



Marine Debris in the Bras d'Or Lakes

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Project Summary

The Bras d'Or Lakes located in Nova Scotia consists of a salt-water estuary watershed 'inland sea 'with three passages to the Atlantic Ocean. There is a small lobster fishery and a wide range of recreational activities taking place in and around the Lakes.

Marine debris or most commonly referred to as beach garbage or marine litter is defined by NOAA as any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment or the Great Lakes.

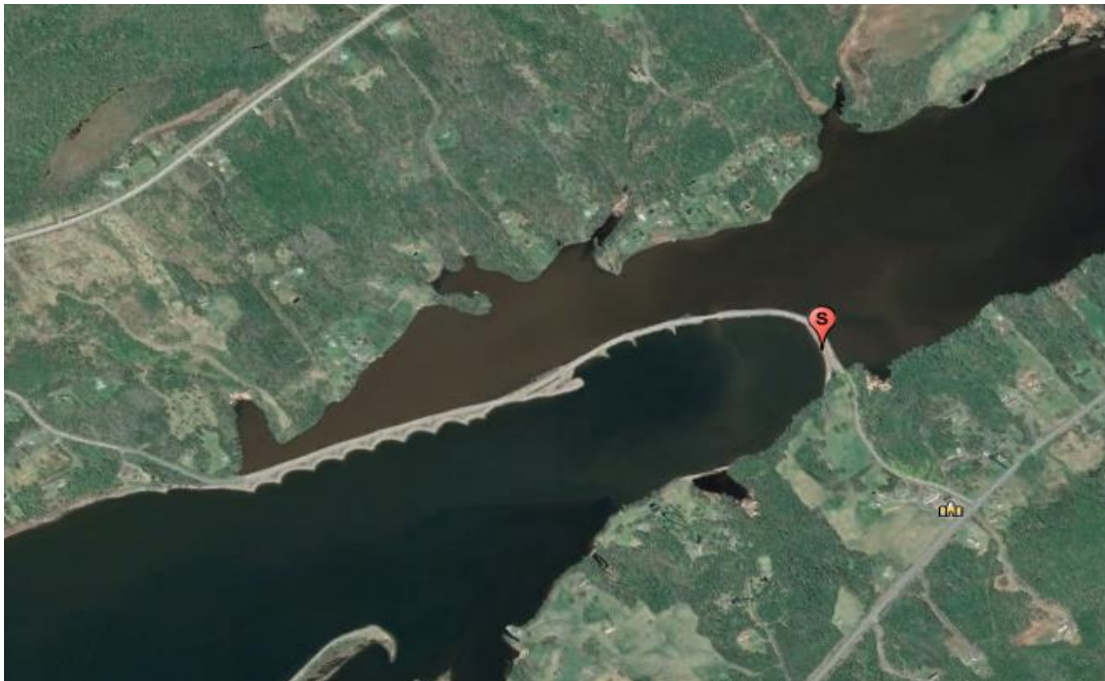
To better understand the scope of marine debris in the Bras d'Or Lakes estuary 30-minute surveys were completed on 11 shorelines along the BDL.

Methods

11 shorelines along the Bras D'Or Lakes were surveyed for 30 minutes; marine debris was collected on the shorelines, and in shallow water (up to 2 inches). Items collected could fit into a regular sized trash bag and weighed under 50 lbs.

The locations that were surveyed include:

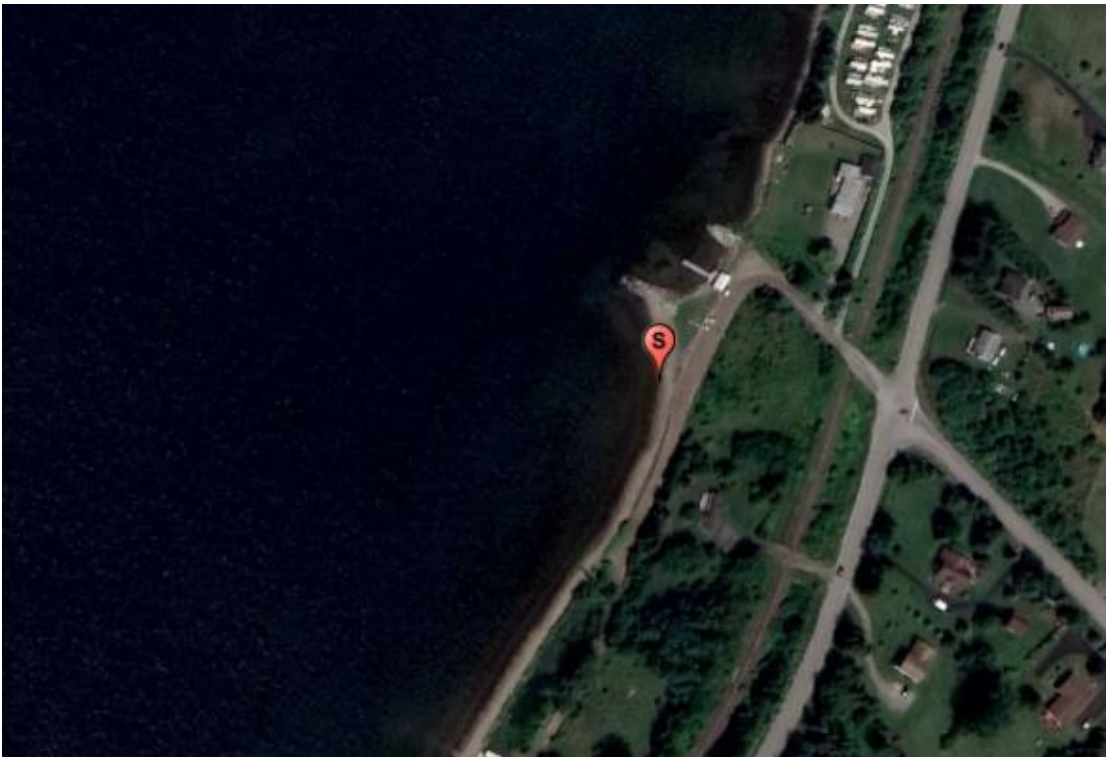
- 1.) East Bay Sand Bar
(46.015506, -60.387479)



2.) St. Peters marina
(45.660854, -60.873875)



3.) Georges River
(46.233503, -60.301443)



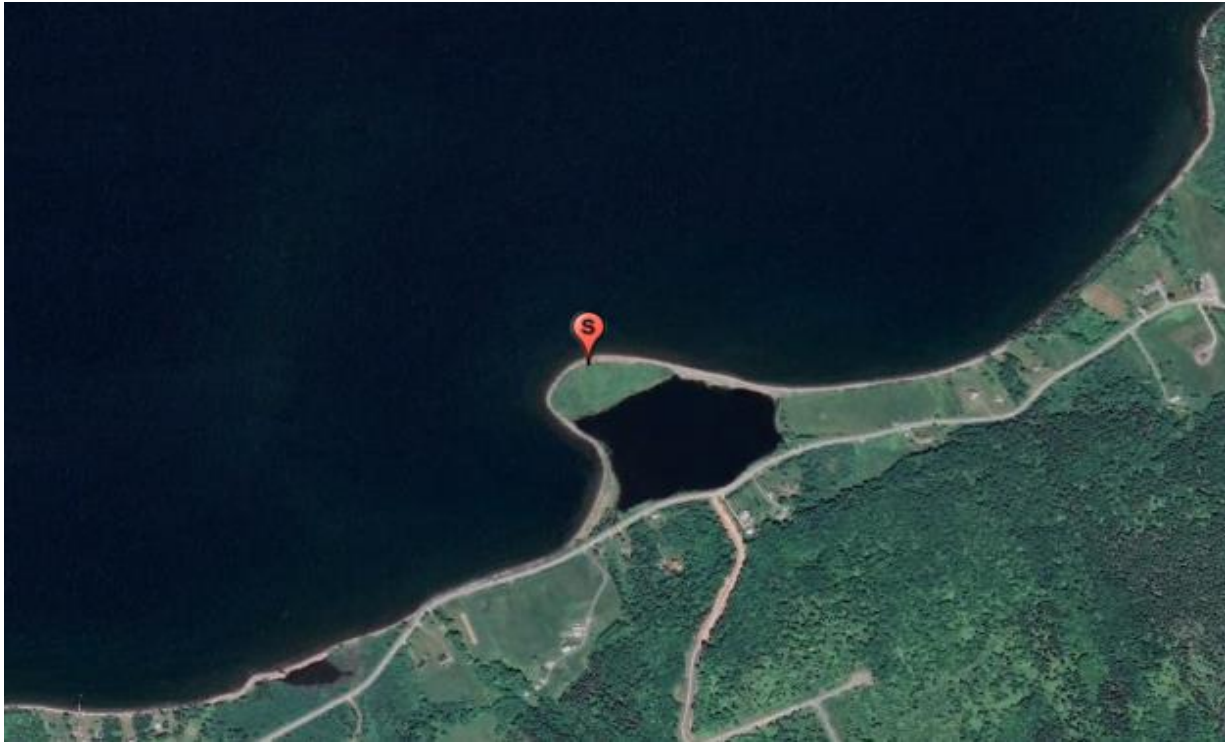
4.) Baddeck Marina
(46.099684, -60.748951)



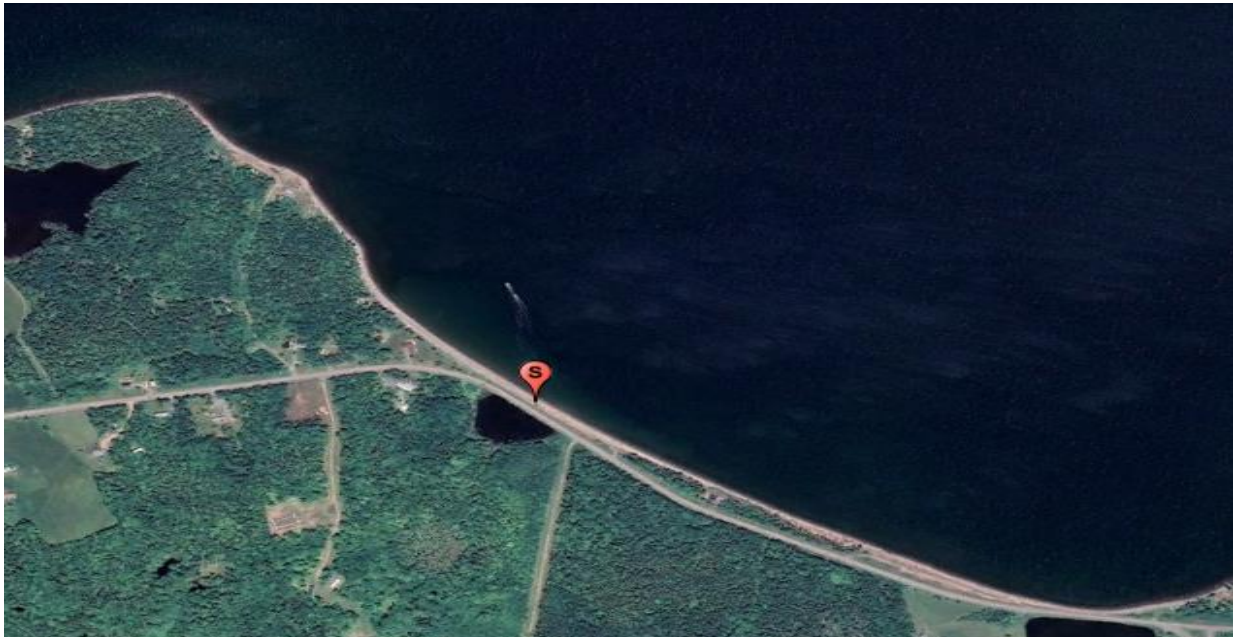
5.) Big Pond Beach
(45.911937, -60.534660)



6.) St. Georges Channel
(45.716175, -61.060678)



7.) Dundee Beach
(45.701093, -61.113882)



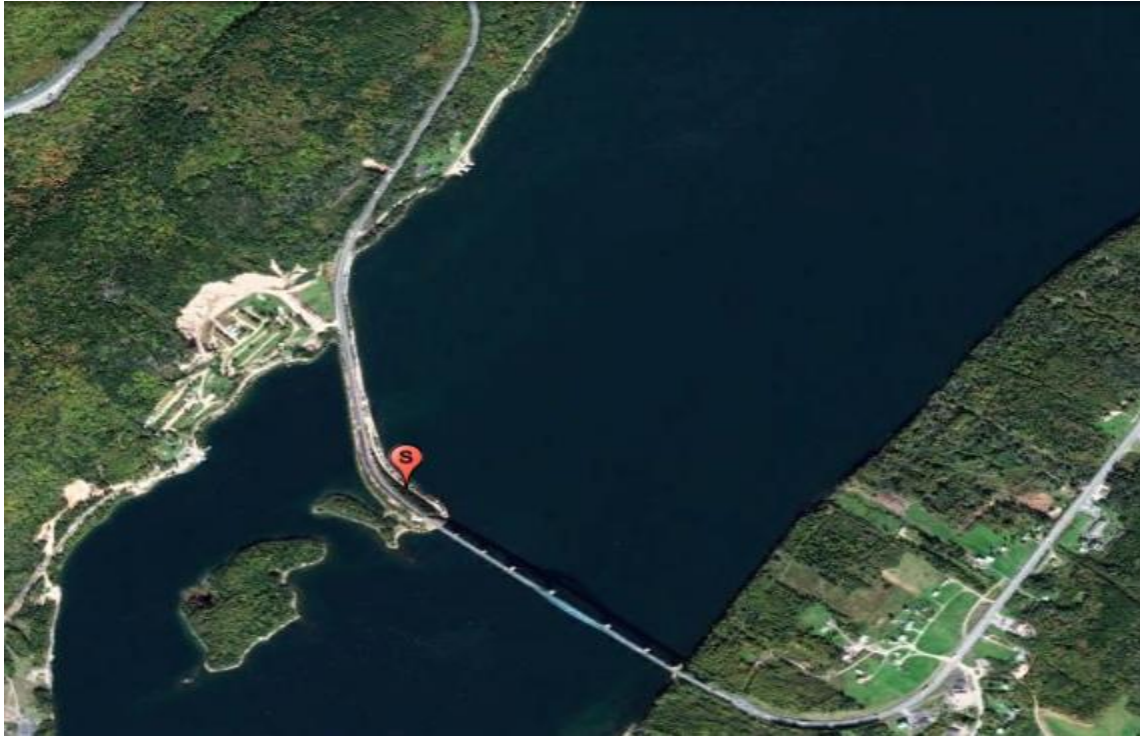
8) Irish Cove Shoreline
(45.806674, -60.721194)



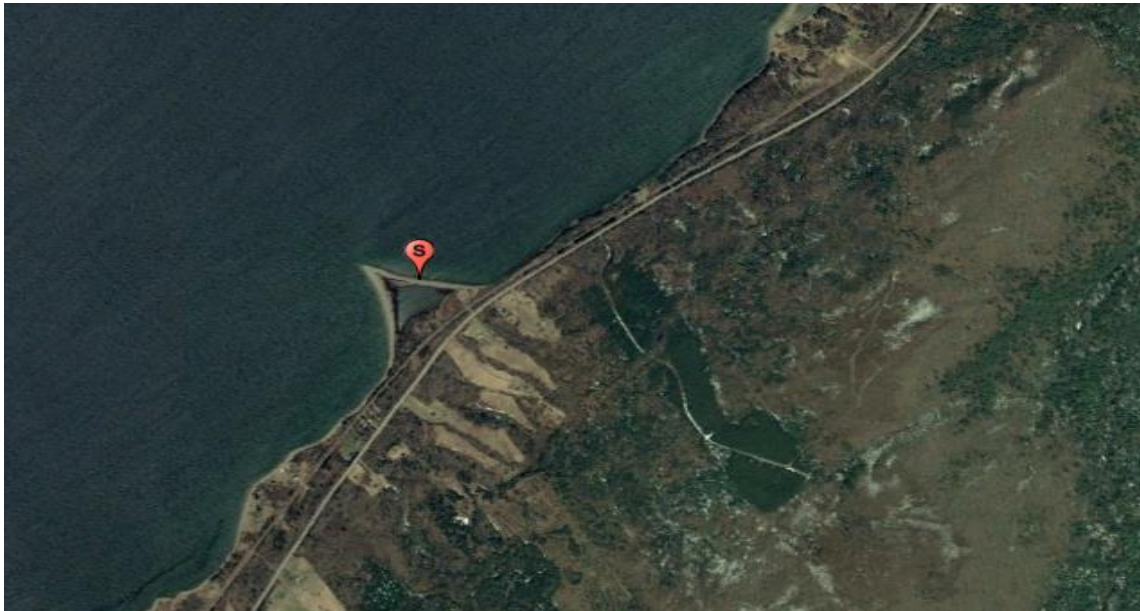
9.) Grand Narrows
(45°57'26.64"N, 60°47'40.62"W)



10.) New Harris
(46°14'9.25"N, 60°29'40.20"W)



11.) Irons Ville
(46° 7'9.59"N, 60°29'3.33"W)



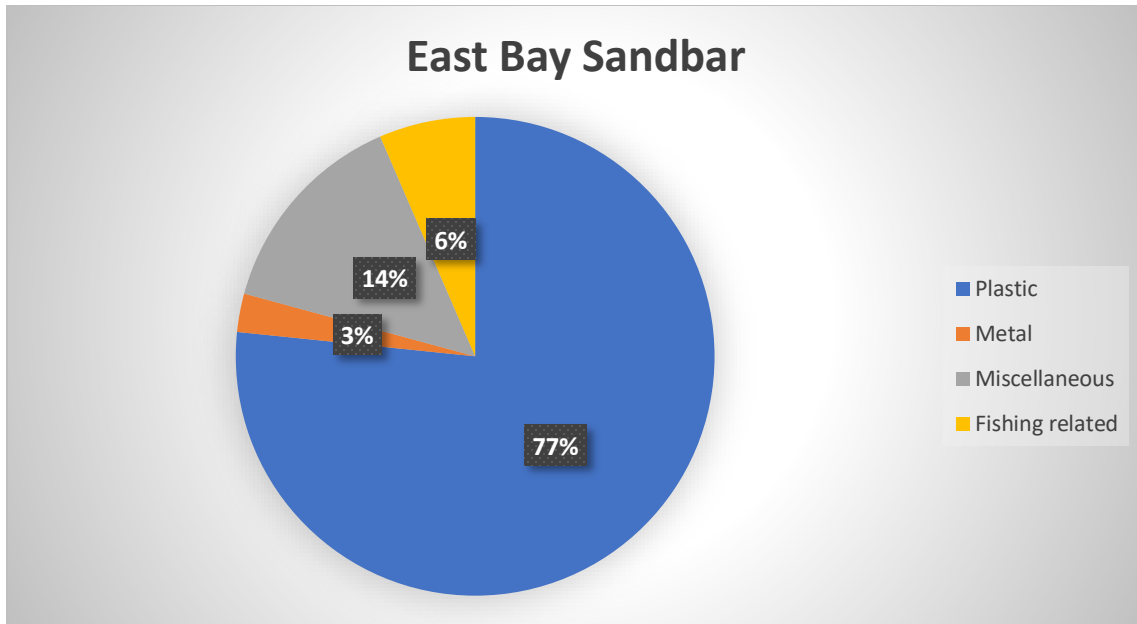


Figure 1. Marine debris collected from East Bay Sandbar on May 3, 2019.

Plastics	Amount
Bottle cap	9
Straw	4
Utensil	1
Hard plastic fragments	35
Plastic wrapping	10
Metal	
Beer can	1
Unidentifiable fragments	1
Miscellaneous	
Food wrapper	7
Fabric	1
Tim Horton's cup	1
Duct tape	1
Paint brush	1
Fishing Related	
Rope under 1(m)	1

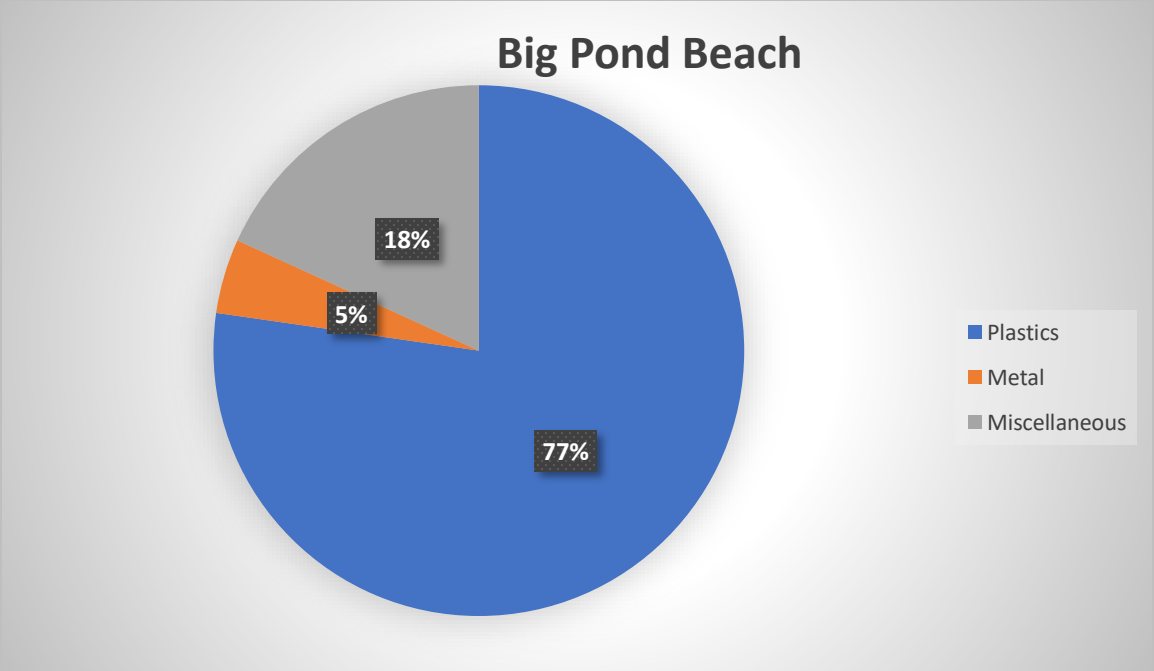


Figure 2. Marine debris collected from Big Pond Beach June 17, 2019.

Plastics	Amount
Bottle cap	3
Straw	3
Hard plastic fragments	18
Shopping bag	1
Styrofoam	3
Bottle	1
Fluid container	1
Bucket	1
Metal	
Tin can	1
Unidentifiable fragments	1
Miscellaneous	
Food wrapper	3
Fabric	1
Tim Horton's cup	2
Beer bottle	2
Sunglasses	1

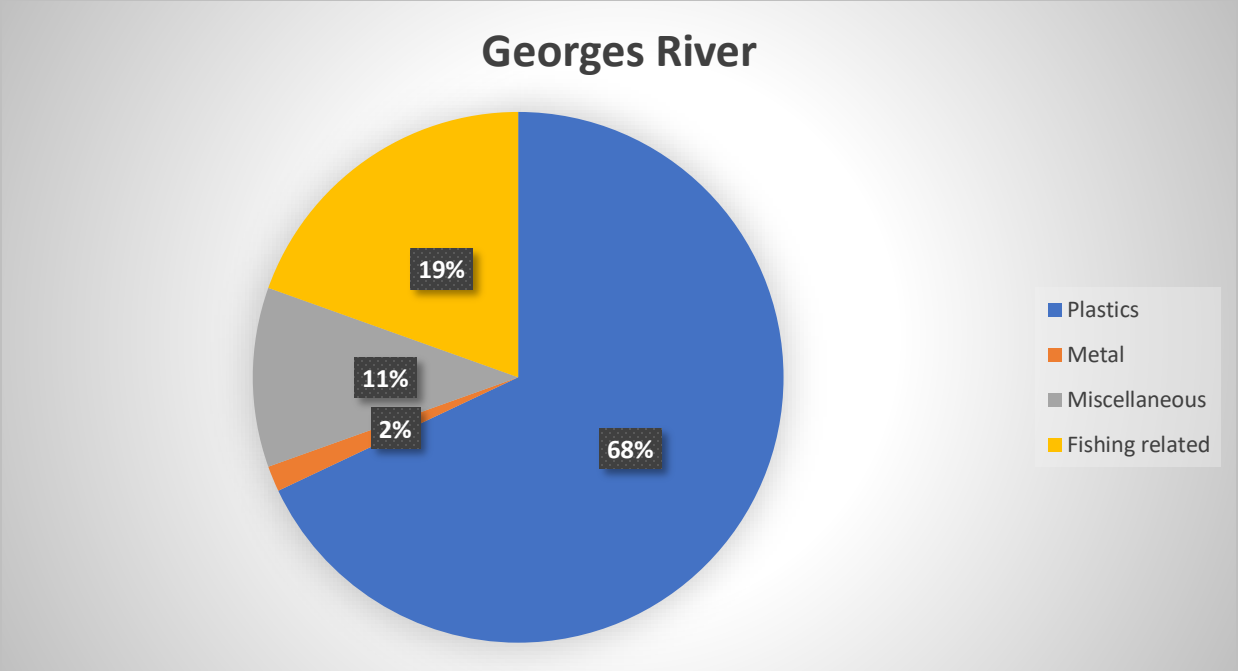


Figure 3. Marine debris collected from Georges River June 2, 2019.

Plastic	Amount
Bottle cap	16
Straw	13
Hard plastic fragments	45
Styrofoam	1
Plastic cup lid	7
Bottle	3
Tampon applicator	1
Shotgun shell	1
Metal	
Beer can	2
Miscellaneous	
Food wrapper	6
Fabric	2
Tim Horton's cup	2
Inhaler	1
Lighter	2
Fishing related	
Lobster bands	13
Lobster tag	1
Rope under 1(m)	11

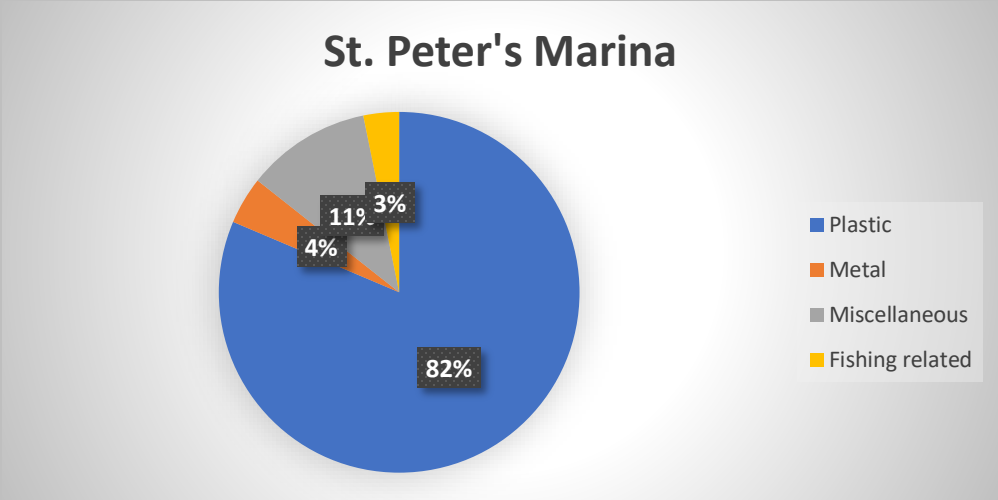


Figure 4. Marine debris collected from St. Peters Marina June 17, 2019.

Plastic	Amount
Bottle cap	5
Straw	2
Hard plastic fragments	6
Plastic wrapping	37
Shopping bag	14
Zip ties	9
Styrofoam	65
Tubing	3
Plastic cup lid	1
Bottle	5
Water jug	2
Fluid containers	2
Sponge	1
Funnel	1
Metal	
Tin can	1
Beer can	5
Wire	1
Unidentifiable fragments	1
Miscellaneous	
Food wrapper	9
Fabric	1
Tim Horton's cup	5
Duct tape	2
Beer bottle	2
Clothing hamper	1
Shoe	1
Epoxy marine resin	1
Fishing related	
Rope under 1(m)	5
Netting	1

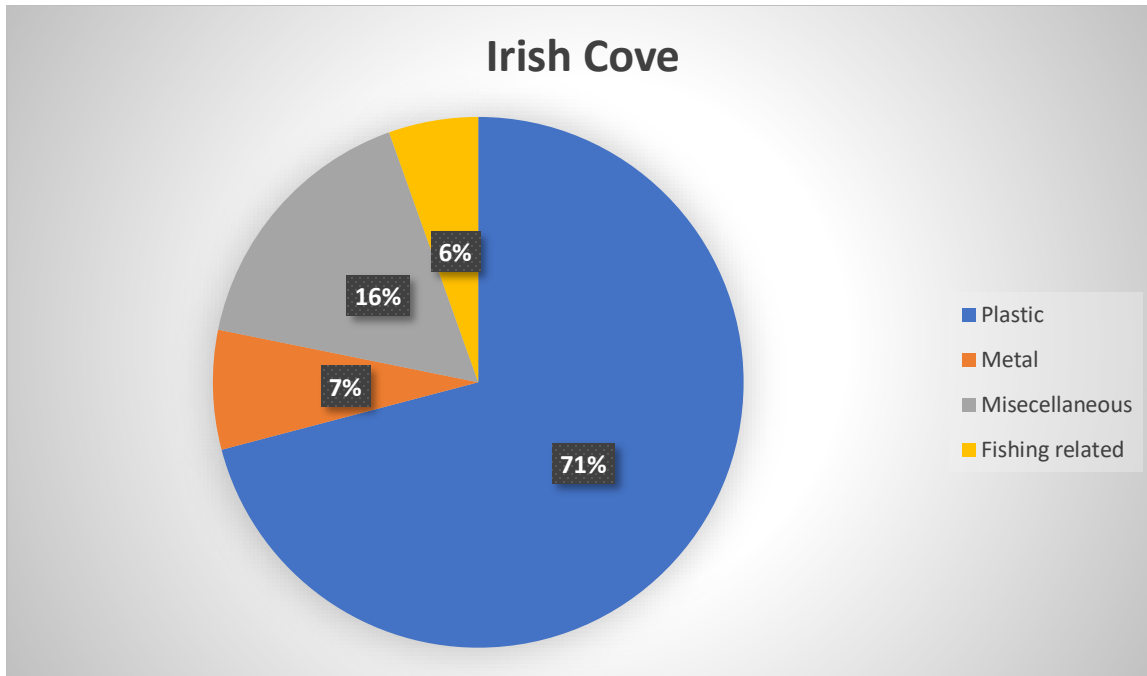


Figure 5. Marine debris collected from Irish Cove July 21, 2019.

Plastic	Amount
Bottle cap	6
Straw	1
Hard plastic fragments	26
Styrofoam	2
Bottle	4
Shot gun shell	2
Metal	
Unidentifiable fragments	4
Miscellaneous	
Food wrapper	6
Tim Horton's cup	1
Fishing related	
Rope under 1 (m)	5
Netting	1

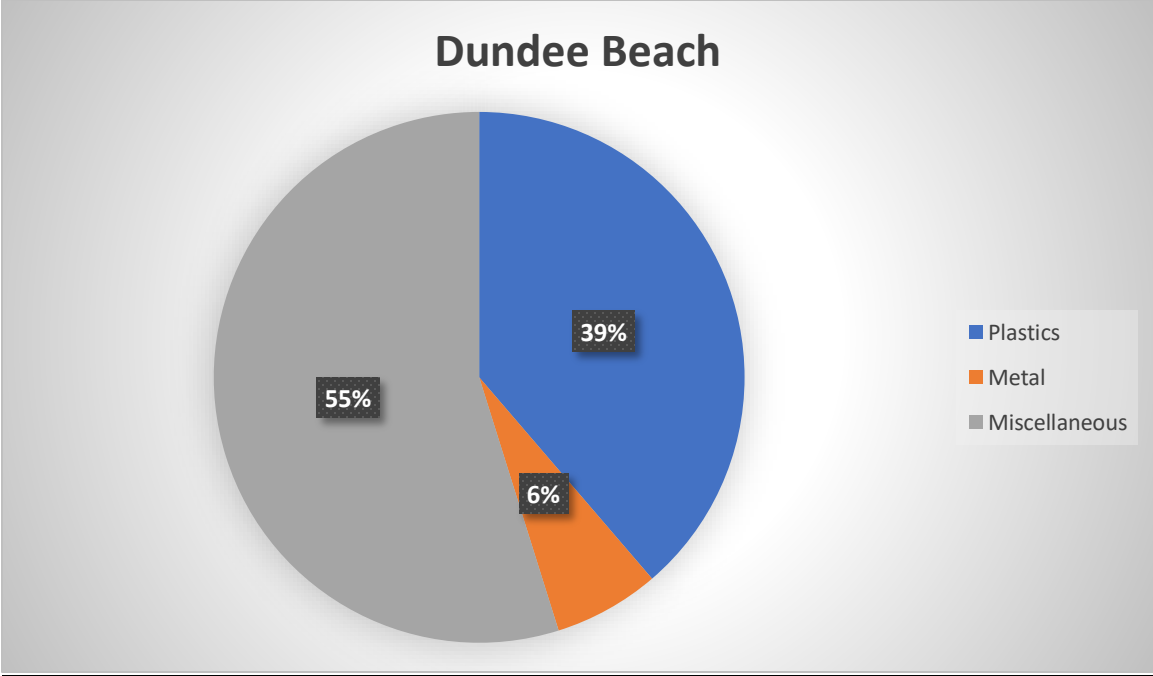


Figure 6. Marine debris collected from Dundee Beach July 21, 2019.

Plastics	Amount
Hard plastic fragments	5
Shopping bag	5
Plastic cup lid	1
Fluid container	1
Metal	
Beer can	2
Miscellaneous	
Shoe	1
Cigarette butt	15
Pen	1

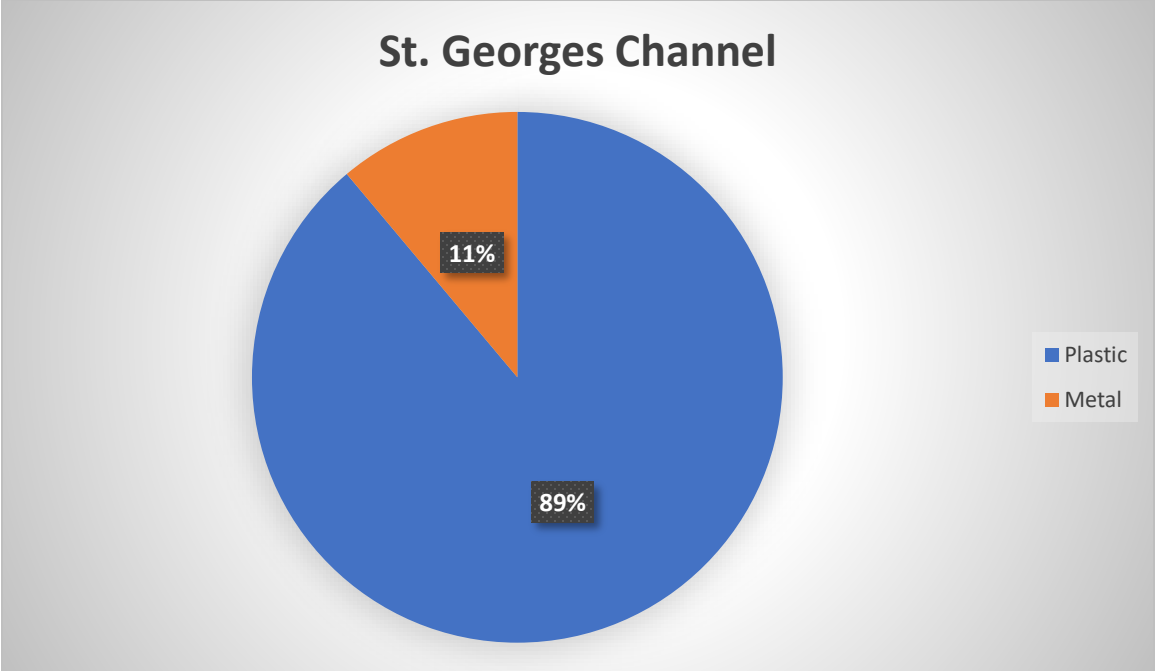


Figure 7. Marine debris collected from Irish Cove July 21, 2019.

Plastic	Amount
Bottle cap	2
Hard plastic fragments	20
Shopping bag	1
Water jug	1
Metal	
Unidentifiable fragments	3

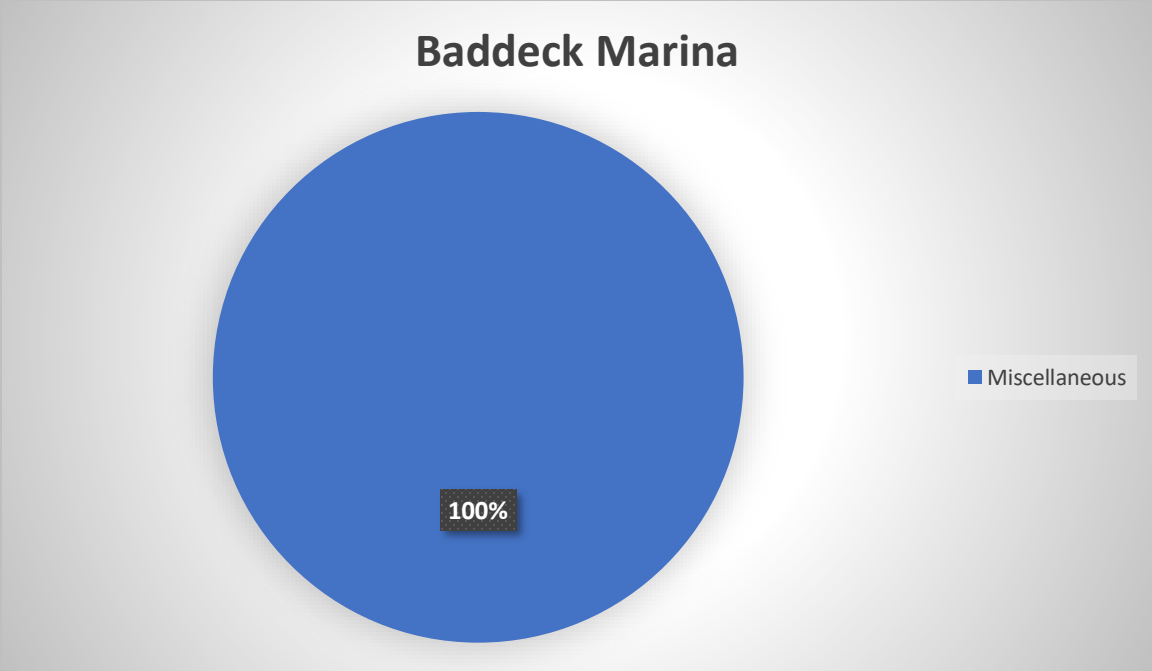


Figure 8. Marine debris found at Baddeck Marina July 8, 2019.

Miscellaneous	Amount
Cigarette butt	2

Note: Heavy tourism in the area, shoreline most likely cleaned daily/weekly.

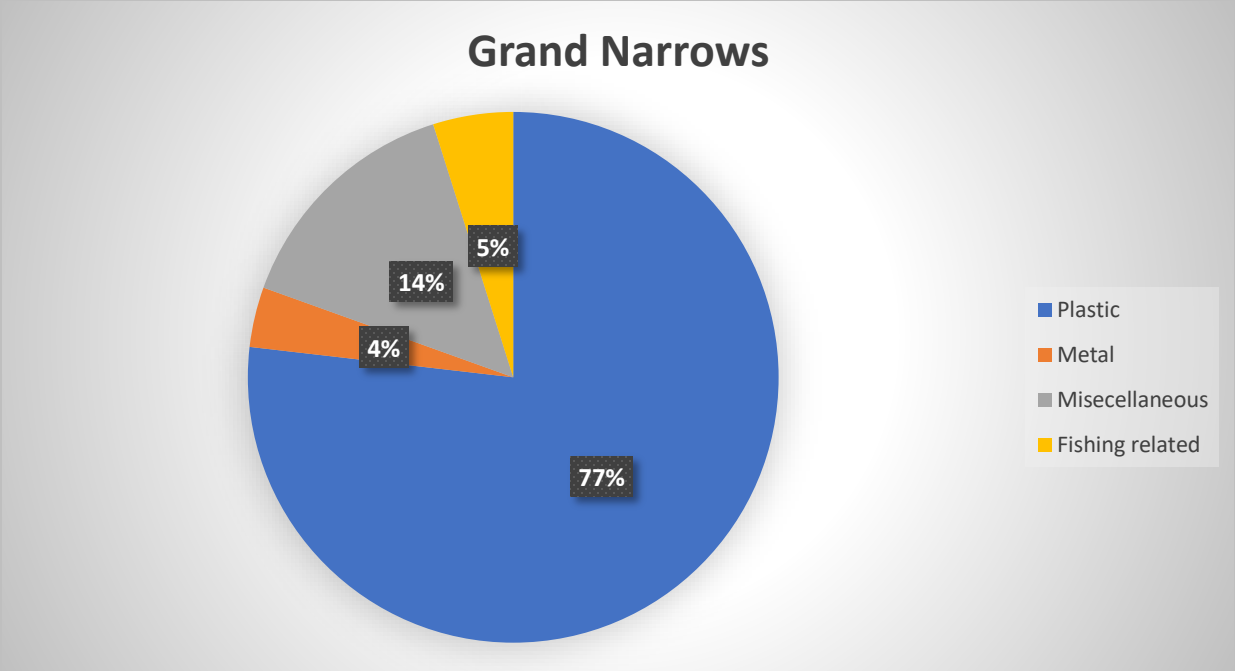


Figure 9: Marine debris found at Grand Narrows July 14, 2019.

Plastic	Amount
Bottle cap	6
Straw	2
Utensil	3
Hard plastic fragments	6
Styrofoam	41
Plastic cup lid	2
Bottle	2
Fluid container	1
Metal	
Beer can	3
Miscellaneous	5
Food wrapper	
Tim Hortons cup	1
Cigarette butt	6
Fishing Related	
Lobster band	4

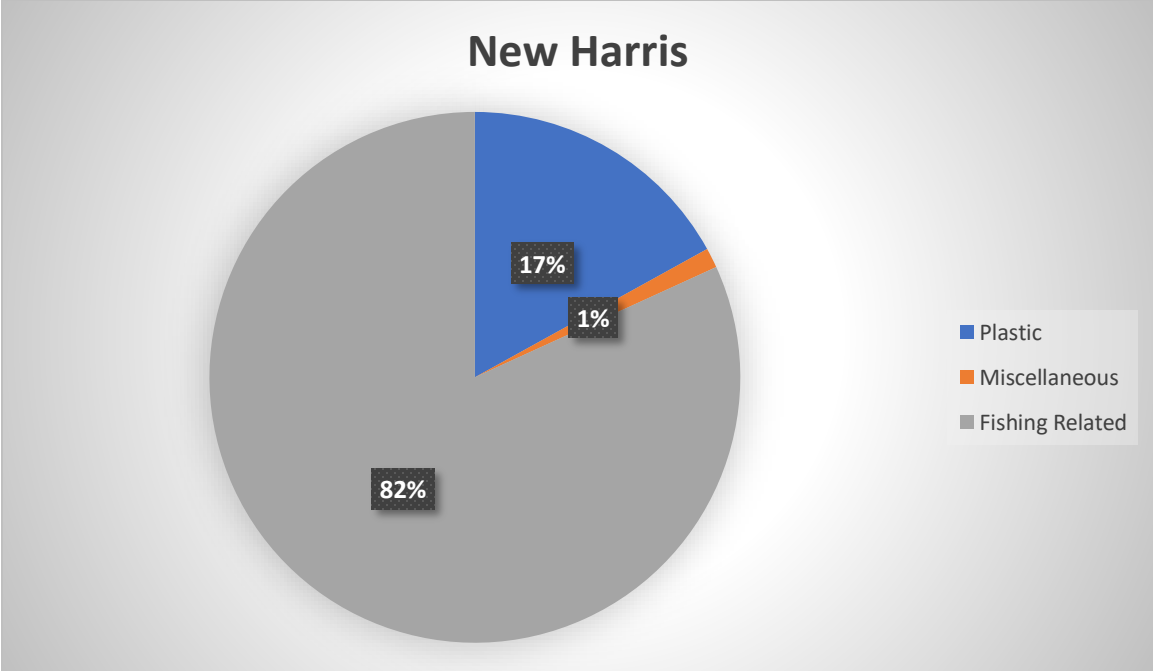


Figure 10: Marine debris found at New Harris shoreline July 15, 2019.

Plastic	Amount
Bottle cap	4
Straw	1
Hard plastic fragments	11
Styrofoam	2
Plastic cup lid	5
Bottle	5
Miscellaneous	
Sunglasses	1
Lighter	1
Fishing related	
Plastic packing straps	5
Lobster bands	129
Lobster tag	1

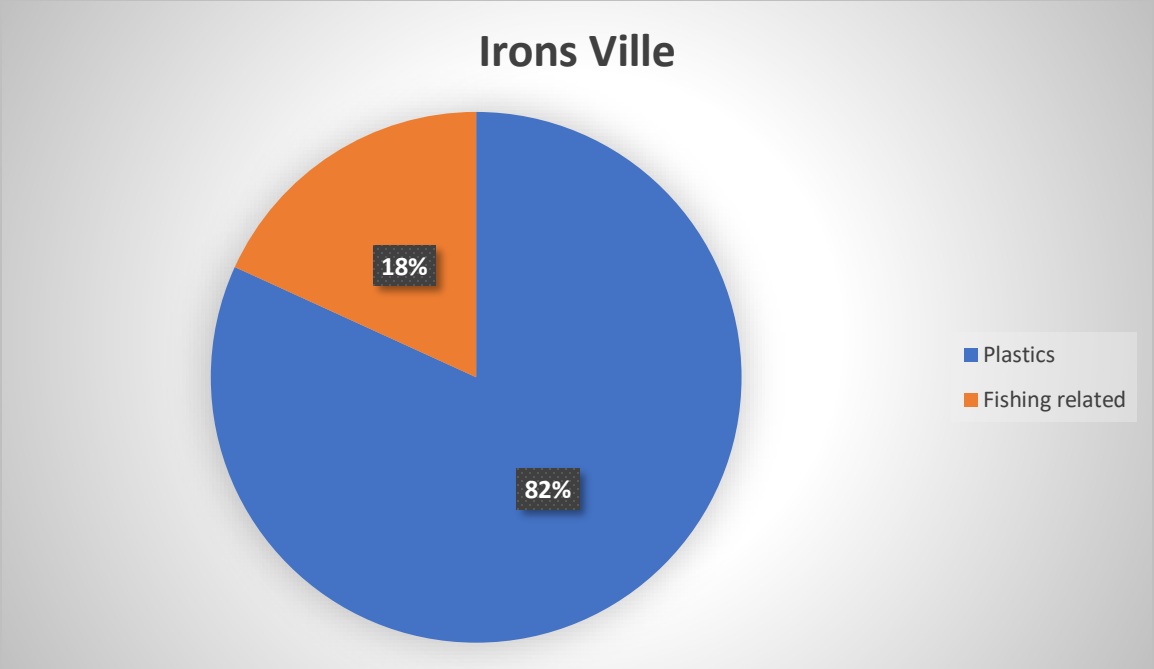


Figure 11: Marine debris found at Irons Ville July 15, 2019.

Plastics	Amount
Straw	1
Hard plastic fragments	6
Styrofoam	2
Fishing related	
Plastic packing straps	1
Lobster tag	1

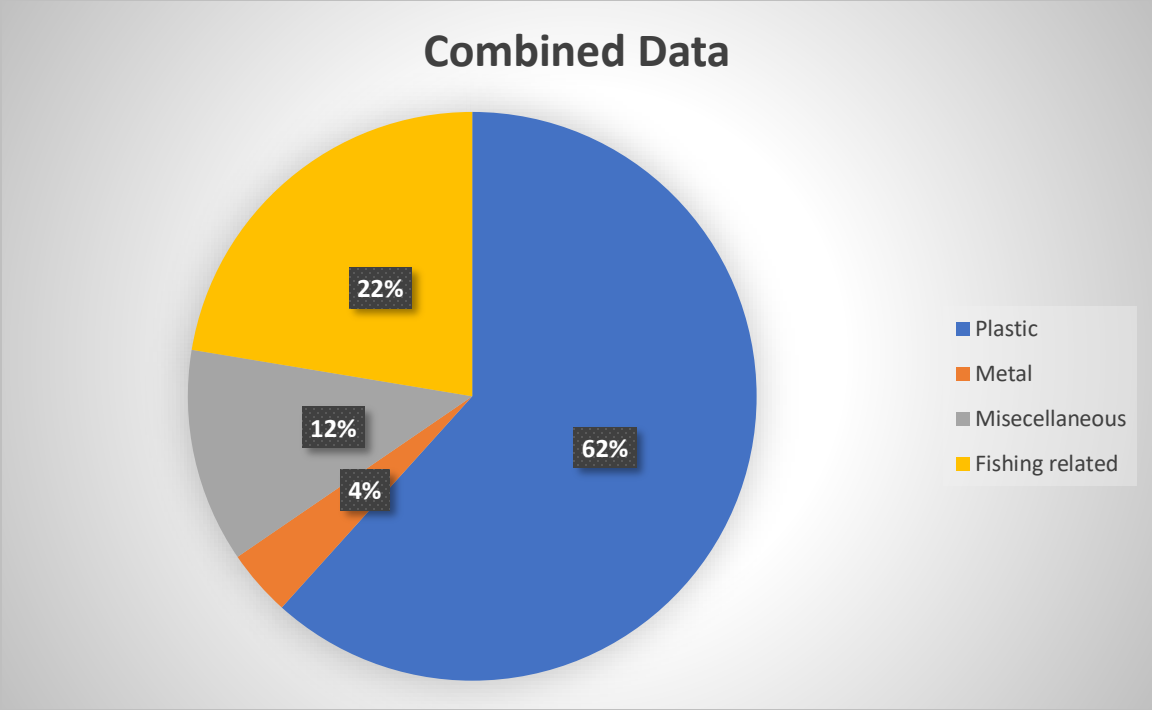


Figure 12: Combined data

Plastic	507
Metal	31
Miscellaneous	100
Fishing related	184

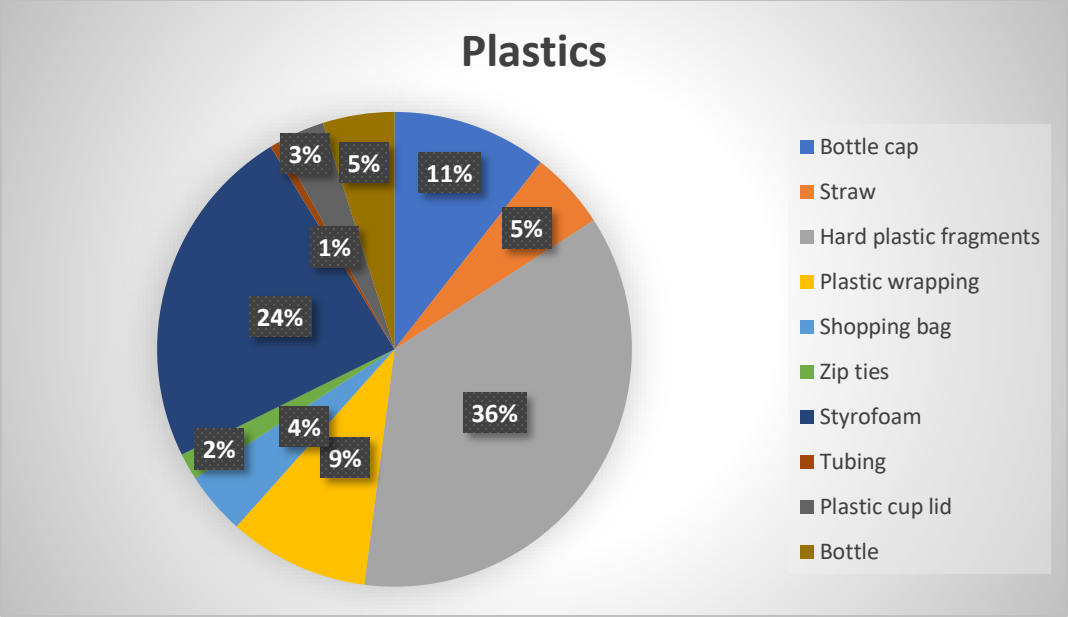


Figure 13: Breakdown of plastics; combined data

Plastics	Amount
Bottle cap	52
Straw	26
Utensil	4
Hard plastic fragments	178
Plastic wrapping	47
Shopping bag	21
Zip ties	9
Styrofoam	116
Tubing	3
Plastic cup lid	16
Bottle	24
Water Jug	2
Sponge	1
Bucket	1
Tampon Applicator	1
Funnel	1

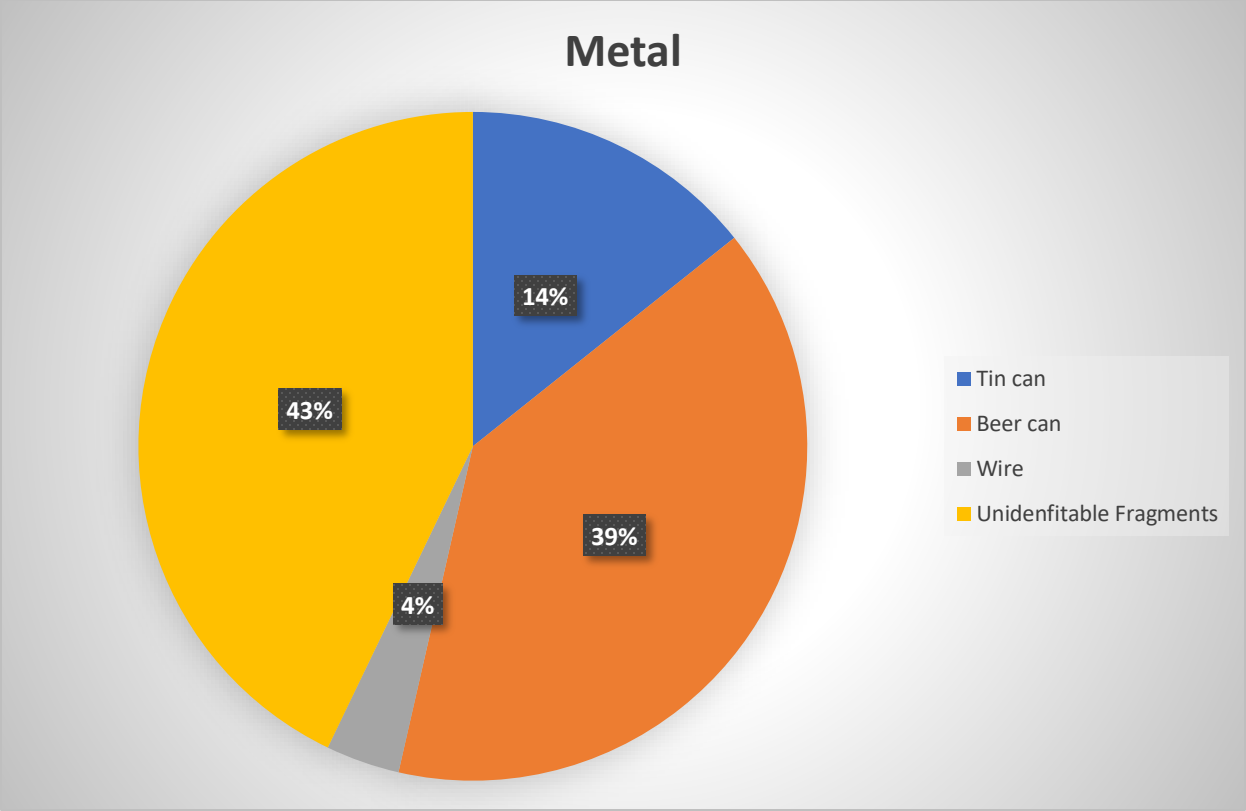


Figure 14: Breakdown of metals; combined data

Metal	Amount
Tin can	4
Beer can	11
Wire	1
Unidentifiable Fragments	12

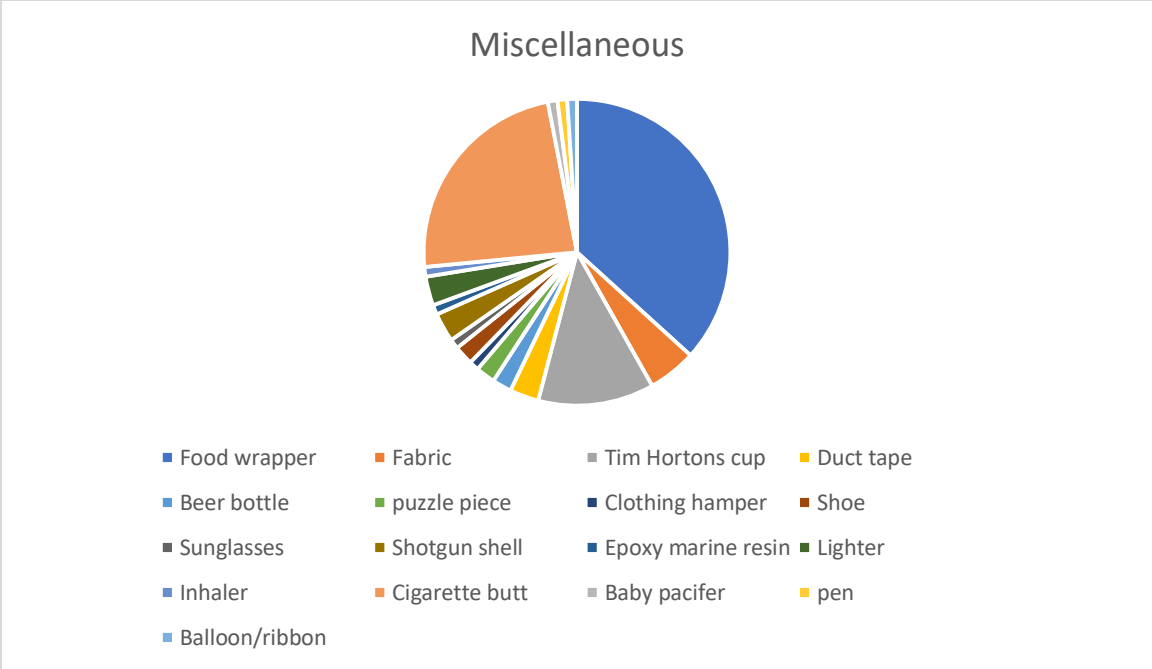


Figure 15: Breakdown of miscellaneous items; combined data

Miscellaneous	Amount
Food wrapper	36
Fabric	5
Tim Hortons cup	12
Duct tape	3
Beer bottle	2
Puzzle piece	2
Clothing hamper	1
Shoe	2
Sunglasses	1
Shotgun shell	3
Epoxy marine resin	1
Lighter	3
Inhaler	1
Cigarette butt	23
Baby pacifier	1
Pen	1
Balloon/ribbon	1

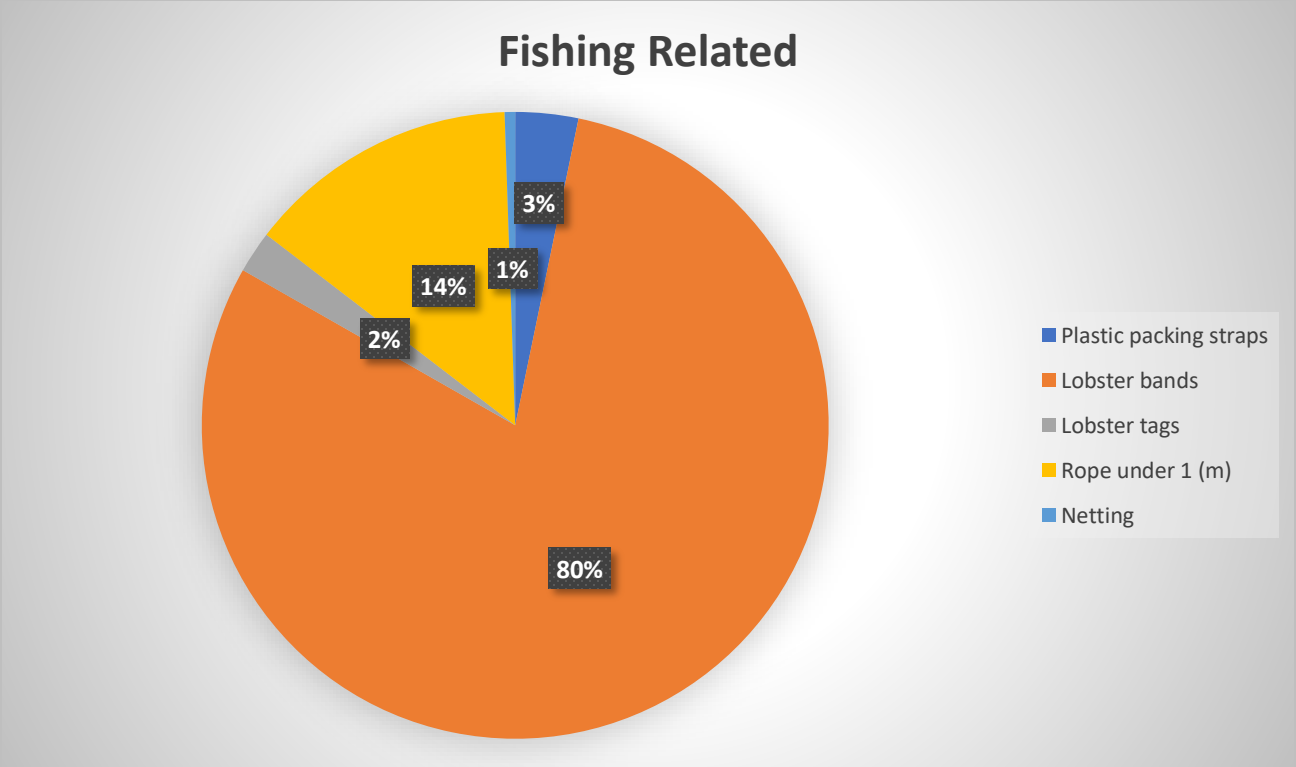


Figure 16: Breakdown of fishing related items; combined data

Fishing Related	Amount
Plastic packing straps	6
Lobster bands	148
Lobster tags	4
Rope under 1 (m)	26
Netting	1

Discussion: The combined results of the 11 surveys are as follows 62% plastics, 22% fishing related, 12% miscellaneous, 4% metal. The highest concentration of items collected include:

Hard plastic fragments defined as any plastic material small or large that couldn't be properly identified- 178

Lobster bands- 148

Styrofoam- 116

Bottle caps- 56

Plastic wrapping - 47

Food wrapper - 36

Plastic straw- 26

Rope under 1(m) - 26

Plastic bottle- 24

Cigarette butt - 23

Shopping bags- 21

Tim Horton's cup – 12

Beer can – 11

Highest amounts of fishing related debris recovered: New Harris shoreline, lobster fishing operations are noted adjacent to shoreline; 135.

Highest amounts of plastics recovered: St. Peters Marina; 153.

Highest amounts of cigarette butt litter: Dundee Beach; 15.

puzzle piece				2							
beer bottle		1		1							
clothing hamper				1							
shoe				1		1					
glasses		1								1	
shot gun shell			1		2						
Epoxy Marine Resin				1							
lighter			2							1	
inhaler			1								
cigarette butt						15		2	6		
baby pacifier						1					
pen							1				
balloon and ribbon							1				
Fishing Related											
Plastic packaging straps										5	1
lobster band			13						4	129	1
lobster tag			1		1		1			1	
Rope under 1(m)	5		11	5	2		3				
netting				1							