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War Games In A Whale Nursery -- Scientists Worry Sonar Testing Will Destroy Fragile Habitat

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IN THE LAGOONS beneath the bluffs of Maui, whale researchers are listening to the songs of the humpback whales as they give birth. Soon, the oceans will also hear the sounds of U.S. Navy researchers testing decibel levels on the whales. From Baja to Maui to the coasts of Washington, the whales are back in the news.

ON OLOWALU POINT, a gentle, green bluff high on the island of Maui, a scientific plain-chant of humpback whale researchers rises like a lilting call-and-response:

"Blow at 180!" cries a young woman, scanning the panoramic sea below. Ten sets of powerful binoculars swing left to fix on the misting plume of breath puffing up from the turquoise waters as a great humpback surfaces.

Suddenly there are whales everywhere, at least five pods, surfacing to breathe within 30 seconds of each other. The calm water below is alive with whale blows and so many fascinating behaviors the researchers rush to document them all.

"Peduncle arch!" "Pec slap," another shouts as a humpback's pectoral fin, gigantic even from this height, slowly rises out of the water and slaps the waves with a bright splash.

Humpbacks have the largest pectoral fins of all whale species. At 15 feet, these fins flail out of the water like dark water wings, giving the humpback the nickname "angels of the sea."

"Fluke up!" a woman calls as a whale tail shoots straight up, lingers a moment mid-air and then, with a wave, disappears. This graceful fluke, like saying "goodbye," often signals a long dive that may last up to 15 minutes underwater. However, the calves can only hold their breath for about five minutes, so these island waters with their shallow and warm protection are perfect for newborns.

Here in these Hawaiian waters, the whales need to rest and replenishment after their 2,000-mile journey from the Arctic Ocean, a migration in which they do not eat, and survive only off their summer blubber. By the time they reach Maui, they are weary travelers. The females are facing labor and the males, the rigors of mating rituals.

In the same way that many humans seek out the Hawaiian Islands for rest and replenishment during our long winters, the whales also need deep quiet and calm.

"Slip under!" a researcher calls as she spies a whale's signature arch of its humped back before its deep descent.

The 10 researchers all take a moment themselves to breathe, drink quick sips of water and smear on more sunscreen. Several gather together and glance over a precisely plotted graph which shows a grid of red and blue triangles and squiggles.

'We're whale-sitting'

"You see," explains Marsha Green, the psycho-biology professor and scientist who is overseeing a study of boat noise and traffic on humpback whales, "we chart the exact position of the whales and boats. Then we watch all the behaviors around the boats, such as the whales' speed of travel, their down time underwater, their aerial behaviors. . . as well as when the whales change directions."

Green's study is the first experimental-vessel study to document the effects of boat-engine noise and traffic on humpback whales. Because the Hawaiian Islands are the chosen nursery of this still-endangered species, Green's research is crucial to our understanding how best to protect this precious birthing place for the future.

Her land-based research is unique in that most previous studies have been done from the water, with a perspective limited to what can be seen from sea level. It was Green's research that recently helped halt noise and parasailing in these nurseries during the winter calving season.

Perched high above the ocean, Green, her students and other researchers can truly study the big picture, watching up to 10 pods at a time, documenting the activity of both whales and boats. The students are studying for credit in the course, "Field Research on Marine Mammals," at Albright College in Reading, Pa. Other researchers are part of Green's Ocean Mammal Institute.

"We're whale-sitting," someone said, then raised his binoculars. "Double breach! Look at that, will you! Never seen that before." Everyone scrambles to get a look and there is much laughter. "Is that our pod?" a student asks.

"Yes, that's our pod," another calls like a proud parent.

"Check out that red boat at 186," someone warns. "It's too close, don't you think?"

There is an ironclad mariner rule here in this whale nursery that no boat can come within 100 yards of these humpbacks. Among most whale-watching boats there is a protective manner toward these whales as thousands of island visitors each year are treated to watching the humpback aquatic ballet.

And yet, Green worries about the effect of too much human activity near this nursery.

Her study is the first precisely controlled data on boat activity here. Five boats used in the study ranged from large whale-watching boats with two 200-horsepower engines as loud as 120 decibels down to a sailboat and a zodiac. The type of boat and loudness of engine caused dramatic changes in whale behavior.

Whales still in danger

Green found that whales swim more than three times faster (13.98 mph) around big boats with 120 decibel engines than around the sailboat under motor, which allowed them to dive deeper and swim more peacefully (3.96 mph).

Green presented her important new research at the sixth annual Whales Alive Celebration held every year on Maui.

A gathering of advocates and a general public passionately interested in cetaceans, Whales Alive, sponsored by Earth Island Institute, is a forum for world-renowned whale researchers.

The forum featured reports on timely issues, such as the Latin American drug cartel's use of tuna boats and their "dolphin deadly" fishing practices - using mile-long purse seining nets as deep as a football field to haul everything, including dolphins.

Researchers told of the increasing illegal capture of dolphins in the world's waters for sale to captive aquariums, the sad survival of captive orcas Lolita, Corky and Keiko in Sea World and other seaquariums and the threat of more Mitsubishi salt mines in Mexico's birthing lagoons for gray whales.

A primary concern at the conference was reawakening the public to the plight of whales. Since the Save the Whales movement of the 1970s, people have fallen into a false sense of security as if the whales are indeed saved.

The fact is, that all the world's great whales are still deeply endangered with the exception of the gray whale, only recently taken off the Endangered Species List and now a target of Makah whaling set to begin this fall off the Olympic Peninsula.

The Makah's intent to go whaling again, even though the United States respects the international ban on whaling sets a dangerous precedent to other coastal or indigenous whale hunters around the world.

Norway and Japan, in flagrant defiance of the International Whaling Commission moratorium on whaling, are now pressuring the commission for increased cultural and subsistence-whaling quotas, while working behind the scenes to influence countries within the IWC to vote for a return to whale hunting.

Meanwhile, Green and others are protesting the U.S. Navy's new low-frequency sonar active tests scheduled to begin next month off the coast of Hawaii's big island. Green's Ocean Mammal Institute is scrambling to set up an independent-research team to monitor and, they hope, even stop the Navy's tests.

These sonar-pulse tests of between 185 and 205 decibels are part of the Navy's plan to detect enemy submarines. What's really frightening is that these sound-wave tests will target singing humpback whales in the middle of their reproductive and calving season when they are the most fragile.

The Navy said it will target whales and start the sound tests at 180 decibels, increasing it up to 215 decibels or until the whale reacts or, reaches its ultimate limit.

Many scientists believe humpback singing is a type of courtship display which male humpbacks use to attract mates. Why would we want to disrupt courtship and reproduction in an endangered species?

Sounds of 170 decibels cause generalized tissue damage to the human body and noise above 155 decibels causes immediate ear damage to humans. Navy sonar testing at 200 decibels would be 1,000 times louder than the sound of a jet engine before take-off if one were standing next to it.

Green and other scientists worry that the Navy's tests will cause great harm to the whales, as well as dolphins, sea turtles and all other marine life - not to mention the fact that there are often human swimmers and scuba divers in these warm, tropical waters. Even at the shoreline, the sound will be 130 decibels and the Navy intends to do these tests only five miles offshore.

Particularly chilling is the fact that the naval sonar team will look for singing whales as if they were enemy submarines to test the effect of sound levels which can cause extensive tissue damage and even organ rupture.

When the 195-decibel tests were conducted off the coast of California several years ago and in Hawaii this fall, the Navy did not acknowledge any connection between four dead humpbacks discovered near the test sites.

Green also reports that necropsies done near blast sites of undersea testing reveal whales with shattered earbones.

"A deaf whale is a dead whale," warns Green. "The Navy doesn't have to target singing whales to write their environmental-impact statement."

Green's research has found that whales dramatically decrease vocalizing and often flee when they are blasted with human sounds above a threshold of 120 decibels. Another study confirms her research.

Scientists counted 1,758 whales off the California coast. After Navy testing at 195 decibels in their habitat, the scientists could only find 130 whales.

Paul Spong and Helena Symonds who have been listening to orca vocalizations off the British Columbia coast for more than 17 years have also documented that during heavy boat traffic from tankers, the orcas hush their vocalizations.

In 1998, declared the International Year of the Oceans, a renewed movement is needed to protect the next generation of whales.

Just because most of us cannot hear or see under the surface of the world's oceans, doesn't mean that there isn't an entire world there that is crucial to our own survival, as well as the survival of the whales.

Ambassadors from the undersea

"It's really a matter of educating ourselves and our young people to understand that the fate of the great whales is really our own fate," Green explains, "because what happens in these humpback nurseries shows the health of our oceans. And human beings are directly dependent upon these oceans."

These great whales are like ambassadors from the undersea world whose songs and behaviors show us just what is going on down there in ocean abysses as wide and deep as our Grand Canyon. Will we listen to these undersea messengers?

Many indigenous tribes, from the native Hawaiian to the Maori in New Zealand, tell the story that the humpback whale songs keep the balance of the whole world. There is some recent evidence that this native science is true: Humpbacks sing with their noses straight

down, as if pointed at the sea bottom's depths. Their eloquent subsonic vibrations echo along chasms and travel three times faster than sound waves in the air. It has been documented that a blue whale in Bermuda can be heard by another blue whale in Newfoundland - their vocalizations communicating through deep ocean channels that we with our rudimentary sonar technology can only begin to imagine.

Anyone who has ever heard the intricate and other-worldly echoes of humpback whales, orcas, or blues knows that our oceans are alive with acoustic communications which may teach us about close communities, altruistic societies and intensive care of the young.

One Hawaiian man at the conference reported scuba diving in Maui's humpback sanctuary and suddenly hearing the whale singing in the depths beneath him:

"Those whale songs, lullabies they were, vibrated through the warm waters and into my own body," the diver said. "Human bones are hollow, you know. They echo and reverberate with sound like living tuning forks. You strike one tuning fork and suddenly, without striking the second one, it just begins to vibrate at exactly the same pitch."

'Lost our reverence for nature'

The diver noted that studies have shown people living next to noisy highways or airports suffer stress-related diseases, because they're continually bombarded with sound waves and their bodies deteriorate.

"So the same is true for wonderful sounds, like the humpback songs. . .those sound waves that resonated in my body left me with such a strong sense . . .of all being well with me - and with the whales."

Green that explained some recent cutting-edge research in which she has been involved shows that the environmental crisis is an external manifestation of our own human crisis.

"We've lost our reverence for nature and its healing powers," Green said. "We've forgotten our abiding connection with the natural world and our health, mind and body suffer from that loss."

Green also is conducting research to study the effect on humans of simply listening to taped humpback songs. Do these whale songs also alter stress levels and change our psychological and physical health? Imagine hospitals and human nurseries echoing with the healing harmonies of humpback whale songs.

Our whale nurseries are where the future of the oceans are conceived. These birthing waters are vital to the health of our watery planet. We may even one day document that these whale songs are also vital to our own human health.

Any mother or father knows that war games in a nursery are wrong. And to use other animals as our military targets is for our country to commit war crimes against nature and our fellow creatures.

If the 20th century saw the end of the Cold War, the 21st century must be a time of healing and rebirth for all endangered species on this water planet. If we can save nothing else, let us protect the nurseries of the world: the gray whale birthing lagoons in Baja and the humpback calving waters in Hawaii.

By listening to the humpback songs and protecting their next generations, we give our own grandchildren the hope that one day they might resonate to the living and healing lullaby of a humpback whale.

Brenda Peterson is the author of three novels and three books of nature writing, including "Living by Water" and "Nature and Other Mothers." She is co-editor of the new book, "Intimate Nature: The Bond Between Women and Animals."

How you can help

-- Write your congressional leaders to protest the LFA Navy sonar test in March. Also write Hilda Diez-Soltero, director, Office of Protected Resources, Room 13821 National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, Md., 20910. -- Help fund an independent research team to monitor the Navy's targeting of singing humpbacks. Write: Ocean Mammal Institute, P.O. Box 14422, Reading, Pa., 19612, or E-mail: www.oceanmammalinst.com -- Urge Mitsubishi and the Mexican government to stop new salt mines in Baja gray whale birthing lagoons. Write to Tohei Takeuchi, president, Mitsubishi Corp., P.O. Box 6400, Cypress, Calif., 90630-0064, or call (714) 372-5500.

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