

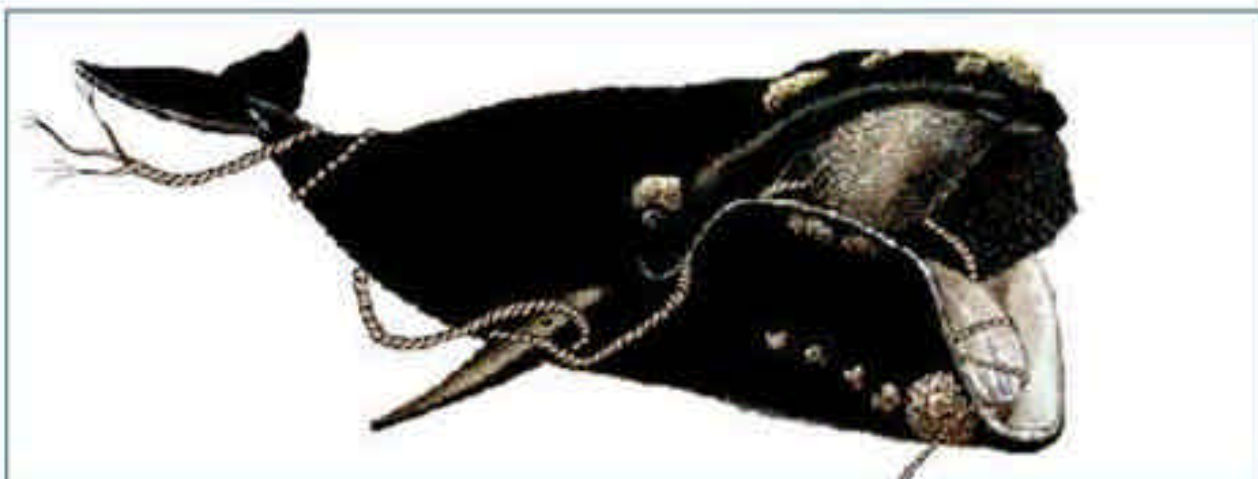


Natural History Notes 42

North Atlantic Right Whales & Fishing

ENTANGLEMENTS & ENTRAPMENTS

Right whales were extremely important to the whaling industry for hundreds of years, but by 1935 right whale numbers were so low that they were protected from commercial whaling. However, they have not recovered in the western North Atlantic and are considered critically endangered with the population estimated between 350 and 400 individuals. This is in contrast to southern right whales whose population has grown dramatically after protection. It appears in the southern oceans more whales remained after protection from whaling, fewer right whales were dying because of ship strikes and entanglement, and probably other factors favoured the continued recovery of southern right whales. North Pacific right whales are also extremely few in number but these whales were hunted illegally and killed under scientific permits after protection further preventing recovery.



Right Whales have no dorsal fin on their wide, darkly coloured body, have large flattened flippers and large deeply notched flukes. Their heads are one third of their body length on which are whitish, craggy patches called callosities. They weigh up to 70 tonnes and reach lengths of 15 to 18m (50-60 feet)

but despite their large size eat only tiny zooplankton, such as copepods and krill (euphausiids). They skim or filter zooplankton from the water using baleen plates in their mouths, feeding day and night to reach their daily nutritional requirements of 1-1.5 tonnes. Approximately 220-260 baleen plates hang down

vertically on each side of mouth from highly arched upper jaws, with a wide gap in the baleen at the front. The plates are stiff and triangular in shape and up to 2.8m (9 feet) long, and 30cm (1 foot) at the widest point. As right whales swim through patches of zooplankton with their mouths open the water is filtered out through the baleen plates and the zooplankton are caught on the long hairs on the inside of these plates. When the whale finally closes its mouth, the remaining water is forced out and the zooplankton is swallowed. Their bodies are designed to constantly swim against strong resistance as they feed, making them extremely strong whales.



The beginning of deep dives can be identified when the whale lifts its tail, may last 10-30 minutes, and reach depths of 100-200m (300-650'), although they may dive to the bottom in 200-m since their heads are sometimes smeared with sticky bottom mud when they surface. Because right whales are so buoyant from their thick blubber layer, they must actively swim downwards

but can surface from depth without effort using only their buoyancy. Each deep dive is followed by a series of shallow dives at a rate of 2-3 per minute without lifting the tail. The V-shaped blow of the right whale may be apparent as the whale breathes at the surface between dives. Right whales may also rest at the surface with no movement for many minutes. When travelling at the surface, right whales dive for shorter times and may quickly lift their flukes after each surfacing. They are slow swimmers (cruising at 4-7KPH or 2-4 knots), travelling singly or in small groups. "Mating" behaviour at the surface occurs year round with groups of 2 to 40 whales congregating in vigorous surface activity oblivious to nearby vessels. Despite their large size right whales are not always easy to spot because of long dive times and their low profile at the surface. If you do encounter right whales do not assume they will move out of the path of your vessel. They often ignore vessels until the last moment if they react at all. Slowing down, posting a lookout and avoiding areas with right whales will help prevent collisions.



Why do right whales get entangled in fishing gear?

Fishing and large whales often occur in the same location where prey species are abundant. While large whales are attracted to patches of zooplankton, schooling fish or squid depending on the species of whales, right whales feed exclusively on small zooplankton which can also be prey species for schooling fish. The Bay of Fundy, Scotian Shelf, and to a lesser degree areas in the Gulf of St. Lawrence, attract large numbers of feeding right whales during summer and fall, but the whales are also constantly moving and may be found singly or in small numbers when migrating from one area to another throughout their North Atlantic range.

Temporarily anchored fishing gear, such as bottom-set gill nets, long lines or trawls, and pots/traps for lobster, crab, haddock or cod, are rigged with ropes (lines) running up to surface buoys. The surface lines and buoys allow the relocation of

of the gear and subsequent retrieval, and alert other fishers and boaters to the presence of fishing gear. Ground lines may also be used when attaching gear together in a series, such as with lobster or crab pot/trap trawls. Large, more permanent traps such as herring weirs, are located in shallow water near shore and can be constructed of netting and wooden stakes driven in the bottom or floating plastic tubing, may have an anchoring system with additional lines and floats, and a lead or fence made of buoyed netting to divert the targeted species into the trap. Depending on the fishing gear and where it is located, the lines can be in relatively shallow water or can extend to great depths where there is little light making the lines difficult or impossible to see. Setting and retrieving gear may take place day or night and during a variety of weather conditions, depending on the fishery.

Right whales are at risk of entanglement in fishing gear because of a number of factors but it must be

speculated what happens when a right whale gets entangled because it is seldom witnessed. Often all that can be done is look at how the whale is entangled and the type of gear attached to the whale. Frequently, by the time the entangled whale is discovered, all that is left of the fishing gear is the rope itself, although traps, parts of gill net webs, buoys, balloons or other floats have been found on entangled whales. Whales can become entangled in both actively fished gear and in gear that has been discarded or lost (marine debris). Gill nets



Photo of an entangled female Right Whale who was partially disentangled in the Bay of Fundy in 1999. She was spotted again in 2001 free of gear.

and pot/trap gear are the most common gear encountered by right whales, and therefore, more likely to be involved in entanglements, although right whales have been entangled in a Newfoundland cod trap and a Danish trawl.

It is known that entangled whales usually have rope through their mouth, around one or both flippers, around their body or tail or a combination of these locations. Great lengths of rope often extend well



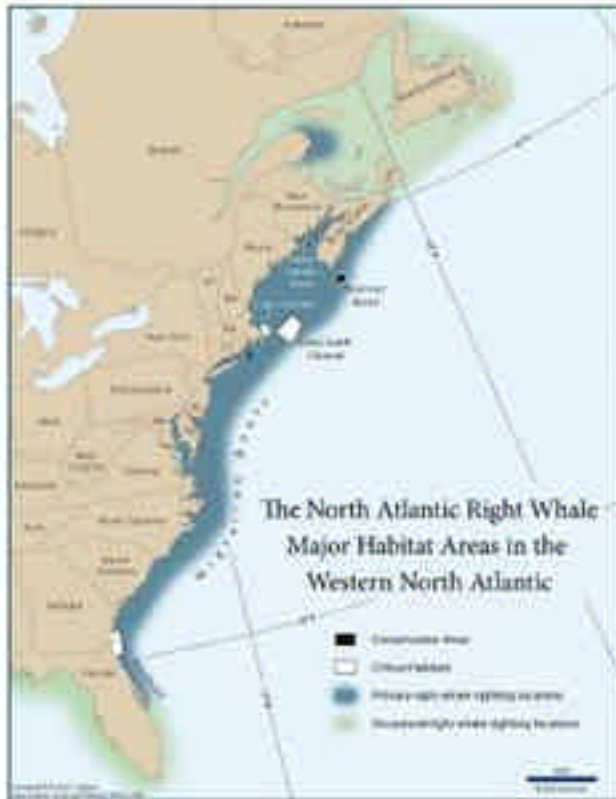
Photo of the open mouth of a North Atlantic right whale and the numerous, long baleen plates.

behind the whale. Because right whales are skim feeders they may feed in a patch of zooplankton for 10 to 30 minutes with their mouths open the entire time before surfacing for air. They can do this for days on end, making their mouths prime areas for catching ropes and causing entanglements.

It may be impossible for a right whale to detect and avoid entangling gear when feeding at night or at depths where there is little or no light. As well, the eyes of right whales are at the sides of their heads, well back and behind their jaws. This makes seeing directly in front of them impossible even with lots of light because they don't have binocular vision. Obviously, right whales must rely on more than just sight to navigate and find prey. Not all whales get rope entangled in their mouths, some have it tangled around their body and wrapped in their flippers and/or flukes. Whenever they encounter rope they struggle to get free, typically rolling and twisting, and in the process creating a complicated, sometimes lethal, problem of tightly knotted rope.

Once entangled right whales try to swim away from the gear. Because of their immense strength, right whales are often able to part rope and swim away with whatever is entangled plus anything trailing behind, however, sometimes they can not break free, remain anchored and risk drowning. Of those that break free:

- Some are disentangled or partially disentangled relatively quickly;
- Some remain fully or partially entangled for years before the rope breaks down, or;
- Some die from starvation if the line is swallowed or tightly wrapped around the mouth preventing feeding, or from infection when the rope cuts deeply into skin and/or becomes imbedded around the head, in flipper bones or tail stock, or a combination of both. Young whales are particularly vulnerable because the lines tighten as they grow rapidly.



North Atlantic Right Whales have been seen in the winter as far south as the Gulf of Mexico and in the summer as far north as Iceland and even Norway, but their primary range is from Florida to the Bay of Fundy/Scottian Shelf.

If infection has already set in, even whales that have been disentangled have subsequently died of complications from infection. Scientific analysis of scar patterns on right whales individually identified and catalogued shows that 75% have been entangled at some point, with a smaller percentage of these entangled more than once.

When a whale is entangled in fishing gear, it is at risk of dying but it also means that individuals in the fishing industry may suffer economically through loss of fishing gear, fishing time, catch and possibly the ability to fish because of repercussions of a deadly entanglement.

Why and when are they in Canadian waters?

Primarily to feed from June through November, although dates may vary; extending into both May and December.

Right Whales & Herring Weirs



Traditional herring weirs are built close to shore of wooden poles (stakes) and top poles from which netting is suspended. They are designed to trap herring until the fish can be removed from the water. Although right whales are not usually close to shore in Canadian waters and they do not eat herring, they have been found inside herring weirs on several occasions. Right whales could swim back out the opening or are strong enough to force their way through the netting or knock over the wooden poles that make up the walls of a weir but usually avoid doing so. Right whales will also not venture through an opening if netting remains below. They appear to want an opening sufficiently wide from the surface to the sea floor facing out to sea, before they will leave the weir. By creating such an opening, the entrapped right whale will immediately swim out once the hole is large enough, without regard to any vessels or divers that may be nearby.

What can individuals do?

- Learn as much as possible about whales (e.g. how to identify them, how they feed, how they behave), then combine that with fishing knowledge to work with right whale biologists to help solve the problem of whales getting entangled in fishing gear.
- Modify fishing practices and use "whale friendly" gear.
 - Always watch for right whales and alert others fishing if right whales are in an area.
 - When travelling slow vessel speed and alter course away from right whales when safe to do so, and especially in poor visibility, post a lookout to warn of whales.
 - Never set gear in the path of feeding right whales or any surrounding area where the whales will move on the tide.
 - Avoid areas where right whales are found by fishing different areas until the whales move. This may occur quickly or may take several days or more.
 - Tend fishing gear if possible and react by pulling gear if right whales approach too closely.
 - Reduce the amount of rope in the water, for example by using shorter lines, fewer buoys, more traps per trawl. Ultimately, the less rope in the water, the less likely whales will become entangled.
 - Whenever possible use sinking or neutrally buoyant rope, weaker rope or breakaway links to prevent whale entanglements.
 - Reduce the amount of ghost fishing gear by resolving conflicts that result in lost fishing gear, and bringing unwanted rope/fishing gear back to shore.
 - Help with gear modification trials and the development of alternative gear.
- Report entangled whales – via VHF 18 Coast Guard Radio or phone 1-900-565-1633 (Maritimes), 1-888-895-3003 (Newfoundland & Labrador), or 1-877-722-5340 (Quebec). Specialized teams can intervene by cutting lines off the whale. Stay with the entangled whale until disentanglers arrive, if possible. Entangled whales that are reported but not followed are never relocated the same day and very rarely in subsequent days.
 - Disentangling ultimately is, at best, a stopgap measure to help those North Atlantic right whales that are found already entangled. It is only successful 50% of the time, and whales can still die from infection and complications after disentanglement. However, once a right whale is entangled, it is imperative to free it.
- Accept locally developed voluntary codes of conduct, and become involved in supporting research and conservation efforts to reduce conflicts between right whales and the fishing industry, including plans of what to do when large numbers of whales are in fishing areas.

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FUNDING FOR DEVELOPMENT

Canada

Government of Canada Habitat Stewardship Program
for Species at Risk

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