

Overview

Abandoned, Lost, and Discarded Fishing Debris

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Marine Debris is defined by The National Ocean Service (NOAA) as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into a marine environment. This includes everything from plastic bottles to abandoned, lost, and discarded fishing debris.

Although all forms of marine debris can be harmful to marine life; debris associated with the fishing industry otherwise known as abandoned, lost and discarded fishing debris is most harmful. This type of debris is specifically designed to capture and entangle marine life and it does a good job.

Why gear ends up in our oceans and on our shorelines varies from province to province, there was a study completed in the Bay of Fundy suggesting fishers in that area are intentionally discarding gear at sea, there's little to no evidence to suggest that intentional discard is occurring in LFA 27 (Eastern Cape Breton).

**Reasons include:** Intentional discard at sea due to the lack of proper waste management facilities, lost during storm events, conflicts with other industries and fellow fish harvesters.

The consensus in Cape Breton is that gear is lost due to storm events. Along the coast of Cape Breton lobster traps are set close to one another when storm events occur traps entangle with one another creating a "snarl". A snarl is when several lines entangle with one another leaving you with several traps and one large entangled rope which in most cases is near impossible to bring to the surface due to the weight and the danger of getting your propeller entangled in the ropes. Sending divers down to cut the ropes is another option however you run the risk of your divers becoming entangled as well.

Although there are barriers when trying to retrieve gear, we must continue to do everything we can to combat the issue. Some gear can be retrieved safely, and it's all about knowing what's safe and what's not.

Some fishers will move their gear to deeper water when they know a storm is coming, this offers some protection and prevents the loss of gear in some cases.

Most if not all debris found along the shorelines in Cape Breton are associated with the fishing industry whether that's entire traps, buoys or ropes. It's important to remove gear from the shoreline because it can wash back out during high tide and storm events. It poses a risk to wildlife life onshore as well as in the ocean; it poses risks to children playing in the area and it's unsightly for beach goers.

Substantial efforts are needed by the fishing industry to clean shorelines throughout our community and they need to be held accountable for the waste generated from their operations along our coastline.

### **Lobster bands**

Although lobster bands do break down, they still pose a threat to marine life through accidental ingestion during the degradation process. The time it takes for a rubber band to break down in a marine environment is up for debate and many factors come into play when trying to determine the rate of degradation. Just because something may degrade doesn't simply imply you get a green light to dispose of it in the ocean. It's important to note that when something begins to break down the particles don't magically disappear into thin air; they break down into microscopic particles that can be ingested by microscopic organisms.

## **Why is wire gear more harmful than wooden gear?**

Wire traps have a metal frame which is coated with synthetic plastic which protects the gear from rusting in the water. Wire traps are more harmful than wooden simply because they can withstand more than the wooden gear; they take a very long time to break down if ever. Wooden traps tend to smash up relatively easy on the rocks. Wire traps can “ghost fish” for the duration of their life cycles when lost and abandoned in a marine environment. There are many plastic components that are on a lobster trap both on the wooden and wire frames. The lobster escape hatch is designed to fall off the trap after 6 months of being in the water, these hatches are often found along the shoreline in staggering numbers. The hatches derive from very thick synthetic plastic. All these types of debris including lobster tags contribute to ocean plastics worldwide.

“Plastic debris has been found in the oceans worldwide and global analysis reported a quarter of a billion metric tons of plastic suspended in the oceans (Cózar et al., 2014; Eriksen et al., 2014). Several potential impacts of plastic debris on marine wildlife were recognized, such as: i). injury, trapping, or drowning through entanglement, ii). internal injury, obstruction of the gut, accumulation of plastic material in the gut, damaging or clogging gills, iii). It can also act as a substrate means of transport for rafting organisms or as a substrate/shelter for benthic animals on the seafloor, iv). or it can be an attractant to fish or other marine life (Law, 2017; Kiessling et al., 2015). Influence of chemicals, emitted from or associated with plastic, was also studied (Koelmans et al., 2014O; gata et al., 2009)”. (Potocki, 2018)

"Consumption of bigger pieces of plastic can cause false satiation or even clog the gut, which may be lethal for most of the animals (Savoca et al., 2016). Smaller pieces, such as micro-plastic strands, may accumulate within crustacean tissues (Murray and Cowie, 2011), and can be further transferred to the next levels of food chain, also to humans (Kontrick, 2018). So far we know that alkylphenols, products used i.e.in plastic manufacture or petroleum recovery, were discovered in lobster's hemolymph (Jacobs et al., 2012) and they have serious negative influence on animals' physiology: larval survival and metamorphosis(Laufer et al., 2011) or shell hardening during molting (Laufer et al.,2012). Through a delay in the hardening response, pollutants such as alkylphenols may exacerbate shell disease, which can further influence, overall, lobster stocks (Laufer et al., 2005). Our observations, although noticed by accident, showed that the problem of plastic pollution also affects American lobsters and special attention should be paid to this issue”. (Potocki, 2018)

## **What’s the difference between ghost gear and derelict gear?**

**Ghost gear** is fishing gear that’s lost or abandoned and has the ability to catch target and non-target species; for instance, an abandoned lobster trap that lies on the seafloor and is still intact and catching lobster and other marine life. When a lobster dies it baits the trap attracting other forms of marine life and we call this the “Baiting Cycle” this continues for the duration of the gear’s life cycle, which could be upwards of 6 months or more depending on the gear type and environmental conditions.

Ropes can be particularly dangerous as we often hear about whales becoming entangled. This type of entanglement hinders the marine mammals’ ability to hunt and travel effectively leaving them disabled it can also become extremely painful. It’s extremely important to remove ropes from the water and from the shoreline, ropes can be washed back out and drift many miles in the ocean currents

**Most common items associated with fishing industry found on Cape Breton Shorelines include:**

Lobster escape hatches, lobster tags, bait bags, ropes, entire traps wire and wooden, Styrofoam and plastic buoys, bait spikes (sharp and pose risk to beach goers, sometimes found protruding out of seaweed and sand), lobster bands, netting, nylon gloves, packing straps, wherever we find this type of debris we find an increase in cigarette butt litter.

**How many fish harvesters are in Cape Breton?**

There are roughly 500 fish harvests operating in LFA 27.

As of 2019 DFO has made it mandatory for independent lobster fishers to report their loss and retrievals to Department of Fisheries and Oceans Canada this is an attempt to better monitor gear loss and retrievals.

Lobster fishers set up to 275 traps per season

On average fishers' report losing 10-20 traps per season but in extreme cases they can lose upwards of 100.

## References

Potocki, M. (2018). *Plastic pollution affects American lobsters, Homarus americanus*. Elsevier Ltd.