

2018 Report



Cape Breton Environmental Association

2018 Report

ACKNOWLEDGEMENTS

CBEA would like to thank all community volunteers for their help in the 2018 season as well as the following organizations, institutions and government bodies which include but are not limited to.

Bayitforward

Acap Cape Breton

Oceans of Opportunity

Cape Breton Regional Municipality

TaLo Café

Town house Glace bay

Waves Media Co.

Louisbourg Seafoods

Long Beach Road Boat Building

Port Morien Wildlife Association

Cape Breton University

CEPI YOUTH

NSCC Strait Area Campus

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Introduction

This report highlights the activities of CBEA during the 2018 year. Which includes an overview on community cleanups and shoreline cleanups within the CBRM. Highlighting the locations and materials collected. The negative impacts associated with these materials in our terrestrial and marine ecosystems.

Overview

Community cleanups/ Illegal dumpsites

Cape Breton Environmental Association completed several community cleanup events during the 2018 season with great success and community involvement. It's apparent Cape Breton still has a major issue with illegal dumping. Black bags remain the top materials disposed of illegally. A close second includes tires, motor oils and demolition materials. The increased dumping of black bags "may" be a result of material being tagged at curbside. It's not uncommon to find 1-5 tires at an illegal dumpsite, with some still on rims. Motor oils and other contaminants have been found at several sites throughout the CBRM. These materials can have adverse effects on aquatic ecosystems and groundwater supplies. Oil and other contaminants can travel vast distances, through groundwater transportation. There have been several occasions throughout the 2018 season where sites have been found to contain a wide range of illegally dumped contaminants. **It's important that residence be educated on where they can properly dispose of these materials safely.**

Disposable diapers are becoming another common illegally dumped material throughout the CBRM with many dumped directly into aquatic environments.

On top of human feces, they contain dyes and dioxin, which is formed as a by-product of the chlorine bleaching process.

Dioxin is a carcinogen, which means it can cause cancer. When released into the environment, the toxin can accumulate in humans and animals.

The number of investigative files for the CBRM has gone up since last year, however this doesn't necessarily mean illegal dumping is on the rise, this could in fact be attributed to an increase in reported sites due to education and awareness. The CBRM's new bylaw with regards to illegal dumping has been implemented and several fines of \$697.00 have been handed out this year. With more education and awareness in the coming months and charges being laid we hope to see a decrease in 2019. Each illegal dumpsite CBEA has encountered this year has been reported to the CBRM solid waste management hotline at **(902)-567-1337**.

Negative impacts associated with illegal dumping

- public health and safety
 - decrease property values
 - increase property taxes
 - impact economic development
 - quality of life
 - Birds and wildlife
 - Aquatic ecosystems
 - Increased vermin
-
- Fish and other aquatic species are often killed when decomposing litter and food wastes in streams deplete oxygen supplies in water
 - Debris in streams can also clog fish spawning areas
 - Toxic run off from improper disposal of toxic substances such as household cleaners and motor oil can contaminate lakes, streams, which can often have adverse effects on aquatic organisms and in many cases lead to their death

Organisms are limited by their ability to live successfully (i.e. live to reproduce) in the variety of physical environments that exist.

- **Limiting nutrients**
- **Dissolved oxygen levels**
- **Water temperature**

These limits are shown by performance curves that relate the success of an organism to some physical variable, Example – temperature, or dissolved oxygen levels.

- Affects watersheds, Chemicals leach into streams, lakes and ground water
- Affecting drinking water supplies and altering aquatic ecosystems
- Common contaminants found are motor oil, batteries, tar, paint, paint thinner, antifreeze, human waste, hospital supplies, cooking oil

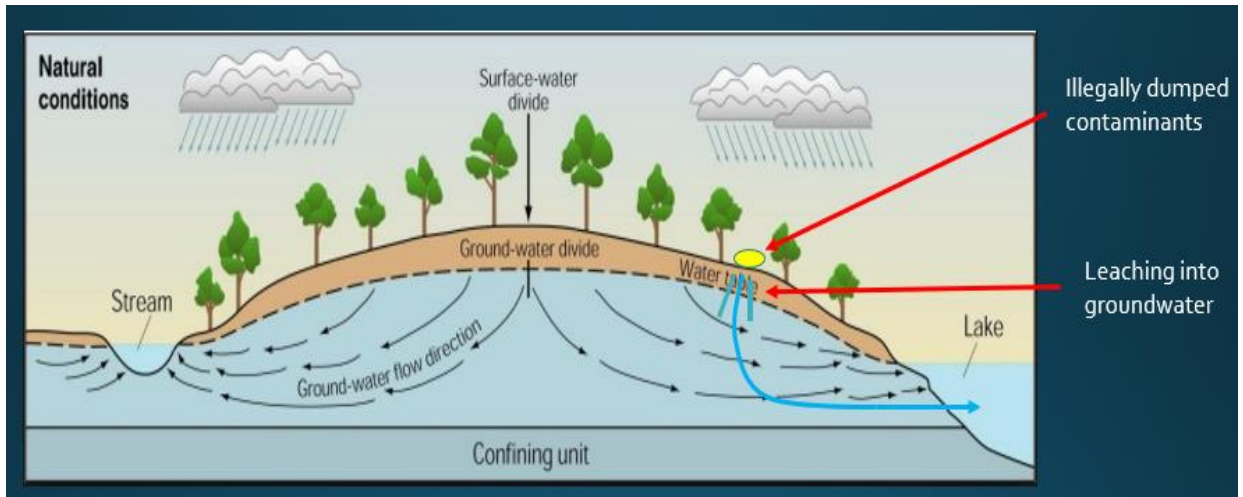


Figure 1: Illustration highlighting movement of contaminants through groundwater

- Illegal dumpsites can impact aquatic environments without being directly dumped into that environment
- Contaminants can travel vast distances through soil and groundwater transportation



Figure 2: Illegal dumpsite within stream

CBEA 2017



Figure 3: Debris Blockage within stream
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Areas of concern

- Sand Lake Road, Glace Bay (rural road high amount of illegal dumping activity). 2 cleanups done in this area, still several dumpsites remaining
- Broughton Rd
- The old strip mine located in Reserve mines, Glace Bay (various access points all being used for illegal dumping, high number of burned out vehicles).
- Fisherman's park Glace Bay, high amount of litter building up in this area (no garbage cans).
- Georges river (Old Quarry)
- Port Morien Highway from Port Morien to black brook cemetery (11 bags of garbage recently collected along this stretch of highway)
- Number 2 shore Glace Bay, North street shore, Glace Bay
- The Gardiner between Warbuton road and Strang road high amount of litter.
- Bottom of Lake Road Glace Bay
- Old airport Sydney, dirt road access into old strip mine located in Reserve Mines Glace Bay
- Caledonia trails (near soccer field)

Location	Bags collected	Other Items	DATE:
Big Glace Bay Lake Migratory Bird Sanctuary (Old Seaboard Station). Lake Rd Glace Bay, NS	75	Rope, needles, plastic buckets, car parts, bicycle, BBQ, siding, fast food packaging, plastic shopping bags, diapers, large black bags filled with household waste, demolition materials, several tires various sizes.	March 31, 2018
Tower Road Community Cleanup in partnership with CBRM. Tower Road, NS	35	Large plastic sheets, vehicle tires, office desk, car parts, diapers, Tim Hortons cups, polar pop cups, fast food packaging.	May 5, 2018
Stream Clean Spar rd. Sydney NS	35	Shopping cart, bicycle, clothing, large plastic sheeting, plastic shopping bags, plastic bottles, backpack.	May 13, 2018
Fisherman's Park Glace bay, NS	30	423 Tim Hortons cups.	May 26, 2018
Stream clean # 2 Spar rd. Sydney NS	32	High amounts of plastic bags, Styrofoam drink and food containers, plastic bottles, clothing.	June 17, 2018
Cleanup for Cancer Commercial Street Glace bay, NS	42	High amounts of Tim Hortons cups, polar pop, plastic bottles, fast food packaging.	September 29, 2018
TOTAL	249 Bags		

Table 1: Compiled Cleanup data
CBEA 2018

Notes: Illegal dumping still ongoing issue within Cape Breton Regional Municipality, However CBRM is doing a great job at combating this issue with new increased fines, bylaws and education.

Shoreline cleanup overview

CBEA has been involved in three major shoreline cleanups during the 2018 season. These cleanups resulted in the collection of large quantities of materials related to the fishing industry as well as plastics and tires. Four shorelines that were focused on this year include Bridgeport Shoreline, Schooner Pond shoreline, The Cove shoreline, and a small cleanup on Ferguson's Beach. The Schooner Pond shoreline had the highest accumulation of materials related to the fishing industry, resulting in the collection of 60 lobster traps and a couple hundred pounds of fishing ropes and buoys. Other items that were collected included high amounts of tires (10) and various plastic debris such as water bottles etc. **These sites are to be revisited in the 2019 season and monitored for future accumulation of materials.**

CBEA has been involved in many awareness campaigns throughout the year to help spread awareness with regards to ocean plastics and lost and discarded fishing debris throughout Cape Breton. CBEA in partnership with Waves Media Co. is developing an ocean conservation documentary which will highlight the issues of ocean plastics and lost and discarded fishing debris here in Cape Breton. This film will help paint a clear picture of these issues and highlight the work being done by local environmental organizations, artists and artisans, government agencies and everyday people. Ocean plastics are an ever-growing issue with global consequences. It's estimated that 80% of ocean plastics originate from land-based sources. Making their way to the ocean via storm drains, streams, rivers and wind. Items you flush down the toilet often end up in our oceans. Trash is often left on beaches which get washed into the ocean through tidal action and wind.

Negative Impacts associated with ocean plastics include;

- Sea Turtles often mistake plastic bags as jelly fish, plastic straws can also pose a risk to sea turtles as they often get lodged in their nasal cavities.
- Over 1 million seabirds and 100,000 sea mammals are killed by pollution every year. Unfortunately, several marine species are on the verge of extinction because of such type of ocean pollution (Mambra, 2017).
- Consumption of plastic by marine creatures causes severe digestive problems which go mainly untreated. Reports suggest that the consumption of plastic by all type of fish amounts to several of tonnes every year (Mambra, 2017).
- Plastic waste in the oceans threatens the life of birds. Most of the times, these beings suffer because of ingestion of plastic or because of suffocation, especially birds, by merely being tricked by the brighter colours of plastic junk (Mambra, 2017).
- Plastic contains a lot of substances which might otherwise be hazardous. When fishing activities are carried out, there is every chance that fishes infected with such harmful substances might find their way into our household, thereby causing health problems to the end consumers (Mambra, 2017).
- There have been several known cases of whales washing ashore, suffering extreme cases of malnourishment due to large amounts of plastic debris obstructing their digestive systems. Preventing them from processing food, these whales suffer a very painful death.
- Plastic is not only an issue on the high seas. It can also cause issues on the shores and the beaches which are infested with plastic. The plastic waste can either float for miles on the water or they could be submerged on the sea-bed or commonly be found on coastal shorelines. Such congested areas become easy threats to birds and other land animals that get caught up in the maze of plastic (Mambra, 2017). A shoreline ecosystem can become severely impaired by the buildup of debris. Shorelines are very much alive and are essential corridors and habitats for many species from shorebirds to sea turtles which nest upon them.

Location	Latitude/Longitude	Bags collected	Lobster traps	Other items	Date
Bridgeport Shore Glance bay, NS	46°13'0.60"N 59°59'53.00"W	36	3 wooden	Large rubber matting, plastics and fast food packaging. 3 vehicle tires,	June 9, 2018
Schooner Pond Shoreline Donkin, NS	46°10'39.43"N 59°50'39.02"W	32	60 (90% wire)	bait bags, bait spikes, large carpet, 10 vehicle tires, lobster bands, fishing tags, Styrofoam buoys, escape hatches.	June 30, 2018
The Cove Shoreline New Victoria, NS	46°15'47.51"N 60° 7'17.90"W	25	49 wire	bait bags, bait spikes, Styrofoam buoys, ropes, car parts, heavy metals, escape hatches.	July 28, 2018
Schooner Pond Shoreline cleanup #2 Donkin, NS	46°10'39.43"N 59°50'39.02"W	1	10 wooden	Couple hundred pounds of rope, bait bags, bait spikes, lobster bands, fishing tags, Styrofoam buoys, escape hatches.	November 4, 2018
Ferguson's Beach Port Morien, NS	46° 9'38.27"N 59°51'10.83"W	3	3 wire 1 wooden	2 tires, 12 bottle caps, 7 tampon applicators, 2 shoes, 2 vehicle tires, 16 plastic bottles, 4 plastic fishing tags, 12 Styrofoam buoys, 1 large rubber glove, 2 bait bags, 5lbs rope, 1 plastic Tim Horton's cup.	November 17, 2018
TOTAL		97 Bags collected	126 lobster traps collected		

Table 2: Compiled shoreline data
CBEA 2018

Notes: Major issue with lost and discarded fishing debris on Cape Breton shorelines where commercial fishing is taking place. Gear is lost and discarded during storm events and is washing ashore. Causing all kinds of dangers not only to marine life but to beach goers. High amounts of tires are also being found along our shorelines as well as plastic materials.

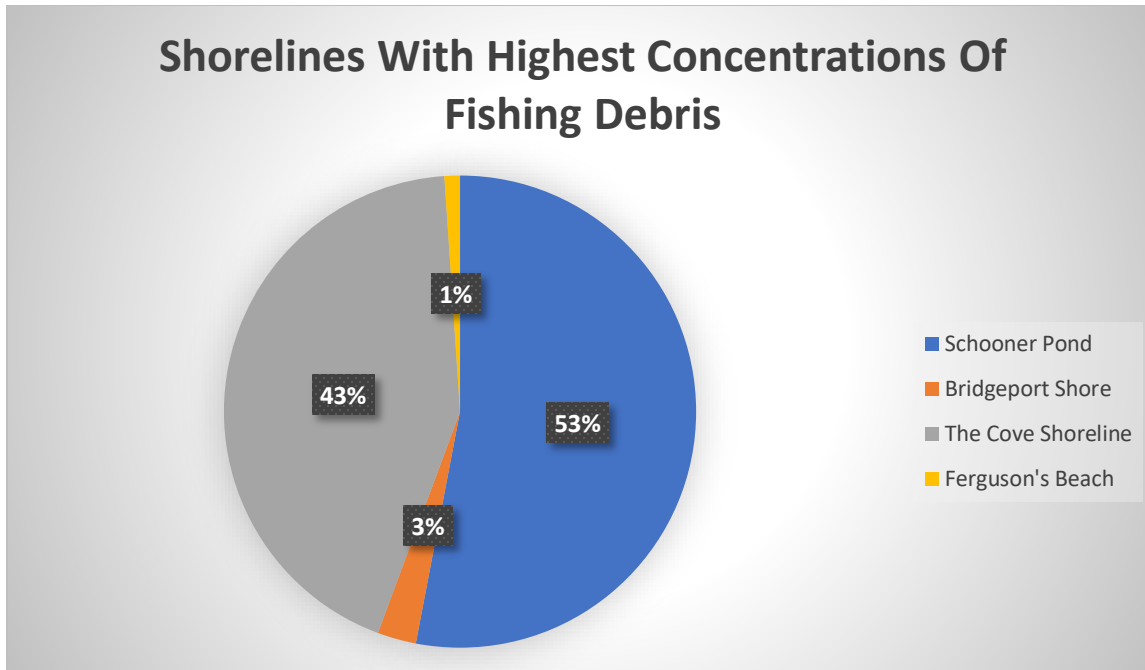


Figure 4: Shorelines with highest concentrations of fishing debris
CBEA 2018

The factors which cause fishing gear to be abandoned, lost or otherwise discarded are numerous and include:

- Adverse weather conditions
- Operational fishing factors including the cost of retrieval
- gear conflicts
- unregulated unreported fishing
- Vandalism/theft
- Availability of shoreside collection facilities

Weather, operational fishing factors and gear conflicts are probably the most significant factors, however the causes of abandoned, lost or otherwise discarded fishing gear is poorly documented (Graeme Macfadyen, 2009). It is believed that weather is the main cause for lost and discarded fishing debris throughout Cape Breton. Further studies need to be conducted to help tailor effective measures to help deal with these issues.

Environmental Impacts Associated with Abandoned, lost or other wise discarded fishing gear include:

- Continued catch of target and non-target species
- Interactions with threatened/endangered species
- Marine entanglements
- A role as a vector for invasive species
- Introduction of synthetic material into the marine food web (bioaccumulation of synthetic plastics)

Other issues include:

- Navigational hazards
- Disruption of enjoyment of beaches and coastal areas
- Public Safety concern (bait spikes often found protruding out of the sand)
- Fouling vessels and other gear

Possible ways to prevent or help with abandoned, lost or other wise discarded fishing gear include;

Removal of gear when heavy storms are predicted

Onshore collection/reception and/or payment for old/retrieved gear offer incentives

- Establish rope recycling program
- Lobster trap recycling program

Shoreline Cleanup Fund

Establish fund by asking each fisherman to pay a small environmental fee before the commencement of each fishing season. These funds would go towards shoreline cleanup efforts throughout Cape Breton and would be open to any environmental organization or persons who apply and meet the criteria.



Figure 5: Ariel Photo
Ferguson's Beach Port Morien, NS



Figure 6: Ariel Photo
The Cove Shoreline New Victoria, NS



Figure 7: Ariel Photo
Schooner Pond Shoreline Donkin, NS



Figure 8: Ariel Photo
Bridgeport Shoreline Glace Bay, NS

Ten maple trees were purchased and planted by CBEA. These trees are to be sampled annually for the next 5 years. The baseline data can be found below. Trees were planted May 13th, 2018.

LOCATION: Spar Rd Sydney, NS **DATE:** June 17/2018 **TIME:** 11:42AM
WEATHER: Sunny **SAMPLER INITIALS:** DY, JP

TREE #	TREE TYPE/ SPECIES	HEIGHT (m)	TREE STATUS CONDITION	SOIL TYPE, peaty, sandy, clay, loam, silty	FULL SUN/PARTIAL /SHADE
1	RED MAPLE	0.710 (m)	GOOD	PEATY	FULL SUN
2	RED MAPLE	0.713 (m)	GOOD	PEATY	FULL SUN
3	RED MAPLE	0.704 (m)	GOOD	PEATY	FULL SUN
4	RED MAPLE	0.707 (m)	GOOD (some insect pressure)	PEATY	FULL SUN
5	RED MAPLE	0.719 (m)	FAIR	PEATY	PARTIAL
6	RED MAPLE	0.704 (m)	EXCELLENT	PEATY	FULL SUN
7	RED MAPLE	0.722 (m)	VERY GOOD	PEATY	FULL SUN
8	RED MAPLE	0.704 (m)	GOOD	PEATY	PARTIAL
9	RED MAPLE	N/A	LOST TO DEER BROWSING	N/A	N/A
10	RED MAPLE	N/A	LOST TO DEER BROWSING	N/A	N/A

Table 3: Tree Data
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Other Events and activities

Environmental workshops Glace Bay girl guides – February 12, 2018

NSCC Port Hawkesbury Green Day event illegal dumping presentation- March 29, 2018

Environmental workshop Dominion girl guides- April 30, 2018

Participated in the Irish Cove tree planting day (1000 trees) – May 2, 2018

Ocean conservation float in the Bay Days Parade- August 2, 2018

CBEA fundraising event at TaLo Café August 19, 2018

Presentation on illegal dumping at the Ross Ferry Community Center- August 23, 2018

Installed duck boxes provided by Port Morien Wildlife Association- September 11, 2018

Celtic Colors tree planting 25 maple seedlings planted 25 handed out to community September 16, 2018

Cleanup for cancer event raised \$1001.00 for cancer care in Cape Breton- September 29, 2018

Presentation at CEPI Youth Conference Port Hawkesbury- October 12, 2018

False Bay gear retrieval footage for oceans documentary- November 11, 2018

Sydney Santa Claus Parade- November 25, 2018

Glace Bay Santa Claus Parade- December 1, 2018

Environmental movie night (A Plastic Ocean) Cape Breton University- December 4, 2018

Several interviews have been conducted throughout the 2018 season for upcoming oceans documentary updates on this film will be provided at group meetings in 2019.

BIBLIOGRAPHY

Graeme Macfadyen, T. H. (2009). *Abandoned, lost or otherwise discarded fishing gear*. Lymington: UNEP Regional Seas Reports and Studies No.185; FAO Fisheries and Aquaculture .

Mambra, S. (2017). *Marineinsight*. Retrieved from <https://www.marineinsight.com/environment/how-is-plastic-ruining-the-ocean/>