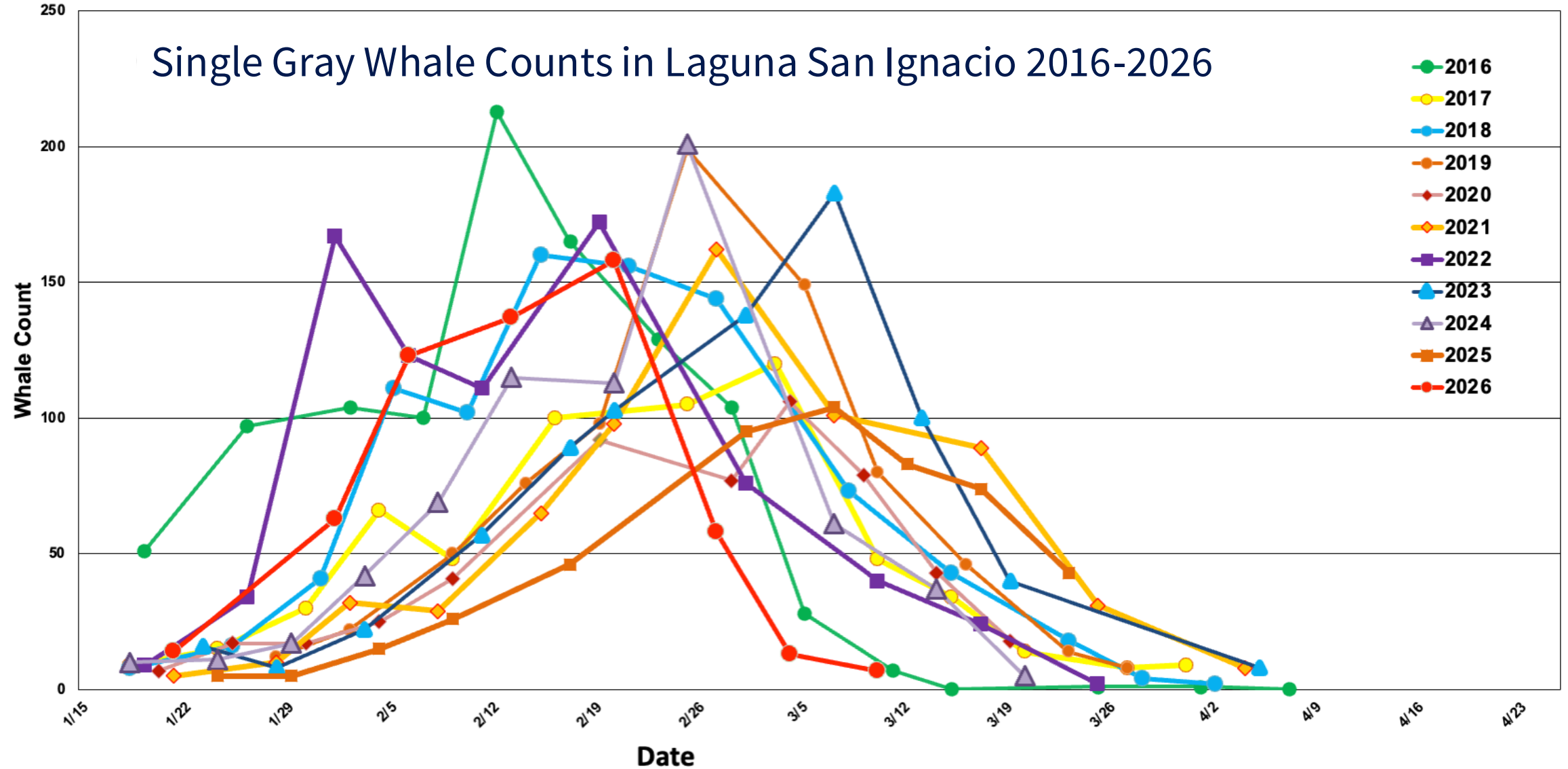
Steven L. Swartz Ph.D.

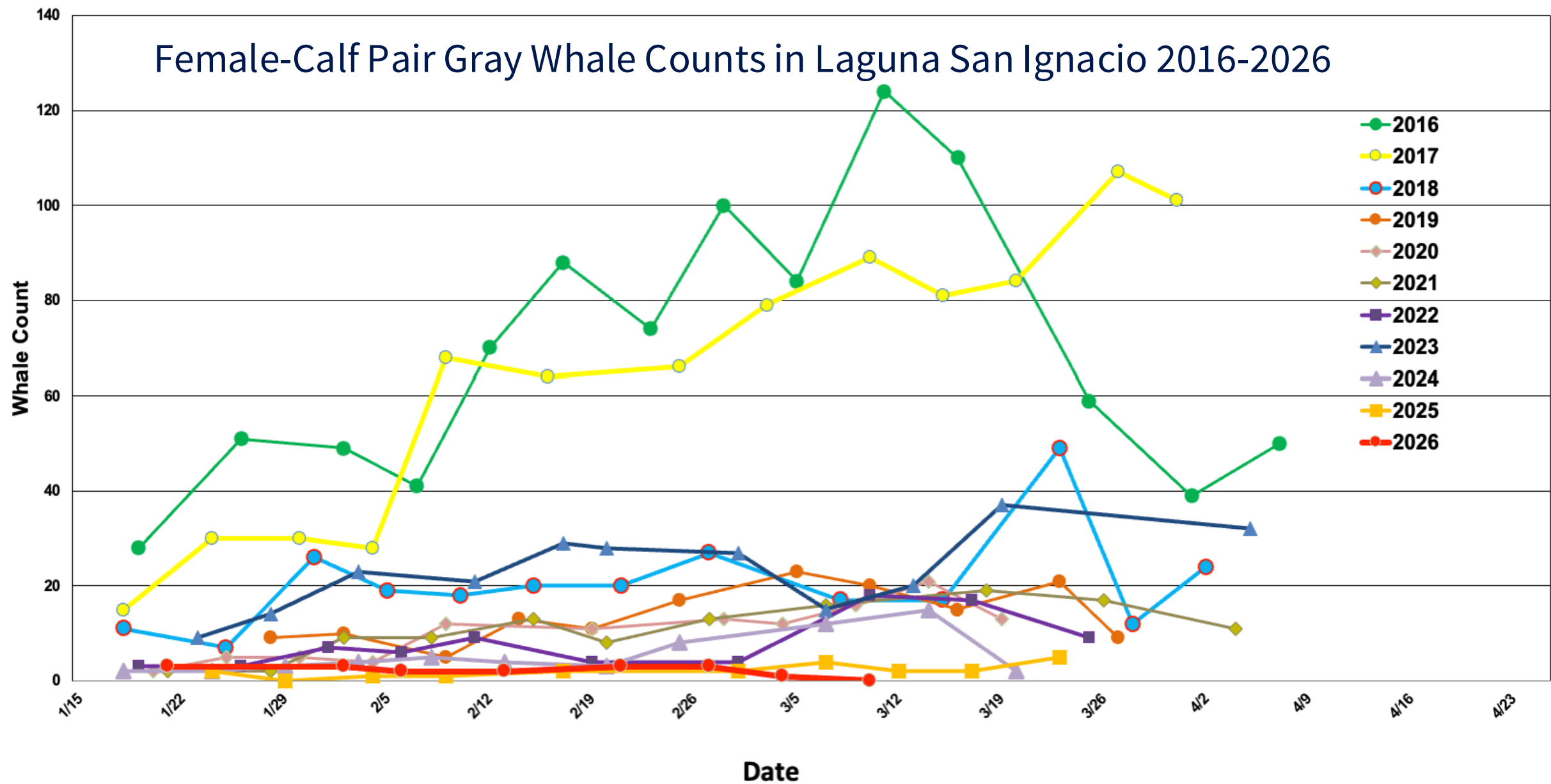
Gray Whale Research in Mexico Program



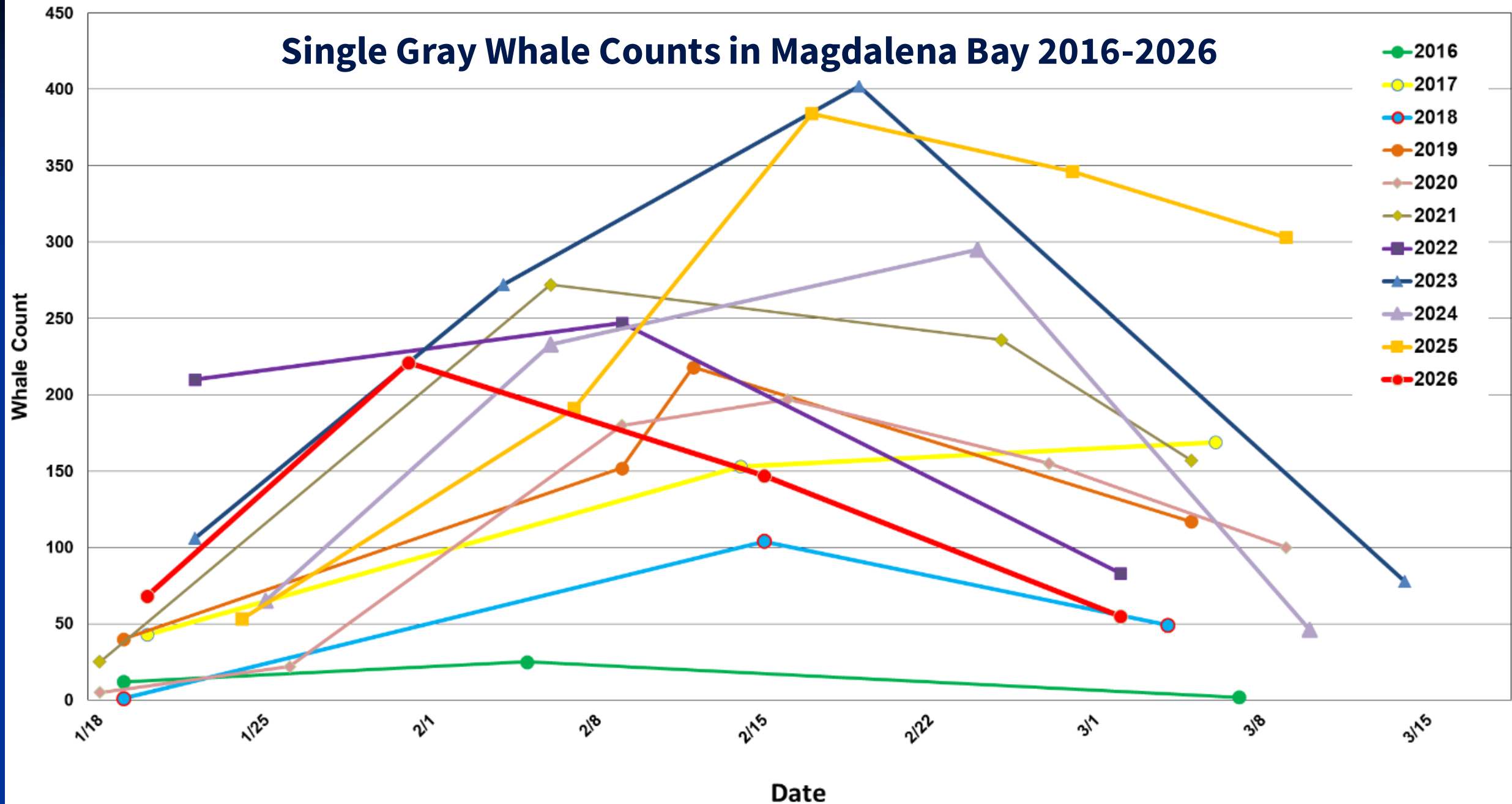
**INVESTIGACIÓN DE
BALLENAS GRISES
EN MÉXICO**

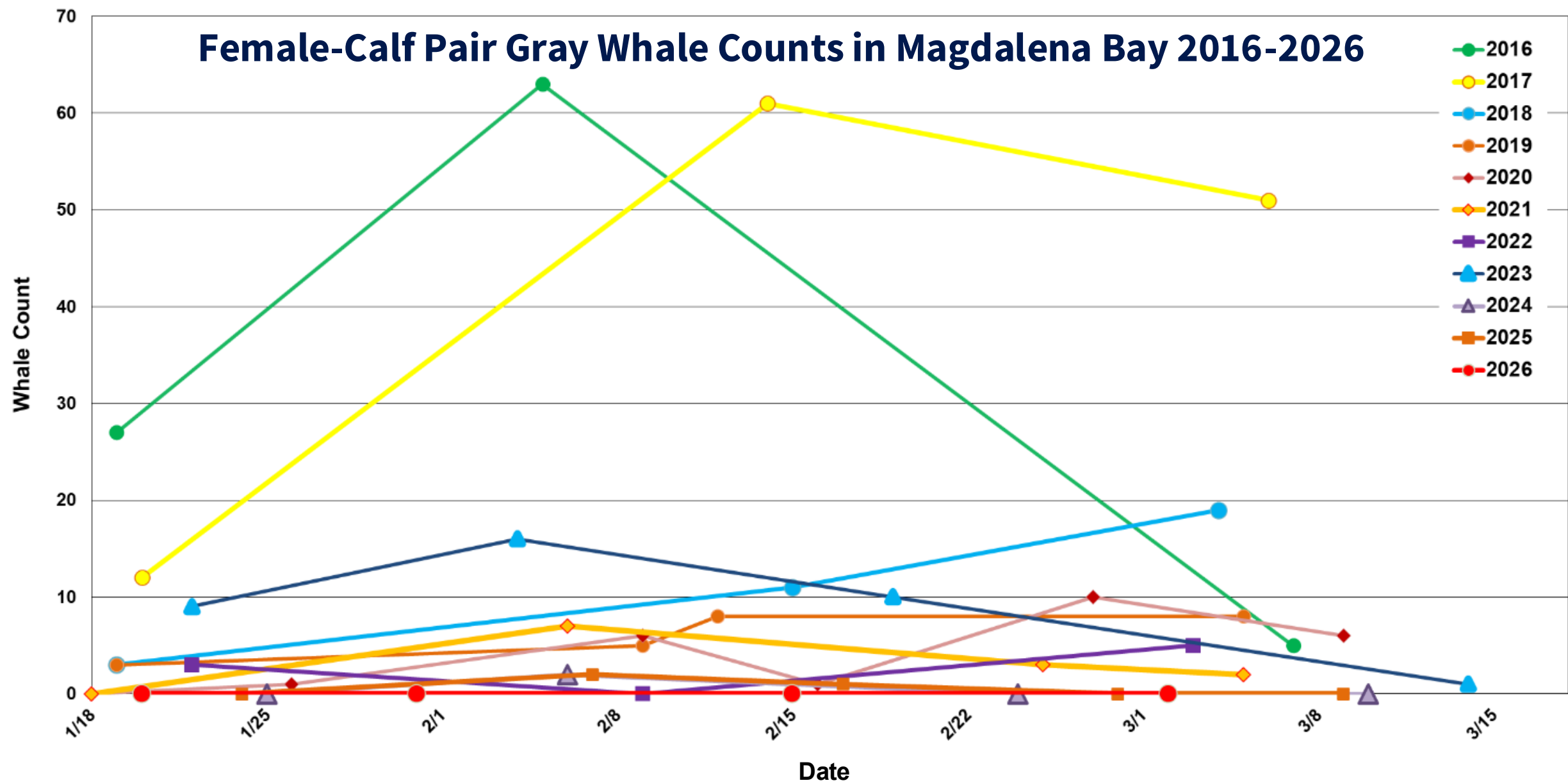






Single Gray Whale Counts in Magdalena Bay 2016-2026





UPDATED Sept 2, 2026

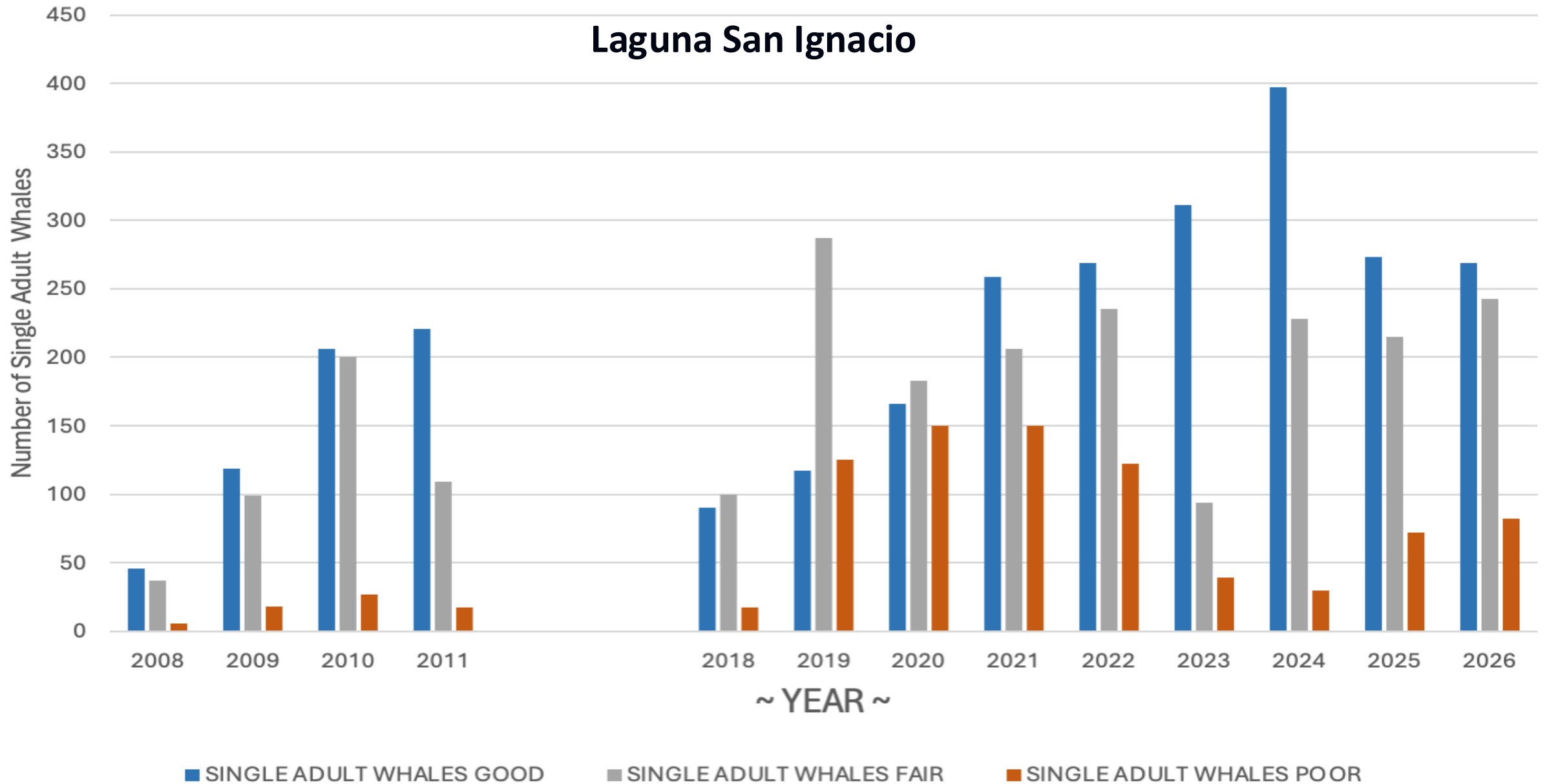
Individual Gray Whales Visiting Laguna San Ignacio (2005-2026) And Magdalena Bay (2016-2026) from Photo-ID Records

UME Years in Red
Last 2 years Yellow

Year / Año	Single Whales	Females-calves	Single Whales	Females-calves
	LSI		BM	
2005	271	114		
2006	191	54		
2007	387	74		
2008	240	88		
2009	574	75		
2010	696	38		
2011	409	187		
2012	431	211		
2013	359	183		
2014	566	195		
2015	273	274		
2016	435	218	75	76
2017	421	195	319	55
2018	597	83	382	30
2019	845	40	428	15
2020	637	54	696	25
2021	746	43	506	6
2022	746	41	601	12
2023	528	83	891	31
2024	822	22	740	8
2025	715	8	980	6
2026	682	8	578	2

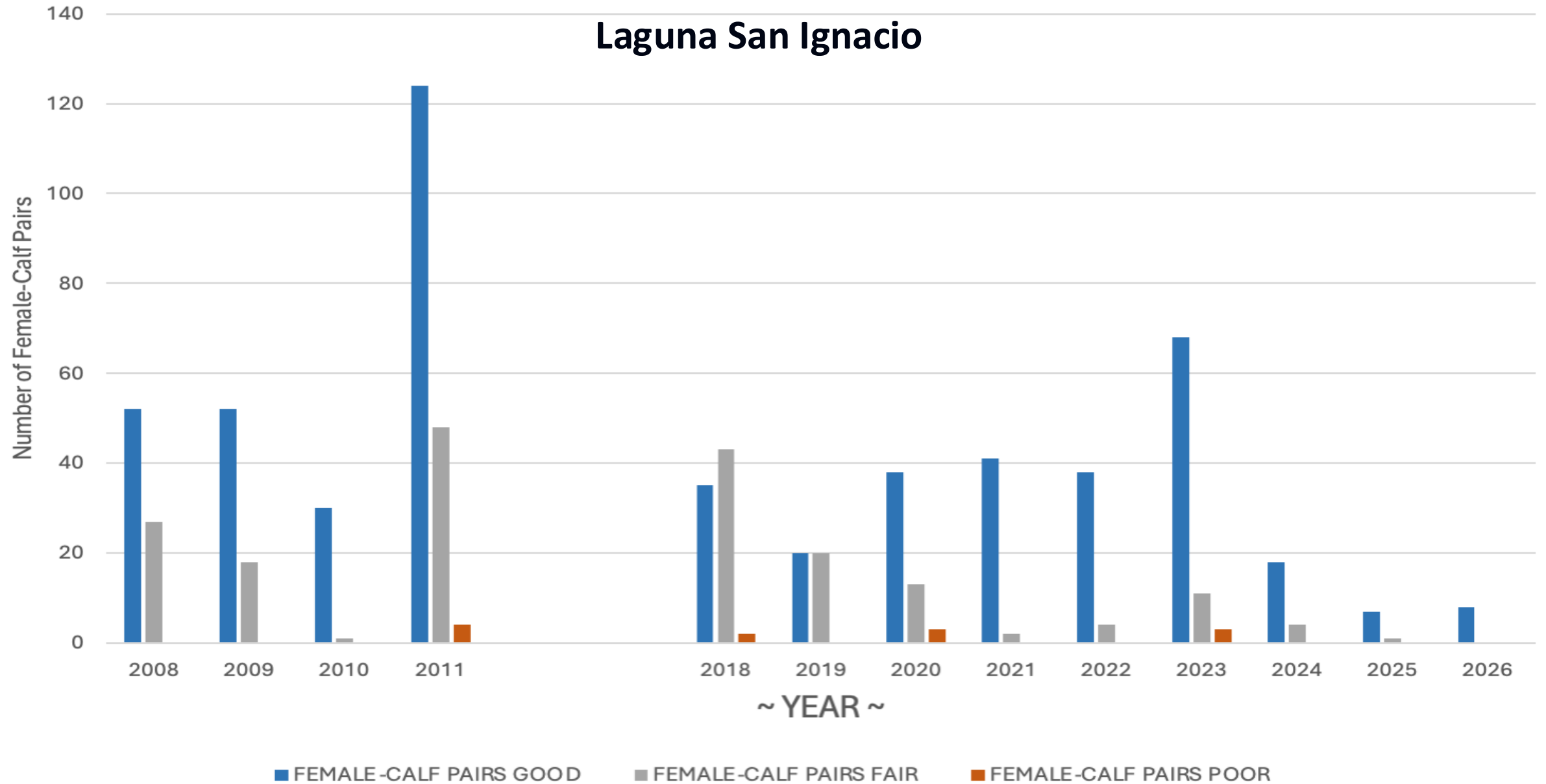
BODY CONDITION SINGLE ADULT WHALES

Laguna San Ignacio

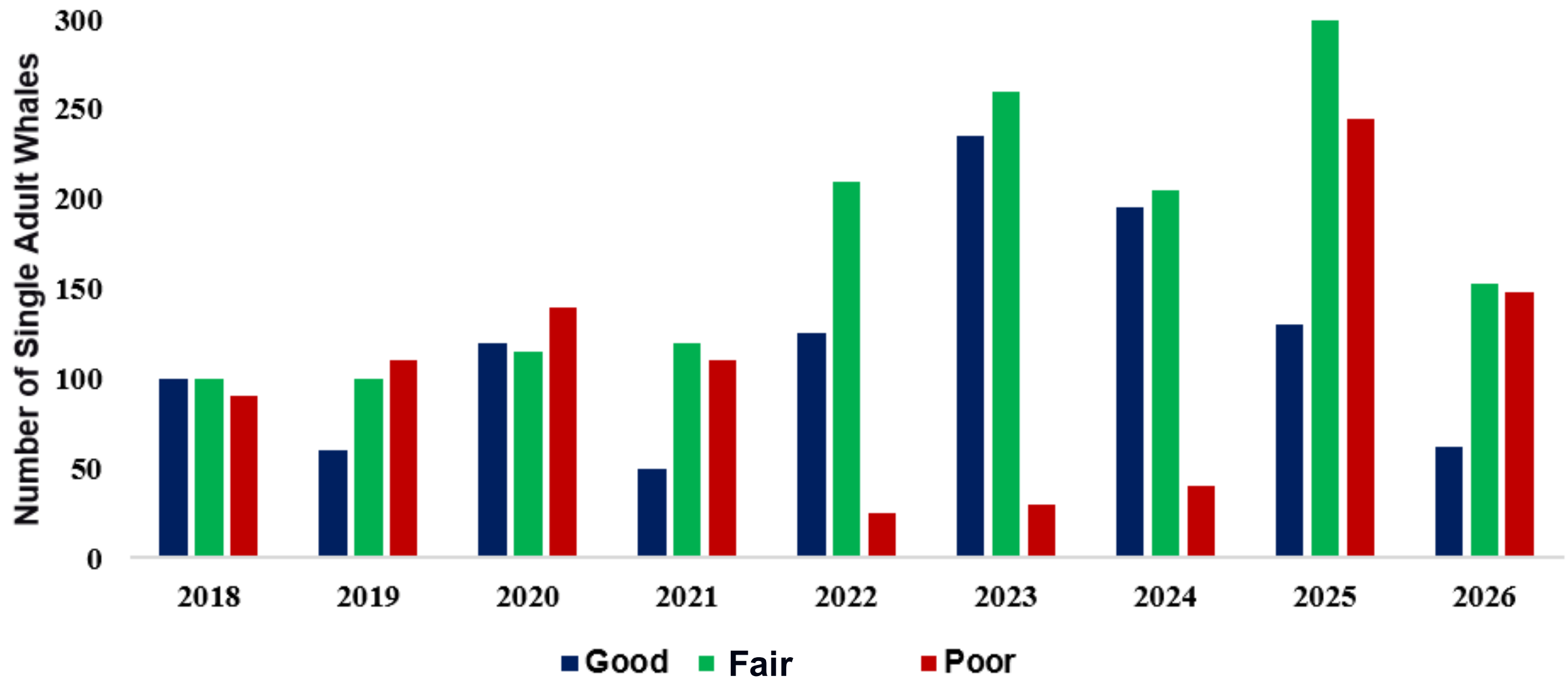


BODY CONDITION FEMALE-CALF PAIRS

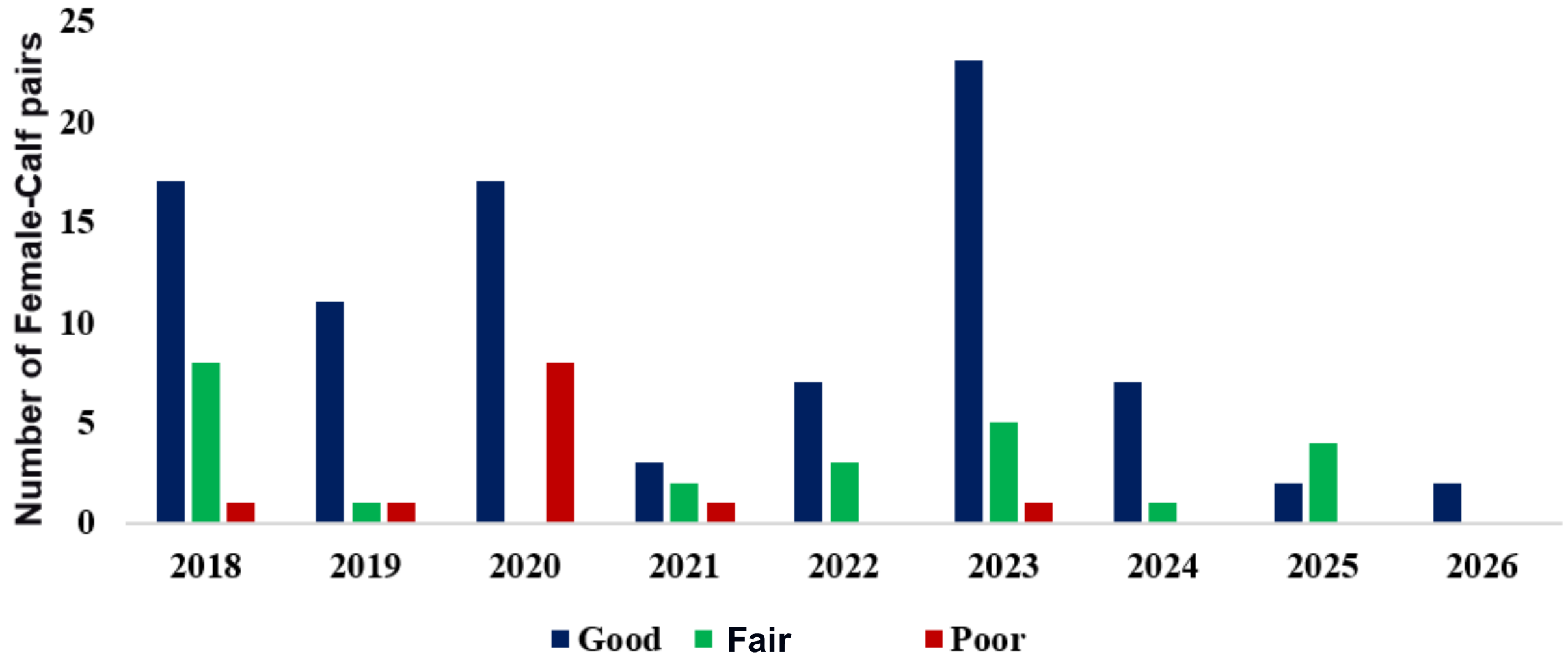
Laguna San Ignacio



Body Condition of Single Adult Whales in Magdalena Bay 2018–2026



Body Condition of Female-Calf Pairs in Magdalena Bay 2018–2026





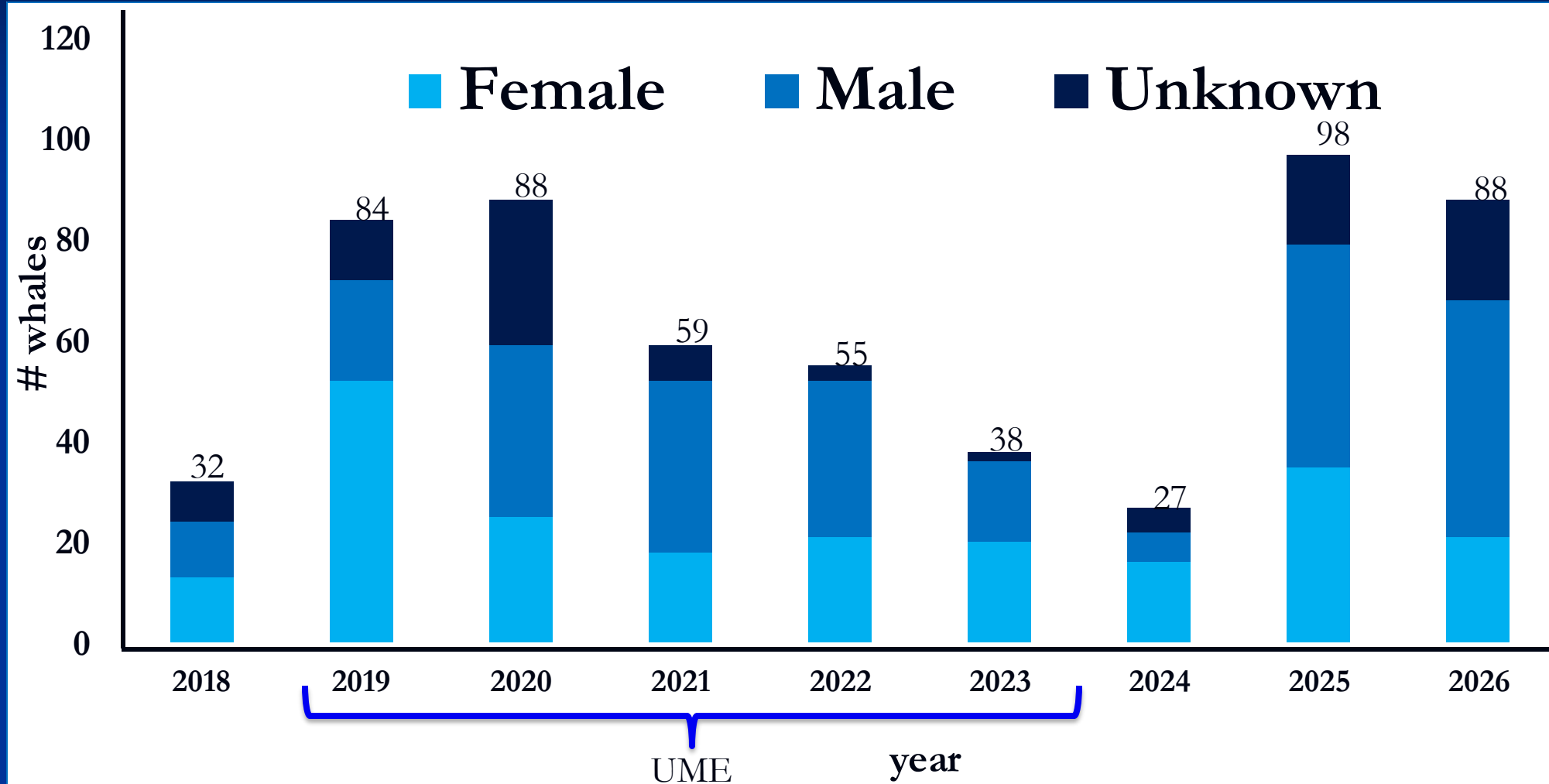
UPDATED SEPT 2, 2026

August 11, 2026:

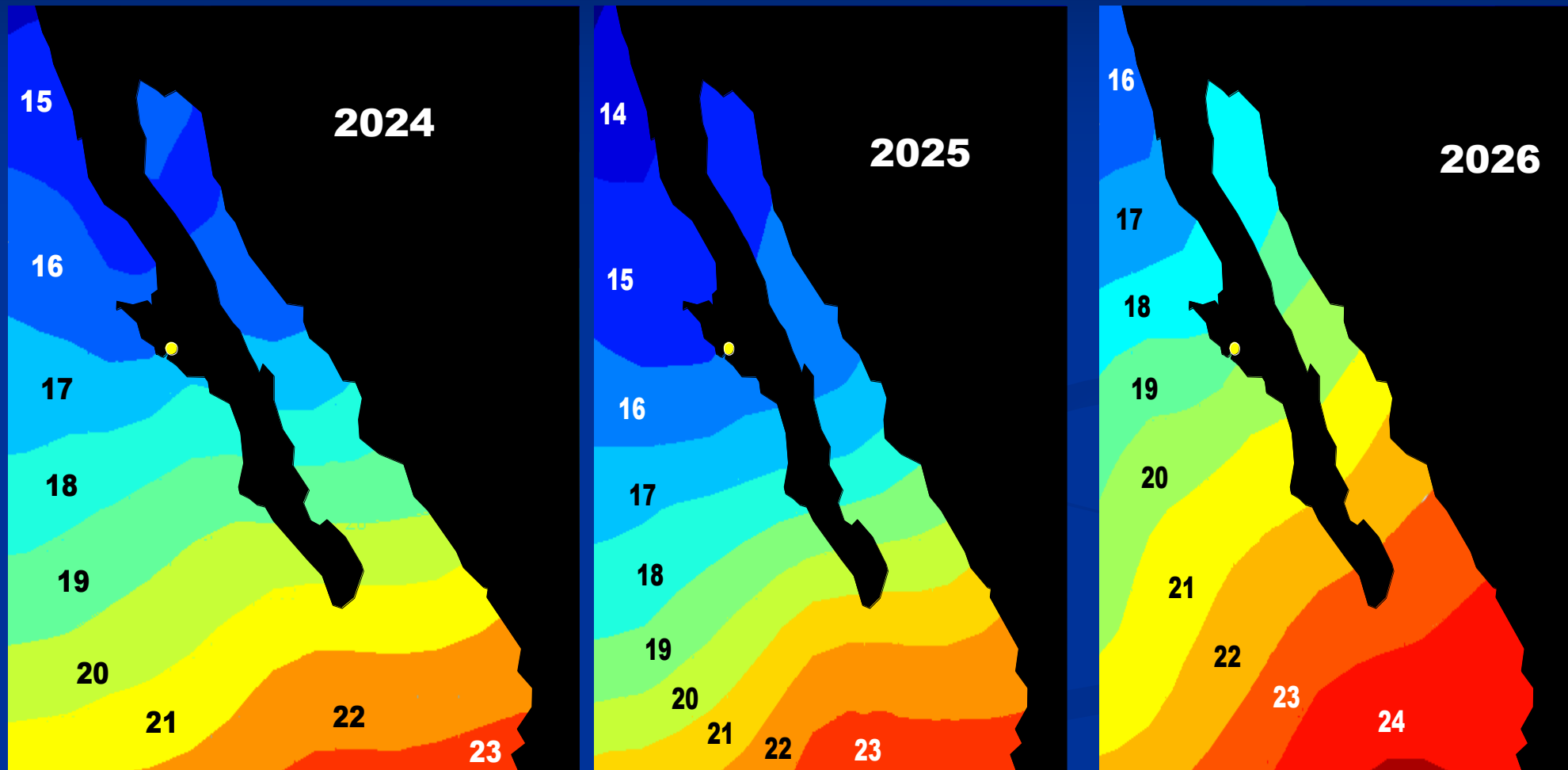
Stranded Gray Whales
reported by the NOAA Gray
Whale UME Working Group
from 2018-2026

Year	US	Mexico	Canada	Grand Total
2018	45	32	3	80
2019	122	84	11	217
2020	79	88	5	172
2021	55	59	5	119
2022	47	55	4	106
2023	44	38	2	84
2024	31	27	1	59
2025	84	98	4	186
Jan-Aug 2026	83	88	10	181
Total 2018-2026	590	569	45	1,204

Gray Whale Strandings in Mexico: 2018-2026

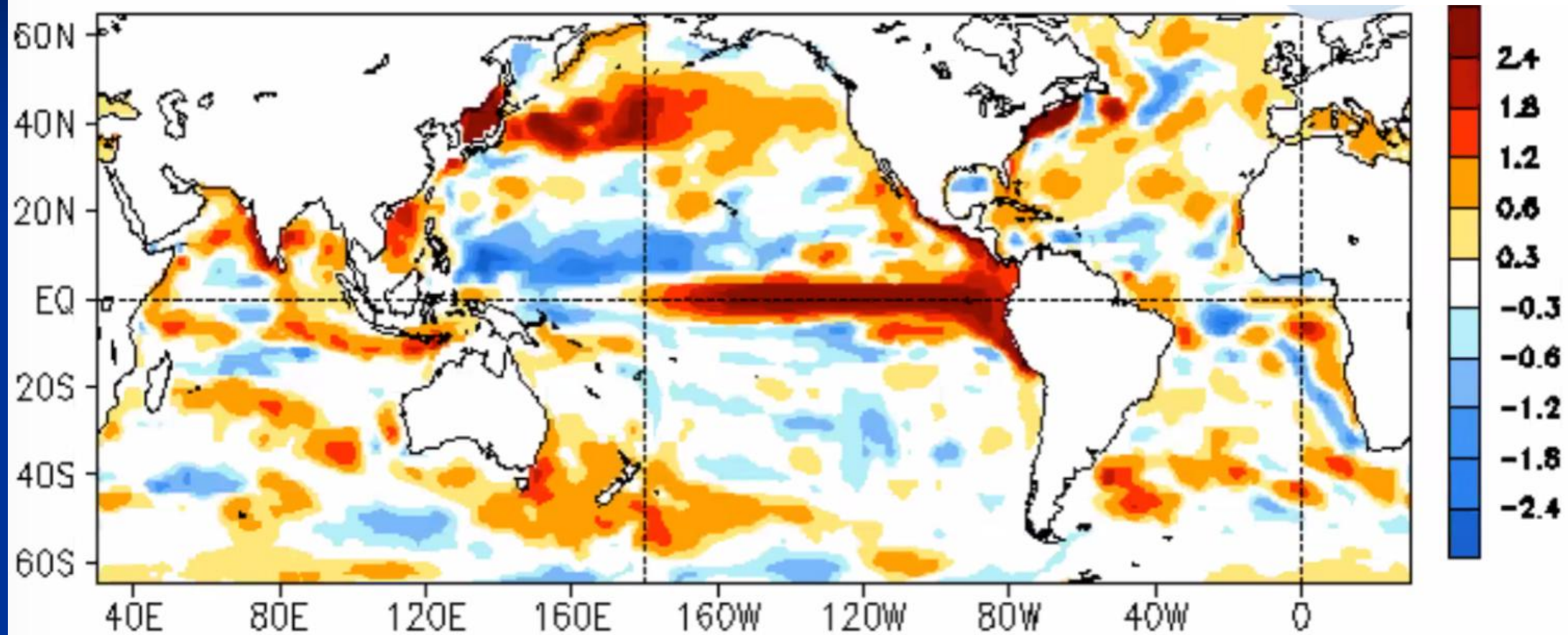


February Sea Surface Temperature ⁰ Celsius: 2024-2026

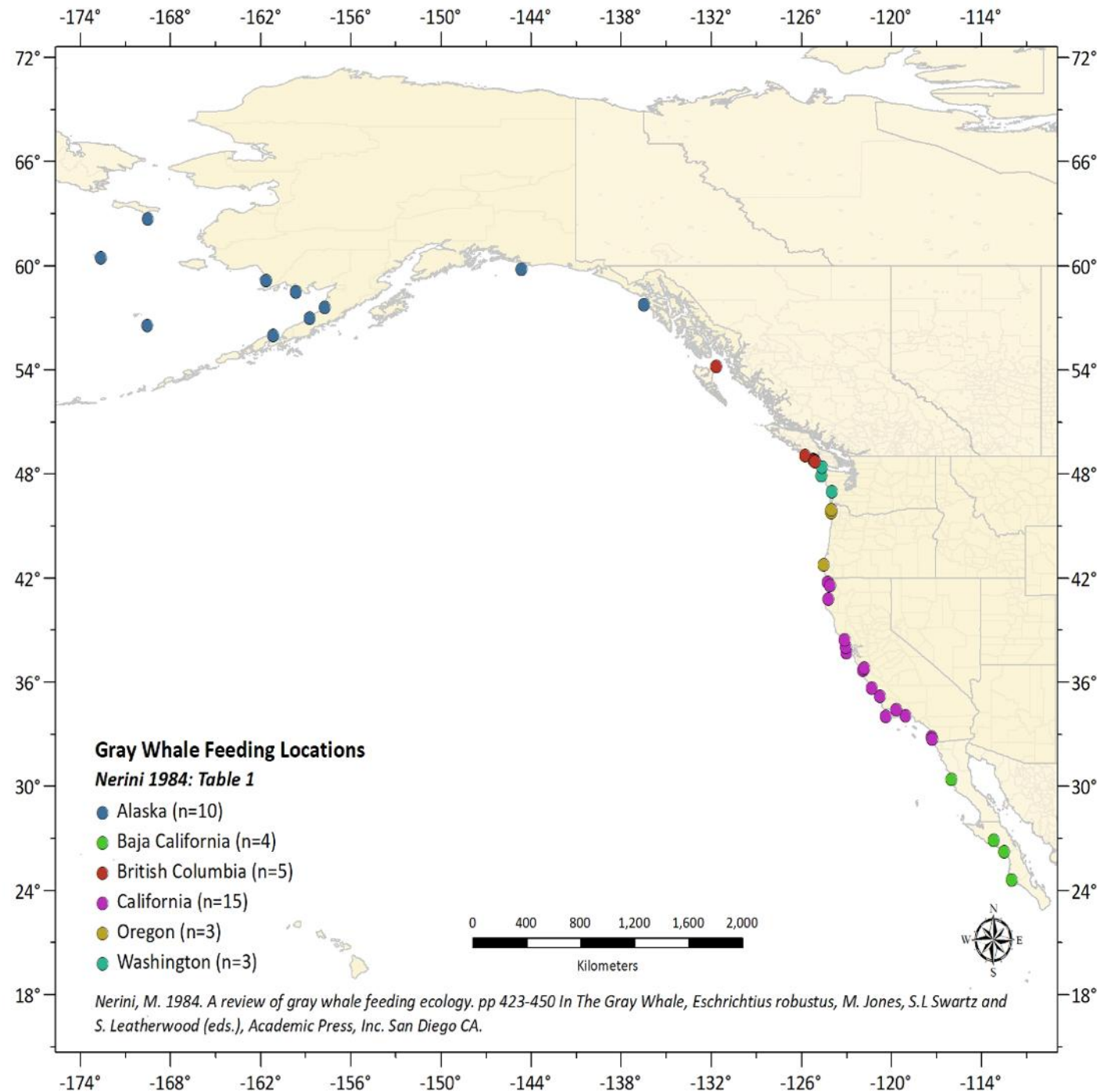


Source: Reynolds SST/NOAA-CIRES

JUL 2026 Heat Content Anomaly ($^{\circ}\text{C}$)
(GODAS, Climo. 91-20)

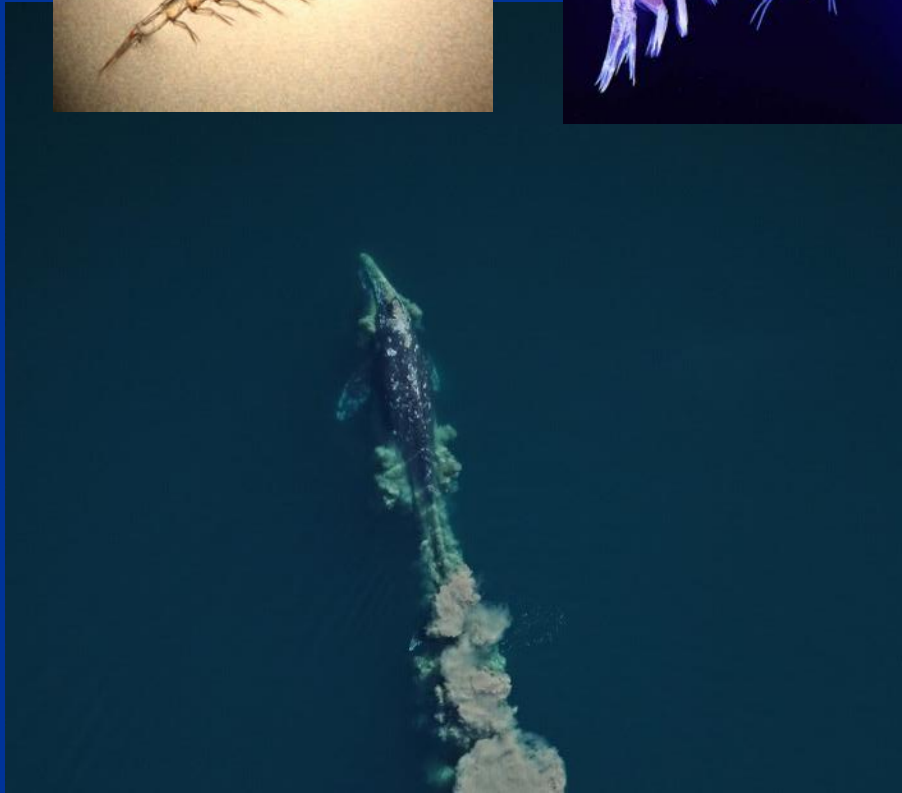


Upper 300 meters of the ocean



Documented Gray Whale
Feeding Locations along
Migration Route
From: M. Nerini, 1984.

Gray whales specialized on suction feeding on benthic infauna (e.g., amphipods & ghost shrimp), but they also feed in different modes from skimming to gulping on a variety of epi-fauna (e.g., mysids, cumaceans, crab larvae) zooplankton (e.g., krill), pelagic red crabs (e.g., Plueroncodes), and small fish



Gray Whales Feeding in Bahia Magdalena Bay –May-June 2025



WNP and Mexico

ENP	WNP		Sakhalin and Kamchatka
	Sakhalin	Kamchatka	
Laguna San Ignacio, México	22	5	11
Bahía Magdalena, México	8	5	1
Laguna Ojo de Liebre, México	5	---	1
L. San Ignacio & B. Magdalena	4	---	5
L San Ignacio & L. Ojo de Liebre	---	---	---
B. Magdalena & L. Ojo de Liebre	1	---	---



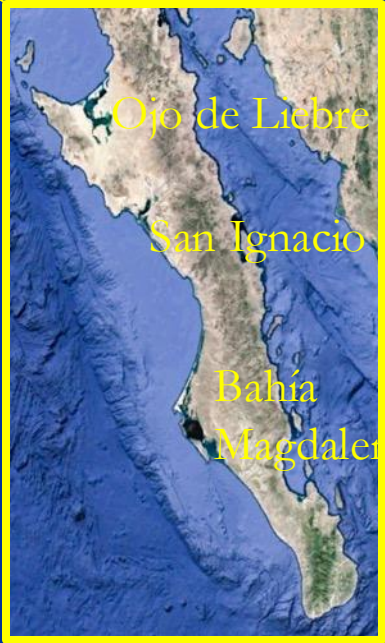
From 1998 to 2026

68 whales WNP & Mexico

29 Females, 19 males, 20 unknown

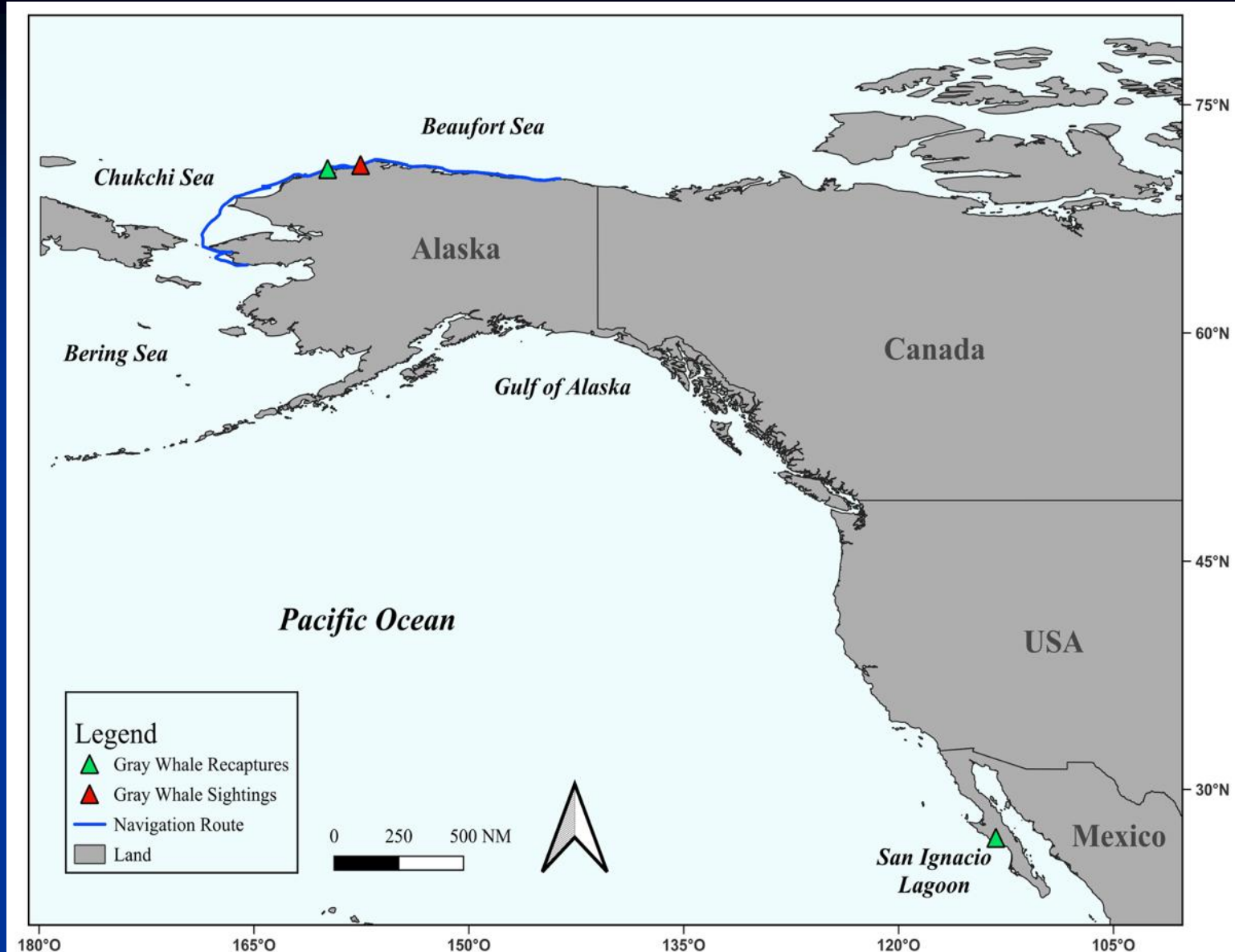
40 calves (from 1-5 calves)

From 1 to 8 recaptures



- Survey 22 Jul – 7 Aug 2026
- From Nome to Kaktovik, Ak (890 nm)
- Only 2 gray whale sightings
- 8 gray whales with photo-id
- 1 recapture from:

Wainwright, Alaska, USA 31-jul-26
L. San Ignacio, BCS, México 6-mar-24



WESTERN GRAY WHALE RESEARCH OFF NORTH-EASTERN SAKHALIN (RUSSIA) 1995-2026



Alexander Burdin
Pacific Geographical Institute,
Russian Academy of Sciences

WESTERN GRAY WHALE RESEARCH OFF NORTH-EASTERN SAKHALIN (RUSSIA) 1995-2026

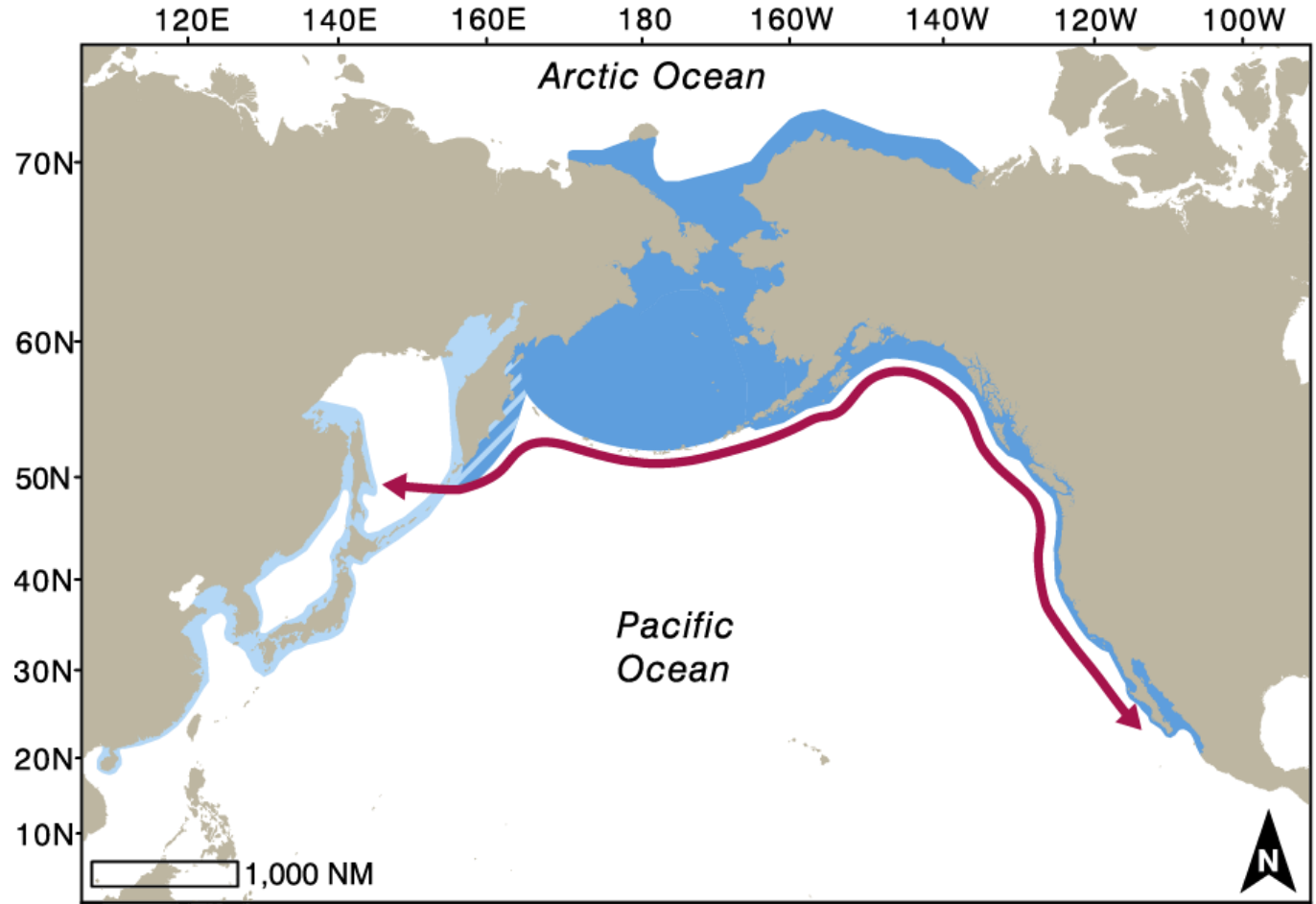


Alexander Burdin
Pacific Geographical Institute,
Russian Academy of Sciences



Range of the gray whale in the northern Pacific

- Eastern (Chukchi-California) population ~ 13,000 individuals
- Western (Sea of Okhotsk) population ~ 250 individuals



Known and suspected distribution of western gray whales in the Russian Far East. Migration routes are not intended to represent narrow corridors but rather the general directions of migratory movements

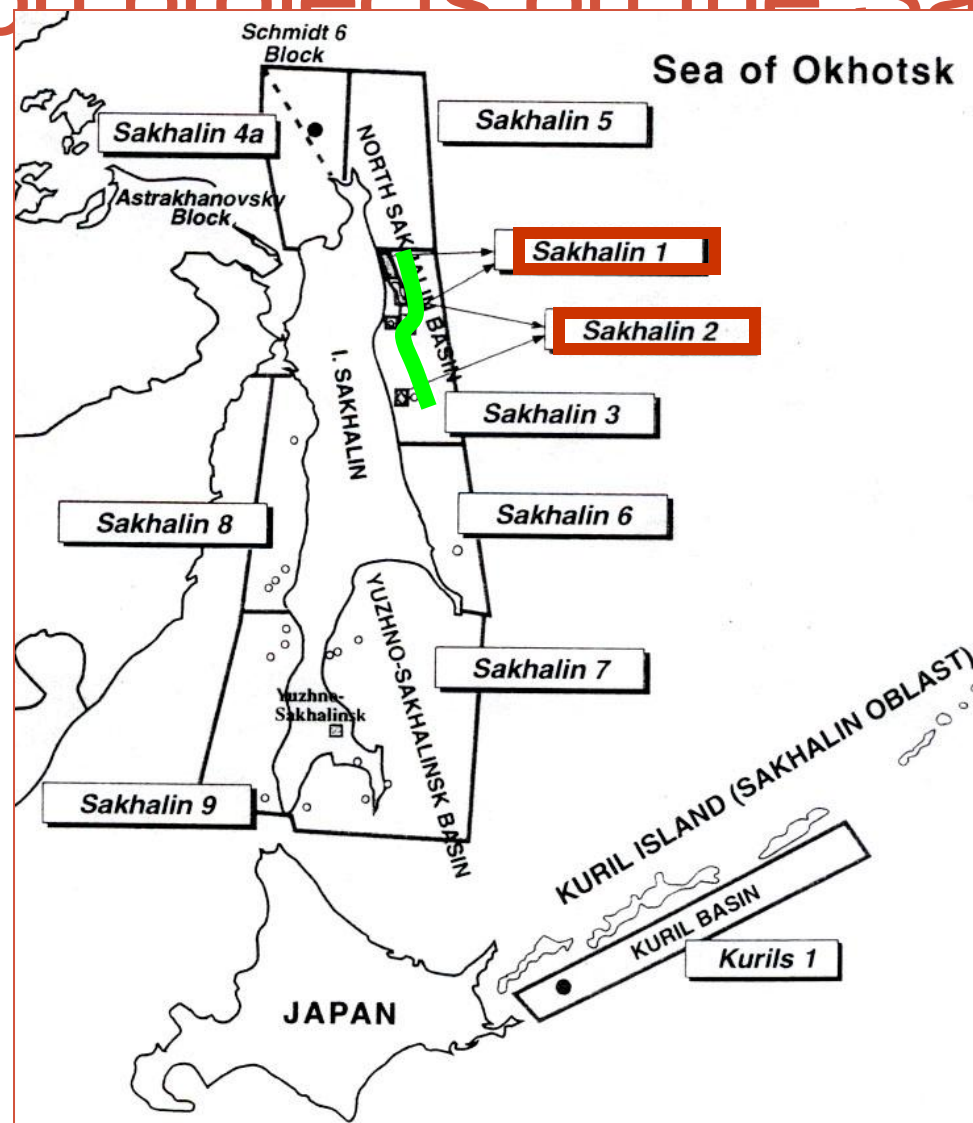


Western Gray whale research milestones in off the NE Sakhalin

- 1983 – 20 whales were observed in Piltun Lagoon area (TINRO, Vladivostok) in air survey.
- 1994 – OPPORTUNISTIC (Minakuchi) – 9 whales identified
- 1995 –PIILOT STUDY - 28 whales identified
- 1997 – 2026 REGULAR MONITORING - 389 whales identified
- 1998 – Molikpaq platform was installed in 17 km southward from Piltun Lagoon
- 2007 -The Piltun-Astokhskaya-B platform is an offshore oil and gas production platform installed on the shelf within the framework of the [Sakhalin-2](#) project about 20 km northward from Molikpaq.

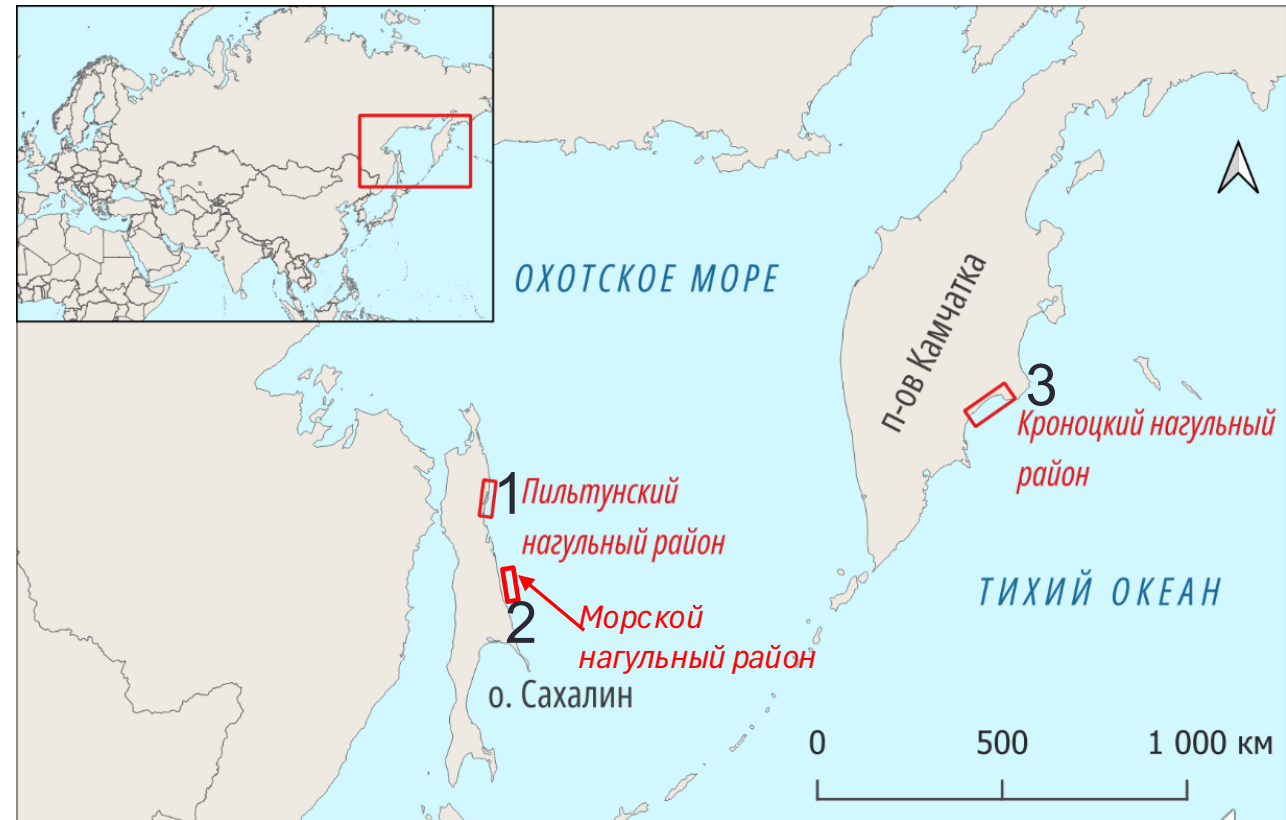


Oil production projects on the Sakhalin shelf



Summer feeding grounds of the western population of gray whale in the Russian Far East

There are three known summer feeding areas of the western population in the Far Eastern seas of Russia: Northeast coast of the Sakhalin island: – “Piltun” and “Offshore” and Eastern coast of Kamchatka in Kronotsky Gulf (Olga Bay)



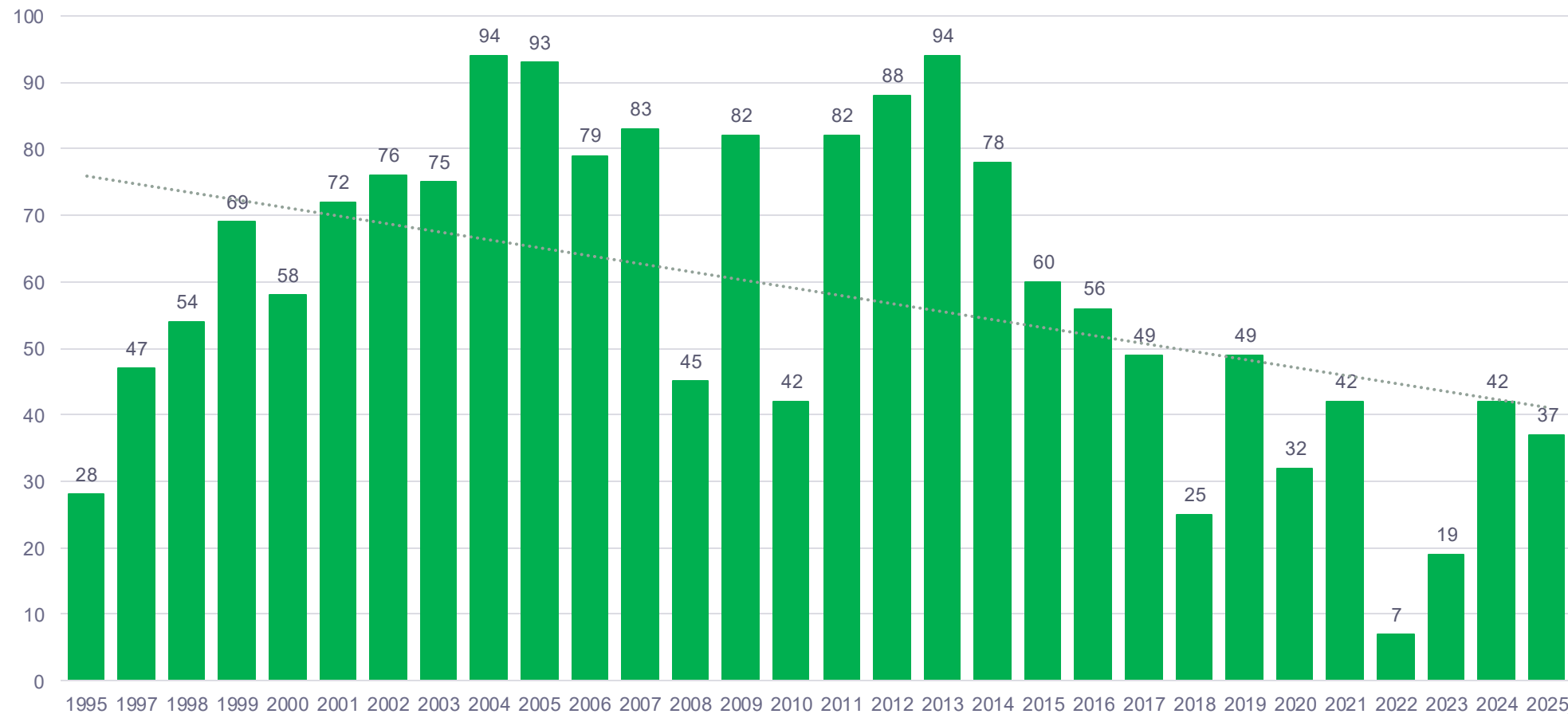
Annual efforts and identification of gray whales 1994-2025.

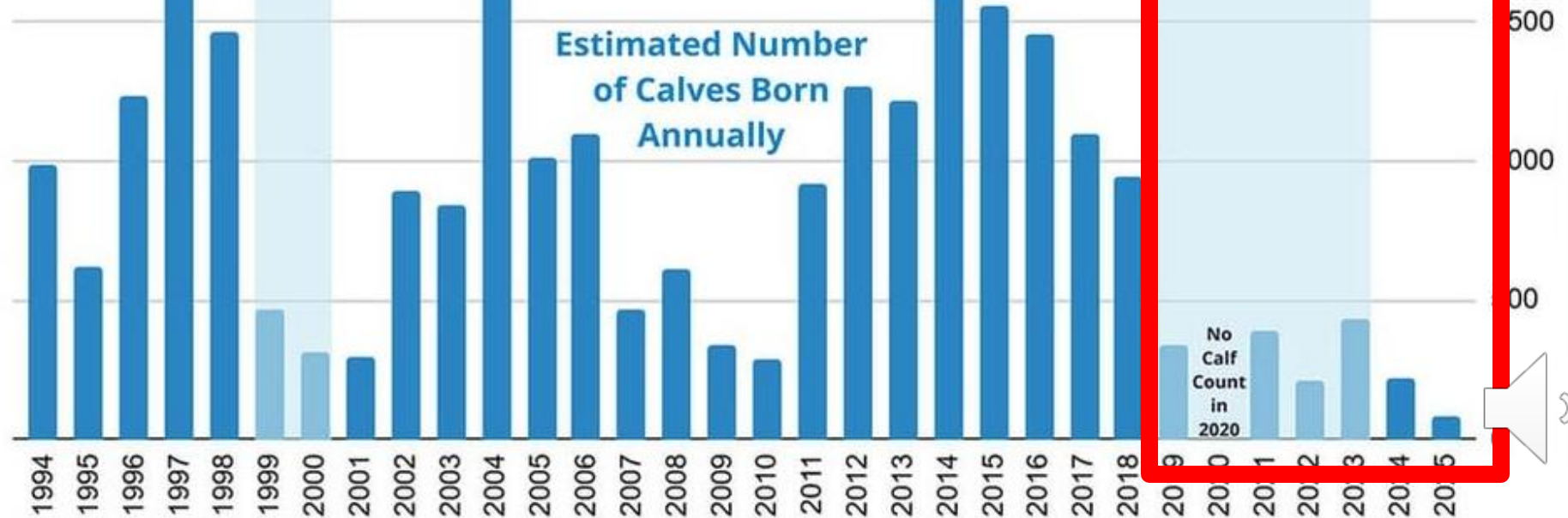
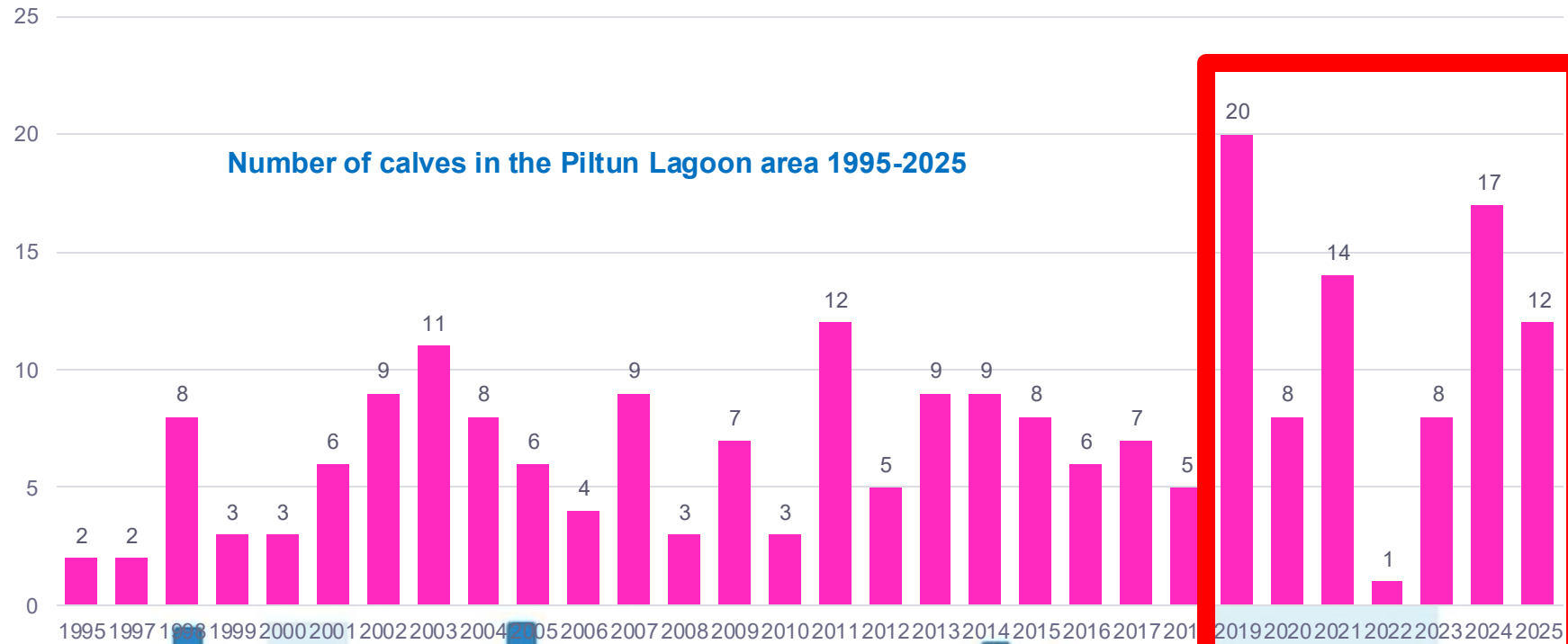


- From 1994 to 2026 389 gray whales has met in the Piltun Lagoon area and includes to the Sakhalin catalog
- >600 trips to the sea were made to work with whales, lasting >1500 hours.
- 4,680 groups of gray whales encountered and processed

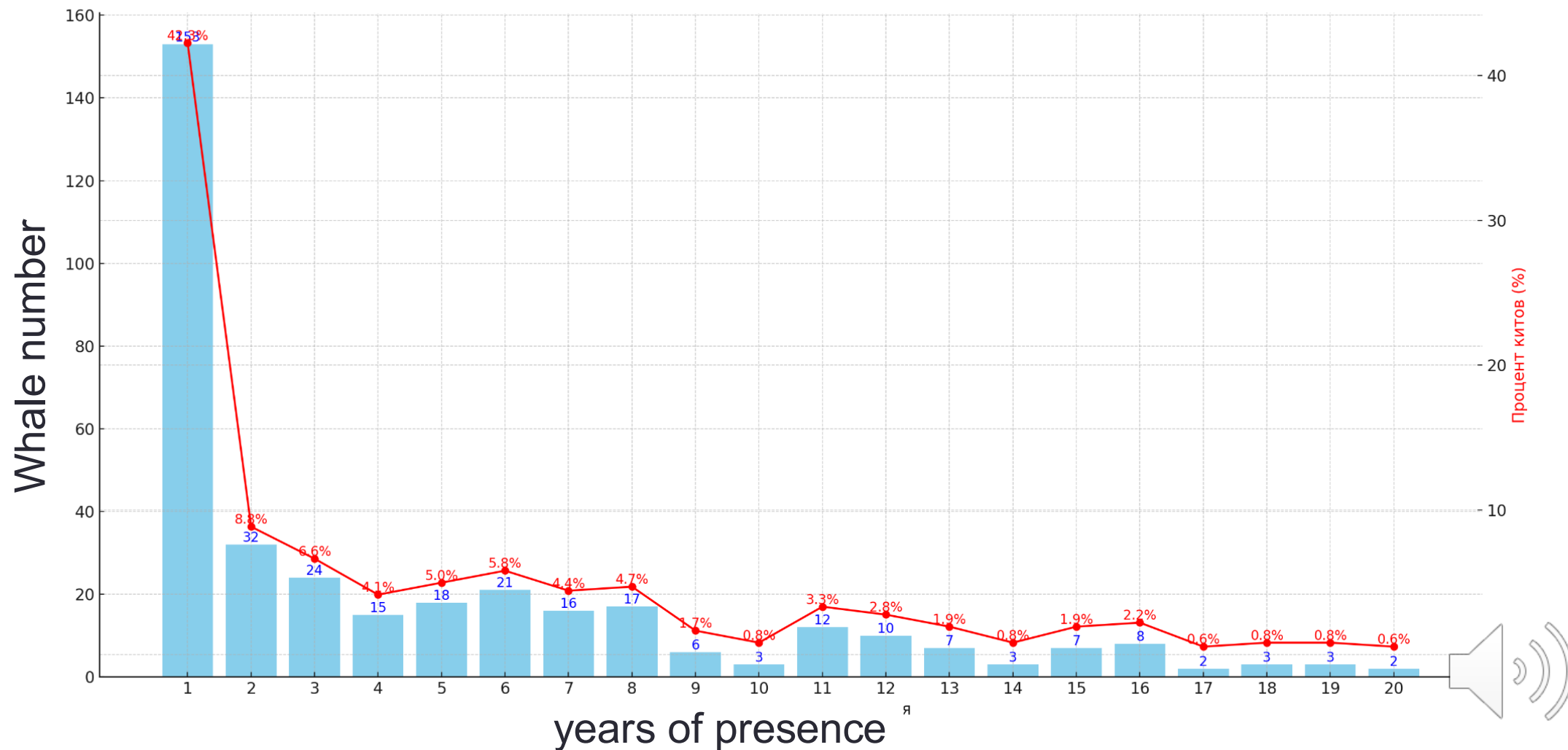


Maximum number of gray whales encountered in the Piltun Lagoon area in 1995–2025.

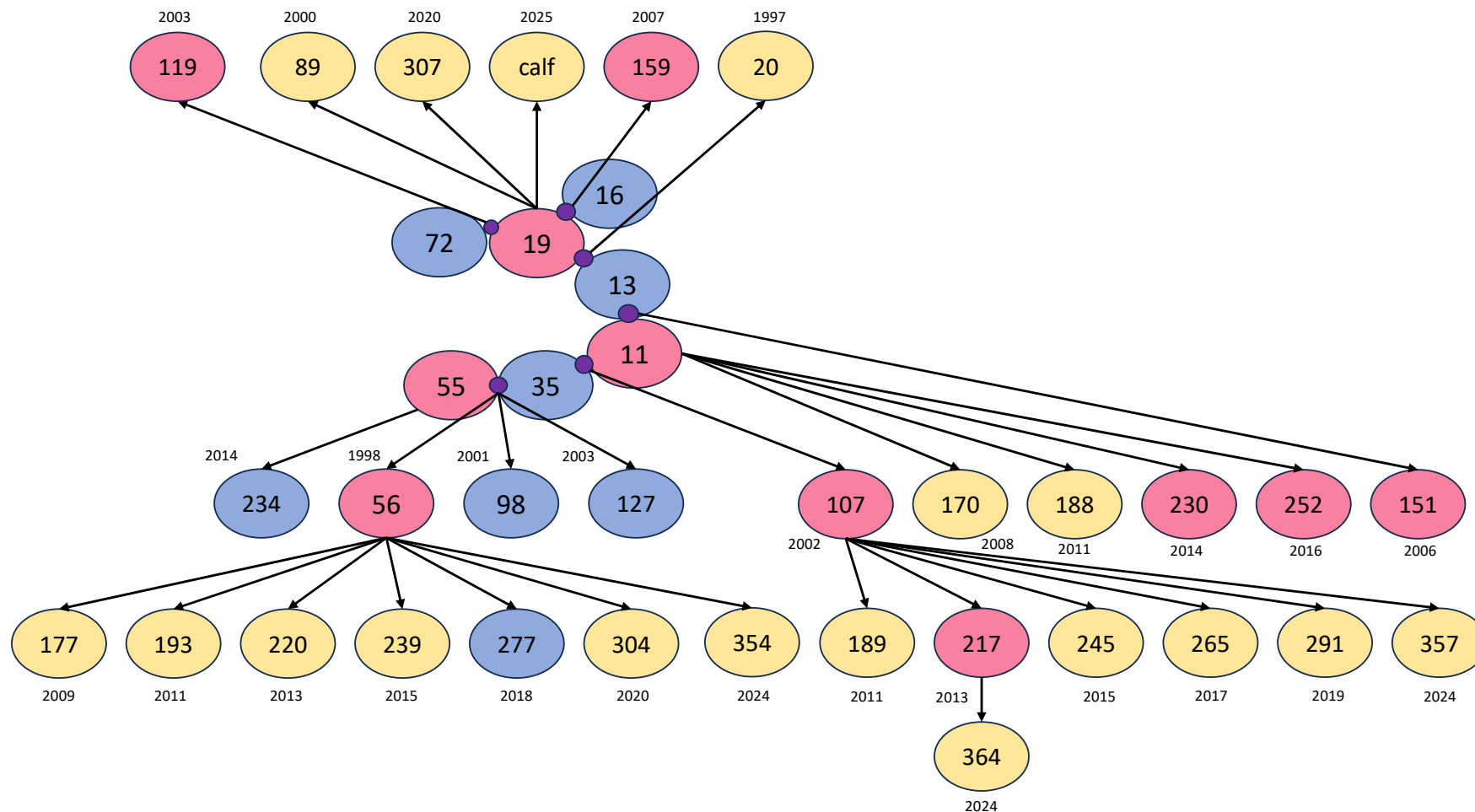




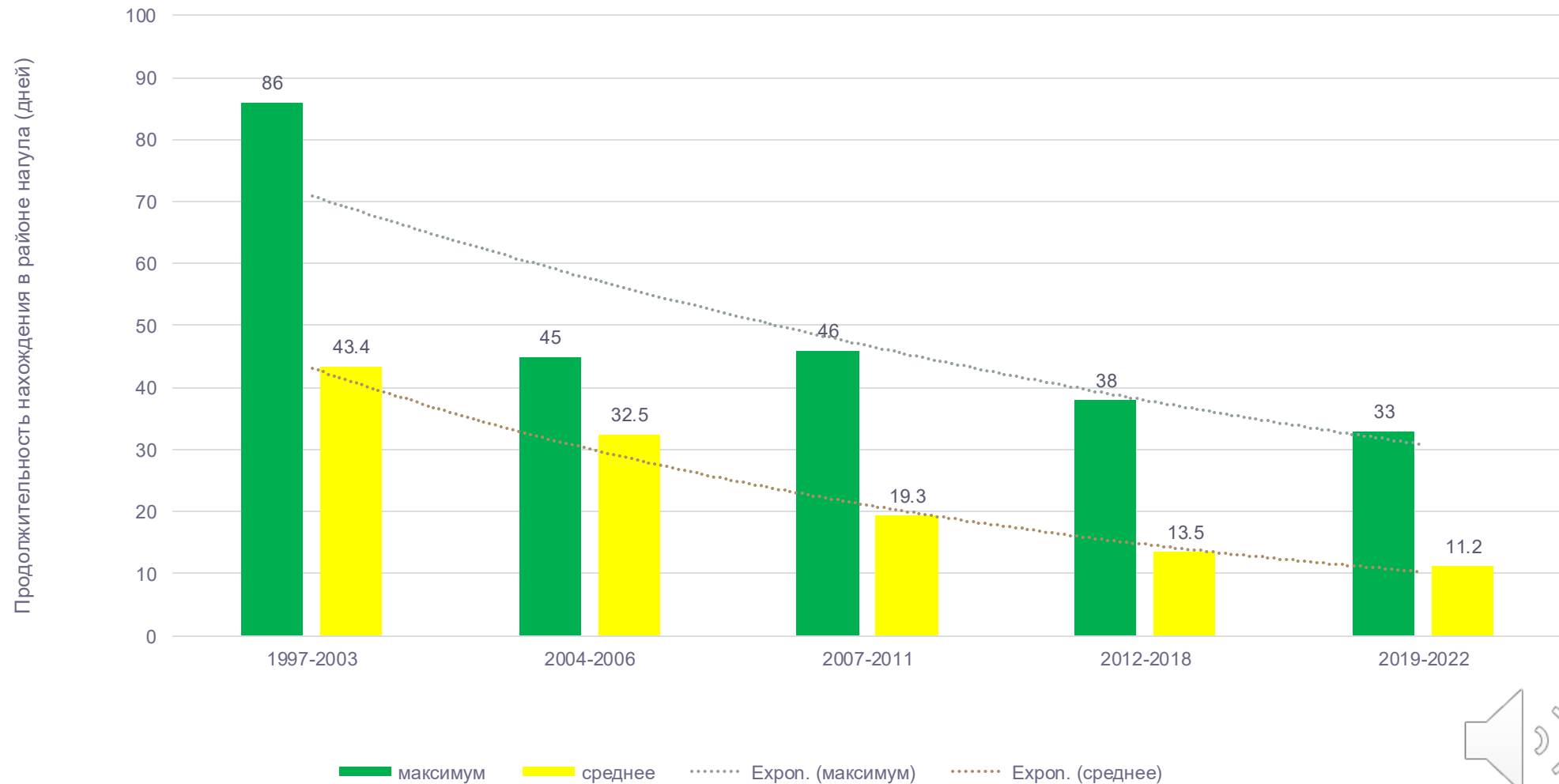
Duration of presence of gray whales in the Piltun Lagoon area 1997-2024 (years)



Kinship Relationships in the Piltun Feeding Aggregation of Western Gray Whales (Sakhalin Island, Russia)



Maximum and average duration of stay of females with calves in the Piltun feeding area during various observation periods.



Alarm Signals

- Dramatic reduction in gray whale feeding area near Piltun Lagoon
- Overall downward trend in whale numbers in the Piltun feeding area.
- The general trend of decrease in time females spend in this area
- 3 gray whales were found dead in the beaches of Sakhalin Island (one female and two unknown gender) in 2026.
- More frequent sightings of gray whales off the southeastern coast of Sakhalin in 2026, which may indicate the squeezing of gray whales from their traditional feeding grounds



Gray whale female found dead close to the mouth of Piltun lagoon in 2026



What else do we need to know about western gray whales?

- Are there breeding grounds for this population in Asia?
- What part of the population migrates to wintering grounds in Asia and along what routes?
- Are there any other feeding grounds for the western population in the Okhotsk Sea ?
- What are the whales that come to Kamchatka and stay there for a long time?



**Thank you for your
attention!**





Marine Mammal
Commission

Atlantic Gray Whales: Then and Now

Dr. Randy Reeves, Chair of Committee of Scientific Advisors

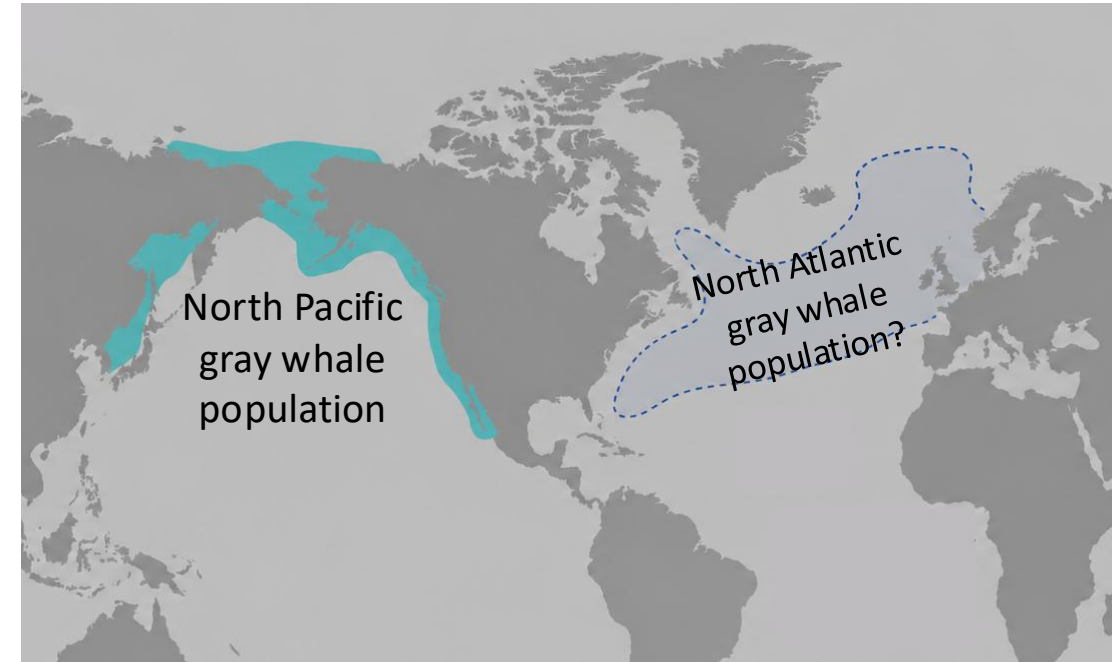
Range-wide Gray Whale Science Symposium
September 9, 2026



Photo credit: New England Aquarium

North Atlantic Gray Whale Population

- Gray whales once existed as a distinct North Atlantic population, evidenced by fossil and sub-fossil specimens and historical records (Mead & Mitchell 1994).
- They likely migrated between northern feeding areas, e.g. off Iceland, Scandinavia, and the British Isles (Lindquist 2000), and wintering areas along the southeastern coast of North America (Noakes et al. 2013; Garrison et al. 2019) and possibly even in the Mediterranean Sea (Macé 2003; Rodrigues et al. 2018).



Disappearance from the Atlantic

- Gray whales had been extirpated from the Atlantic Ocean by 1800.
- Whaling probably contributed to their disappearance, but some evidence suggests the population was already declining due to environmental changes before intensive commercial whaling (Alter et al. 2015).



← Juvenile gray whale skeleton discovered on the North Carolina coast.

Butchering marks are visible on this gray whale rib.

(Fleming et al. 2022) (Photo Credits: Jeff Janowski/UNCW)



Recent sightings in North Atlantic

Eastern

- 2010 Mediterranean Sea: 1 whale seen twice over ~3 weeks (Scheinin et al., 2011)
- 2023 Mediterranean Sea: 1 whale seen multiple times over one month (Manfrini et al., 2023)

All sightings occurred in late spring and the whales were reportedly in poor body condition (Scheinin et al. 2011, Manfrini et al. 2023).

Western

- One individual whale observed near Miami (Dec 2023) and again off Nantucket (Mar 2024) (McCloud, 2024; St. Lawrence, 2024)
 - Behavior suggested feeding activity in northern sighting



Gray whale seen off Nantucket in March 2024 (Source: New England Aquarium)



Northern Sea Route and Namibia Anomaly

Northern Sea Route

- Two gray whales sighted in Laptev Sea (west of New Siberian Islands) in September 2011 (Shpak et al. 2013).
- “... visits of the gray whale to the East Siberian and Laptev seas is no longer an extraordinary event, while the small number of encounters may be explained by a very low intensity of the studies in the Arctic.”
- Shpak et al. stated: their observation “conforms well to the hypothesis on the migratory route of the ‘Mediterranean’ gray whale along the Eurasian coast via the Northern Sea Route, and favors an interhemispheric dispersal of marine organisms through the Arctic corridor.”



Gray whale seen off Nantucket in March 2024 (Source: New England Aquarium)

Namibia

- A gray whale seen repeatedly over ~1 month (4 May to 9 June) along the coast of Namibia in 2013 (Elwen & Gridley, 2013; Hoelzel et al., 2021). In an area of high productivity (Walvis Bay), mud plumes seen, but animal (thought to have been a ‘juvenile’) reportedly in poor body condition.



References

- Alter, S.E. et al. 2015. Climate impacts on transocean dispersal and habitat in gray whales from the Pleistocene to 2100. *Mol. Ecol.* 24:1510–22.
- Elwen, S. & T. Gridley. 2013. Gray whale (*E. r.*) sighting in Namibia (SE Atlantic)—first record for Southern Hemisphere. International Whaling Commission SC/65a/BRG30.
- Fleming, A. et al. 2022. New Holocene grey whale material from North Carolina: the most complete North Atlantic grey whale skeleton to date. *Royal Society Open Science* 9: 220441.
- Garrison, E.G. et al. 2019. Recent dating of extinct Atlantic gray whale fossils, (*E. r.*), Georgia Bight and Florida, western Atlantic Ocean. *PeerJ* 7:e6381.
- Hoelzel, A.R. et al. 2021. Natal origin of Namibian grey whale implies new distance record for in-water migration. *Biology Letters* 17(6):20210136.
- Lindquist, O. 2000. The North Atlantic gray whale (*E. r.*): An historical outline based on ... sources dating from ca 1000 AD to 1792. *Occasional Papers* 1, Universities of St. Andrews & Stirling, Scotland.
- Macé M. 2003. Did the gray whale, *E. r.*, calve in the Mediterranean? *Lattara* 16:153–164.
- Mead, J.G. & Mitchell, E.D. 1984. Atlantic gray whales. In: Jones M.L., Swartz S.L., Leatherwood S. (eds), “The gray whale, *Eschrichtius robustus*.” Orlando, FL: Academic Press, pp. 33–53.
- Manfrini, V. et al. 2023. First sighting of gray whale *E. r.* ... in Italian waters and review of Mediterranean Sea records. *Hystrix*, 34: 147– 150.
- McCloud, C. 2024. Scientists believe rare gray whale spotted off Florida has been seen again. What we know. Palm Beach Post, 6 March.
- Noakes, S.E. et al. 2013. Late Pleistocene gray whales (*E. r.*) offshore Georgia, U.S.A., and the antiquity of gray whale migration in the North Atlantic Ocean. *Palaeogeography. Palaeoclimatology, Palaeoecology* 392: 502–509.
- Rodrigues, A.S.L. et al. 2018. Forgotten Mediterranean calving grounds of grey and North Atlantic right whales: evidence from Roman archaeological records. *Proceedings of the Royal Society B* 285:20180961.
- Scheinin, A.P., et al. 2011. Gray whale (*E. r.*) in the Mediterranean Sea: anomalous event or early sign of climate-driven distribution change? *Marine Biodiversity Records* 4(e28):1-5.
- St Lawrence, C. 2024. Atlantic gray whales: past, present, and future. *Smithsonian*, June 2024.
- Shpak, O.V. et al. 2013. Observation of the gray whale (*E. r.*) in the Laptev Sea. *Biology Bulletin* 40(9):797–800.



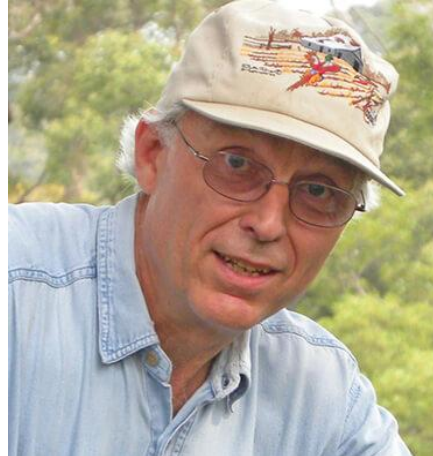
Session 1 Discussion

Eastern and Western North Pacific Gray Whale Population Overview

Virtual



Alexander Burdin



Randall Reeves



Jorge Urbán Ramírez

In-person



Josh Stewart



Steven Swartz



Dave Weller