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Concern For the Future of Gray Whales: An Open Letter from Three Gray Whale Biologists

Gray whales are showing signs of extreme stress with significant unusual mortalities, reduced reproductive rates, increased proportion of malnourished whales, and changes in foraging behavior. The result has been a precipitous drop in numbers – the latest estimate of 13,000 animals is less than half of the 27,000 of ten years ago. (Please see Background and Supporting Materials which follow).

Dear Colleagues,

The gray whale (*Eschrichtius robustus*) is one of our best-known whales due to its near-shore, annual migrations along the Pacific coast of North America, between summer feeding grounds in northern seas and winter aggregation and calving areas along the Pacific coast of the Baja California Peninsula in Mexico.

Beyond intrinsic values and their role in nearshore ecosystems, the coastal habits of gray whales make them one of the most accessible large whales and a major tourist attraction in Mexico, the United States and Canada. Many thousands of people annually, from school children to visitors from around the world, get their first whale experience from interactions with gray whales. Gray whales, through commercial whale-watching and related support industries (*e.g.,* hotels, restaurants, transportation, etc.) generate millions of dollars annually for coastal communities in these three countries.

Historically, gray whale populations were found on both sides of the North Atlantic as well as both sides of the North Pacific. The Atlantic grays went extinct in the 1700s and the

Western North Pacific (WNP) population has been reduced to a few hundred whales, now considered “Critically Endangered.” In contrast, the Eastern North Pacific (ENP) gray whale population has been considered a conservation success story.

North Pacific gray whales were brought to near extinction by commercial whaling in the 1800s and early 1900s. They had received protection from commercial whaling by the International Whaling Commission in 1946. By the mid-1960s, the ENP grays were increasing in numbers (Brownell *et al*., 2006). This ENP population continued to recover over the following decades. Consequently, it was removed from the endangered species lists of the US Endangered Species Act (ESA) and the International Union for Conservation of Nature (IUCN) in the mid-1990s (*see details in Appendix*). This population reached a historical high of an estimated 27,000 whales in 1987/1988 and again in 2015/2016. Since this overall recovery, gray whales have been considered a common species along the North American West Coast and are of little conservation concern.

However, things have changed dramatically in a very short period. Recent concern for the ENP gray whale population began in 2018 when researchers in Mexico noted a decline in the number of female whales with calves of the year, an increase in the proportion of the whales that were "skinny" and undernourished and increasing numbers of stranded dead whales in their winter breeding and calving areas in Mexico's Baja Peninsula (Urban *et al*., 2019; Lobo-Barrera *et al*., 2024).

By 2019, strandings of gray whales increased significantly throughout their range along the North American Pacific coast, prompting the US National Oceanic and Atmospheric Administration (NOAA) to declare an "Unusual Mortality Event" (UME) for gray whales, which was considered over by 2023 (NOAA, 2023). However, the die-off has continued through 2024 and 2025. NOAA estimated that the ENP gray whale population declined from an estimated 26,960 whales in the 2015/2016 winter to 14,525 by the 2023/2024 winter, and then continued to decline to an estimated 12,950 whales in 2024/2025 (Eguchi *et al*., 2023, 2025).

The whales' reproductive rates continued to decline in 2024 and 2025 winters, with only a handful of calves reported in the winter aggregation areas and lagoons (Martinez *et al*., 2025) and the lowest count of only 85 mother-calf pairs ever recorded during the spring northward migration of 2025 for this population (Lang *et al*., 2025).

Recently, NOAA issued an alarming statement: *"The new estimate is 12,900 whales, the lowest number since the early 1970s and lower than the reduced population size following an Unusual Mortality Event from 2019 to 2023. The estimated calf count is 85, the lowest since records began in 1994. The continuing decline of the population from a high of about 27,000 whales in 2016 stands out because the whales have rebounded quickly from previous declines, including an earlier UME from 1999 to 2000. The low calf count indicates that reproduction has remained too low to support a rebound of the population...." (NOAA 2025).*

The most likely cause of this pending crisis is large-scale ecosystem change in sub-Arctic and Arctic feeding grounds, which are critical to most of the ENP gray whale population. Earlier research suggested a connection between the numbers of gray whales and changes in Arctic Sea ice. At that time, this was believed to be the primary environmental factor influencing the population's growth (Perryman *et al*., 2002). Recent research indicates that the whales may be encountering unprecedented climate-change-driven conditions in the Arctic that are impacting the annual availability of prey species, forcing the population to adjust to conditions it has not experienced before (Bindoff *et al*., 2019; Moore *et al*., 2022).

In summary, today, the gray whales are in precipitous decline, with significant range-wide die-offs, malnourished "skinny" individuals, and reduced reproductive rates. The best available analysis suggests a decrease in critical food species resulting from large-scale ecological changes in traditional Arctic summer feeding grounds. Without sufficient food during the summer, gray whales do not have the energy reserves necessary to compensate for the winter fast and to reproduce successfully.

We wish to emphasize that the ENP gray whales are the only remaining viable population of this species (and, indeed, the entire Mysticete family, Eschrichtiidae). Coastal bays and lagoons along the Pacific coast of the Baja California peninsula are the only known winter aggregation, breeding and calving area of this species. As such, we believe, based on the evidence of the last few years and with a reasonable degree of caution, that this species should be considered highly vulnerable, and every effort to protect it is warranted.

We urge an international review and assessment of gray whale biology and management to be undertaken by the Scientific Committee of the International Whaling Commission or other appropriate body. We further appeal to the International Union for the Conservation of Nature (IUCN) and other agencies to reassess the protection status for this species especially considering the

environmental changes affecting their prey and the challenges this poses for rebounding from this most recent decline.

Sincerely,

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Background and Supporting Materials

Population Decline

NOAA estimated the Eastern North Pacific (ENP) gray whale population declined from estimates of 26,960 whales in the 2015/2016 winter to 14,525 by the 2023/2024 winter and has continued to decline to approximately 12,950 whales in 2024/2025 (Fig. 1; Eguchi *et al*., 2023, 2025).

Increases and declines in whale populations are to be expected but scientists are now documenting not a cycle of loss and recovery but continued decline in the ENP gray whale population. This decline in abundance has been accompanied by reproductive failure and an increase in emaciated whales observed following their summer feeding in the higher latitudes.

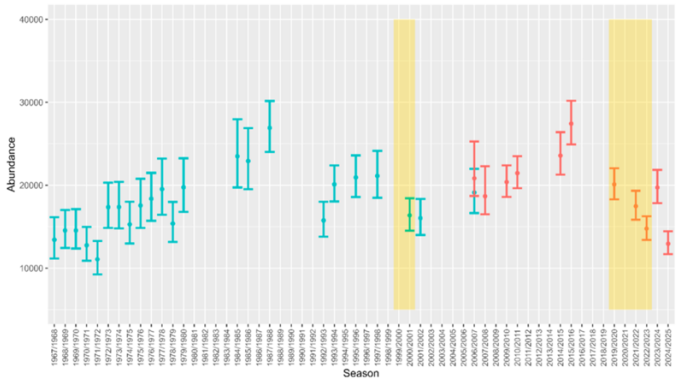

Figure 1: Estimated abundance and 95% Cis (confidence intervals for the method of Laake et al. and credible intervals for the method of Durban et al.) of gray whales for the visual surveys off Granite Canyon, CA, between 1967/1968 and 2024/2025 seasons. Estimates in green indicate those from Laake et al. (2012), whereas those in red indicate using the method of Durban et al. (2016). Yellow boxes represent mortality events. Source: Eguchi et al. Abundance of Eastern North Pacific Gray Whales 2024/2025 (2025). NOAA-TM-NMFS-SWFSC-724.

Strandings

Between 2019 and 2025 a minimum of 909 gray whales have been found stranded dead along the Pacific coast of North America from Baja California Sur in Mexico to Alaska, at nearly eight times the frequency of the previous 10-year average (Table 1, Fig 2). In response to this mortality increase the United States National Oceanic and Atmospheric Administration (NOAA 2023) declared an Unusual Mortality Event (UME) for the Eastern North Pacific (ENP) gray whale population in 2019 to investigate the increased mortalities. The stranding rate appeared to decrease by 2023 but then began to increase again between 2024 and 2025 (Fig. 2).

Year	CA	WA	OR	AK	US	Mexico	Canada	Grand Total
2019	34	34	6	48	122	83	11	**216**
2020	18	13	3	45	79	88	5	**172**
2021	19	9	3	24	55	55	5	**115**
2022	10	15	4	18	47	54	4	**105**
2023	14	13	6	11	44	36	2	**82**
2024	10	7	2	12	31	29	1	**61**
2025	29	15	0	16	60	94	4	**158**
Total 2019-2025	**134**	**106**	**24**	**173**	**437**	**439**	**29**	**909**

Table 1. Gray whale range wide strandings reported as of April 31, 2025. Source: NOAA Unusual Mortality Event (UME) Working Group.

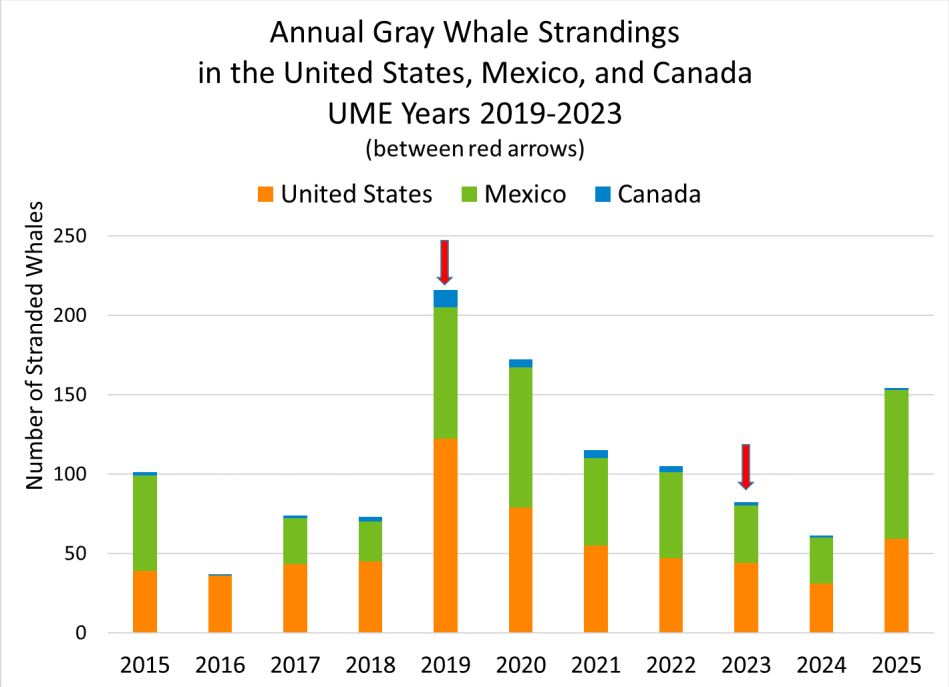

Figure 2. Gray whale strandings from 2019–July 2025. Red arrows indicate the start of the Unusual Mortality event in 2019 and its presumed end in 2023. Source: NOAA Unusual Mortality Event (UME) Working Group.

Reproductive Rates

Reproductive rates have also declined for the ENP gray whale population with only a handful of calves reported in the southern winter aggregation areas and lagoons of Baja California Sur, Mexico during the 2025 breeding season (Fig. 3, Martinez *et al*., 2025).

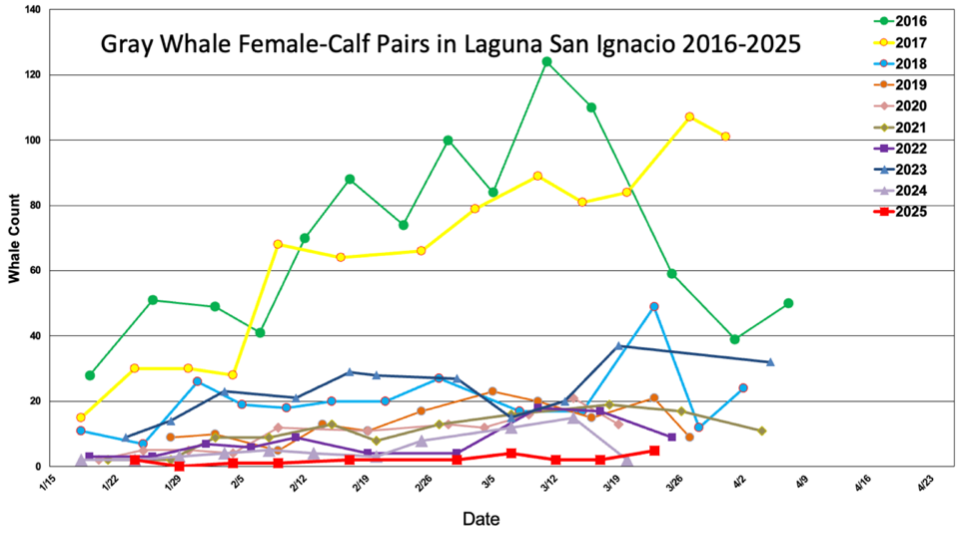

Figure 3. Boat survey counts of female gray whales accompanied by their calves counted in Laguna San Ignacio, Baja California Sur, Mexico between 2016 and 2025. Source: Martinez et al., 2025.

Shore-based counts of female gray whales accompanying their calves during their spring northward migration from their winter range have been conducted annually from the Piedras Blancas Lighthouse Station in central California since 1994. The estimated number of females with calves was 217 pairs during the 2024 migration and then declined to only 85 pairs during the population's 2025 spring northward migration along the North American Pacific coast (Fig. 4). Like the declining trend observed in the Baja California Sur wintering areas, these numbers of female-calf pairs are among the lowest recorded since the 1994 calf counts began (Lang *et al*., 2025).

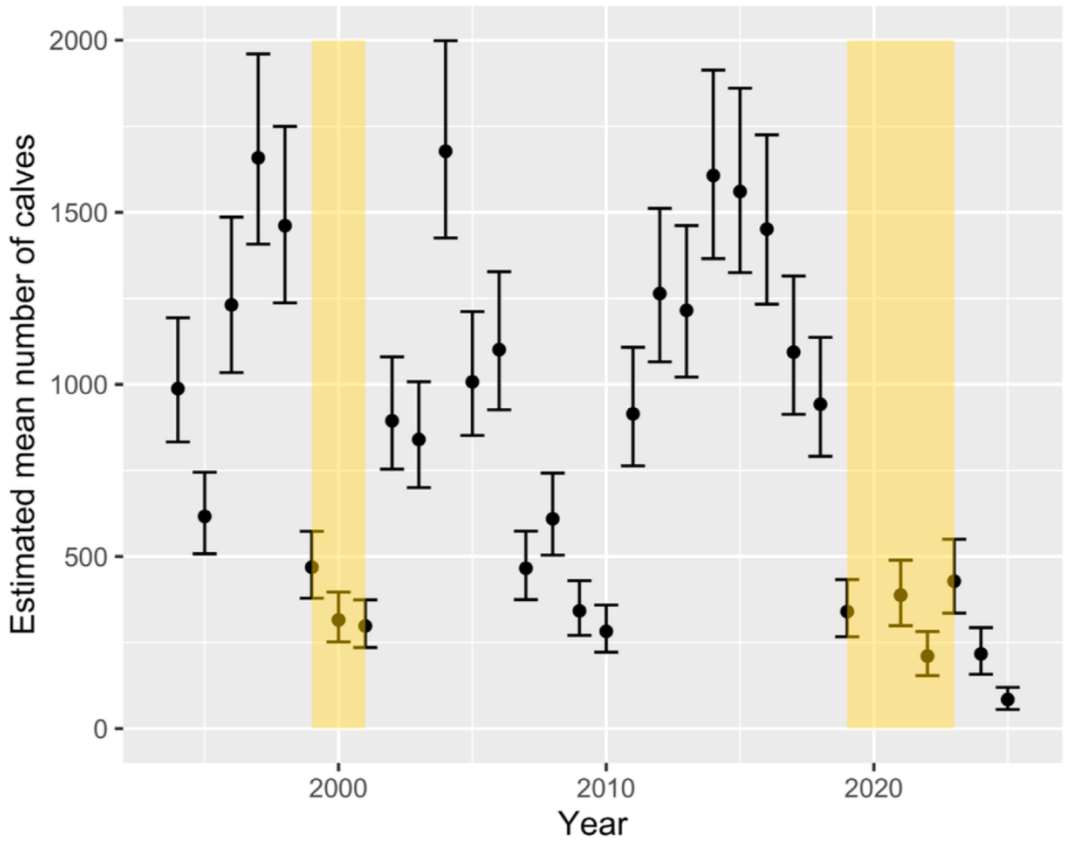

Figure 4. Estimated means and 95% CIs of the number of gray whale mother-calf pairs migrating north off Piedras Blancas between 1994 and 2025. Years when the population was experiencing a UME are highlighted in yellow. Source: Lang et al. (2025), Eastern North Pacific Gray Whale Calf Production 1994–2025, NOAA -TM-NMFS-SWFSC-725.

Malnourished Whales

Scientists monitoring gray whales in their winter aggregation and calving areas along the Baja California peninsula in Mexico are seeing increasing numbers of malnourished whales (Fig. 5). Beginning in 2018 scientists working in Laguna San Ignacio and Bahía Magdalena, Baja California Sur, Mexico reported increasing percentages of "skinny" or "malnourished" whales in these lagoons, at a time when the whales had supposedly finished a summer of feeding in their North Pacific and Arctic range and should be in good condition (Lobo-Barrera, *et al*., 2024). The percentage of emaciated whales peaked at 30% in 2020, declined to 4.6% in 2024 and then increased again to 13% in 2025 (Martínez *et al*., 2025). These whales and others observed throughout their range appeared emaciated, apparently from a lack of sufficient food available in their summer feeding areas (Stewart *et al*., 2023).

Figure 5. Normal healthy gray whale (top) and an emaciated or "skinny" gray whale (bottom) photographed in February in Laguna San Ignacio, Baja California Sur, Mexico. Source: Photo of skinny whale taken in Laguna San Ignacio in 2025 by our Gray Whale Research in Mexico Program (www.graywhaleresearchmexico.org).

Ecosystem scale changes: Climate Change Suspected

The likely cause of the malnourishment, reproductive decline and deaths is a changed availability of the gray whale's primary invertebrate prey, benthic amphipods, in their sub-Arctic and Arctic feeding grounds. This decline is apparently the result of ecosystem scale changes brought about by Global Climate Change (Moore *et al*., 2022). Population modeling focused on localized gray whale feeding areas in northern Bering and Chukchi seas linked the 1999–2000 UME and the 2019–2023 UME to changes in sea ice cover, seasonal phytoplankton and sea ice-algae production, and a decline in the amount of gray whale prey (Stewart *et al*., 2023).

If such disruptions of the seasonal biological production cycles in the North Pacific, the Arctic and other feeding areas of the gray whale continue, they will likely impede the population's ability to recover from this recent UME decline and significant decrease in reproduction. While the gray whale population has previously demonstrated a resiliency, the recent significant decline in reproductive capacity and reduction in the population size raise concern about the ability for the population to rebound, especially considering climate-driven environmental changes currently underway that are apparently affecting and limiting its prey resources.

Whaling and Protection History

Gray whales were hunted to near extinction in the late 1800s and early 1900s, on both sides of the North Pacific. The species received protection from commercial whaling under the 1937 International Agreement for the Regulation of Whaling (United Nations, 1937), and more comprehensive protection under the 1946 International Convention

for the Regulation of Whaling (IWC, 1946). However, exceptions to this protection are hunts by the indigenous Chukchi of Chukotka in N.E. Russia and the Makah of the US Washington State, allowing collectively 140 kills per year – or the most recent quota for 2026- 2031 of 840 whales (IWC 2024).

In the United States, two statutes provide legal protection: the Marine Mammal Protection Act (MMPA, 1972) and the Endangered Species Act of 1973 (ESA, 1973) which affords protection for vulnerable species and their habitats.

In Canada, gray whales are protected from hunting and disturbance by the Fisheries Act, and they are listed under Species at Risk Act (SARA) as a species of special concern. In 2017 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), in a review and assessment of gray whales, split the North Pacific gray whales into three designable units: Northern Pacific migratory population (DU1), Pacific Coast Population (DU2) and the Western Pacific population (DU3). The two smaller populations – along the Pacific coast and in the Western Pacific were designated “Endangered” and the larger migratory population as “Not at Risk” (COSEWIC, 2017).

Mexico has been a pioneer in the protection and conservation of this species and is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Additionally, gray whales are listed in Mexico's federal legislation #NOM-059-SEMARNAT-2010 as Subject to Special Protection requiring that all vessels, service providers, and tourists comply with the guidelines and specifications stipulated in #NOM-131-SEMARNAT-2010, that include vessel speed in areas with whales, distance of approach to species individuals, duration of time around whales, and noise production.

Due to its outstanding universal value, in 1993, the El Vizcaino Whale Sanctuary in Baja California Sur was designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a World Heritage Site, recognized as the best place in the world for the reproduction and breeding of the gray whale In Mexico (UNESCO, 1993).

The ENP population of gray whales increased in numbers from the 1960s through the 1990s. In 1994, the US Department of Interior Fish and Wildlife Service removed the ENP population from the ESA "List of Endangered and Threatened Wildlife and

Plants," and in 1996, gray whales were reclassified by the International Union for the Conservation of Nature (IUCN), in its Red List of Threatened Animals, from "Endangered" to "Lower Risk: conservation dependent" (IUCN, 1996). The western North Pacific gray whale population remains listed as "Critically Endangered" (Swartz, 2018).

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