

Soundings



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

APRIL 2022

**VIRTUAL MONTHLY MEETING
THURSDAY, APRIL 28 AT 7:00 PM**

PRESENTER: JODI FREDIANI

**TITLE: LIONS & LEOPARDS & WHALES, OH MY!
PHOTOGRAPHING MARINE WILDLIFE AROUND THE GLOBE**

Jodi Frediani, an award-winning photographer and whale researcher based in Santa Cruz, has been swimming with and photographing humpback whales on Silver Bank in the Dominican Republic for over 20 years. In addition, she has been photographing the marine life of Monterey Bay for the past eleven years, while taking time off for photographic adventures to Africa, Alaska, Argentina, Antarctica, the Arctic, Brazil, Franz Josef Land, Norway, Siberia, Thailand and Tonga.

Her work has appeared in a number of national and international publications, including the BBC's "Nature's Weirdest Events" and Carl Safina's National Geographic blog, "Ocean Views." In addition to photographing wildlife in its many forms and habitats, Frediani is engaged in whale research via several fluke ID projects both here and abroad. With co-authors Nancy Black and Fred Sharpe, she published her first paper in 2020, entitled Postmortem Attractions: Humpback Whales Investigate the Carcass of a Killer Whale-Depredated Gray Whale Calf. She is currently collaborating on two additional papers about humpback whale bubble use and recently returned from a 3-week boat-based humpback whale field research expedition in southeast Alaska. You can check out her photography at www.jodifrediani.com.

INSIDE THIS ISSUE

CALENDAR2

BOOK RECOMMENDATIONS....2

**EARLY KILLER WHALES ATE
FISH -- NOT OTHER MARINE
MAMMALS.....2**

**IN ANTARCTICA, DOES A
BURGEONING KRILL FISHERY
THREATEN WILDLIFE?.....3**

**NEW MBARI OBSERVATORY
AIMS TO UNRAVEL THE
MYSTERIES OF THE LARGEST
ANIMAL ON EARTH.....4**

**SHIPS ARE KILLING WHALES
OFF THE CALIFORNIA COAST.
HERE'S WHAT EXPERTS SAY
WILL SAVE THEM.....5**

SIGHTINGS7

MEMBERSHIP8



Next month: Our next meeting will be on Thursday, May 26 at 7 PM. Please save the date and join us! More information is available on our website, acsmb.org.

CALENDAR

Apr. 7-10: 19th Annual International Ocean Film Festival at the Cowell Theatre, Fort Mason Center, San Francisco.

Apr. 20 - May 21: California Ocean Alliance Marine Mammal Naturalist Program. Available to all ages and experience levels. Course Fee: \$500. For more information please go to caoceanalliance.org

Apr. 22, 23, 24: Whalenerds Spring trips to support ACS Monterey Bay. Single day tickets \$300, includes lunch and 6 hour experience from Moss Landing. Tickets: www.thewhalenerds.com/trips

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.

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.

Nov. 4-6: ACS International Conference at the Kona Kai Resort in San Diego.

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

BOOK RECOMMENDATIONS

Fossil Mammalia - Part I - The Zoology of the Voyage of the H.M.S Beagle: Under the Command of Captain Fitzroy - During the Years 1832 - 1836, by Charles Darwin. 2019 White Press.

Life Between the Tides, by Adam Nicholson. 2022 Farrar, Straus and Giroux.

The Rise and Reign of the Mammals: A New History from the Shadow of the Dinosaurs to Us, by Steve Brusatte. 2022 Mariner Books.

A Genetic History of the Americas, by Jennifer Raff. 2022 Twelve.

EARLY KILLER WHALES ATE FISH -- NOT OTHER MARINE MAMMALS

Mar. 7, 2022 — Only two species of cetaceans (dolphins, whales, and porpoises), prey on other marine mammals: the true killer whale, or orca, and the false killer whale, which has a skeleton similar to the orca but gray coloring vs. black and white. Both predators are members of the oceanic dolphin family, with pods of orcas even known to aggressively hunt and eat blue whales -- the largest creatures to ever live. However, it is unclear when this predatory behavior began and fossil records for both species are extremely limited.

Now, a study published March 7 in the scientific journal *Current Biology*, co-authored by Jonathan Geisler, Ph.D., associate professor and department chair of anatomy at New York Institute of Technology College of Osteopathic Medicine, and Giovanni Bianucci, Ph.D., a paleontologist at the University of Pisa (Italy), may hold vital clues.

In 2020, the remains of an ancient dolphin unknown to science were found on the Greek island of Rhodes, providing the first clear fossil evidence for the origins of the false killer whale. Geisler, Bianucci, and several other colleagues from the University of Pisa named the species *Rododelphis stamatiadis*, after the island where the fossil was found and the paleontologist who made the discovery (Polychronis Stamatiadis). Based on the layer of earth that contained *Rododelphis*, it is estimated that the dolphin lived 1.5 million years ago, during the Pleistocene epoch.

To better understand *Rododelphis*, the researchers compared its anatomy to today's false killer whales and orcas, as well as *Orcinus citoniensis*, the orca's only known fossil relative. Based on the width of its skull, *Rododelphis* was roughly the same size as modern false killer whales, measuring 13 feet long and weighing approximately 1,200 pounds. Surprisingly, next to the fossil were remnants of its last meal: fish bones.

Much like modern orcas, *Orcinus* had very powerful jaw muscles and sharp interlocking teeth. However, these teeth were smaller than those of today's orcas, and there were more of them. Interestingly, the teeth of both *Orcinus* and *Rododelphis* lacked the rough scratches and chipping commonly caused by eating limbed prey, such as mammals. Instead, their teeth had fine scratches and little chipping, suggesting that both species ate fish.

The study's findings also contradict the popular theory that large whales, including the blue whale, evolved giant bodies to avoid predation. While the first giant whales emerged 3.6 million years ago, Geisler and Bianucci's findings suggest that ancient dolphins began preying on other marine mammals,

including whales, well after this. The researchers believe that this behavior began in orcas within the last three million years, with false killer whales adapting this behavior within the last 1.5 million years.

"The diversification of the oceanic dolphin family occurred within the last five million years, but fossil evidence from the Pleistocene epoch is exceedingly rare," said Geisler, who is an expert in marine mammal evolution. "With *Rododelphis*, we're now beginning to fill this gap and better understand the repeated evolution of feeding adaptations in oceanic dolphins -- in other words, how both orcas and false killer whales separately evolved similar cranial anatomy and the behavior of feeding on other marine mammals."

While the findings provide the first fossil data for determining when these feeding adaptations began, narrowing the timeline further will require more fossils and additional research. Given this, the researchers call for future investigations in areas like Greece and Italy, some of the few regions where Pleistocene marine sediments are extensively exposed.

<https://www.sciencedaily.com/releases/2022/03/220307132059.htm>

IN ANTARCTICA, DOES A BURGEONING KRILL FISHERY THREATEN WILDLIFE?

by Gloria Dickie

Feb. 24, 2022 — A humpback whale, likely lured by a trawling net capturing masses of Antarctic krill, became entangled last month and died in the Southern Ocean. Three dead juveniles were caught in the same company's krill nets last year.

Scientists say the humpbacks may have been malnourished while forced to compete for food with a burgeoning industry harvesting the tiny crustaceans - the linchpin in the Antarctic food web - for use in pharmaceuticals and fish feed.

The fishing company, Norway's Aker BioMarine, said these were its first cases of whale bycatch in 15 years of harvesting krill in Antarctica, and that it has since reinforced its ships' devices for keeping marine mammals out of its nets.

Pål Skogrand, director of Antarctic affairs and sustainability at Aker BioMarine, said the company "has no desire" to be part of this global problem.

But with the krill industry set to grow significantly in the next decade - as nations including China and Russia plan new investments in the business - scientists and conservationists fear krill trawling could further imperil Antarctic wildlife.

The krill trawlers target the same foraging grounds as fur seals, humpback whales, and blue whales. Penguins are also struggling when fishing vessels are nearby, with studies describing the birds having to

swim for longer periods in search of food for their chicks.

"Krill fishing is an acute example that we are fishing down the food web," said Teale Phelps Bondaroff of the conservation non-profit OceansAsia. "That doesn't bode well for our global fisheries. It means we're getting to the end of what's available in our oceans."

Polar Abundance

The icy waters off Antarctica are estimated to hold between 300 million and 500 million tonnes of krill - nearly as weighty as all of the world's cattle.

This perceived abundance led Soviet fishing fleets to target Antarctic krill in the 1970s, scooping up hundreds of thousands of tonnes per year until the Soviet Union collapsed in 1991.

Their surveys make Antarctic krill relatively well researched, compared with the 84 other krill species in the world's oceans. Governments have resisted opening new krill fisheries due to conservation concerns, though both Japan and Canada operate small krill fisheries in the North Pacific.

On the southernmost continent, about 11 vessels from China, Norway, South Korea, Ukraine and Chile trawl the region's choppy waters from December to July. Under established rules within the Antarctic Treaty System, trawlers must stay largely confined to four areas off the Antarctic Peninsula, with a seasonal catch capped at 620,000 tonnes - less than 2% of the species.

Due to the expense and ice cover, fishing vessels have yet to take the full quota. But in 2020, they scooped up 450,000 tonnes - the most recorded in decades. China more than doubled its take from the previous year.

"If we introduce just a couple more big trawlers we will reach (620,000) tonnes very easily," said Rodolfo Werner, senior advisor of the Antarctic and Southern Coalition, a group of environmental non-profits. "This has always been our concern."



A krill fishing ship of unknown nationality is seen in Half Moon Bay, Antarctica, February 18, 2018. Credit: REUTERS/Alexandre Meneghini

The world's krill industry is still modest in economic terms. But it is growing fast, with the \$531-million market for krill oil - one of the key products - projected to rise to \$941 million by 2026, according to a report last month by Global Industry Analysts.

Fish farming, for which krill is used as feed, is the world's fastest growing food sector, with analysts expecting global demand for fish to double by 2050.

"Krill contain so many good elements, such as omega-3s," said Skogrand, disputing the argument that krill should be left to nourish wildlife alone. That's "not the way to secure food production in the world."

Norway's Aker BioMarine, which accounts for more than 60% of today's krill catch, added a third ship to its fleet in 2019, as the company "increased our catches significantly in the past five to ten years," said Skogrand.

Contacted by Reuters, Chinese companies involved in krill fishing declined to comment. The country's fishery management bureau said last year its krill fishing fleets had reached an "international level" of efficiency, citing unspecified breakthroughs in industrializing krill production.

In a statement to Reuters, the foreign ministry said China "attaches a great importance to conservation and rational use of the marine biological resources of Antarctica."

China "will definitely grow," said Dimitri Scabos, the CEO of the Chile-based krill consultancy Tharos. "They have built several factories for extracting krill oil. There's a huge market."

Russia has announced plans to invest 45 billion roubles (\$604 million) in the fishery, including building five high-tonnage trawlers.

"The development of krill fishing is part of the policy of the Russian Federation to renew the activities of the Russian fishing fleet in remote areas of the world ocean," Russia's state fishing agency told Reuters in a written statement.

SUPPLY PRESSURE

Mindful of the threat krill fishing poses to penguins, eight krill fishing companies in 2018 pledged to stay at least 30 km away from key breeding colonies during incubation and chick-rearing season. An analysis for Reuters by the Global Fishing Watch monitoring agency found that since 2019 the trawlers in operation have upheld that promise.

Even without competition from fisheries, the krill supply is under increasing pressure due to both climate change and a partial rebound in whale numbers since the end of commercial whaling. A 2016 study in the journal *Geophysical Research Letters* found warmer waters and increased ice melt could drive krill numbers down about 30 percent this century.

"We have limited knowledge of the resiliency of krill to warming," Bettina Meyer, a marine biologist at the Alfred Wegener Institute, told Reuters by phone

while conducting krill research for Aker BioMarine aboard the Antarctic Endurance.

Polar scientists say even current limits on Antarctic krill fisheries may not go far enough to safeguard the food supply for wildlife. A single humpback whale in the West Antarctic Peninsula eats up to 3.1 tonnes of krill a day. The region has an estimated 3,000 humpbacks.

The seasonal catch "is actually being taken from a much smaller area than for which it was appropriately calculated," said George Watters, director of Antarctic research at the U.S. National Oceanic and Atmospheric Administration. He led a February 2020 study published in *Scientific Reports* that found penguins were failing to raise as many chicks when 10% or more of the krill was removed from a nearby area.

In October, the Commission for the Conservation of Antarctic Marine Living Resources will consider revising catch limits and trawling zones, due to conservation concerns. It declined to give details of the proposed changes. Approval requires a consensus vote by all 26 commission members.

Scientists fear some nations may object to stricter measures. Beijing and Moscow have been notable opponents of efforts to establish Marine Protected Areas in the region.

The Russian state fishing agency, noting the "impressive" krill stocks in the region, said any changes would have to be "clearly justified" by scientific evidence. "There are not many areas open to fishing."

<https://www.reuters.com/business/cop/antarctica-does-burgeoning-krill-fishery-threaten-wildlife-2022-02-24/>

NEW MBARI OBSERVATORY AIMS TO UNRAVEL THE MYSTERIES OF THE LARGEST ANIMAL ON EARTH

At more than 30 meters (100 feet) long and weighing almost 181 metric tons (200 tons), the blue whale (*Balaenoptera musculus*) is the largest animal to ever have lived on Earth. Despite its large size, many questions about the natural history and ecology of blue whales remain unanswered.

Commercial whaling decimated blue whale populations. Global protections seek to safeguard this species, yet blue whale populations remain endangered. This magnificent mammal must navigate a web of threats—ship strikes, entanglement in fishing gear, and noise that interferes with communication. To inform protection and support population recovery, resource managers require a thorough understanding of the ecology of blue whales.

The northeastern Pacific Ocean supports the planet's largest population of blue whales, which annually migrate thousands of kilometers between northern cold-water foraging habitat and southern



MBARI's new Blue Whale Observatory will study blue whales, their environment, and their prey to understand the ecology of these magnificent mammals that seasonally forage in Monterey Bay National Marine Sanctuary's fertile waters. Credit: © NOAA

warm-water breeding habitat. To better understand their behavior and help inform their protection, MBARI researchers will deploy a new observatory to study the blue behemoths that gather to feed in the fertile waters of Monterey Bay.

Our new Blue Whale Observatory will examine blue whale ecology in depth by integrating interdisciplinary sensing of the whales, their environment, and their essential food—krill. The observatory will leverage an array of technologies to bring together the pieces of a complex and important puzzle.

This project will integrate three research domains: passive acoustic sensing to understand blue whales, active acoustic sensing to understand krill, and meteorological and oceanographic data to understand ecosystem processes influencing their predator-prey dynamics.

The Monterey Bay region is an ideal location to study blue whale feeding behavior. Dense swarms of krill seasonally gather along the edge of the continental shelf, attracting large numbers of hungry blue whales. The Blue Whale Observatory aims to integrate biological observations of the whales and krill with measurements of their physical environment. Together, these data will help researchers discern the behavioral and oceanographic processes that influence predator-prey interactions and the health and migratory patterns of this blue whale population.

Sound will be a valuable research tool for this work. The observatory will build on previous research from biological oceanographer John Ryan and collaborators at Stanford University—including incoming MBARI Postdoctoral Fellow William Oestreich—to use sound to understand blue whale behavior, as well as the work of ecologist Kelly

Benoit-Bird to acoustically map the abundance and distributions of krill.

Ryan and Benoit-Bird will lead the Blue Whale Observatory alongside Oestreich and Research Specialist Chad Waluk. The team hopes this project will build regional collaborations across the Central Coast to better understand blue whales.

The observatory will enable better management and, ultimately, protection for blue whales.

Monterey Bay National Marine Sanctuary is a critical habitat for blue whales and many other marine mammals. Understanding the presence, activity, and location of blue whales in the sanctuary is essential for recognizing how various anthropogenic disturbances and risks might affect them. What we learn from this project will support the development of regional strategies for balancing human uses with species recovery in a protected habitat.

<https://annualreport.mbari.org/2021/story/a-new-observatory-aims-to-unravel-the-mysteries-of-the-largest-animal-on-earth>

SHIPS ARE KILLING WHALES OFF THE CALIFORNIA COAST. HERE'S WHAT EXPERTS SAY WILL SAVE THEM

by Tara Duggan

Mar. 12, 2022 — The towering container ships and oil tankers that sail in and out of San Francisco Bay have a little-known dark side: They are a leading cause of death for whales that migrate along the coast between Mexico or Central America and Alaska.

But there's a way to reduce the number of whales that often wash up, bloated and mangled, on Bay Area beaches this time of year, experts say. A new report recommends slowing the speed of ships on a large stretch of the coast, from Pigeon Point in San Mateo County to Point Arena in Mendocino County. The idea is to give whales a chance to escape mortal injury.

"A lot of the time, mariners don't know that they've even hit a whale. Cargo ships really are like skyscrapers," said Jessica Morten, a resource protection specialist for the Greater Farallones Association, a conservation group that supports the National Marine Sanctuary of the same name. "On the surface of the ocean, a blue whale, even though it's enormous to us, is really not enormous."

Morten is part of a working group charged with cutting the risk of lethal ship strikes to endangered whales by 50% in the two marine sanctuaries that hug the coast. Last month, the group — composed of scientists, conservationists and representatives of the fishing and shipping industries — recommended a year-round, voluntary speed reduction within the Greater Farallones and Cordell Bank National Marine Sanctuaries, as well as the northern part of the Monterey Bay National Marine Sanctuary.

Since 2013, there has been a voluntary vessel speed reduction to 10 knots (about 11 mph) in place for large ships in the three shipping lanes that jut out of the bay — but only from May to November, during whale migration season. Once the ships exit the lanes, they tend to speed up and fan out into whale habitat.

The ship-strike issue has gotten more attention as the number of dead whales washed up on Bay Area beaches has increased in recent years, from 11 in 2018 to 21 last year. Ship strikes are a leading cause of whale death, along with entanglement in fishing gear and malnutrition, according to the nonprofit Marine Mammal Center in Sausalito. The increase includes many gray whales, a population that isn't endangered but is experiencing what wildlife managers call an unusual mortality event, with a high number of deaths from various reasons since 2019.

Experts say the ever-growing demand for imported goods will continue to put the giant cetaceans in harm's way. Ship traffic went down during the pandemic, from 3,452 ships entering the bay in 2018 to 2,893 in 2020, according to the nonprofit industry group Marine Exchange of the San Francisco Bay Region. But that's still an average of eight large ships each day. Potential collisions are especially a concern as evidence grows that some whales, especially juvenile humpbacks, are staying in the Bay Area year-round.

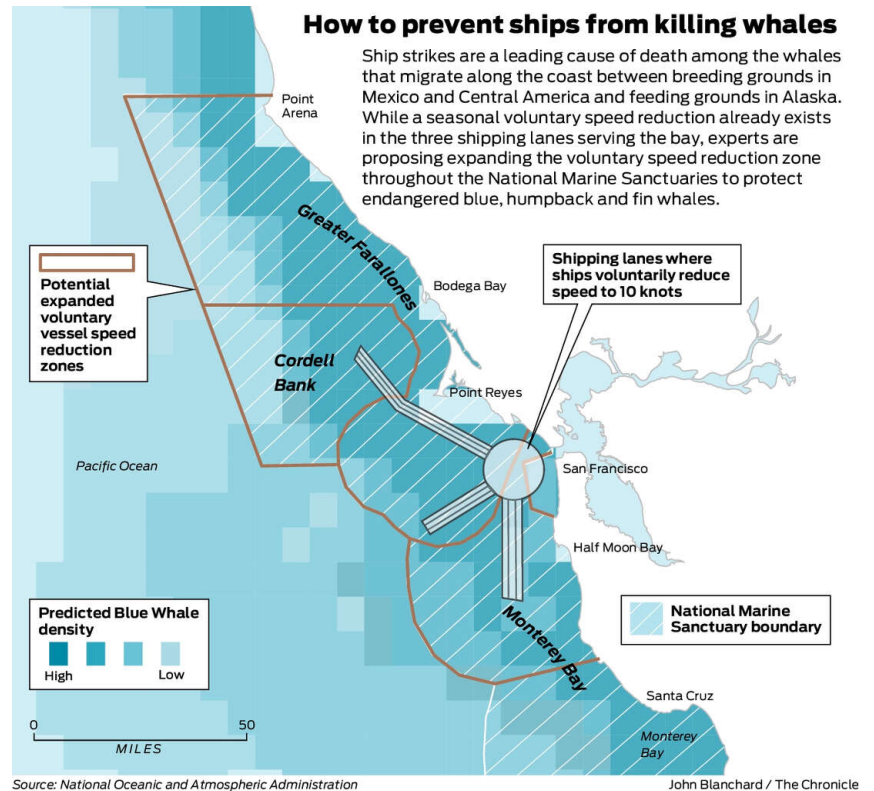
"We have growing whale populations off of our coast, and we have increased shipping activity and commerce activity. So I think the risk is much higher (than in the past)," said Kathi George, a member of the working group and director of field operations and response at the Marine Mammal Center. In partnership with the California Academy of Sciences, George and her team do necropsies — animal autopsies — on whales that wash up on shore.

"In the case of a vessel strike, it is not a very pretty sight," George said. "I've seen broken bones, ribs not attached any more, vertebrae separated. It's a pretty violent thing that happens when a whale is hit by a ship."

Each year, as many as 83 endangered whales — humpback, blue and fin whales — are killed by ships on the West Coast, according to projections by the Petaluma organization Point Blue Conservation Science. But because their carcasses sink quickly, only a fraction are seen and reported, experts say. Also, dead whales often make it to shore in a severely decomposed state, making it difficult to confirm the cause of death.

From 2011 to 2021 an average of only 10 whales a year along the West Coast were officially recorded as being struck by vessels, and not all of

American Cetacean Society – Monterey Bay



those whales died, according to the National Oceanic and Atmospheric Administration. The list includes gray, minke and sei whales in addition to endangered whales.

Many of those whales begin migrating this time of year, and they sometimes end up dead on local beaches. George and her colleagues have necropsy equipment packed and ready to go, like firefighters waiting at the station. Ten to 20 people are usually involved in a necropsy, more if the whale washes up on a busy beach to help keep onlookers (and curious dogs) away from the sharp tools and difficult work involved.

"A team will methodically open up the whale. They'll peel down the layers of blubber," George said. "Sometimes people literally get into the whale to look at the different bones, organs, etc., to understand what happened."

Broken bones are a major indicator of a vessel strike, but only if there are also signs of tissue damage or pooled blood inside, indicating the whale was struck before death rather than after, she said.

Though vessel strikes are only one threat to whales, the working group thinks extending the recommended vessel speed reduction zone to nearby National Marine Sanctuaries year-round will make a difference.

The current voluntary vessel speed reduction in the three shipping lanes that was instituted in 2013 probably lowered blue whale deaths within the shipping lanes by 11% to 13% and humpback whale deaths by 9% to 10% in 2016-17, according to Point Blue.

“That northern lane really does spit out traffic where we don’t want it to be,” into a blue whale hot spot near Point Reyes, Morten said.

Shipping companies are getting on board. As of 2020, 64% of ships complied with the voluntary speed reduction in the shipping lanes.

“We’ve gotten more carriers on board — greater outreach and greater education as to why this is a program to participate in,” said Jacqueline Moore, vice president of the Pacific Merchant Shipping Association, an industry group that supports extending the voluntary speed reduction zone year-round to the sanctuaries.

In 2019, a similar change was made in Southern California, when the voluntary vessel speed reduction was expanded to an area from Santa Barbara County to Orange County, though only seasonally. On the East Coast, NOAA instituted mandatory vessel speed limits to protect the critically endangered right whale.

The conservation group Center for Biological Diversity has called for mandatory speed limits in shipping lanes at the Port of Los Angeles and San Francisco Bay in a petition to National Marine Fisheries Service and a lawsuit against the U.S. Coast Guard and NMFS, arguing that the number of whales killed each year exceeds what the populations can withstand and still recover.

“There’s a mentality of bending over backwards to avoid these mandatory ship speeds. It’s perplexing,” said Brian Segee, endangered species program legal director at Center for Biological Diversity. “It’s a highway at sea. Just as highways on land need rules that are enforced. It’s the same with the ships at sea.”

The superintendent of the Cordell Bank and Greater Farallones National Marine Sanctuaries will consider the working group’s recommendations and probably make a decision by May, Morten said. If the changes are adopted quickly, they could still save some whales this coming migration season, supporters say.

“Whales have an awful lot to tell us about the health of the ocean,” George said. “We need to do what we can to reduce the human impacts on the whales.”

<https://www.sfchronicle.com/climate/article/Ships-are-killing-whales-off-the-California-16997661.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)
3/26 9 am	5 13 8 5	Gray Whales Humpback Whales (friendly) Harbor Porpoise Black-footed Albatross

3/25 9 am	5 8 40 8 1	Gray Whales Humpback Whales (breaching, tail lobbing) Risso’s Dolphins Harbor Porpoise Steller Sea Lion
3/23 10 am	11 5 50	Humpback Whales Bottlenose Dolphins Risso’s Dolphins
3/21 10 am	2 60 15	Humpback Whales Pacific White-sided Dolphins Risso’s Dolphins
3/19 8 am All Day	10 25	Humpback Whales (breaching, lunge feeding, chin slapping) Risso’s Dolphins
3/18 10 am	7 1	Humpback Whales Minke Whale
3/15 10 am	8 20 50	Gray Whales Pacific White-sided Dolphins Risso’s Dolphins (incl. Casper)
3/14 10 am	15 75	Gray Whale Risso’s Dolphins
3/13 10 am	15 200	Gray Whales Risso’s Dolphins (nursery group)
3/12 2:30 pm	5	Gray Whales
3/12 10 am	20 800	Gray Whales Risso’s Dolphins (nursery pod)
3/11 2:30 pm	9 20 200	Gray Whales Pacific White-sided Dolphins Risso’s Dolphins
3/11 10 am	9 200	Gray Whales Pacific White-sided Dolphins
3/8 10 am	9 20 2 1000 80 700	Gray Whales (mating) Humpback Whales (feeding) Killer Whales Pacific White-sided Dolphins Risso’s Dolphins Northern Right Whale Dolphins
3/6 10 am	8 3 20 200 10	Gray Whales Humpback Whale Pacific White-sided Dolphins Risso’s Dolphins Harbor Porpoise
3/3 10 am	2 1 200 6	Gray Whales Humpback Whale (breaching, pec slapping) Risso’s Dolphins Harbor Porpoise
3/2 10 am	4 3 200 1	Gray Whales Humpback Whales Risso’s Dolphins (incl. Casper) Steller Sea Lion
3/1 10 am	4 9 2 12 1	Gray Whales Humpback Whales Killer Whales Black-footed Albatross Laysan Albatross

**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 ___

Name _____

Address _____

City, State, Zip _____

Phone _____ Email _____

Membership Level _____

Membership Levels and Annual Dues

Lifetime \$1000	Patron \$500	Contributing \$250
Supporting \$85	International \$55	Family \$55
Individual \$45	Student \$35	Teacher \$35
Senior (62 plus) \$35		

Check _____ Mastercard _____ Visa _____ Expiration _____

Card Number _____ Security Code _____

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
Officers & Chairs, 2022**

Brian Phan, *President*
 Katlyn Taylor, *Immediate Past President*
 OPEN, *Vice President*
 Katy Castagna, *Treasurer*
 Jennifer Thamer, *Secretary*
 Sally Eastham, *Membership*
 Tony Lorenz, *Programs*
 Terry Feinberg, *Publicity*
 Emilie Fiala, *Education & Events*
 Humphrey Williams, *Research Grants*
 Debbie Ternullo, *At-Large*
 Diane Glim, *ACS National Secretary*
 Tony Lorenz, Oren Frey, *Editors*

Email: tonylorenz831@gmail.com
soundingsnewsletter@gmail.com

**MONTEREY COUNTY
HOTLINES
for Marine Mammals**

**Strandings / Entanglements /
Distress**
24-hour toll-free
877-767-9425

Harassment
NOAA Enforcement, Monterey
831-853-1964



Black-legged
Kittiwakes
flying by Humpback
Whale on March 23,
2022. Credit: Daniel
Bianchetta / MBWW.