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Whale of a lesson: Scientist brings her expertise about right whales to Rockport Elementary

By Pamela Campbell/Corresponent
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Rockport - Does a right whale with a missing flipper or damaged fluke swim in circles, like a rowboat with one oar?
Do they sleep at night? And if so, where do they go?

These and other eager questions came tumbling from fourth and fifth grade students at Rockport Elementary School last week, following a presentation by a right whale expert from the New England Aquarium who is passionate about her subject and, as a former teacher, has a knack for delivering fun facts with spirit, humor and enthusiasm.

Thanks to the coordinated efforts of a Rockport Elementary School parent with ties to the aquarium, a continued science outreach initiative pursued by RES Principal Shawn Maguire and his faculty, and the willingness of aquarium biologist Dr. Moira Brown to volunteer her services, several classes got to learn a whole lot about what's going on with right whales off the New England coast.

Long before there was a New England, the "right" whale for easy harpooning and dragging — they are slow, full of blubber, and float to the surface when killed — had been hunted completely away from the North Atlantic waters off Europe, making the discovery of the creature in plentiful numbers along these shores a delightful surprise for seafaring settlers and their sponsors back home, who coveted whale blubber for its superiority to candles for indoor lighting.

Eventually, the long, plastic-like strips of baleen in the right whale's jaw that serve as a sieve for feeding on plankton — up to 40 tons a day per whale to sustain life — became valuable for a variety of products, including corsets and buggy whips.

By the end of the 19th century, "right" whales had been nearly wiped out here as well. Hunting and harpooning them wasn't banned until 1935 — but in place of the whalers and their deliberate killing have come, in the decades since, huge steel-hulled ships, propellers, and cables, the long lines of fishing trawlers, and the floating lines of pot-buoys and lobster traps, all of which have made accidental death and drowning the primary hazard these creatures (with no known predators) now face.

Until Dec. 9, right whales and ships had shared the same "lanes" along the coast from the Bay of Fundy to Florida, overlapping each other's paths and making collisions — always to the detriment of the living, breathing whales — inevitable.

Brown, a Canadian right whale expert and member of the New England Aquarium's research team who lives in Rowley, informed a rapt audience of students and teachers at RES that the new shipping lane agreement, based on a similar one put into effect in Canada with successful results, moves ships slightly to the east and urges them to slow to 10 knots, taking them out of the direct path of most right whales.

The whales' north-south-north-south swimming routes are taught, mother to calf, based on centuries of migration patterns. Fishing and shipping industries are cooperating, Brown says, with the efforts to minimize hazards.

"It'll be a while before we know if it's doing the trick," she added, but the changes in Canadian waters have had a dramatic impact. A diagram of tracked whales and ships showed parallel lines of each, where once they had mingled indiscriminately.

In addition to the lanes being moved, voluntary efforts will include lobster gear lines that once dragged or floated to the surface being lowered to the ocean bottom, and special clips for fishing lines and cables designed to give way under 500 pounds of pressure, so if a whale is entangled or stuck, it can pull free by swimming away. (A right whale weighs a ton at birth, and up to 70 tons full grown.)

Scientists like Brown determined, by identifying each whale by appearance and other means and tracking it throughout its life as far as feasible, where and how they travel, what their habits are, what happens to them in terms of injury or entanglement in gear or lines, and — with females — how many calves they may

have in a lifetime (one has been documented as giving birth seven times; a whale's pregnancy lasts a full year, and can only occur every three years).

"Right whales live about as long as we do," she said. She introduced the story of Calvin, born in 1992 (named when just a calf, Calvin—after the comic strip character—turned out to be female), who was orphaned in the Bay of Fundy by a shipping collision at 8 months old.

Identified by "callosities," dark wart-like growths that appear in pattern unique to each individual whale soon after birth (and subsequently covered in up to a million marine lice per whale, a fact that quite grossed out Brown's audience), whales are photographed, numbered, and named for easier tracking and study. Calvin, who wasn't given much of a chance for survival for being orphaned so young, not only survived, but was spotted again and again up and down the coast — once found entangled (and subsequently freed by researchers); and twice with a new calf of her own (most recently just last week).

"Humans are working very hard," Brown assured students, pointing to the chart showing shipping lane changes in Canada, "to give the whales the space they need" to go on surviving and replenishing their numbers.

Four hundred adults and 19 new calves have been counted in Atlantic waters as of this moment. Brown and other researchers travel up and down the continent tracking whales, photographing them from shore and aboard research vessels, tagging them for tracking purposes, and, when need arises, rescuing them from lines or injury.

When the presentation ended and Brown invited questions, hands shot into the air.

"If a whale loses a fin or part of his tail, won't he swim in circles?" ("No, they compensate like all other animals.")
"Who's your favorite whale?" ("All of them.")

"How do they sleep?" ("With one eye open." They have to stay awake so they can surface and breathe; they do rest at the surface and slow way down, another reason they are prone to injury.)

"How long can they hold their breath?" ("About 15 minutes, but they can dive down as low as 600 feet—we know that because they come back up with mud on their heads.")

But by far the most common and animated questions — and reactions during the talk — had to do with the lice that live on a whale's body.

“How do the lice breathe?” (“They’re marine lice and have adapted.”)

“Can’t they get rid of the lice?” (“The whales aren’t bothered at all.”)
“Does every whale have them?” (“Yes.”)

“How do they stay on when the whale dives?” (“Their hind legs hook into the whale’s skin and hang on.”)

Each answer, and each question, brought new rounds of “Ewwwwww,” although a jar passed around with dried marine lice in it did not seem to cause much recoiling, hand to hand. Far more students inspected the jar closely than not, and everybody shook the jar.

Brown was invited to RES by Diana McCloy, an RES mom and media consultant who works with the Aquarium from time to time.

“When I found out she lived in Rowley, I just asked her if she’d be interested,” McCloy said. Brown generously agreed to speak for free. It fit right in, McCloy said, with the vision for hands-on science education that RES Principal Shawn Maguire has been pursuing since taking his post two years ago.

Grants from New England Biolabs and the Rockport PTO will help turn the room in which students heard about the right whale into a science center, welcoming other speakers as well as boasting live animal exhibits and a variety of opportunities for closer study of the world around us, especially in and around Cape Ann.