

Soundings



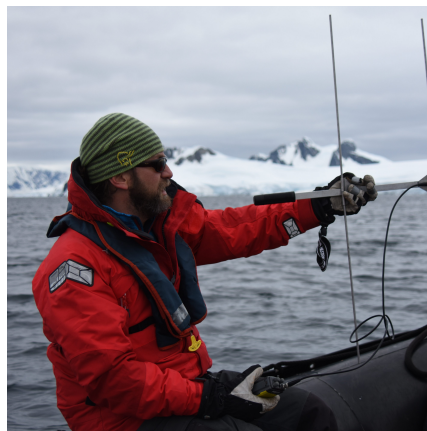
American Cetacean Society – Monterey Bay Chapter
P.O. Box HE, Pacific Grove, CA 93950

MAY 2022

**VIRTUAL MONTHLY MEETING
THURSDAY, MAY 26 AT 7:00 PM
PRESENTER: DR. ARI FRIEDLAENDER**

**TITLE: NEW INSIGHTS ON THE ECOLOGICAL ROLE OF BALEEN
WHALES AS ECOSYSTEM ENGINEERS**

Ari is an ecologist with a primary interest in understanding the relationship between the foraging behavior of marine mammals and their prey. He works on a wide range of marine mammal species including baleen and toothed whales and dolphins across a range of geographic regions. Ari has long-term ecological research projects ongoing in Alaska, California, Massachusetts, North Carolina, and Antarctica. He has helped in the development of tag technology and analytical and visualization tools to better understand the underwater movements and behaviors of marine mammals.



For his dissertation research, Ari used geospatial tools to quantify how the distribution of cetaceans related to environmental variables in Antarctica. Ari's lab focuses on developing new telemetry applications to elucidate the underwater behavior of marine mammals. In Antarctica, Ari is part of the Long-Term Ecological Research program at Palmer Station to better understand the ecological roles of cetaceans in a rapidly changing environment. In Alaska and Massachusetts, Ari's research focuses on variability in the foraging strategies of humpback whales in relation to changes in their prey. In California, Ari is part of the SoCal Behavioral Response Study to understand the impacts of anthropogenic sound on a variety of cetacean species. Ari is also a principal investigator in the Southern Ocean Research Partnership to conduct non-lethal research on cetaceans in the Southern Ocean. Currently Ari runs the Biotelemetry and Behavioral Ecology Lab at UCSC and is a Professor in the Ocean Sciences Department.

Next month: Our next meeting will be on Thursday, June 30 at 7 PM. Please save the date and join us! More information is available on our website, acsmmb.org.

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CALENDAR

May 15: Science Sunday at the Seymour Center in Santa Cruz: Coming Home: Decoding the Mysteries of Migration and Trout. Lecture by John Carlos Garza, Ph.D., UCSC Ocean Sciences. 1:30 - 2:30 PM.

May 19: World Premier Documentary Film at the Seymour Center in Santa Cruz: Southern Range: Salmon in the Santa Cruz Mountains. 6 - 7 PM.

May 19: OSU Hatfield Marine Science Center presents: Dr. Scott Baker: "A Return to the Epicenter of Antarctica Whaling, South Georgia Island." Onsite and online. 6 PM.

May 23-26: 72nd Tuna Conference: "Technological Advances in Large Pelagic Fisheries Science: Applications, Benefits, and Challenges." Meeting location: UCLA's Lake Arrowhead Conference Center.

May 24: ACSSF Monthly Speaker Series: Howard Garrett: "The Race to Free Washington's Last Orca in Captivity." 7 - 8:30 PM.

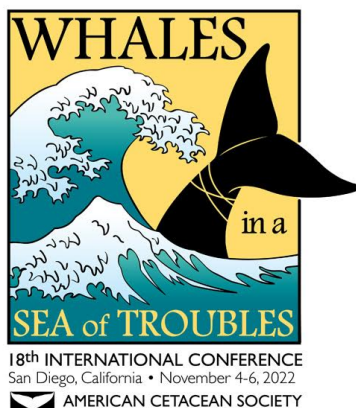
May 27: Hopkins Marine Station Seminar: "Integrating Local Ecological Knowledge and Marine Conservation Science." Isabella Abbott Memorial Lecture by Michelle Maria Early Capistrán. 12 - 1 PM.

Jun. 3-5: Celebration of the first half-century of Natural History at UC Santa Cruz, at the Kenneth S. Norris Center for Natural History. This 3-day event will celebrate and honor the legacy of learning that Ken Norris inspired with UCSC's first field natural history course.

Aug 1-5: 24th Biennial Conference on the Biology of Marine Mammals in Palm Beach, FL. This conference will be the first fully hybrid, live-virtual conference of the Society of Marine Mammalogy.

Fall 2022 (dates TBA): 10th California Islands Symposium at the Ventura Beach Marriott in Ventura, CA

Nov. 4-6: ACS International Conference at the Kona Kai Resort in San Diego: Whales: In a Sea of Troubles.



BOOK RECOMMENDATIONS

Penguins: The Ultimate Guide, 2nd Edition, by Tui De Roy, Mark Jones, and Julie Cornthwaite. 2022 Princeton University Press.

Red Leviathan: The Secret History of Soviet Whaling, by Ryan Tucker Jones. 2022 University of Chicago Press.

Vertebrate Evolution: From Origins to Dinosaurs and Beyond, by Donald R. Prothero. 2022 CRC Press.

The Last Days of the Dinosaurs: An Asteroid, Extinction, and the Beginning of Our World, by Riley Black. 2022 St. Martin's Press.

The Kiwi's Egg: Charles Darwin and Natural Selection, by David Quammen. 2015 Weidenfeld and Nicolson.

TO SAVE CALIFORNIA'S WHALES, PUT OVERLOOKED THREATS INTO POLICY

Apr. 6, 2022 — Whales are threatened by a variety of human activities off the West Coast of the United States, including fishing, ship traffic, and pollution. Overlap between these stressors can compound effects on whale populations, but are rarely addressed by current whale-protection policies in California, according to a study from the University of California, Davis.

The study, published for open access this week in the journal *Marine Policy*, examines the main causes of death for nine whale species in the California Current Ecosystem, which stretches from British Columbia, Canada to Baja California, Mexico. The whales considered in the study include humpback, gray, blue, fin, minke, sei, sperm, North Pacific right, and killer whales.

"We found that oftentimes, people single out fishing or ship strike for their roles in whale mortality," said co-leading and corresponding author Eliza Oldach, a Ph.D. candidate at UC Davis with the Department of Environmental Science and Policy and the Coastal and Marine Sciences Institute. "But a whole slew of human activities have collided to make the modern ocean a really tough environment for whales to survive. We're excited about efforts that look broadly to rebuild healthy oceans."

Three more threats to consider

The report found that five main contributors to whale mortality are currently targeted with relevant policy responses: entanglements, vessel strikes, noise, water quality and marine debris. But three other threats -- nutritional stress, disease and predation --

need to also be considered to provide a more holistic approach toward managing whale deaths.

"Gray whales migrate over 5,000 miles between their foraging and breeding grounds at either end of the California Current," said co-leading author Helen Killeen, a Ph.D candidate at UC Davis with the Department of Environmental Science and Policy and the Coastal and Marine Sciences Institute. "Throughout their journey, they must pass through a gauntlet of human activities, all while contending with changes to their environment precipitated by climate change. The best conservation approach for these whales is one that addresses overlapping and interacting stressors that span geographic and jurisdictional boundaries."

Zero-mortality goal

The study comes as the California Ocean Protection Council aims to develop a plan for achieving zero mortality for whales in the California Current Ecosystem this year. Achieving such a goal requires understanding the key drivers of whale deaths, opportunities for policy change and coordinated management across the ecosystem, the report said.

"In our research, we were inspired by a few cases where people and agencies are already collaborating to develop policies that tackle multiple stressors for whales," Oldach said. "Our paper is intended to highlight that approach and urge other policymakers to think along similar lines."

The report was led by graduate students from institutions throughout California. Co-authors include Priya Shukla, Nicholas Carter, Cassidy Cooper, Leah Mellinger, Kaiwen Wang, Pernille Sporon Bøving and Nann Fangue of UC Davis; Ellie Brauer of California Polytechnic State University; Jennifer Fields of Cal State Northridge; Alexandra Thomsen of Cal State Monterey Bay; Carl Hendrickson of San Francisco State University; and Anna Neumann of Oregon State University.

The study was funded by the UC Davis Sustainable Oceans: From Policy to Science to Decisions program, a National Science Foundation Research Traineeship.

<https://www.sciencedaily.com/releases/2022/04/220406160621.htm>

WARNING ON MASS EXTINCTION OF SEA LIFE: 'AN OH MY GOD MOMENT'

by Catrin Einhorn

Apr. 28, 2022 —At first, the scientists chose a straightforward title for their research: "Marine Extinction Risk From Climate Warming."

But as publication approached, something nagged at them. Their findings illustrated two drastically different outcomes for ocean life over the next three centuries depending on whether greenhouse gas



Dolphins feeding off the east coast of South Africa.
Credit: Chris & Monique Fallows/Nature Picture Library,
via Alamy

emissions were sharply curbed or continued apace. Somehow it seemed the study's name conjured only doom.

"We were about to send it in and I thought, 'Gee, it sounds like a title that only has the dark side of the result,'" said Curtis Deutsch, a professor of geosciences at Princeton University who studies how climate change affects the ocean. "Not the bright side."

So he and his co-author, Justin L. Penn, added an important word they hoped would highlight their finding that the grim scenario outlined by their results could still be, well, avoided.

On Thursday they published "Avoiding Ocean Mass Extinction From Climate Warming" in *Science*. It is the latest research that crystallizes the powerful yet paralyzed moment in which humanity finds itself. The choices made today regarding greenhouse gas emissions stand to affect the very future of life on Earth, even though the worst impacts may still feel far away.

Under the high emissions scenario that the scientists modeled, in which pollution from the burning of fossil fuels continues to climb, warming would trigger ocean species loss by 2300 that was on par with the five mass extinctions in Earth's past. The last of those wiped out the dinosaurs.

"It wasn't an 'Aha' moment per se," said Dr. Penn, a postdoctoral researcher at Princeton, recalling the first time he looked at a graph comparing those past extinctions with their grim forecast. "It was more of an 'Oh my God' moment."

On the other hand, reining in emissions to keep within the upper limit of the Paris climate agreement would reduce ocean extinction risks by more than 70 percent, the scientists found. In that scenario, climate change would claim about 4 percent of species by the end of this century, at which point warming would stop.

“Our choices have huge impacts,” Dr. Deutsch said.

While there is broad consensus that a shift away from coal and expanded wind and solar energy make the worst-case scenario unlikely, oil and gas use continues to increase and the world is not on track to meet the lower-emissions scenario modeled by the scientists.

The new study builds on Dr. Deutsch and Dr. Penn’s earlier work: creating a computer simulation that detailed the worst extinction in Earth’s history some 252 million years ago. Often called “the Great Dying,” it claimed more than 90 percent of species in the oceans. The cause was global warming, triggered by volcanic eruptions. The oceans lost oxygen, and fish succumbed to heat stress, asphyxiation or both. The computer model found more extinctions at the poles as compared with the tropics, and the fossil record confirmed it.

To forecast the effects from global warming that is now driven by human activity, the scientists used the same model, with its intricate interplay between sunlight, clouds, ocean and air currents, and other forces like the chemical dances between heat and oxygen, water and air. They also took into account how much fish habitats could shift, estimating thresholds for survivability.

“It’s a lot of time spent on the computer,” Dr. Penn said.

While the study focused on the effects of warming and oxygen loss, ocean acidification and other snowball effects could worsen the species loss it predicted.

The ocean has long acted as a quiet safeguard against climate change, absorbing vast amounts of the carbon dioxide and trapped heat as people burned fossil fuels and razed forests. But that service has come at a cost. Last year, the ocean reached its highest temperature and lowest oxygen content since humans started keeping track. Changes to the ocean’s chemistry are already threatening fish. Coral reefs are in steep decline.

“How screwed are we?” I get that all the time,” Dr. Deutsch said. “If we don’t do anything, we’re screwed.”

Nations are still far from taking the necessary steps to prevent catastrophic climate change. Last month the secretary general of the United Nations, António Guterres, warned that a critical goal — restricting average global warming to 1.5 degrees Celsius (2.7 degrees Fahrenheit) since preindustrial times — was “on life support.”

The International Energy Agency, a group created to ensure a stable worldwide energy market, said last year that countries must immediately stop approving new fossil fuel projects. They have not stopped, and Russian’s invasion of Ukraine has added to calls for more drilling in the name of energy security.

In an interview, Drs. Deutsch and Penn said they feel like the ignored scientists in “Don’t Look Up,” the recent movie in which a comet hurtling toward Earth is a metaphor for climate change. As in the film, the planet is at a pivotal moment, giving people living today outsized power in determining the future.

“Great power brings great responsibility,” Dr. Deutsch said. “And we’re learning about our power, but not about our responsibility — to future generations of people, but also to all the other life that we’ve shared the planet with for millions of years.”

Pippa Moore, a professor of marine science at Newcastle University in England who studies the impacts of climate change on the ocean and was not involved with the study, called it comprehensive.

“This paper adds to the huge body of evidence that unless more is done to curb our greenhouse gas emissions, our marine systems are on course to see a massive shift in where marine species live and, as shown in this paper, significant extinction events that could rival previous mass extinction events,” she said.

<https://www.nytimes.com/2022/04/28/climate/global-warming-ocean-extinctions.html>

‘MEET US, DON’T EAT US’: ICELAND TURNS FROM WHALE EATERS TO WHALE WATCHERS

by Abby Young-Powell

Mar. 28, 2022 — Onboard a small whale-watching boat making its way across the choppy waters of Faxaflói Bay, off the south-west coast of Iceland, a guide urges tourists not to eat whale meat. “We have a campaign here against whaling,” says Estelle, who has been pointing out whales and dolphins from the boat. “It’s better to meet them in person than to eat them.”

Iceland, one of the few countries in the world to hunt whales commercially, announced in February its plan to end the practice from 2024, though it has not officially banned it yet.

Falling demand for whale meat, especially since Japan resumed commercial whaling in 2019, has influenced the decision. “There is little proof that there is any economic advantage to this activity,” Svandís Svavarsdóttir, the country’s fisheries minister, wrote in the newspaper Morgunblaðið. But experts also credit a 15-year-long campaign carried out largely by Icelanders and local whale-watching companies.

Whaling has been practised around Iceland since the early 1600s, but it wasn’t until the 19th century that steamships and explosive harpoons allowed US and European companies to hunt the animals on a large commercial scale.

Iceland stopped commercial whaling in 1985 and scientific whaling four years later under the international moratorium on commercial hunts. But commercial whaling resumed in 2006. Current annual

quotas allow for 209 fin whales to be killed in Iceland, to be sent to Japan, along with 217 minke whales, which are eaten domestically.

Since the practice restarted, an association of local whale-watching companies, led by the non-profits International Fund for Animal Welfare (IFAW) and IceWhale, have fought to end it. Their campaign has aimed to turn the tide on whale hunting in Iceland using the slogan “meet us, don’t eat us”.

Contrary to what many visitors believe, whale is not considered a delicacy among Icelanders, says Arni Finnsson, chair of the Iceland Nature Conservation Association, who worked on the campaign. Only 2% of Icelanders say they regularly eat it, according to IFAW.

Instead, the biggest eaters of minke whale have been the country’s roughly 2 million annual visitors, many of whom believe it is an Icelandic speciality. “We had tourists who would see whales and then ask where they could go and eat them,” says Megan Whittaker, head naturalist at Elding, a whale-watching organisation.

A plan was hatched by IFAW and IceWhale to end the practice. In 2009, IFAW launched one of the country’s most successful petitions, which now has almost 175,000 signatories, asking people to sign a declaration that they would not eat whale meat.

From 2011, the campaign sent volunteers into restaurants, asking them to stop serving the animal, and more than 60 restaurants are now labelled as “whale friendly”. The campaign cut whale meat consumption by tourists in Iceland by three-quarters, according to IFAW, which says it does regular tourist surveys.

“Meet us, don’t eat us” has had a big influence on the government’s approach to whaling, says Belén García Ovide, founder of Ocean Missions, an Icelandic non-profit not involved in the campaign. “[Politicians] have realised that a whale that’s alive brings more economic benefits than a dead whale,” she says.

Whale watching has become a booming business. One in five tourists in Iceland take a whale-watching trip, generating approximately \$12m (£9m) annually, according to the Animal Fund.

Tour companies have played a large role in the campaign to end whaling. “All of us whale-watching companies have been like propaganda,” says Gísli Ólafsson, owner of Lakitours, which operates in Iceland’s Westfjords. His tour guides have spoken about whaling on every trip for decades, he says.

The companies also fought to eject whale hunters from Faxaflói Bay, which was one of the main hunting areas. “We always saw the whaling boats,” Whittaker says. “We saw the [dead] whales being tied to the side of the boat and being dragged. And we told the tourists about it.”

In 2017, the fisheries minister announced an expanded “no whaling zone”, forcing hunters

further out to sea, where there are fewer whales, making the practice economically unviable.

When Japan resumed commercial whaling in 2019, demand for Iceland’s whales declined. Whale meat processing plants were also unable to operate as normal during the pandemic.

Conservationists are now exploring ways to make whale tourism sustainable. Whale-watching companies have created a code of conduct, including agreeing not to make sudden noises, as well as to approach animals gradually and to take turns with other boats.

But there is no legal requirement to follow this voluntary code, as there is in other whale-watching destinations, such as New Zealand or Canada. Ovide wants politicians to change this.

Scientists are exploring whether whales get stressed by tourist boats, by measuring their cortisol levels and monitoring behaviour. The research, by charity Whale Wise in partnership with Edinburgh University and the University of Iceland, could lead to updates to the current code of conduct, says Tom Grove, the co-founder of Whale Wise.

“I see whale watching as a fundamentally good thing,” Grove says. “But it’s about making it the best it can be and as sustainable as possible.”

There are still some who are against the plan to end whaling. Kristján Loftsson, owner of Hvalur, a family business that has led the hunt of fin whales over the past few decades, told the Guardian he wants to continue as long as it is legal. He has said he will restart whaling for four months this summer for the first time in four years, with up to 150 people expected to be hired to work on whaling ships.

Public support for whaling has declined in recent years. But for now, in Reykjavik harbour, boats used to kill whales continue to float alongside boats used



An orca pod feeding. Iceland, one of the few countries that still hunts whales commercially plans to end the practice from 2024. Credit: Nature Picture Library/Alamy

for whale-watching trips. “You can see the whaling boats in front of ours,” Estelle says as our small boat pulls into land. Tourists disembark and walk past their tall sails as they head off in search of “whale friendly” restaurants.

<https://www.theguardian.com/environment/2022/mar/28/meet-us-dont-eat-us-how-iceland-is-turning-tourists-from-whale-eaters-to-whale-watchers>

UPDATE ON FREQUENCY DECLINE OF NORTHEAST PACIFIC BLUE WHALE (*BALAENOPTERA MUSCULUS*) CALLS

by A. Rice, A. Širović, J.A. Hildebrand, M. Wood, A. Carbaugh-Rutland, and S. Baumann-Pickering.

Apr. 1, 2022 — Worldwide, the frequency (pitch) of blue whale (*Balaenoptera musculus*) calls has been decreasing since first recorded in the 1960s. This frequency decline occurs over annual and inter-annual timescales and has recently been documented in other baleen whale species, yet it remains unexplained. In the Northeast Pacific, blue whales produce two calls, or units, that, when regularly repeated, are referred to as song: A and B calls. In this population, frequency decline has thus far only been examined in B calls. In this work, passive acoustic data collected in the Southern California Bight from 2006 to 2019 were examined to determine if A calls are also declining in frequency and whether the call pulse rate was similarly impacted. Additionally, frequency measurements were made for B calls to determine whether the rate of frequency decline is the same as was calculated when this phenomenon was first

reported in 2009. We found that A calls decreased at a rate of 0.32 Hz yr⁻¹ during this period and that B calls were still decreasing, albeit at a slower rate (0.27 Hz yr⁻¹) than reported previously. The A call pulse rate also declined over the course of the study, at a rate of 0.006 pulses/s yr⁻¹. With this updated information, we consider the various theories that have been proposed to explain frequency decline in blue whales. We conclude that no current theory adequately accounts for all aspects of this phenomenon and consider the role that individual perception of song frequency may play. To understand the cause behind call frequency decline, future studies might want to explore the function of these songs and the mechanism for their synchronization. The ubiquitous nature of the frequency shift phenomenon may indicate a consistent level of vocal plasticity and fine auditory processing abilities across baleen whale species.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0266469>

WHALES ARE ON THE MOVE NEAR SAN FRANCISCO. THE FEDS WANT SHIPS TO SLOW DOWN

by Tara Duggan

Apr. 27, 2022 — As endangered whales begin to migrate past San Francisco Bay, there’s a new effort to protect them from getting struck by cargo ships, a leading cause of death.

From May 1 to Dec. 15, federal officials are asking vessels to voluntarily reduce their speeds to 10 knots (11 mph) or less in the Greater Farallones and Cordell Bank national marine sanctuaries, an area from San Francisco to Point Arena (Mendocino County).

It’s the first time the federal government has asked ships to slow down in such a large part of the Northern California coast.

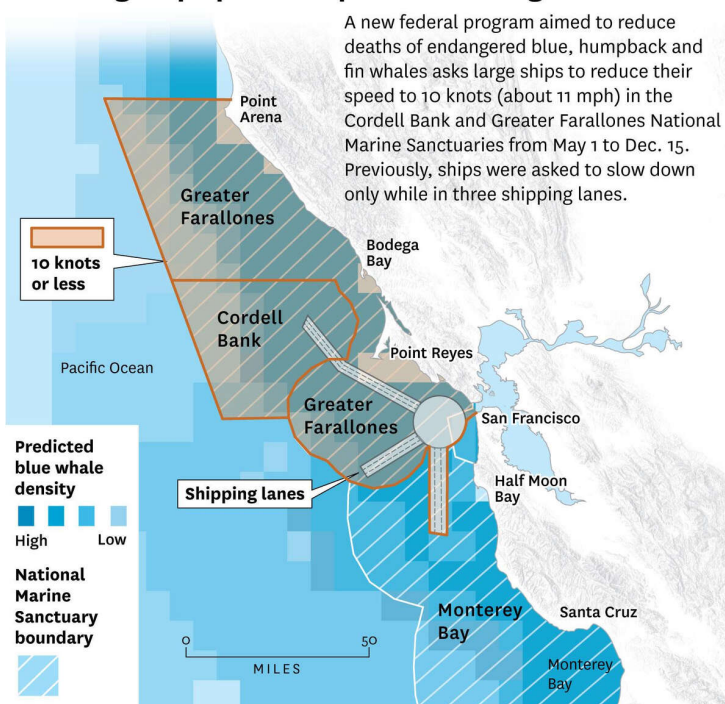
The initiative gives whales “more time to avoid a strike,” and makes strikes less likely to be lethal if they occur, said William J. Douros, West Coast regional director of the National Oceanic and Atmospheric Administration office of National Marine Sanctuaries, in a letter also signed by representatives of the Coast Guard and the Environmental Protection Agency.

The program expands on an existing voluntary speed reduction zone that is limited to shipping zones that go in and out of the bay. The new program also lengthens the time the voluntary speed reduction program is in place by one month; formerly it ended Nov. 15.

Blue, humpback and fin whales, which are protected under the Endangered Species Act and the Marine Mammal Act, are the main focus of the program.

“We have been showing them over the years that that was not enough, because there were still whales

Reducing ship speeds to protect endangered whales



Source: National Oceanic and Atmospheric Administration

John Blanchard / The Chronicle

hanging around in late November and early December,” said Jaime Jahncke of the Petaluma organization Point Blue Conservation Science, who was part of a working group that helped spur the recommendations.

NOAA has mandatory vessel speed limits on the East Coast to protect the critically endangered right whale, but none on the West Coast. In 2019, a voluntary vessel speed reduction zone was expanded in Southern California from shipping lanes at the port of Los Angeles to a greater area from Santa Barbara County to Orange County.

The program in the Bay Area is based on observations of whale migration patterns. Blue whale migration, for example, is particularly heavy, especially right where the northern and central shipping lanes end.

Point Blue Conservation Science estimates that 83 endangered whales are killed annually by ships on the West Coast, though their bodies are rarely found because they sink quickly to the sea floor.

Jahncke estimates that the new protections will greatly reduce the risk to whales from ship strikes in the region.

“It’s a great step forward to help whales,” said Jahncke. “We should be able to see the results over the next few years.”

<https://www.sfchronicle.com/climate/article/Ships-asked-to-reduce-speed-off-San-Francisco-17131823.php>

SIGHTINGS

Sightings are compiled by Monterey Bay Whale Watch. For complete listing and updates see <http://www.montereybaywhalewatch.com/slstcurr.htm>

Date	#	Type of Animal(s)
4/30 8 am All Day	90 100 350	Humpback Whales (breaching) Pacific White-sided Dolphins Risso’s Dolphins (incl. Casper)
4/29 8 am All Day	63 100	Humpback Whales Risso’s Dolphins
4/25 8 am All Day	33 60 300 20	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins Harbor Porpoise
4/24 8 am All Day	24 35 36	Humpback Whales Risso’s Dolphins Harbor Porpoise
4/23 8 am All Day	54 100 400 20	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins Northern Right Whale Dolphins
4/22 8 am All Day	45 5 50 10	Humpback Whales Killer Whales (CA140Bs + CA23A2) Risso’s Dolphins Harbor Porpoise

4/21 8 am All Day	22 5 500	Humpback Whales Killer Whales (CA51s) Risso’s Dolphins
4/20 8 am All Day	45 8 60 90 1	Humpback Whales Killer Whales (CA58s + CA200s) Pacific White-sided Dolphins Risso’s Dolphins Northern Elephant Seal
4/18 8 am All Day	102 1 275 4	Humpback Whales (breaching, pec slaps, friendly with boat) Minke Whale Risso’s Dolphins Elephant Seals
4/17 8 am All Day	71 4 100 50 1	Humpback Whales Killer Whales (CA58s) Pacific White-sided Dolphins Northern Right Whale Dolphins Short-tailed Albatross
4/16 8 am All Day	72 5 1 55 4	Humpback Whales Killer Whales (CA51s) Gray Whale Risso’s Dolphins (incl. Casper) Harbor Porpoise
4/15 8 am All Day	76 50 70	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins
4/14 9 am	29 40 150	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins
4/13 9 am	68 12	Humpback Whales Risso’s Dolphins
4/12 9 am	38 150	Humpback Whales Risso’s Dolphins
4/11 8 am All Day	40 15	Humpback Whales Risso’s Dolphins
4/10 9 am	15 13 150	Humpback Whale Killer Whales Risso’s Dolphins (incl. Casper)
4/9 8 am All Day	35 9 200	Humpback Whales Killer Whales Risso’s Dolphins
4/8 8 am All Day	53 200 250	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins
4/7 2:30 pm	22 40	Humpback Whales (breaching, tail throws, pec slaps) Risso’s Dolphins (incl. Casper)
4/6 9 am	30 300 100	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins
4/5 10 am	23 5 10 1	Humpback Whales Risso’s Dolphins Harbor Porpoise Short-tailed Albatross
4/4 9 am	16 110	Humpback Whales Risso’s Dolphins

**Membership Application - American Cetacean Society,
Monterey Bay Chapter**

Join or renew online at acsonline.org
Or mail membership form to ACS Monterey Bay,
P.O. Box HE, Pacific Grove, CA 93950



Membership Type: New ___ Renewal ___ Gift ___

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Membership Levels and Annual Dues

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Senior (62 plus) \$35		

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DONATE

The American Cetacean Society is the world's oldest whale conservation organization, established in 1966. Dedicated to research, conservation and education about whales, dolphins and porpoises and their environment, the American Cetacean Society is volunteer-run and consists of 8 chapters within the national organization. As a 501 (c)(3) non-profit organization, donations are welcome and necessary to continue our work. To donate to the Monterey Bay Chapter of ACS, please visit www.acsmb.org or mail payment to ACS MB, PO Box HE, Pacific Grove, CA 93950. For more information about the American Cetacean Society, please visit www.acsonline.org Thank you!

**Monterey Bay Chapter
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HOTLINES
for Marine Mammals**

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24-hour toll-free
877-767-9425

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NOAA Enforcement, Monterey
831-853-1964



Breaching Risso's Dolphin
on April 16, 2022. Credit:
Daniel Bianchetta /
MBWW.