

**APPENDIX II**

**DATA TABLES**

**Table 1: Central and Arctic Region fisheries management measures for bycatch** (fisheries listed alphabetically) – Fisheries management measures in the Integrated Fisheries Management Plans and associated Conservation Harvesting Plans which apply to the capture of non-target species (bycatch). From left to right, the columns describe the fishery, the date of the resource documents (IFMPs, CHPs), and the gear types covered. The monitoring components present in the IFMPs were, at-sea monitoring, dockside monitoring, hailing in or out to signal fishing activity, the requirement of vessel monitoring systems, and the completion of reporting documents (logbooks, fish slips). The remaining columns are specific management measures mentioned which address bycatch in the fishery or fisheries, whether there is a survey or test fishery in advance of the commercial fishery opening to sample for targets and non-target species, mention of bycatch quotas or caps, a small fish protocol in place, any other limits mentioned but not otherwise captured, move-on rules, size or sex limits, discard bans, any provisions for at-risk species, gear modifications specific to bycatch reduction, gear restrictions in the fishery in general, a fishing season built around bycatch mitigation, fishing effort controls, recording incidence of lost gear, spatial closures, temporal closures, and any incentive or initiative to mitigate bycatch. Blank cells indicate no mention of the measure in the documents examined. The sources are found below.

Fishery	IFMP/CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Arctic Char (Cambridge Bay)	2014	gillnet, weir		100%			Y				Y						Y	Y						1
Greenland Halibut (NAFO Div 0A Nunavut & 0B)	2014, 2015 CHP 0B only	Mobile (bottom otter trawl), Fixed (bottom longline, bottom gillnet)	100% mobile, 100% fixed Jan 1 - April 30 & 20% May 1 -Dec 31	100%	Y	100%	Y		Y	Y	Y	Y	Y	groundfish	Y		Y		Y	Y	Y	Y		2
Northern Shrimp (SFAs 0-7 + Flemish Cap) (Arctic + NL)	2007 evergreen	Otter trawl and beam trawl	10% inshore fleet, 100% offshore	100% inshore fleet		100%	Y	Y	Y			Y			Y	Y	Y				Y		Y	3

Sources:

- 1) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/arctic-char-omble-chev/arctic-char-omble-chev-eng.htm>
- 2) DFO 2014 Integrated Fishery Management Plan, Greenland Halibut (Reinhardtius hippoglossoides) Northwest Atlantic Fisheries Organization Subarea 0, Effective 2014 (full), <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfish-poisson-fond/halibut-fletan-eng.htm> (summary); DFO 2015 Conservation Harvesting Plan (CHP) for NAFO Division 0B Greenland Halibut Fishery January 1-December 31, 2015
- 3) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/shrimp-crevette/shrimp-crevette-2007-eng.htm>

**Table 2: Maritime Region fisheries management measures for bycatch** (fisheries listed alphabetically) – Fisheries management measures in the Integrated Fisheries Management Plans and associated Conservation Harvesting Plans which apply to the capture of non-target species (bycatch). From left to right, the columns describe the fishery, the date of the resource documents (IFMPs, CHPs, and one case of licencing conditions), and the gear types covered. The monitoring components present in the IFMPs were, at-sea monitoring, dockside monitoring, hailing in or out to signal fishing activity, the requirement of vessel monitoring systems, and the completion of reporting documents (logbooks, fish slips). The remaining columns are specific management measures mentioned which address bycatch in the fishery or fisheries, whether there is a survey or test fishery in advance of the commercial fishery opening to sample for targets and non-target species, mention of bycatch quotas or caps (including % bycatch retained per target species), a small fish protocol in place, any other limits mentioned but not otherwise captured, move-on rules, size or sex limits, discard bans, any provisions for at-risk species, gear modifications specific to bycatch reduction, gear restrictions in the fishery in general, a fishing season built around bycatch mitigation, fishing effort controls, recording incidence of lost gear, spatial closures, temporal closures, and any incentive or initiative to mitigate bycatch. Blank cells indicate no mention of the measure in the documents examined. The sources are found below.

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source	Fishery
Atlantic herring (SWNS/BoF, 4WX + 5Y)	2013	Mobile: Purse seine, trawl. Fixed: Gillnets, traps, weirs		Y					Y		Y		Y		Y		Y		Y		Y	Y			1
Bluefin tuna	2007, 2008	tended line, angling, trapnets, electric harpoon	Y	Y	Y		Y						Y			Y					Y				2
Lobster (LFAs 27-38)	2011	traps		Y			Y				Y		Y		Y	Y	Y			Y	Y			Y	3

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Mixed Groundfish 4TVWX+5	2016 evergreen, IFMP 2002-2007	fixed gear <45'	5% - 10% 1 observer day for every 50 mt of quota for cod, haddock & pollock combined in 4X5Y	25%-100%	Y	4X5Y & 4VsW vessels > 35' longline or gillnet	Y		Y	Y	Y	Y	Y	Y	Groundfish	Y	Y	Y				Y	Y		Y	4
Mixed Groundfish 4VWX+5. cod, haddock and pollock in 4X and 5Y; flatfish in 4VWX; redfish in Units 2 and 3; silver hake in 4WX; and pollock in 4VW.	2016 evergreen, IFMP 2002-2007	mobile gear <65'	5% - 10% all gf except, Unit 3 Redfish 10% - 20%, & 4VW Pollock 10%	100%	Y	100%	Y	Y	Y	Y	Y	Y	Y	Y	Groundfish	Y	Y	Y		Y		Y	Y		Y	5
Northern Shrimp (Scotian Shelf) SFAs 13-16	2013	Otter trawl, traps	up to 5% trawl fleets in SFA 13-15,16	100% trawl, 20% trap		trawl fleet in SFA 13-15	Y				Y						Y	Y				Y	Y			6
Swordfish (also bigeye, yellowfin, and albacore tunas) (Maritimes, Gulf, Quebec, Newfoundland and Labrador)	2004-2006	troll, longline, harpoon	min 5% PLL fleet, trolling	100%	Y	100%	Y			Y	Y		Y			Y		Y				Y	Y			7

Sources:

- 1) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/herring-hareng/herring-hareng-2013-eng.htm>
- 2) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrouge2007-eng.htm> ; <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrougeatl-eng.htm>
- 3) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/maritimes/insholob-2011-eng.htm>
- 4) DFO 2002, Groundfish management plan, Scotia-Fundy Fisheries, Maritimes Region. April 1, 2002 - March 31, 2007; DFO 2016 Conservation Harvesting Plan, Fixed Gear <45' 4TVWX+5 (effective April 1, 2016)
- 5) DFO 2002, Groundfish management plan, Scotia-Fundy Fisheries, Maritimes Region. April 1, 2002 - March 31, 2007; DFO 2016 Conservation Harvesting Plan, Mobile Gear Vessels <65' 4TVWX+5 (effective April 1, 2016); Licencing Conditions
- 6) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/shrimp-crevette/shrimp-crevette-2013-eng.htm>
- 7) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrougeatl-eng.htm>

**Table 3: Newfoundland and Labrador Region fisheries management measures for bycatch** (fisheries listed alphabetically) – Fisheries management measures in the Integrated Fisheries Management Plans and associated Conservation Harvesting Plans which apply to the capture of non-target species (bycatch). From left to right, the columns describe the fishery, the date of the resource documents (IFMPs, CHPs), and the gear types covered. The monitoring components present in the IFMPs were, at-sea monitoring, dockside monitoring, hailing in or out to signal fishing activity, the requirement of vessel monitoring systems, and the completion of reporting documents (logbooks, fish slips). The remaining columns are specific management measures mentioned which address bycatch in the fishery or fisheries, whether there is a survey or test fishery in advance of the commercial fishery opening to sample for targets and non-target species, mention of bycatch quotas or caps (including % bycatch retained per target species), a small fish protocol in place, any other limits mentioned but not otherwise captured, move-on rules, size or sex limits, discard bans, any provisions for at-risk species, gear modifications specific to bycatch reduction, gear restrictions in the fishery in general, a fishing season built around bycatch mitigation, fishing effort controls, recording incidence of lost gear, spatial closures, temporal closures, and any incentive or initiative to mitigate bycatch. Blank cells indicate no mention of the measure in the documents examined. The sources are found below.

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
2J3KL groundfish; American plaice, Atlantic halibut, cod, Greenland halibut (turbot), grenadier, haddock, lumpfish, monkfish, pollock, redfish, skate, white hake, winter flounder (blackback), witch flounder (greysole), and yellowtail	2013	Mixed gear	Y	100%		vessels > 35'	Y			Y														1
Atlantic cod (NAFO 3Ps based, 3KL based, Branch/ Pt. Lance, Inner St. Mary's Bay and 3Pn Overlaps)	2016-2017	Fixed, <27.4 m; gillnet, traps, longline	min 5%	100%	Y	vessels > 35' upon request	Y		Y	Y	Y	Y	Y		Y		Y		Y			Y		2
Atlantic halibut - 3Ps groundfish	2016-2017	Fixed <27.4 m longline	min 5%	100%	Y	upon request	Y	Y			Y		Y		Y			Y		Y	Y			2

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries  
Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source	
Atlantic mackerel (Newfoundland and Labrador; Gulf; Quebec; Maritimes)	2007 evergreen	Fixed: weirs, handline, gillnet, trapnet. Mobile: seiners (<19.8m, >19.8m)	when requested	Y	Y		Y	Y			Y		Y		Y	Y	Y					Y		3	
Bluefin tuna	2008	pelagic longline	Y	Y			Y						Y												4
Bluefin tuna	2007, 2008	tended line, angling, electric harpoon	Y	Y	Y		Y						Y				Y				Y				3-4
Capelin (NAFO 2J3KLPs)	2011, 2015-2016	Fixed: gillnets, traps, bar seines, mobile: purse seine	Y	100%		partial	Y	Y			Y				Y	Y	Y								5
Greenland halibut (turbot) - 3Ps groundfish	2016-2017 CHP	fixed <27.4 m longline, gillnets	min 5%	100%	Y	upon request	Y	Y			Y	Y	Y		Y		Y		Y	Y		Y			2
Lobster (LFAs 3-14C)	2010 evergreen	Traps	small scientific at-sea program	N	N	N	Y	Y			Y		Y		Y	Y	Y	Y	Y	Y	Y		Y		6
Mixed groundfish - 3Ps, cod, redfish, skate,	2016-2017 CHP	mobile <27.4 m otter trawl	Y	100%	N	upon request	Y	Y		Y	Y	Y	Y		Y		Y		Y		Y	Y			7

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries  
Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Mixed groundfish - 3Ps, witch flounder	2016-2017 CHP	mobile <27.4 m otter trawl, danish seine	Y	100%	Y - Danish seine	upon request	Y	Y		Y	Y	Y	Y		Y		Y		Y		Y	Y		7
Mixed groundfish 3Ps	2016	Mixed gear	Y	100%		vessels > 35' upon request	Y			Y	Y				Y									8
Mixed groundfish NAFO 3Ps Atlantic Halibut, cod, Turbot, Lumpfish, monkfish, redfish, skate, white hake, winter flounder	2016-2017	Fixed <27.4 m gillnets, longline	min 5%	100%	Y	upon request	Y	Y			Y		Y		Y		Y		Y	Y		Y		2
Mixed groundfish NAFO 3Ps, Lumpfish	2016-2017	Fixed <27.4 m gillnets	min 5%	100%	Y	upon request	Y	Y			Y		Y		Y		Y		Y	Y		Y		2
Redfish - Unit 2, 3Ps	2016-2017 CHP	Fixed, <27.4 m; gillnet	min 5%	100%	Y	for vessels > 35' upon request	Y	Y			Y		Y		Y		Y		Y	Y		Y		2
Skate/Monkfish- 3Ps groundfish	2016-2017 CHP	Fixed, <27.4 m gillnets	min 5%	100%	Y	upon request	Y	Y			Y		Y		Y		Y		Y	Y		Y		2
Snow Crab (NAFO 2HJ, 3KLNO, 3Ps, and 4R3Pn)	2009-2011, 2016	Traps	Y	Y		Y	Y	Y				Y	Y	snow crab	Y	Y	Y			Y	Y	Y	Y	9
White Hake- 3Ps groundfish	2016-2017 CHP	Fixed, <27.4 m gillnets, longline	min 5%	100%	Y	upon request	Y	Y			Y		Y		Y		Y		Y	Y		Y		2

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Winter Flounder-3Ps groundfish	2016-2017 CHP	Fixed, <27.4 m gillnets, longline	min 5%	100%	Y	upon request	Y	Y			Y		Y		Y		Y		Y	Y		Y		2

Sources:

- 1) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div2-3KL-eng.htm>
- 2) DFO 2016 Conservation Harvesting Plan 2016-2017, NAFO sub-Division 3Ps. Groundfish Fixed Gear Vessels less than 27.4 metres (90 ft.) (May 24, 2016) ; <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3p-2016-eng.htm>
- 3) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/mackerel-atl-maquereau/mac-atl-maq-2007-eng.htm>
- 4) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrougeatl-eng.htm>
- 5) <http://www.dfo-mpo.gc.ca/decisions/fm-2015-gp/atl-013-eng.htm> ; DFO 2011 Integrated Fisheries Management Plan. Capelin (*Mallotus villosus*). Newfoundland and Labrador Region 2J3KLPs. Effective April 2011.
- 6) DFO 2010 Integrated Fisheries Management Plan. American Lobster (*Homarus americanus*) Newfoundland and Labrador Region. Lobster Fishing Areas 3-14C. Effective December 2010 ; Annette Rumbolt pers comm
- 7) DFO 2016 Conservation Harvesting Plan 2016-2017, NAFO sub-Division 3Ps. Groundfish Mobile Gear Vessels less than 27.4 metres (90 ft.) (May 24, 2016) ; <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3p-2016-eng.htm>
- 8) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3p-2016-eng.htm>
- 9) <http://www.dfo-mpo.gc.ca/decisions/fm-2016-gp/atl-01-eng.htm>, <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/snow-crab-neige/snow-crab-neiges2009-eng.htm>

**Table 4: Pacific Region fisheries management measures for bycatch** (fisheries listed alphabetically) – Fisheries management measures in the Integrated Fisheries Management Plans and associated Conservation Harvesting Plans which apply to the capture of non-target species (bycatch). From left to right, the columns describe the fishery, the date of the resource documents (IFMPs, CHPs), and the gear types covered. The monitoring components present in the IFMPs were, at-sea monitoring, dockside monitoring, hailing in or out to signal fishing activity, the requirement of vessel monitoring systems, and the completion of reporting documents (logbooks, fish slips). The remaining columns are specific management measures mentioned which address bycatch in the fishery or fisheries, whether there is a survey or test fishery in advance of the commercial fishery opening to sample for targets and non-target species, mention of bycatch quotas or caps, a small fish protocol in place, any other limits mentioned but not otherwise captured (NA indicates that there is no bycatch concern in the fishery as stated in the IFMP), move-on rules, size or sex limits, discard bans, any provisions for at-risk species, gear modifications specific to bycatch reduction, gear restrictions in the fishery in general, a fishing season built around bycatch mitigation, fishing effort controls, recording incidence of lost gear, spatial closures, temporal closures, and any incentive or initiative to mitigate bycatch. Blank cells indicate no mention of the measure in the documents examined. The sources are found below.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries  
Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Albacore tuna	2015-2017	Troll/hook and line	N		Y	Y	Y		Y		NA				Y	Y	Y		Y		Y		Y	12
Crab-by-trap (Dungeness, red rock, red king, golden king)	2016	Trap	Y			Y	Y	Y					Y				Y		Y		Y	Y		17
Eulachon (no commercial fishery 2016)	2016	Gillnet													Y		Y		Y		Y	Y	Y	11
Geoduck & Horse clam	2016-2017	Hand picking (Dive)	On-Grounds Monitors	100%	Y		Y	Y			NA	Y		shellfish	Y		Y	Y			Y	Y	Y	7
Green Sea Urchin	2013-2016	Hand picking (Dive)		100%	Y		Y				NA				Y		Y				Y	Y		2
Intertidal clams (Razor Butter clams, Littleneck, Manila, Varnish)	2016-2018	Hand picking or hand digging.					Y		Y		NA		Y		Y		Y				Y	Y	Y	6
Mixed groundfish	2016	trawl	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y	Y	Y		Y		Y	Y	Y	16
Mixed groundfish (other species Shedule II): Lingcod, Spiny Dogfish, Rockfish & Longspine/Shortspine Thornyheads, Halibut, Sablefish, Skate, Sole & Flounder, Pacific cod	2016	hook and line gear, longline, jig, and troll	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y		Y				Y	Y	Y	16
Mixed groundfish: Halibut trip	2016	hook and line gear	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y		Y		Y		Y	Y	Y	16
Mixed groundfish: Halibut, Sablefish, Inside Rockfish, Outside Rockfish, Lingcod, Dogfish	2016	Hook and Line/Trap	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y		Y				Y	Y	Y	16



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries  
Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source	
Mixed groundfish: Rockfish trip (inside)	2016	hook and line longline, jig, and troll.	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y		Y					Y	Y	Y	16
Mixed groundfish: Rockfish trip (outside)	2016	hook and line longline, jig, and troll.	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y		Y					Y	Y	Y	16
Mixed groundfish: Sablefish trip	2016	hook and line and trap gear	100%	100%	Y		Y	Y	Y		Y		Y	rockfish	Y	Y	Y		Y			Y	Y	Y	16
North Coast Chinook (commercial)	2016 (draft)	troll, seine, gillnet	At-sea patrols	Y - 100% of all offloads with chinook	Y		Y	Y	Y		Y				Y	Y	Y		Y			Y	Y	Y	14
North Coast salmon	2016 (draft)	troll, seine, gillnet	At-sea patrols	Y	Y		Y		Y		Y				Y	Y	Y		Y			Y	Y	Y	14
North Coast salmon: Northern Pink Salmon (commercial)	2016 (draft)	troll, seine, gillnet	At-sea patrols - Skeena-Nass Pink Fisheries Deployment of at-sea observers	Y - Skeena- Nass Pink Fisheries 20%	Y		Y	Y	Y		Y				Y	Y	Y		Y			Y	Y	Y	14
North Coast salmon: Northern Sockeye Salmon (commercial)	2016 (draft)	troll, seine, gillnet	At-sea patrols - Deployment of at-sea observers	Y - Nass fisheries 20%	Y		Y	Y	Y		Y				Y	Y	Y		Y			Y	Y	Y	14
Northern Chum Salmon (commercial)	2016 (draft)	troll, seine, gillnet	At-sea patrols	Y - 100% of all offloads with chinook	Y		Y	Y	Y		Y				y	Y	Y		Y			Y	Y	Y	14

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries  
Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Northern coho Salmon (commercial) (No targeted coho net fisheries in the North Coast)	2016 (draft)	troll, seine, gillnet	At-sea patrols	Y	Y		Y	Y	Y		Y				Y	Y	Y				Y	Y	Y	14
Pacific herring (roe, food & bait)	2015-2016	Seine, gillnet, (FN hand roe on kelp)	Y - pilot program + 100% in Food and Bait (Seine) fishery,	Y - (100% food & bait)	Y		Y			Y		Y			Y		Y				Y	Y	Y	10
Pacific Oyster	2016-2017	Hand picking	Y - if not hailing	Random	Y		Y	Y			NA				Y		Y				Y	Y		4
Prawn and Shrimp	2015-2016	Traps	Y - 100% in Rockfish Conservation Areas	Y	Y	100%	Y				Y	Y	Y		Y	Y	Y	Y	Y		Y	Y	Y	8
Razor Clam	2016-2018	Hand picking (Digging by hand)					Y	Y			NA		Y				Y	Y	Y		Y	Y		5
Red Sea Urchin	2013-2016	Hand picking (Dive)		100%	Y	pilot program	Y				NA		Y		Y		Y				Y	Y		3
Sardine (no authorized catch permitted in 2015)	2015-2108	Purse seine	min 25%	100%	Y	Y	Y		Y		Y				Y	Y	Y	Y			Y	Y	Y	13
Sea Cucumber	2015-2016	Hand picking (Dive)		100%	Y		Y				NA		N		Y		Y				Y	Y		1
Smooth Pink & Sidestripe Shrimp	2016-2017	Trawl	Y - min 50 days, if effort > 3 million lbs additional days of 1 per 10 fishing trips	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y				Y	Y	Y	9

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
South Coast salmon	2016 (draft)	troll, seine, gillnet	Y - plus at-sea patrols	Y	Y		Y		Y		Y				Y	Y	Y	Y			Y	Y	Y	15
South Coast salmon : Southern Chinook Salmon	2016 (draft)	troll, seine, gillnet		Y - 100% of all offloads with chinook	Y		Y	Y	Y		Y				Y	Y	Y	Y	Y		Y	Y	Y	15
South Coast salmon : Southern Coho Salmon	2016 (draft)	troll, seine, gillnet		Y	Y		Y	Y	Y		Y				Y	Y	Y		Y		Y	Y	Y	15
South Coast salmon : Southern Sockeye Salmon	2016 (draft)	troll, seine, gillnet	Roving Observer coverage in Area E gill net. Additional on-grounds monitoring to assess releases of non-target species in Area B and H sockeye fisheries.	Y - + 100% dockside catch validation for Area B seine and Area H troll ITQ fisheries, area E gillnet	Y		Y	Y	Y		Y				Y	Y	Y		Y		Y	Y	Y	15
Southern Chum Salmon	2016 (draft)	troll, seine, gillnet	Roving Observer coverage in Area E gill net opening. Partial independent on-board/at-sea coverage for Area B seine fisheries. Monitor to be present during beach seining.	Y - + for Area B seine fisheries.	Y		Y	Y	Y		Y				Y	Y	Y	Y	Y		Y	Y	Y	15

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries  
Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Southern Pink Salmon (2016 no anticipated commercial Fraser River pinks fishery)	2016 (draft)	troll, seine, gillnet	Partial independent at-sea observer coverage for Area B seine fisheries.	Y - + Mandatory dockside validation for Area B seine fisheries	Y		Y	Y	Y		Y				Y	Y	Y		Y		Y	Y	Y	15

Sources :

- 1) <http://waves-vagues.dfo-mpo.gc.ca/Library/358985.pdf> ; [http://www.pac.dfo-mpo.gc.ca/fm-gp/mplans/2016/sea\\_cucumber-holothurie-sm-2016-eng.html](http://www.pac.dfo-mpo.gc.ca/fm-gp/mplans/2016/sea_cucumber-holothurie-sm-2016-eng.html)
- 2) <http://waves-vagues.dfo-mpo.gc.ca/Library/348894.pdf>
- 3) <http://waves-vagues.dfo-mpo.gc.ca/Library/348758.pdf>
- 4) <http://waves-vagues.dfo-mpo.gc.ca/Library/361215.pdf>
- 5) PACIFIC REGION COUNCIL OF THE HAIDA NATION / FISHERIES AND OCEANS CANADA JOINT MANAGEMENT PLAN <http://waves-vagues.dfo-mpo.gc.ca/Library/362153.pdf>
- 6) <http://waves-vagues.dfo-mpo.gc.ca/Library/361106.pdf>
- 7) <http://waves-vagues.dfo-mpo.gc.ca/Library/361112.pdf>
- 8) <http://waves-vagues.dfo-mpo.gc.ca/Library/363240.pdf>
- 9) <http://waves-vagues.dfo-mpo.gc.ca/Library/362152.pdf>
- 10) DFO 2015, Pacific Region Integrated Fisheries Management Plan, Pacific Herring, November 7, 2015 to November 6, 2016; 2014: <http://waves-vagues.dfo-mpo.gc.ca/Library/351581.pdf>
- 11) DFO 2016, Pacific Region Integrated Fisheries Management Plan, Fraser River Eulachon, April 1 to December 31, 2016.
- 12) DFO 2015 PACIFIC REGION INTEGRATED FISHERIES MANAGEMENT PLAN ALBACORE TUNA APRIL 1, 2015 TO MARCH 31, 2017
- 13) DFO 2015 Pacific Region Integrated Fisheries Management Plan Pacific Sardine JUNE 1, 2015 TO FEBRUARY 9, 2018
- 14) DFO 2016 Pacific Region Integrated Fisheries Management Plan Salmon Northern BC June 1, 2016 - May 31, 2017 DRAFT
- 15) DFO 2016 Pacific Region Integrated Fisheries Management Plan Salmon Southern BC June 1, 2016 - May 31, 2017 DRAFT
- 16) <http://waves-vagues.dfo-mpo.gc.ca/Library/361424.pdf>
- 17) <http://www.pac.dfo-mpo.gc.ca/fm-gp/mplans/2016/crab-crabe-sm-2016-eng.pdf>

**Table 5: Quebec Region and Gulf Region fisheries management measures for bycatch** (fisheries listed alphabetically) – Fisheries management measures in the Integrated Fisheries Management Plans and associated Conservation Harvesting Plans which apply to the capture of non-target species (bycatch). From left to right, the columns describe the fishery, the date of the resource documents (IFMPs, CHPs), and the gear types covered. The monitoring components present in the IFMPs were, at-sea monitoring, dockside monitoring, hailing in or out to signal fishing activity, the requirement of vessel monitoring systems, and the completion of reporting documents (logbooks, fish slips). The remaining columns are specific management measures mentioned which address bycatch in the fishery or fisheries, whether there is a survey or test fishery in advance of the commercial fishery opening to sample for targets and non-target species, mention of bycatch quotas or caps (including % bycatch retained per target species), a small fish protocol in place, any other limits mentioned but not otherwise captured, move-on rules, size or sex limits, discard bans, any provisions for at-risk species, gear modifications specific to bycatch reduction, gear restrictions in the fishery in general, a fishing season built around bycatch mitigation, fishing effort controls, recording incidence of lost gear, spatial closures, temporal closures, and any incentive or initiative to mitigate bycatch. Blank cells indicate no mention of the measure in the documents examined. The sources are found below.

Fishery	IFMP/ CHP date	Gear (s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source	
American Oyster Eastern New Brunswick	2009-2012	Hand picking (rakes/tongs); dragging in Miramichi Bay (experimental)					Y						Y				Y		Y						1
American plaice (NAFO 4T)	2015	Mixed gear	min 25%	Y	Y		Y	Y		Y					Y		Y				Y	Y			2
Atlantic cod (NAFO 3Pn4RST) Gaspé-Lower St. Lawrence	2014-2017	fixed gear 13.71m and over - ITQ - longliners	min 20%	100%	Y	Y	Y		Y	Y				groundfish	Y		Y		Y			Y	Y		3
Atlantic cod (NAFO 3Pn4RS; Northern Gulf of St. Lawrence, Quebec North Shore)	2015-2017, 2016	fixed gear: gillnet with handline. under 15.24 m	min 5%	100%	Y		Y		Y	Y			Y	groundfish	Y		Y						Y		4
Atlantic halibut (NAFO 4RST) Gaspé-Lower St. Lawrence	2014-2017	fixed gear 13.71m and over - ITQ - longliners	min 20%	100%	Y	Y	Y		Y	Y				groundfish	Y		Y		Y		Y	Y			5

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Atlantic Halibut - 4RST - Upper & Middle North Shore	2016-2017	Fixed < 19.81 m longline	min 10%	100%	Y		Y		Y	Y		Y			Y		Y				Y	Y		6
Atlantic halibut (NAFO 4RST) Gaspé-Lower St. Lawrence - Fixed Gear 13.71m & over - ITQ - Others Group / Longliners	2012-2017	Fixed 13.71m and over - ITQ - Others Group, Longliners	min 20%	100%	Y	Y	Y		Y	Y		Y			Y		Y		Y		Y	Y		7
Atlantic halibut (NAFO 4RST) (Magdalen Islands)	2016	Fixed < 19.81m	min 10%	100%	Y		Y		Y	Y		Y			Y		Y				Y	Y		8
Atlantic halibut (NAFO 4RST) Gaspé-Lower St. Lawrence - Lower North Shore East & West -	2015-2017	Fixed <13,71m - Competitive - Lobster Fishers Group A125, Others Group A127, Turbot Fishers Group A124, IQ - Association des morutiers traditionnels de la Gaspésie A138-A144. -- - Lower North East & West shore <19.81 m	min 10%	100%	Y	Gaspé-Lower St. Lawrence - Fixed Gear < 13.71m - Competitive-Turbot A124 & Gaspé-Lower St. Lawrence - Fixed Gear < 13.71m - IQ - Association des morutiers traditionnels de la Gaspésie A138-A144	Y		Y	Y		Y			Y		Y				Y	Y		9

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source		
Atlantic herring (Herring area 15, North Shore)	2016	Mobile: purse seine, Fixed: gillnet, trap, handline		Y- not in 2016	Y- not in 2016	purse seine	Y								Y		Y								10	
Atlantic Razor Clam - 5 - Magdalen Islands	2016-2018	Hand picking (diving/not diving), Hydraulic dredge		sporadic coverage hydraulic dredge	Y		Y				Y		Y		Y		Y					Y				11
Atlantic Surfclam	2016-2018	Hand picking (diving/not diving), Hydraulic dredge	min 5% dredge	100% hydraulic dredge	Y		Y				Y		Y		Y		Y					Y				12
Bluefin tuna (4RST, Ex-sector: 4Wd, 4VsW, 4X and 5.)	2015-2018	angling gear, tended lines or electric harpoon	Ex-sector only	100%	Y		Y								Y		Y									13
Bluefin tuna (Atlantic Canada IFMP) with Gulf Plan	2007, 2008	tended line, angling, electric harpoon	when requested	Y	Y		Y				Y		Y				Y		Y							14
Bluefin tuna Atlantic Canada IFMP with Quebec Plan	2007, 2008	tended line, angling, electric harpoon	when requested	Y	Y		Y						Y				Y					Y				15
Capelin (NAFO 4RST) (CFAs 12-16)	2011, 2015	Traps, purse seines	when requested	25% - 100%	Y	purse seine fleet > 35' in 4R (CFAS 12-14), >65' Gulf based vessels in 4T (CFA 16)	Y				Y				Y		Y					Y				16
Greenland Halibut, 4RST - Gaspé-Lower St. Lawrence,	2015-2017	mixed gear	min 5%, 15% longliner fleet & Gaspé	100%	Y	Y	Y	Y	Y	Y		Y		groundfish	Y		Y		Y			Y	Y			17

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source	
Lower North Shore , Upper and Middle North Shore			Peninsula 13.71m & over ITQ fleet																						
Lobster (LFAs 15,16,18I, 17AB, 18BCDGH, 19-21, 22)	2010-2014, 2016-2018	traps	N	N	N	North Shore (LFAs 17AB, 18BCDGH)	Y				Y		Y		Y	Y	Y	Y	Y		Y				18
Lobster (LFASs 23-25, 26AB)	2014	traps					Y				Y		Y		Y	Y	Y	Y		Y	Y				19
Northern Shrimp 8,9,10,12 - Gulf	2016	trawl	min 5%	100%	Y	Y	Y			Y	Y				Y	Y	Y								20
Oyster (PEI)	2000-2004	Hand picking (rakes/tongs)								Y	Y						Y								21
Redfish - Unit 1 4RST & 3Pn4Vn (Jan-May)	2015-2016	mixed gear:	min 25%	100%	Y		Y		Y	Y					Y		Y								22
Scallop 17A1, 17A2, 18B1, 18B2, 18C and 19A. - Gaspé-Lower St. Lawrence	2016-2018	Dredge	min 5% subarea 17A1	100%	Y	Y	Y	Y					Y		Y		Y				Y	Y			23
Sea Cucumber-A-C: The Gaspé - Lower St. Lawrence sea cucumber fishery is a Phase II exploratory fishery	2015, 2016	Dredge (feasibility of dive in 2016/ only dive in Area A)	100%, min 30% with VMS	100%	Y	Y	Y	Y		NA	Y		Y		Y		Y		Y		Y	Y			24



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Sea Cucumber - North Shore (Areas 3 and 5)	2016	Sea Cucumber skate				Y	Y				Y		Y		Y		Y		Y					25
Sea Urchin - exploratory fishery (1 à 8 - Gaspé-Lower St. Lawrence, 9, 9-1, 10, 11 - North Shore; 12 - North Shore)	2013-2015, 2016	Hand picking (Dive) ; Whelk trap	25% principal boat , 100% principal boat & secondary boat	100%	Y	Y	Y				Y		Y		Y	Y	Y		Y		Y	Y		26
Snow Crab Area 12AB Gaspé-Lower St. Lawrence 12,18,25,26 - SGSL12CF, 13 (Quebec 43 licences & Newfoundland & Labrador 6 licences), 14 - North Shore, 15, 16, 16A, 17	2015, 2016	traps	min 2.5-20%	100%	Y	Y	Y				Y		Y	snow crab	Y	Y	Y		Y		Y	Y	Y	27
Snow Crab Southern Gulf of Saint Lawrence Crab Fishing Areas 12, 12E, 12F, 19	2014, 2015	traps	min 15-20%	100%	Y	Y	Y				Y		Y	snow crab	Y	Y	Y				Y	Y	Y	28
Soft shell clams 1A, 1B, 1C, 2 et 3 - North Shore	2016	Hand picking					Y				Y		Y	shellfish			Y							29

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source	
Stimpson's surfclam 1AB, 2, 3AB, 4AB (upper & middle north shore)	2015-2017	Hydraulic dredge		Y	Y	Y - mandatory in area 1	Y						Y		Y									30	
Toad Crab: 12 - Magdalen Islands, sub-areas CN234, Quebec (exploratory licences), North Shore area, sub-area CN1 - Quebec, North Shore area (38 exploratory licences)	2015-2017	traps		25% Magdalen Islands	Y		Y				Y		Y		Y	Y	Y								31
Whelk (simultaneous fishing and landing of whelk & common crab authorized) Whelk areas 1, 2, 3, 4, 5, 6, 7, 9 – Quebec	2015-2017	Traps		Y	Y		Y				Y		Y		Y		Y								32
Winter flounder 4RST	2015, 2016	fixed gear	min 5%	100%			Y	Y	Y	Y					Y		Y								33
Winter flounder 4T	2015, 2016	mobile gear	min 10% 4Ta, 4T3, 4T6 & 4T7; min 25% 4T8	100%	Y		Y	Y	Y	Y					Y		Y								34

Fishery	IFMP/ CHP date	Gear(s)	At-sea Monitoring	Dockside/ Catch Monitoring/ Validation	Hails/ Oral-reports	Vessel Monitoring Systems	Logbooks/ Fish Slips	Surveys/ Test Fishery	Quotas/ Caps	Small Fish Protocol	Other Limits	Move-on Rules	Size/ Sex Limits	Discard Bans	SARA Provisions	Devices & Modification	Gear Restrictions	Season	Fishing effort controls	Record lost gear	Spatial Closures	Temporal Closures	Incentives or Initiatives	Source
Witch flounder 4RST	2015-2017, 2016	mobile gear	min 25%	100%	Y		Y	Y	Y	Y					Y		Y							35
Yellowtail flounder 4T Magdalen Islands	2015-2016	mobile gear	min 10% 4Ta	100%	Y		Y		Y	Y					Y		Y							36

Sources:

- 1) <http://www.glf.dfo-mpo.gc.ca/folios/00161/docs/nb-oyster-huitre-2009-2012-eng.pdf>
- 2) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=323&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=140&area=1907](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=323&todo=view&type=1&region_id=4&sub_type_id=5&species=140&area=1907)
- 3) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=271&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=100&area=1905](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=271&todo=view&type=1&region_id=4&sub_type_id=5&species=100&area=1905)
- 4) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=348&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=100&area=1903](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=348&todo=view&type=1&region_id=4&sub_type_id=5&species=100&area=1903)
- 5) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=271&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=100&area=1905](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=271&todo=view&type=1&region_id=4&sub_type_id=5&species=100&area=1905)
- 6) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=825&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1887](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=825&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1887)
- 7) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=271&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1894](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=271&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1894) ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=274&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1895](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=274&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1895)
- 8) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=814&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1886](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=814&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1886)
- 9) DFO 2016 (draft) EKME 3363587 Integrated Management Plan. Gulf of St. Lawrence Groundfish (NAFO Subdivisions 3Pn, 4Vn, and Divisions 4RST), Gulf Region ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=373&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1891](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=373&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1891) ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=364&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1892](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=364&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1892) ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=269&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1890](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=269&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1890) ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=838&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1889](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=838&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1889) ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=829&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1888](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=829&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1888) ; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=782&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=130&area=1893](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=782&todo=view&type=1&region_id=4&sub_type_id=5&species=130&area=1893)
- 10) [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=726&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=200&area=1914](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=726&todo=view&type=1&region_id=4&sub_type_id=5&species=200&area=1914)
- 11) [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=660&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=603&area=1872](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=660&todo=view&type=1&region_id=4&sub_type_id=5&species=603&area=1872)
- 12) [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=665&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=1073&area=1873](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=665&todo=view&type=1&region_id=4&sub_type_id=5&species=1073&area=1873)
- 13) [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=419&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=254&area=1917](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=419&todo=view&type=1&region_id=4&sub_type_id=5&species=254&area=1917)
- 14) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrouge2007-eng.htm> ; <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrougeat-eng.htm>
- 15) <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrouge2007-eng.htm> ; <http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-thonrougeat-eng.htm>
- 16) DFO 2011 Integrated Fisheries Management Plan Capelin (*Mallotus villosus*) NAFO Divisions 4RST (Capelin Fishing Areas 12-16) effective May 2011; [https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub\\_id=242&todo=view&type=1&region\\_id=4&sub\\_type\\_id=5&species=360&area=1924](https://inter-I01.dfo-mpo.gc.ca/applications/opti-opei/notice-avis-detail-eng.php?pub_id=242&todo=view&type=1&region_id=4&sub_type_id=5&species=360&area=1924)



**Table 6: Summary of bycatch data obtained from MSC public certification report tables, with notes about table choice, if more than one dataset was available, and on any manipulation or assumptions applied for the analysis.** Twenty-two reports had bycatch data in table format, 20 of which allowed for the calculation of the percentage of total catch discarded or retained. Two fisheries (Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific and NAFO Division 4R Atlantic Herring Purse Seine Fishery) only presented data allowing for a tally of the number of species caught, either not presenting associated target catch at all, or not at the same scale as the non-target catch. These fisheries were excluded from any analysis of the percent of the total catches discarded or retained, but are included in summary counts of the number of taxa caught, and appear in Appendix III.

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
APPIM Iles-de-la-Madeleine lobster ( <i>Homarus americanus</i> ) Trap Fishery	2013 - most recent (initial certification) (Murray et al. 2013)	2,668 mt in 2012	1	1	2011	Observer	Entire fishery	Table 7	Auditors estimated catches over the entire fishery assuming all fishing effort was deployed and that animals were not caught more than once. Starfish and toad crab <50mm were indicated as <0.1 t caught in the table, but were assumed here to be 0.1 t for summary purposes. Total lobster catch was estimated here using the weight of bycatch reported and the reported percentage of lobster catch which that represented. Retained and discards were not presented, here all lobsters were assumed to be retained. All other catch was assumed to be discarded, including rock crab. Although male rock crabs are retainable, the report indicated they are not retained in practice.
Banquereau Arctic Surfclam Fishery	2012 - most recent (initial certification) (Brand et al. 2012a)	22,845 mt in 2010	1	1	2005	On-board sampling of unsorted catch	Unsure; likely not scaled to entire fishery	Table 7	The report also presented bycatch data in a table from surveys, however the observer based data in table 7 was chosen as it reflects the area and methods of the fishery. Retained and discards were not presented, here we assumed all retainable species were retained (ocean quahog, northern propellerclam, greenland cockle and arctic surfclam).
British Columbia hook and line spiny dogfish fishery	2011 - most recent (initial certification) (Musick et al. 2011)	3,147 mt in 2009/10	2	2	2006/2007 to 2009/2010: sum of individuals	Logbooks	Unsure; likely entire fishery	Table 3 and Table 4	The report also presented combined inside and outside percentages, but tables 3 and 4 were chosen as they were broken down by fishery fishing area and provided numbers of individuals discarded and retained. Percentages were calculated from the number of individuals. Each table represented data from one fishing area.
Canada / Newfoundland 3Ps Atlantic Cod Fishery	2016 - most recent (initial certification) (Blyth-Skyrme 2016)	4,031 mt in 2013/14*  *Canada's landings	4	1	2010/2011 to 2012/2013 or 2010/2011 to 2011/2012: sum of weights	Observer	Observed trips only	Table 2	The report also presented dockside monitoring based retained weights, however table 2 was chosen as it also contains information on discarded species. In this table data for the mobile bottom gear only covers 2010/2011 to 2011/2012, whereas the gillnet, longline and handline data cover 2010/2011 to 2012/2013.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
Canada Atlantic Halibut	2013 - most recent (initial certification) (Martell 2013)	1,457 mt in 2007	24	4	2007 to 2011: average of weights	Landings and logbooks	Entire fishery	Appendix III - Gillnet, Appendix III - handline, Appendix III - longline, and Appendix III - trawl	The report also contained this same data presented summarized in tables within the report. The tables in Appendix III were chosen as they contained more detail. There were four tables, one for each gear type. Note, data from 2010 and 2011 are considered preliminary, and some trips crossed over more than one NAFO division. Data in the tables are available for each year and were separated by fishing area, here we averaged the mt across all years in each fishing area and calculated percentages based on the average values. The text of the report indicates that the data in the tables are based on landings and logbook data, however table titles only indicate catch or landings. The tables do not specify retained versus discarded. Since all species were retainable, it was assumed here that all were retained. Note, we removed the following sub-fisheries due to no landings recorded in the data table: 4Vn gillnet, 3NO handline, 4Vn handline. Thus, only 21 fleets were used in the analysis.
Canada Northern and Striped Shrimp Fishery	2016 - most recent (recertification) (Powles et al. 2016)	Approximately 77,000 mt in 2014/15*  *Combined total of catch in each Unit of Certification	7	1	2012/2013 to 2014/2015: sum of weights	Observer	Unsure; likely just observed trips of seven offshore vessels	Table 7	Bycatch information in the table is presented from 7 offshore vessels only, it was assumed here these are reflective of the entire fishery. The report also presents a table of main bycatch species maximum weight for all year/SFA/fleet cells sampled. However, Table 7 was chosen as it included all species and weights of target catch as well. The report notes that the proportions of northern and striped shrimp in SFA 1 (Div. 0A) in Table 6 are inconsistent with all earlier information on bycatch and knowledge of stripped shrimp biology, which indicate that this species is uncommon in this fishery area and in the bycatch. The data table included some empty cells and cells with dashes, here we assumed these were valued at 0, although in reality this may not be the case. Here we assumed that all retainable species were retained (northern and striped shrimp), and all others discarded.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
Canada Pacific halibut (British Columbia)	2009 - not the most recent (initial certification) (Chaffee and Turris 2009)	7.74M lbs. in 2012*  *Landings as reported in the recertification report (DeAlteris et al. 2015), as landings were not stated in the initial certification report.	1	1	2006 to 2008: sum of individuals	Logbooks	Entire fishery	Appendix V – Table 1	The most recent certification report (DeAlteris et al. 2015) did not contain quantitative data about all bycatch taxa, and instead only summarized information pertaining to the MSC defined major bycatch, minor bycatch and ETP species as obtained from catch accounting statistics. These statistics account for quota species retained and discarded amounts, but do not account for non-quota species discard amounts. Furthermore, the table did not differentiate between discarded and retained amounts for the quota species. Thus, we did not use the more recent data in the analysis, and instead turned to the initial certification report (Chaffee and Turris 2009). The initial certification report contained detailed information about all bycatch taxa, regardless of MSC categorization, and indicated the quantities retained and discarded, therefore it was chosen. The initial report also presented DMP based data from 2006, but the data from the appendix was chosen as it covered a larger time period and indicated the amount (in pieces) retained and discarded. It was noted in the report that due to privacy restrictions, not all sets were include in the data, and that for some species, retained numbers include fish that are below the minimum size and must be released by regulation. For comparison purposes, data from both the initial report Appendix V table 1 used in this analysis, and the more recent recertification report Appendix 4 table, both appear in Appendix III of this report.
Canada Scotia-Fundy haddock	2016 - most recent (recertification) (Mateo 2016)	5,370 mt in 2010/11 in 4X5Y and 4,631 mt in 2013 in 5Zjm	4	5	2011 to 2013: average of weights. 2004 to 2013: average of weight. 2004 to 2012: average of weights.	Likely dockside monitoring, and observer	Unsure; likely entire fishery	Table 4, Table 8, Table 9, Table 10, and Table 10b	Note that two gear types included in the certification are lacking bycatch data presented in tables (gillnets and handlines). Data presented in the tables in the report are from "Directed" haddock trips, groundfish trips that had haddock landings with landed weight. Note that Table 4 contained asterisks for some species in certain gear type/fishing areas, referring to data not available per DFO confidentiality policy. This data were assumed to represent zero catches here, although that may not be the case. Here we assumed that all values in the retained data table (Table 4) were retained, and all values in the discarded data tables (Tables 8, 9, 10, 10b) were discarded. Even though all five tables covered varying timeframes, since they presented average annual values at similar scales these averages were combined here.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
Canadian 4VWX Purse Seine Herring Fishery	2016 – most recent (initial) (Gaudian et al. 2016)	50,250 mt in 2013/14	1	1	2014	Observer	Observed sets only	Table 3.4.1	Herring catch was not indicated, here we calculated it using the weight of bycatch reported and the reported percentage of herring catch which that represented. The table indicated whether taxa are retained or not in general, here we assumed all herring and mackerel weights in the table were retained and that all other species were discarded. The auditors noted the tuna escaped the seine.
Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific	2015 – most recent (recertification) (Criquet et al. 2015a)	92,509 mt in 2013*  *Total north Pacific wide albacore catches. Canada landed on average 7.3% of total catches in from 2003 to 2012.	1	1	2012 to 2014: sum of individuals	Reported catches	Unsure; likely entire fishery	Table 5	No data was available on the number of individuals of the target species, therefore we could not calculate the percent of total catch for each taxa. Therefore, this fishery was not included in any analysis of the percent of the total catches discarded or retained. However, data was presented in tables pertaining to catches of non-target species, and this is incorporated into our summary counts of the number of taxa caught, and appears in Appendix III of this document.
Eastern Canada offshore lobster	2015 - most recent (recertification) (Blyth-Skyrme et al. 2015a)	654 mt in 2012	1	1	2006 and 2012: average of weights.	Observer	Entire fishery	Table 5	Data were presented in Table 5 for 2006 and 2012. Here we combined the values into an average for both years. The weight of the lobster catch was presented in the table, but was estimated by the report auditors as 14% of the lobsters caught being returned. The weight of Jonah crab retained and discarded was presented in the table. Although male Rock crab are retainable, here we assumed no Rock crab was retained, since retained amounts for other retainable species were indicated and the report indicated no rock crab were retained in 2012.
Eastern Canada offshore scallop	2015 - most recent (recertification) (Blyth-Skyrme et al. 2015b)	6,088 mt in 2013	1	1	2008 to 2013: average of weights.	Likely observer	Unsure; likely entire fishery on Georges Bank	Table 5	Table 5 presented bycatch data for fish and invertebrates from Georges bank 'a' + 'b'. Here was assumed only the target (scallop) was retained, although allowable, we assumed monkfish were not retained as it was indicated in the report that little or none are retained.



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
Gaspésie lobster ( <i>Homarus americanus</i> ) Trap Fishery	2015 - most recent (initial certification) (Criquet et al. 2015b)	872 mt in 2011.	1	1	2011	Likely observer	Entire fishery	Table 8	Auditors estimated catches during the 2011 fishing season for the North and South Gaspé combined, assuming all fishing effort was deployed and that animals were not caught more than once. Total lobster catch was estimated here using the weight of bycatch and the percentage of lobster catch which that represented, as presented in the table, and all lobsters were assumed to be retained. All other catch was assumed to be discarded, including rock crab. Although male rock crabs are retainable, the report indicated they are not retained.
Grand Bank Arctic Surfclam Fishery	2012 - most recent (initial certification) (Brand et al. 2012b)	0 mt in 2010 and 127 mt in 2009	1	1	2002 to 2009: sum of weights.	On-board sampling of unsorted catch	Unsure; likely observed trips only	Table 7	The report also presents bycatch information from survey data in table format. However, Table 7 was chosen as it was obtained from the fishery, and thus should be more representative of the fishery. Here we assumed all retainable species were retained (Arctic surfclam, ocean quahog, greenland cockle, northern propeller clam, and whelk <i>bucchimum</i> sp.) and all others were discarded.
Gulf of St. Lawrence shrimp	2014 - most recent (recertification) (Parsons et al. 2014a)	31,905 mt in 2012	1	1	2007 to 2011: average of weights.	Observer	Entire fishery	Table 2	Here we assumed all retainable species were retained (Northern and striped shrimp) and all other species were discarded.
NAFO Division 4R Atlantic Herring Purse Seine Fishery	2014 - most recent (initial certification) (Nichols et al. 2014)	10,291 mt in 2012*  *large and small seiners	1	2	1998 to 2012: average of weights. 2005 to 2009: sum of weights.	Likely landings and observer	Table 6; the entire fishery, Table 7; observed sets	Table 6 and Table 7	In this report the retained data and discarded data were presented in different tables (Table 6 and Table 7, respectively). They could not be combined due to being presented at different scales (Table 6; entire fishery, Table 7; observed sets), and because the discarded data did not include an estimate of herring catch in the observed sets, we could not calculate the percent of total catch for each taxa. Therefore, this fishery was not included in any analysis of the percent of the total catches discarded or retained. However, data presented in tables pertaining to catches of non-target species is incorporated into our summary counts of the number of taxa caught, and appears in Appendix III of this document.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Pelagic Longline Fishery	2012 - most recent (initial certification) (Devitt et al. 2012)	1061.4 mt in 2009	1	3	2002 to 2009: sum of weights.	Observer	Observed sets	Table 6, Table 7 and Table 8	Note that during the assessment, the reports of black marlin showing up in the catch was questioned, and DFO confirmed it was likely a misidentification. It remains here, as it remained in the table in the report. Data was presented for each year, here we summed the weights across years and used the summed weight to calculate the percent of total catch discarded or retained. Since each table represented data from the same timeframe and scale (presented as a table for each of retained, bycatch and ETP species in the report), here we combined the three tables for summary purposes.
OCI Grand Bank Yellowtail Flounder Trawl Fishery	2015 - most recent (recertification) (Blyth-Skyrme et al. 2015c)	6,802 mt in 2014* *Canada's landings	1	1	2013	Logbook	Entire fishery	Table 4	The report also presented observer based data for 2013/2014, but Table 4 based off of logbook data was chosen as it broke down the amounts retained and discarded.
Scotian Shelf northern prawn trawl	2013 - most recent (initial certification) (Parsons et al. 2014b)	3,495 mt in 2012	1	1	2008 to 2010: sum of weights.	Observer	Observed sets	Table 2	The report also presented the percent of catch and estimated weight of the 12 most abundant species in 2010/2011. Here, Table 2 was chosen as it listed all species encountered by observers sampling 119 sets. Note that Table 2 presents the percentage of catch broken down by SFA, fleet and season. However, estimated weight is presented only for the entire fishery, so here we do not break down the data further. It was assumed that all retainable species (Northern shrimp, other shrimp) were retained and all other species were discarded.
Scotian Shelf Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	2012 - most recent (initial certification) (Garforth et al. 2012a)	13,955 mt in 2010	1	1	2006 to 2009: average of weights.	Observer	Entire fishery	Table 5	Here we used an annual average of the annual values of catch (kg) reported in the tables as representing the weight retained or discarded and to estimate the percent of total catch. Here it was assumed only snow crab were retained and all other catch was discarded.
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	2010 – most recent (initial certification) (Furness et al. 2010)	3,126 mt in 2007	2	3	April 2006 to October 2008: sum of individuals	Logbooks	Entire fishery	Table 9, Table 11, Table 12	The report also presented data from electronic monitoring video analysis. However, since the video based data represented sub-sampling and was not scaled to the entire fishery, we chose to use the logbook data. As per the auditors, we assumed all “K” trips were Korean longline trap trips and all “Combo” trips were the bottom longline trips. We assumed all sharks were discarded, otherwise the amounts retained and discarded were obtained from the tables. Since Table 9 and 11 were both “Combo” trip data and represented data from the same timeframe and scale, they were combined here for summary purposes.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Certification report year and status for data tables used	Recent landings noted in certification report	Number of fishery fleets presented in tables	Number of report data tables used	Time frame of data in tables used	Type of data in tables	Scale of data in tables	Report table(s) numbers used	Notes
US and Canada Pacific Hake Mid-water Trawl Fishery	2014 - most recent (recertification) (Pedersen et al., 2014)	204,000 mt in 2012*  *combined Canada/US commercial landings	1	1	2012	Likely electronic monitoring and dockside monitoring	Unsure; likely entire fishery	Appendix 1 - Table 2	The landed and release weights presented in the table reflect catch from only fishing events targeting Pacific hake. There were 506 hake fishing trips.

**Table 7: Bycatch information obtained from the text for MSC certified fisheries (n=10 fisheries) where no bycatch data was available in table format.**

These fisheries make up the remainder of MSC certified fisheries in Canada (n=22+10=32 fisheries total) not previously listed in Table 1.

Fishery	Gear type	Certification report year	Recent landings noted in certification report	Summary of bycatch information obtained from the MSC report text
British Columbia Pink Salmon ( <i>Oncorhynchus gorbuscha</i> ) Seine, Troll and Gillnet Fishery	Seine, gillnet, troll, beach seine, fish wheels, weirs, dipnets	2011 (initial) (Devitt et al. 2011)	11,200 mt in 2007.	Bycatch composition and amount vary by gear type, but common to all is the incidental catch of other salmon species (chum, coho, Chinook, sockeye and steelhead trout). The gillnet gear type has also been identified catching seabirds as bycatch, including the marbled murrelet (threatened under SARA). The troll fishery also catches lingcod and various species of rockfish.
British Columbia Chum Salmon ( <i>Oncorhynchus keta</i> ) Fisheries	Seine, gillnet, troll, beach seine, fish wheels, weirs and dipnets.	2013 (initial) (Hilborn et al. 2013)	5,795,786 kg in 2011	Bycatch composition and amount vary by gear type, but common to all is the incidental catch of other salmon species (chum, coho, Chinook, sockeye and steelhead trout). The gillnet gear type has also been identified catching seabirds as bycatch, including the marbled murrelet (threatened under SARA). The troll fishery also catches lingcod and various species of rockfish.
British Columbia Commercial Sockeye Salmon Fisheries	Seine, gillnet, troll, beach seine, fish wheels, weirs, dip nets.	2013 (initial) (Devitt et al. 2010b)	Not stated in report	Logbook records indicate little impact on birds and mammals.
Newfoundland and Labrador snow crab	Pot	2013 (initial) (Addison et al. 2013)	53,000 t in 2011	Only snow crab may be retained, and bycatch of other species is likely small, based on observer data. During 2004-2008 total bycatch of all discarded species (excluding wolffish) was 55 t/year, varying between 34 t/year and 71 t/year (average 0.11% of the target species catch, min; 0.06%, max 0.14%). Species groups included as bycatch were invertebrates (average 44 t/year; <i>Hyas</i> crabs and others), unidentified fish (7.6 t/year, partly Atlantic cod), skates, Greenland halibut (1t/year) and American plaice (1 t/year).

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear type	Certification report year	Recent landings noted in certification report	Summary of bycatch information obtained from the MSC report text
<p>Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster (<i>Homarus americanus</i>) Trap Fisheries</p>	<p>Baited trap</p>	<p>2015 (initial) (Criquet et al. 2015c)</p>	<p>55,242 mt in 2013</p>	<p>Unit of Certification 1, Southern Gulf of St. Lawrence: Rock crab (<i>Cancer irroratus</i>), cunner (<i>Tautogolabrus adspersus</i>) and sculpin (<i>Myoxocephalus octodecemspinocus</i>) may be landed, but in actual fishing practices, cunner and sculpin are not retained and in 2011 landings of rock crab represented 3% of total lobster landings. Information on bycatch is not collected. The minor bycatch species identified by the auditors was sea urchins and whelk, the main bycatch species identified was sculpin.</p> <p>Unit of Certification 2, 3 and 4, the East and South Scotian Shelf, and Bay of Fundy: LFAs 27-38 can retain green crab (<i>Carcinus maenas</i>), rock crab (<i>Cancer irroratus</i>), and sculpin (<i>Myoxocephalus octodecemspinocus</i>). LFAs 33-38 can also retain Jonah crab (<i>Cancer borealis</i>) that is 130 mm and greater in length. In actual fishing practices sculpin is not retained. Crab retained as bait is recorded in the lobster log, crab retained for sale is recorded in a crab monitoring document. Between 2010 to the report preparation date, crab retained for sale represented 0.8-1.6% of the total combined (all sources) annual inshore landings for crab reported to DFO Maritimes region (698 t, less than 1% of lobster landings). Information on bycatch is recorded occasionally in this region. According to this data there are few bycatch species, and approximately 95% of the catch is the target species. The minor bycatch species identified by the auditors were crab species, sea urchins and whelk. The auditors considered Atlantic cod (<i>Gadus morhua</i>) and cusk (<i>Brosme brosme</i>) as main bycatch species. The Guysborough County Inshore Fishermen's Association has been recording all catch for LFAs 31a and 31b since 2009, with the data indicating the mean percentage (count) of all non-target species caught in lobster traps was 11%, and 4.3% for LFA 31a and LFA 31b, respectively. In the Unit of Certification 2 area, the Fishermen Scientists Research Society recorded the total catch of 41 lobster fishing trips between November 2005 and July 2006, where more than 90% of the catch, by weight and number, was lobster. None of the bycatch species represented more than 5% of the target catch. There were 44 species from 9 phyla caught in the traps sampled (n=2553). The most commonly caught species in lobster traps were decapods, with 23% of traps catching rock crab, 10% Jonah crab, 2% hermit crabs (Paguridae) and 2% toad crabs (<i>Hyas</i> spp). Six per cent of the traps caught sea urchins (<i>Strongylocentrotus</i>), 5% caught starfish (<i>Asterias</i> spp.), 5% caught whelks (<i>Buccinum</i> spp) and 1% caught periwinkles (Littorinidae). Six per cent of the traps caught shorthorn sculpin (<i>Myoxocephalus scorpius</i>), and almost 1% of the traps caught cunner (<i>Tautogolabrus adspersus</i>), sea raven (<i>Hemitripterus americanus</i>), longhorn sculpin (<i>Myoxocephalus octodecemspinocus</i>), cod (<i>Gadus morhua</i>) and winter flounder (<i>Pseudopleuronectes americanus</i>). The estimated catch of cod in the 2005/2006 season was 145.8 t (1.8% of the total catch). During 2009 to 2010, the Maritimes Region lobster fisheries were at-sea sampled as part of the Species at Risk (SARA) bycatch study, where a total of 552 samples were taken on 370 vessels. The non-lobster portion of the total catch ranged from 1.5% in LFA 31B to 13% in LFA 33. In this study, 125 t (0.4% of total catch) and 210 t (1% of total catch) of cod were caught by lobster harvesters in LFAs 27-33 and LFA 34, respectively. A study by Pezzack et al (2014) also showed that 8 t (0.03% of total catch) and 219 t (1.1% of total catch) of cusk were caught by lobster harvesters in LFAs 27- 33 and LFA 34, respectively. Research to estimate cusk bycatch in LFA 34 lobster fishery by Harris and Hanke (2010) indicated that 461 t (2.7% of total catch) and 344 t (2% of total catch) of cusk were caught during the 2005-2006 and 2006-2007 fishing seasons, respectively. Please see the public certification report for sources of literature cited above.</p>
<p>Prince Edward Island lobster (<i>Homarus americanus</i>) Trap Fishery</p>	<p>Baited trap</p>	<p>2014 (initial) (Criquet et al. 2014)</p>	<p>9,284 mt in 2011</p>	<p>Rock crab (<i>Cancer irroratus</i>), cunner (<i>Tautogolabrus adspersus</i>) and sculpin (<i>Myoxocephalus octodecemspinocus</i>) are allowed to be retained, but in actual fishing practices, only male rock crab is retained. Preliminary landings for 2011 showed a total of 265 t of rock crab were landed by lobster harvesters for sale, there is no data on the amount retained for bait. Information on bycatch is not collected in the fishery at the time the report was published. The auditors identified the main bycatch species as the cunner (<i>Tautogolabrus adspersus</i>) and the sculpin (<i>Myoxocephalus octodecemspinocus</i>), and the minor bycatch species as sea urchins and whelk.</p>

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear type	Certification report year	Recent landings noted in certification report	Summary of bycatch information obtained from the MSC report text
FBSA Canada Full Bay Sea Scallop Fishery	Digby Dredge	2013 (initial) (Hervás et al. 2013)	694.6 mt in 2010/11	Monkfish is the only species other than the target that is allowed to be retained, and only in SFA 28. The maximum weight of monkfish landed by the fishery in any one year (2003) was 118.63 tonnes (compared to 2846.1t scallop meat weight), and in 2009 only 0.35 t were landed (compared to 1201.6t scallop meat weight). Discards of monkfish were generally less than 5% of total catches, according to a study by Sameoto and Glass (2012). Scallop dredgers in SFA 28 and SFA 29W catch several demersal fish and invertebrate species. The auditors defined the main discard species as <i>Flustra foliacea</i> (lemonweed), sponges and starfish. Other species accounting for over 5% of the total retained catch (scallop meat weight + monkfish round weight) in some years included the Atlantic rock crab, brittlestars, round skate and sea cucumbers. American plaice discards in 2008 and 2009 were 9t and 43t, respectively. Cusk discards of cusk in 2008 and 2009 were 19t and 7t, respectively. Spiny dogfish are rarely caught in the fishery.
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Harpoon Fishery	Harpoon	2010 (initial) (Devitt et al. 2010a)	111.1 mt in 2009	Bycatch is minimal or non-existent in this fleet given the nature of the gear and the ability to recognize the target species.
Southern Gulf of St Lawrence Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	Conical or rectangular crab pots (traps)	2012 (initial) (Garforth et al. 2012b)	9,549 mt in 2010	Bycatch in this fishery is considered to be so low that the data from logbooks is not recorded electronically in the DFO statistics system, nor are by-catch data from observer reports tabulated. The majority of bycatch is reported to be composed mostly of invertebrates, but apparently none come close to being near 5% of the total target catch.
Gulf Nova Scotia Herring Federation Southern Gulf of St Lawrence Fall Herring Gillnet Fishery	Gill Net	2015 (initial) (Mateo et al. 2015)	29,928 mt in 2013	Landings data provided by DFO from 2004 to the date of report preparation indicated the landings were entirely comprised of herring. The spring component of the herring stock can overlap with that of the fall component and, as a result, may be caught in the fishery. A total of 18 t (0.2% of total catch) and 2 t (0.04% of total catch) of spring spawner component were caught by the HFA 16F gillnet fall fleet in 2011 and 2013, respectively. The level of discards or bycatch cannot be quantified as there is no information from the fishery, it was assumed there is no bycatch in the fishery.

**Table 8. The percent of total catch that was retained or discarded by each fleet (unique fishery, fishing area and gear type combination) (n=54 fleets; 46 Atlantic, 6 Pacific, 2 Arctic) included in percent total catch analysis (n=20 certified fisheries), listed in descending order of percent total catch discarded.** The percent of total catch that was retained and was the MSC certification target, and the percent of total catch that was retained or discarded that has a COSEWIC conservation status (Special Concern, Threatened, Endangered) are also included. Two fisheries (Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific and NAFO Division 4R Atlantic Herring Purse Seine Fishery) only presented data allowing for a tally of the number of species caught, either not presenting associated target catch at all, or not at the same scale as the non-target catch. These fisheries were excluded from the summary below, as were the 10 fleets only presenting bycatch information in the body of the report (see Table 7). Please note that values have been rounded to one decimal point.

Fleet			% of total catch discarded	% of total catch retained	% of total catch retained that is the MSC target	% of total catch discarded that has a COSEWIC conservation status (SC, TR, EN)	% of total catch retained that has a COSEWIC conservation status (SC, TR, EN)
Fishery	Ocean and Fishing area	Gear type					
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Pelagic Longline Fishery	Atlantic	Pelagic long-line	44.8%	55.2%	39.4%	40.5%	2.6%
Canada Pacific halibut (British Columbia)	Pacific	Hook and line (Bottom longline, troll or hand-line)	44.7%	55.3%	24.4%	14.3%	10.6%
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	Pacific	Bottom long-line	40.8%	59.2%	28.9%	10.4%	6.7%
Grand Bank Arctic Surfclam Fishery	Atlantic	Dredge	35.4%	64.6%	24.7%	0.0%	0.0%
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	Pacific	Korean trap long-line	32.2%	67.8%	58.3%	0.5%	5.2%
British Columbia hook and line spiny dogfish fishery	Pacific - Inside Directed	Bottom long-line	29.2%	70.8%	68.9%	28.4%	69.6%
Eastern Canada offshore lobster	Atlantic	Baited trap	22.0%	78.0%	76.4%	2.6%	0.0%
APPIM Iles-de-la-Madeleine lobster ( <i>Homarus americanus</i> ) Trap Fishery	Atlantic	Baited trap	21.0%	79.0%	79.0%	0.6%	0.0%
Banquereau Arctic Surfclam Fishery	Atlantic	Dredge	15.8%	84.2%	80.0%	0.0%	0.0%
Gaspésie lobster ( <i>Homarus americanus</i> ) Trap Fishery	Atlantic	Baited trap	14.9%	85.1%	85.1%	0.7%	0.0%
British Columbia hook and line spiny dogfish fishery	Pacific - Outside Directed	Bottom long-line	14.3%	85.7%	79.0%	9.8%	80.6%
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Gillnet	13.6%	86.5%	77.8%	8.3%	84.3%

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			% of total catch discarded	% of total catch retained	% of total catch retained that is the MSC target	% of total catch discarded that has a COSEWIC conservation status (SC, TR, EN)	% of total catch retained that has a COSEWIC conservation status (SC, TR, EN)
Fishery	Ocean and Fishing area	Gear type					
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 3L - SFA 7	Otter trawl or Danish seine	5.1%	94.9%	94.6%	0.5%	0.0%
Eastern Canada offshore scallop	Atlantic	Dredge	4.1%	95.9%	95.9%	0.0%	0.0%
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Bottom long-line	1.9%	98.1%	80.0%	1.3%	96.7%
Canada Scotia-Fundy haddock	Atlantic - 5Zjm	Bottom long-line	1.7%	98.3%	63.9%	0.5%	8.5%
US and Canada Pacific Hake Mid-water Trawl Fishery	Pacific	Mid-water trawl	1.7%	98.3%	94.9%	0.3%	0.3%
Canada Northern and Striped Shrimp Fishery	Atlantic Div. 3K - SFA 6	Otter trawl or Danish seine	1.3%	98.7%	97.3%	0.2%	0.0%
Scotian Shelf northern prawn trawl	Atlantic	Otter trawl or Danish seine	1.3%	98.7%	98.2%	0.3%	0.0%
Gulf of St. Lawrence shrimp	Atlantic	Otter trawl or Danish seine	1.2%	98.8%	98.8%	0.2%	0.0%
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Otter trawl or Danish seine	0.9%	99.1%	78.1%	0.3%	82.9%
OCI Grand Bank Yellowtail Flounder Trawl Fishery	Atlantic	Otter trawl or Danish seine	0.9%	99.1%	85.4%	0.0%	12.8%
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Handline	0.8%	99.2%	98.4%	0.3%	99.1%
Canada Scotia-Fundy haddock	Atlantic - 5Zjm	Otter trawl or Danish seine	0.8%	99.2%	81.2%	0.4%	1.4%
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 2J - SFA 5 and SFA 6	Otter trawl or Danish seine	0.8%	99.2%	96.5%	0.2%	0.0%
Canada Northern and Striped Shrimp Fishery	Arctic - Div. 0B - EAZ	Otter trawl or Danish seine	0.5%	99.5%	91.2%	0.2%	0.0%
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 2H - SFA 5	Otter trawl or Danish seine	0.5%	99.5%	99.2%	0.1%	0.0%
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 2G - SFA 4	Otter trawl or Danish seine	0.4%	99.6%	92.9%	0.2%	0.0%



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			% of total catch discarded	% of total catch retained	% of total catch retained that is the MSC target	% of total catch discarded that has a COSEWIC conservation status (SC, TR, EN)	% of total catch retained that has a COSEWIC conservation status (SC, TR, EN)
Fishery	Ocean and Fishing area	Gear type					
Canada Scotia-Fundy haddock	Atlantic - 4X5Y	Bottom long-line	0.2%	99.8%	27.7%	0.1%	26.2%
Canada Scotia-Fundy haddock	Atlantic - 4X5Y	Otter trawl or Danish seine	0.1%	99.9%	23.8%	0.1%	40.7%
Canadian 4VWX Purse Seine Herring Fishery	Atlantic	Purse seine	0.1%	99.9%	99.9%	0.0%	0.0%
Scotian Shelf Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	Atlantic	Baited trap	0.0%	100.0%	100.0%	0.0%	0.0%
Canada Atlantic Halibut	Atlantic - 3NO	Bottom long-line	0.0%	100.0%	18.9%	0.0%	59.3%
Canada Atlantic Halibut	Atlantic - 3Ps	Bottom long-line	0.0%	100.0%	14.7%	0.0%	27.8%
Canada Atlantic Halibut	Atlantic - 4Vn	Bottom long-line	0.0%	100.0%	53.2%	0.0%	25.2%
Canada Atlantic Halibut	Atlantic - 4VsW	Bottom long-line	0.0%	100.0%	74.6%	0.0%	16.2%
Canada Atlantic Halibut	Atlantic - 4X5Y	Bottom long-line	0.0%	100.0%	13.2%	0.0%	22.6%
Canada Atlantic Halibut	Atlantic - 5Ze	Bottom long-line	0.0%	100.0%	0.9%	0.0%	5.3%
Canada Atlantic Halibut	Atlantic - 3NO	Gillnet	0.0%	100.0%	9.0%	0.0%	59.0%
Canada Atlantic Halibut	Atlantic - 3Ps	Gillnet	0.0%	100.0%	2.7%	0.0%	30.1%
Canada Atlantic Halibut	Atlantic - 4VsW	Gillnet	0.0%	100.0%	0.0%	0.0%	25.4%
Canada Atlantic Halibut	Atlantic - 4X5Y	Gillnet	0.0%	100.0%	0.8%	0.0%	12.4%
Canada Atlantic Halibut	Atlantic - 5Ze	Gillnet	0.0%	100.0%	0.1%	0.0%	2.4%
Canada Atlantic Halibut	Atlantic - 3Ps	Handline	0.0%	100.0%	4.0%	0.0%	8.7%
Canada Atlantic Halibut	Atlantic - 4VsW	Handline	0.0%	100.0%	100.0%	0.0%	0.0%
Canada Atlantic Halibut	Atlantic - 4X5Y	Handline	0.0%	100.0%	33.6%	0.0%	5.6%
Canada Atlantic Halibut	Atlantic - 5Ze	Handline	0.0%	100.0%	1.3%	0.0%	0.0%
Canada Atlantic Halibut	Atlantic - 3NO	Otter trawl or Danish seine	0.0%	100.0%	0.1%	0.0%	6.9%
Canada Atlantic Halibut	Atlantic - 3Ps	Otter trawl or Danish seine	0.0%	100.0%	0.5%	0.0%	35.3%

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			% of total catch discarded	% of total catch retained	% of total catch retained that is the MSC target	% of total catch discarded that has a COSEWIC conservation status (SC, TR, EN)	% of total catch retained that has a COSEWIC conservation status (SC, TR, EN)
Fishery	Ocean and Fishing area	Gear type					
Canada Atlantic Halibut	Atlantic - 4Vn	Otter trawl or Danish seine	0.0%	100.0%	0.9%	0.0%	93.3%
Canada Atlantic Halibut	Atlantic - 4VsW	Otter trawl or Danish seine	0.0%	100.0%	0.5%	0.0%	89.4%
Canada Atlantic Halibut	Atlantic - 4X5Y	Otter trawl or Danish seine	0.0%	100.0%	0.7%	0.0%	36.7%
Canada Atlantic Halibut	Atlantic - 5Ze	Otter trawl or Danish seine	0.0%	100.0%	0.1%	0.0%	1%
Canada Northern and Striped Shrimp Fishery	Arctic - Div. 0A - SFA 1	Otter trawl or Danish seine	0.0%	100.0%	37.3%	0.0%	0.0%
<b>TOTAL AVERAGE (median)</b>	-	-	<b>6.5% (0.4%)</b>	<b>93.5% (99.6%)</b>	<b>51.6% (61.1%)</b>	<b>2.2% (0.02%)</b>	<b>22.1% (6.1%)</b>
<b>Pacific ocean average (median)</b>	-	-	<b>27.1% (30.7%)</b>	<b>72.9% (69.3%)</b>	<b>59.1% (63.6%)</b>	<b>10.6% (10.1%)</b>	<b>28.8% (8.6%)</b>
<b>Atlantic ocean average (median)</b>	-	-	<b>4.1% (0.1%)</b>	<b>95.9% (99.9%)</b>	<b>51.1% (58.5%)</b>	<b>1.2% (0.0%)</b>	<b>22.1% (6.2%)</b>
<b>Arctic ocean average (median)</b>	-	-	<b>0.3% (0.3%)</b>	<b>99.7% (99.7%)</b>	<b>64.2% (64.2%)</b>	<b>0.1% (0.1%)</b>	<b>0.0% (0.0%)</b>

**Table 9: Average of the percent of total catch that was retained or discarded by gear type for each fleet (unique fishery, fishing area, gear type combination) (n=54 fleets; 46 Atlantic, 6 Pacific, 2 Arctic, from n = 20 fisheries), listed in descending order of percent total catch discarded.** Two fisheries (Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific and NAFO Division 4R Atlantic Herring Purse Seine Fishery) only presented data allowing for a tally of the number of species caught, either not presenting associated target catch at all, or not at the same scale as the non-target catch. These fisheries were excluded from the summary below, as were the 10 fleets only presenting bycatch information in the body of the report (see Table 7). Values in brackets represent the median, minimum and maximum values, respectively. Please note that values have been rounded to one decimal point.

Gear type	Number of fleets with gear type	Average % of total catch discarded	Average % total catch retained
Pelagic long-line	1	44.8%	55.2%
Hook and line (Bottom longline, troll or hand-line)	1	44.7%	55.3%
Korean trap long-line	1	32.2%	67.8%
Dredge	3	18.4% (median; 15.8%, min; 4.1%, max; 35.4%)	81.6% (median; 84.2%, min; 64.6%, max; 95.9%)
Baited trap	4	14.5% (median; 17.9%, min; 0.0%, max; 22.0%)	85.5% (median; 82.1%, min; 78.0%, max; 100.0%)
Bottom long-line	12	7.3% (median; 0.1%, min; 0.0%, max; 40.8%)	92.7% (median; 99.9%, min; 59.2%, max; 100.0%)
Gillnet	6	2.3% (median; 0.0%, min; 0.0%, max; 13.6%)	97.7% (median; 100.0%, min; 86.5%, max; 100.0%)
Mid-water trawl	1	1.7%	98.3%
Otter trawl or Danish seine	19	0.7% (median; 0.5%, min; 0.0%, max; 5.1%)	99.3% (median; 99.5%, min; 94.9%, max; 100.0%)
Handline	5	0.2% (median; 0.0%, min; 0.0%, max; 0.8%)	99.8% (median; 100.0%, min; 99.2%, max; 100.0%)
Purse seine	1	0.1%	99.9%

**Table 10: Average of the percent of total catch that was discarded by taxa group for each fleet (n=54 fleets; 46 Atlantic, 6 Pacific, 2 Arctic, from n = 20 fisheries), listed in descending order of percent total catch discarded.** Two fisheries (Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific and NAFO Division 4R Atlantic Herring Purse Seine Fishery) only presented data allowing for a tally of the number of species caught, either not presenting associated target catch at all, or not at the same scale as the non-target catch. These fisheries were excluded from the summary below, as were the 10 fleets only presenting bycatch information in the body of the report (see Table 7). Values in brackets represent the median, minimum and maximum values, respectively. Please note that values have been rounded to one decimal point.

Taxa group	Number of fleets with taxa group caught				Average % of total catch discarded			
	Total	Atlantic	Pacific	Arctic	Total	Atlantic	Pacific	Arctic
Rock or shell	3	3	0	0	7.9% (median; 8.5%, min; 0.1%, max; 15.0%)	7.9% (median; 8.5%, min; 0.1%, max; 15.0%)		
Echinoderm	6	6	0	0	5.1% (median; 2.3%, min; 0.0%, max; 19.4%)	5.1% (median; 2.3%, min; 0.0%, max; 19.4%)		

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Taxa group	Number of fleets with taxa group caught				Average % of total catch discarded			
	Total	Atlantic	Pacific	Arctic	Total	Atlantic	Pacific	Arctic
Shark	13	8	5	0	3.1% (median; 0.1%, min; 0.0%, max; 36.5%)	5.0% (median; 0.1%, min; 0.0%, max; 36.5%)	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)	
Sea turtle	1	1	0	0	2.80%	2.80%		
Large pelagic	2	2	0	0	2.5% (median; 2.5%, min; 0.0%, max; 4.9%)	2.5% (median; 2.5%, min; 0.0%, max; 4.9%)		
Groundfish	50	43	6	1	2.4% (median; 0.0%, min; 0.0%, max; 28.7%)	0.5% (median; 0.0%, min; 0.0%, max; 7.5%)	16.2% (median; 18.1%, min; 1.0%, max; 28.7%)	0.30%
Crustacean	21	17	2	2	1.9% (median; 0.0%, min; 0.0%, max; 18.8%)	2.4% (median; 0.0%, min; 0.0%, max; 18.8%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Flat fish	45	38	6	1	1.3% (median; 0.0%, min; 0.0%, max; 22.2%)	0.1% (median; 0.0%, min; 0.0%, max; 0.5%)	9.4% (median; 7.3%, min; 0.0%, max; 22.2%)	0.00%
Forage fish	12	11	1	0	0.7% (median; 0.2%, min; 0.0%, max; 4.7%)	0.7% (median; 0.3%, min; 0.0%, max; 4.7%)	0.00%	
Skate or ray	30	25	5	0	0.5% (median; 0.0%, min; 0.0%, max; 4.4%)	0.3% (median; 0.0%, min; 0.0%, max; 2.7%)	1.5% (median; 0.2%, min; 0.0%, max; 4.4%)	
Other invertebrate	2	2	0	0	0.5% (median; 0.5%, min; 0.3%, max; 0.7%)	0.5% (median; 0.5%, min; 0.3%, max; 0.7%)		
Mammal	3	2	1	0	0.4% (median; 0.1%, min; 0.0%, max; 1.0%)	0.5% (median; 0.5%, min; 0.1%, max; 1.0%)	0.00%	
Mollusc	10	6	4	0	0.2% (median; 0.0%, min; 0.0%, max; 0.9%)	0.3% (median; 0.2%, min; 0.0%, max; 0.9%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	
Other fish	11	7	4	0	0.2% (median; 0.0%, min; 0.0%, max; 0.9%)	0.3% (median; 0.1%, min; 0.0%, max; 0.9%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	
Coral	1	1	0	0	0.20%	0.20%		
Unknown	7	5	2	0	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)	0.1% (median; 0.1%, min; 0.0%, max; 0.3%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	
Rockfish	38	31	6	1	0.1% (median; 0.0%, min; 0.0%, max; 0.7%)	0.0% (median; 0.0%, min; 0.0%, max; 0.4%)	0.2% (median; 0.1%, min; 0.0%, max; 0.7%)	0.20%
Bird	4	2	2	0	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	
Salmon	2	0	2	0	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)		0.0% (median; 0.0%, min; 0.0%, max; 0.0%)	

**Table 11: The number of fleets (unique fishery, fishing area, gear combination) (n=54 fleets; 46 Atlantic, 6 Pacific, 2 Arctic, from n = 20 fisheries) catching each taxa and the average percent of total catch that was discarded by them, with data sorted by ocean with highest to lowest percent of total catch discarded.** Two fisheries (Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific and NAFO Division 4R Atlantic Herring Purse Seine Fishery) only presented data allowing for a tally of the number of species caught, either not presenting associated target catch at all, or not at the same scale as the non-target catch. These fisheries were excluded from the summary below, as were the 10 fleets only presenting bycatch information in the body of the report (see Table 7). Values in brackets represent the median, minimum and maximum values, respectively. Please note that values have been rounded to one decimal point. Thus, 0% does not always indicate the taxa is not caught, if the taxa is listed here it was reported as being caught in at least one fleet.

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Pacific	Groundfish	Spiny dogfish shark - Pacific	6	10.5% (median; 10.1%, min; 0.1%, max; 28.3%)
Pacific	Flat fish	Pacific halibut	6	6.4% (median; 2.7%, min; 0.0%, max; 19.3%)
Pacific	Groundfish	Sablefish	6	5.1% (median; 2.0%, min; 0.0%, max; 20.7%)
Pacific	Flat fish	Arrowtooth flounder	6	3.0% (median; 1.5%, min; 0.0%, max; 9.1%)
Pacific	Skate or ray	Longnose skate	5	1.3% (median; 0.2%, min; 0.0%, max; 4.0%)
Pacific	Groundfish	Spotted ratfish	4	0.2% (median; 0.2%, min; 0.1%, max; 0.5%)
Pacific	Skate or ray	Big skate	5	0.2% (median; 0.1%, min; 0.0%, max; 0.7%)
Pacific	Groundfish	Pacific hake	4	0.2% (median; 0.0%, min; 0.0%, max; 0.9%)
Pacific	Groundfish	Lingcod	6	0.2% (median; 0.1%, min; 0.0%, max; 0.5%)
Pacific	Groundfish	Pacific cod	5	0.1% (median; 0.0%, min; 0.0%, max; 0.2%)
Pacific	Rockfish	Yellowtail rockfish	4	0.1% (median; 0.0%, min; 0.0%, max; 0.2%)
Pacific	Groundfish	Grenadier (sp. unidentified)	2	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Rockfish	Pacific ocean perch	3	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Shark	Bluntnose sixgill shark	3	0.0% (median; 0.1%, min; 0.0%, max; 0.1%)
Pacific	Rockfish	Rougeye rockfish	5	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Shark	Blue shark - Pacific	4	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Skate or ray	Skate (sp. unidentified) - Pacific	3	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Rockfish	Widow rockfish	2	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Shark	Shark (sp. unidentified) - Pacific	4	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Shark	Pacific sleeper shark	3	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Pacific	Rockfish	Rougeye rockfish 1	1	0.00%
Pacific	Groundfish	Cabazon	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Shortspine thornyhead	6	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Pacific	Flat fish	Flatfish (sp. unidentified) - Pacific	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Walleye pollock	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Redbanded rockfish	6	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Splitnose rockfish	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Skate or ray	Sandpaper skate	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Yelloweye rockfish	5	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Wolffish (sp. unidentified) - Pacific	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Red irish lord	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Silvergray rockfish	5	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Quillback rockfish	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Sculpin (sp. unidentified) - Pacific	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Yellowmouth rockfish	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Bocaccio	5	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Redstripe rockfish	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Flat fish	Dover sole	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Shark	Tope shark	1	0.00%
Pacific	Rockfish	Canary rockfish	5	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Shark	Soupin shark	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Other fish	Fish (sp. unidentified) - Pacific	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Flat fish	Petrals sole	5	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Darkblotched rockfish	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Salmon	Chinook salmon	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Shorthead rockfish	6	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Other fish	Fish (sp. unidentified) - Atlantic	1	0.00%
Pacific	Shark	Brown cat shark	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Skate or ray	Electric rays (sp. unidentified)	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Flat fish	Sandsole	1	0.00%
Pacific	Flat fish	Southern rock sole	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Copper rockfish	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Rosethorn rockfish	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Pacific	Crustacean	Red rock crab	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Ratfish	1	0.00%
Pacific	Mollusc	Octopus (sp. unidentified)	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Shark	Salman shark	1	0.00%
Pacific	Skate or ray	Stingrays (sp. unidentified)	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Greenstriped rockfish	5	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Bird	Gulls (sp. unidentified)	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Other fish	Black bullhead	1	0.00%
Pacific	Unknown	Unidentified - Pacific	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Greenling (sp. unidentified)	1	0.00%
Pacific	Rockfish	China rockfish	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Flat fish	Pacific sanddab	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Black rockfish	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Forage fish	Chub mackerel	1	0.00%
Pacific	Flat fish	English sole	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Groundfish	Brown irish lord	1	0.00%
Pacific	Skate or ray	Roughtail skate	1	0.00%
Pacific	Groundfish	Kelp greenling	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Crustacean	Box crab	1	0.00%
Pacific	Bird	Herring gull	1	0.00%
Pacific	Flat fish	Starry flounder	1	0.00%
Pacific	Rockfish	Tiger rockfish	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Rockfish	Sharpchin rockfish	1	0.00%
Pacific	Mollusc	Squid (sp. unidentified) - Pacific	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Other fish	Ellpouts (sp. unidentified) - Pacific	1	0.00%
Pacific	Rockfish	Chilipepper	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Salmon	Coho salmon	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Pacific	Forage fish	American shad	1	0.00%
Pacific	Other fish	Black hagfish	1	0.00%
Pacific	Rockfish	Brown rockfish	1	0.00%

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Pacific	Mammal	Caniformia (sp. unidentified)	1	0.00%
Pacific	Salmon	Chum salmon	1	0.00%
Pacific	Groundfish	Cod (sp. unidentified) - Pacific	1	0.00%
Pacific	Rockfish	Cowcod	1	0.00%
Pacific	Crustacean	Dungeness crab	1	0.00%
Pacific	Rockfish	Dusky rockfish	1	0.00%
Pacific	Flat fish	Flathead sole	1	0.00%
Pacific	Rockfish	Harlequin rockfish	1	0.00%
Pacific	Forage fish	Jack mackerel	1	0.00%
Pacific	Rockfish	Northern rockfish	1	0.00%
Pacific	Skate or ray	Pacific electric ray	1	0.00%
Pacific	Forage fish	Pacific herring	1	0.00%
Pacific	Other fish	Ragfish	1	0.00%
Pacific	Flat fish	Rex sole	1	0.00%
Pacific	Mollusc	Robust clubhook squid	1	0.00%
Pacific	Rockfish	Rockfish (sp. unidentified)	1	0.00%
Pacific	Flat fish	Roughscale sole	1	0.00%
Pacific	Mollusc	Schoolmaster gonate squid	1	0.00%
Pacific	Rockfish	Spotted rockfish	1	0.00%
Pacific	Rockfish	Vermilion rockfish	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Echinoderm	Sand dollar ( <i>Echinarachnius parma</i> )	1	19.00%
Atlantic	Rock or shell	Shell	2	8.8% (median; 8.8%, min; 5.6%, max; 12.0%)
Atlantic	Shark	Blue shark - Atlantic	5	7.0% (median; 0.2%, min; 0.0%, max; 34.6%)
Atlantic	Echinoderm	Sand dollar (sp. unidentified)	1	5.40%
Atlantic	Crustacean	Rock crab	4	4.6% (median; 4.6%, min; 0.0%, max; 9.1%)
Atlantic	Crustacean	Jonah crab	2	3.0% (median; 3.0%, min; 0.0%, max; 6.1%)
Atlantic	Echinoderm	Green sea urchin	2	2.3% (median; 2.3%, min; 1.1%, max; 3.5%)
Atlantic	Rock or shell	Stones and rocks	3	2.0% (median; 2.9%, min; 0.1%, max; 3.0%)
Atlantic	Large pelagic	Swordfish	1	1.80%
Atlantic	Crustacean	American lobster	7	1.8% (median; 0.0%, min; 0.0%, max; 12.4%)



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Atlantic	Sea turtle	Leatherback sea turtle	1	1.40%
Atlantic	Forage fish	Capelin	5	1.4% (median; 0.6%, min; 0.1%, max; 4.7%)
Atlantic	Sea turtle	Loggerhead sea turtle	1	1.20%
Atlantic	Large pelagic	Bluefin tuna - Atlantic	2	1.0% (median; 1.0%, min; 0.0%, max; 2.0%)
Atlantic	Mammal	Harp seal	1	1.00%
Atlantic	Shark	Shark (sp. unidentified) - Atlantic	1	1.00%
Atlantic	Groundfish	Sculpin (sp. unidentified) - Atlantic	9	0.8% (median; 0.0%, min; 0.0%, max; 4.6%)
Atlantic	Other invertebrate	Invertebrates (sp. unidentified)	1	0.70%
Atlantic	Other fish	Ocean pout	2	0.7% (median; 0.7%, min; 0.5%, max; 0.9%)
Atlantic	Shark	Shortfin mako shark	3	0.6% (median; 0.4%, min; 0.1%, max; 1.4%)
Atlantic	Crustacean	Cancer crab (sp. unidentified)	1	0.50%
Atlantic	Groundfish	Sea raven (sp. unidentified)	3	0.5% (median; 0.0%, min; 0.0%, max; 1.4%)
Atlantic	Groundfish	Hake (sp. unidentified)	1	0.50%
Atlantic	Groundfish	Atlantic cod	16	0.4% (median; 0.0%, min; 0.0%, max; 4.5%)
Atlantic	Groundfish	Cunner	2	0.4% (median; 0.4%, min; 0.1%, max; 0.7%)
Atlantic	Mollusc	Whelk (sp. unidentified)	3	0.4% (median; 0.3%, min; 0.0%, max; 0.9%)
Atlantic	Crustacean	Hermit crab (sp. unidentified)	4	0.4% (median; 0.0%, min; 0.0%, max; 1.4%)
Atlantic	Forage fish	Lanternfish	1	0.30%
Atlantic	Shark	Tiger shark	1	0.30%
Atlantic	Other invertebrate	Sea mouse ( <i>Aphrodita hastata</i> )	1	0.30%
Atlantic	Crustacean	Spiny brown crab	1	0.30%
Atlantic	Skate or ray	Barndoor skate	3	0.3% (median; 0.1%, min; 0.1%, max; 0.8%)
Atlantic	Other fish	Ocean sunfish	1	0.30%
Atlantic	Large pelagic	Blue marlin	1	0.30%
Atlantic	Echinoderm	Sea cucumber (sp. unidentified)	2	0.2% (median; 0.2%, min; 0.0%, max; 0.5%)
Atlantic	Skate or ray	Skate (sp. unidentified) - Atlantic	20	0.2% (median; 0.0%, min; 0.0%, max; 2.7%)
Atlantic	Shark	Porbeagle shark	5	0.2% (median; 0.1%, min; 0.0%, max; 0.8%)
Atlantic	Large pelagic	Bigeye tuna - Atlantic	1	0.20%
Atlantic	Crustacean	Crab (sp. unidentified)	1	0.20%
Atlantic	Large pelagic	White marlin	1	0.20%

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Atlantic	Skate or ray	Thorny skate	9	0.2% (median; 0.0%, min; 0.0%, max; 1.0%)
Atlantic	Groundfish	Arctic cod	1	0.20%
Atlantic	Groundfish	Greenland cod	3	0.2% (median; 0.3%, min; 0.0%, max; 0.3%)
Atlantic	Shark	Thresher shark	1	0.20%
Atlantic	Echinoderm	Brown sea cucumber	1	0.10%
Atlantic	Coral	Bubblegum coral	1	0.10%
Atlantic	Skate or ray	Pelagic stingray	1	0.10%
Atlantic	Crustacean	Toad crab (sp. unidentified)	5	0.1% (median; 0.1%, min; 0.0%, max; 0.4%)
Atlantic	Mollusc	New england neptune	1	0.10%
Atlantic	Shark	Mako shark (sp. unidentified)	1	0.10%
Atlantic	Unknown	Unidentified - Atlantic	5	0.1% (median; 0.1%, min; 0.0%, max; 0.3%)
Atlantic	Large pelagic	Black marlin	1	0.10%
Atlantic	Echinoderm	Sea urchin (sp. unidentified)	4	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)
Atlantic	Groundfish	Northern wolffish	4	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)
Atlantic	Large pelagic	Yellowfin tuna - Atlantic	1	0.10%
Atlantic	Echinoderm	Sea star (sp. unidentified)	6	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)
Atlantic	Mollusc	Whelk ( <i>Colus</i> sp.)	1	0.10%
Atlantic	Skate or ray	Manta ray	1	0.10%
Atlantic	Mollusc	Whelk ( <i>Buccdinum</i> sp.)	2	0.1% (median; 0.1%, min; 0.0%, max; 0.2%)
Atlantic	Mollusc	Wrinkle whelk	1	0.10%
Atlantic	Groundfish	Cusk	22	0.1% (median; 0.0%, min; 0.0%, max; 1.9%)
Atlantic	Forage fish	Atlantic herring	5	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)
Atlantic	Large pelagic	Albacore tuna	1	0.10%
Atlantic	Groundfish	Spiny dogfish shark - Atlantic	10	0.1% (median; 0.0%, min; 0.0%, max; 0.2%)
Atlantic	Skate or ray	Winter skate	4	0.1% (median; 0.1%, min; 0.0%, max; 0.2%)
Atlantic	Groundfish	Silver hake	5	0.1% (median; 0.0%, min; 0.0%, max; 0.3%)
Atlantic	Sea turtle	Green sea turtle	1	0.10%
Atlantic	Crustacean	Pink glass shrimp	1	0.10%
Atlantic	Sea turtle	Hardshelled sea turtle (sp. unidentified)	1	0.10%
Atlantic	Mollusc	Spindle shell (sp. unidentified)	1	0.10%

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Atlantic	Shark	Greenland shark	1	0.10%
Atlantic	Mollusc	Seasnail (sp. unidentified)	1	0.10%
Atlantic	Crustacean	Snow crab	4	0.1% (median; 0.0%, min; 0.0%, max; 0.2%)
Atlantic	Other fish	Snake blenny	1	0.10%
Atlantic	Skate or ray	Smooth skate	2	0.1% (median; 0.1%, min; 0.0%, max; 0.1%)
Atlantic	Large pelagic	Longnose lancetfish	1	0.10%
Atlantic	Forage fish	Sand lance (sp. unidentified)	2	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Atlantic	Rockfish	Redfish (sp. unidentified)	31	0.0% (median; 0.0%, min; 0.0%, max; 0.4%)
Atlantic	Other fish	Ellpouts (sp. unidentified) - Atlantic	1	0.00%
Atlantic	Large pelagic	Mahi mahi - Atlantic	1	0.00%
Atlantic	Groundfish	Atlantic wolffish	11	0.0% (median; 0.0%, min; 0.0%, max; 0.2%)
Atlantic	Flat fish	American plaice	18	0.0% (median; 0.0%, min; 0.0%, max; 0.2%)
Atlantic	Other fish	Barracudina (sp. unidentified)	1	0.00%
Atlantic	Flat fish	Yellowtail flounder	15	0.0% (median; 0.0%, min; 0.0%, max; 0.2%)
Atlantic	Skate or ray	Little skate	2	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Atlantic	Forage fish	Alewife	1	0.00%
Atlantic	Shark	Longfin mako shark	1	0.00%
Atlantic	Rockfish	Blackbelly rosefish	1	0.00%
Atlantic	Groundfish	Black dogfish shark	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Other fish	Ellpout, Ocean pout or wolfeels (sp. unidentified)	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Bird	Manx shearwater	1	0.00%
Atlantic	Mammal	Pilot whale	1	0.00%
Atlantic	Mammal	Dolphin (sp. unidentified)	1	0.00%
Atlantic	Mammal	Seal (sp. unidentified)	1	0.00%
Atlantic	Groundfish	Monkfish	22	0.0% (median; 0.0%, min; 0.0%, max; 0.4%)
Atlantic	Groundfish	White hake	25	0.0% (median; 0.0%, min; 0.0%, max; 0.3%)
Atlantic	Sea turtle	Kemp's ridley sea turtle	1	0.00%
Atlantic	Large pelagic	Escolar	1	0.00%
Atlantic	Flat fish	Atlantic halibut	24	0.0% (median; 0.0%, min; 0.0%, max; 0.2%)
Atlantic	Flat fish	Greenland halibut	17	0.0% (median; 0.0%, min; 0.0%, max; 0.2%)

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Atlantic	Flat fish	Witch flounder	16	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Atlantic	Groundfish	Fourbread rockling	1	0.00%
Atlantic	Bird	Common murre	1	0.00%
Atlantic	Coral	Coral (sp. unidentified)	1	0.00%
Atlantic	Other fish	Hagfish (sp. unidentified)	1	0.00%
Atlantic	Groundfish	Haddock	28	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Atlantic	Other fish	Alligatorfish	1	0.00%
Atlantic	Groundfish	Dogfish shark (sp. unidentified)	6	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Other fish	Oilfish	1	0.00%
Atlantic	Other fish	Opah	1	0.00%
Atlantic	Other fish	Atlantic sea poacher	1	0.00%
Atlantic	Other fish	Snail fish	1	0.00%
Atlantic	Groundfish	Spotted wolffish	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Shark	Sand shark	1	0.00%
Atlantic	Bird	Northern gannet	1	0.00%
Atlantic	Skate or ray	Ray (sp. unidentified)	1	0.00%
Atlantic	Bird	Great black backed gull	1	0.00%
Atlantic	Groundfish	Cod (sp. unidentified) - Atlantic	25	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Atlantic	Forage fish	Atlantic mackerel	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Large pelagic	Blackfin tuna	1	0.00%
Atlantic	Other fish	Blennes (sp. unidentified)	1	0.00%
Atlantic	Groundfish	Pollock	28	0.0% (median; 0.0%, min; 0.0%, max; 0.1%)
Atlantic	Flat fish	Winter flounder	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Large pelagic	Wahoo	1	0.00%
Atlantic	Other fish	Wrymouth	1	0.00%
Atlantic	Other fish	Daubed shanny	1	0.00%
Atlantic	Flat fish	Halibut (sp. unidentified)	4	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Crustacean	Northern stone crab	1	0.00%
Atlantic	Large pelagic	Skipjack tuna - Atlantic	1	0.00%
Atlantic	Other fish	Sea lamprey	1	0.00%

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Ocean	Group	Taxa	Number of fleets with taxa caught	Average % of total catch discarded
Atlantic	Other fish	Cutlessfishes (sp. unidentified)	1	0.00%
Atlantic	Other fish	Remora (sp. unidentified)	1	0.00%
Atlantic	Shark	Hammerhead shark	1	0.00%
Atlantic	Bird	Greater shearwater	1	0.00%
Atlantic	Groundfish	Squirrel hake	1	0.00%
Atlantic	Other fish	White barracudina	1	0.00%
Atlantic	Groundfish	Wolffish (sp. unidentified) - Atlantic	1	0.00%
Atlantic	Large pelagic	Shortnose lancetfish	1	0.00%
Atlantic	Echinoderm	Basket stars (sp. unidentified)	1	0.00%
Atlantic	Flat fish	Flatfish (sp. unidentified) - Atlantic	1	0.00%
Atlantic	Flat fish	Plaice (sp. unidentified)	1	0.00%
Atlantic	Mollusc	Arctic surfclam	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Flat fish	Flounder (sp. unidentified)	3	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Mollusc	Greenland cockle	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Mollusc	Northern propellerclam	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Crustacean	Northern shrimp	7	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Mollusc	Ocean quahog	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Groundfish	Offshore silver hake	1	0.00%
Atlantic	Groundfish	Roughhead grenadier	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Atlantic	Mollusc	Scallop (sp. unidentified)	1	0.00%
Atlantic	Crustacean	Shrimp (sp. unidentified)	1	0.00%
Atlantic	Crustacean	Striped shrimp	6	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Arctic	Groundfish	Arctic cod	1	0.30%
Arctic	Rockfish	Redfish (sp. unidentified)	1	0.20%
Arctic	Flat fish	American plaice	1	0.00%
Arctic	Groundfish	Atlantic cod	1	0.00%
Arctic	Groundfish	Atlantic wolffish	1	0.00%
Arctic	Groundfish	Spotted wolffish	1	0.00%
Arctic	Crustacean	Northern shrimp	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)
Arctic	Crustacean	Striped shrimp	2	0.0% (median; 0.0%, min; 0.0%, max; 0.0%)

**Table 12: The number of taxa caught, the number of taxa with a COSEWIC conservation status, and the number of taxa caught in each taxa grouping within each fleet (unique fishery, fishing area, gear combination) (n=56 fleets; 47 Atlantic, 7 Pacific, 2 Arctic, from n = 22 fisheries) included in the analysis.** There were 10 fleets only presenting bycatch information in the body of the report (see Table 7), which were excluded from the summary below. Please note the lowest level of taxa reported was used (often species, but occasionally a higher level of classification) and that the target and retainable species were included in the counts. The COSEWIC conservation status includes species assigned as either Special Concern, Threatened, or Endangered. Data is sorted by highest number of total taxa caught.

Fleet			# Taxa caught	# Taxa with COSEWIC status	# Bird	# Coral	# Crustacean	# Echinoderm	# Flat fish	# Forage fish	# Groundfish	# Large pelagic	# Mammal	# Mollusc	# Other fish	# Other invertebrate	# Rock or shell	# Rockfish	# Salmon	# Sea turtle	# Shark	# Skate or ray	# Unknown
Fishery	Ocean and Fishing area	Gear type																					
British Columbia hook and line spiny dogfish fishery	Pacific - Outside Directed	Bottom long-line	73	12	0	0	2	0	10	0	14	0	0	1	2	0	0	29	2	0	5	7	1
British Columbia hook and line spiny dogfish fishery	Pacific - Inside Directed	Bottom long-line	57	7	2	0	2	0	7	0	13	0	0	2	3	0	0	18	0	0	3	6	1
Canada Pacific halibut (British Columbia)	Pacific	Hook and line (Bottom longline, troll or hand-line)	51	8	1	0	0	0	5	0	13	0	0	1	1	0	0	22	0	0	4	4	0
US and Canada Pacific Hake Mid-water Trawl Fishery	Pacific	Mid-water trawl	51	9	0	0	0	0	8	4	7	0	1	4	1	0	0	19	3	0	1	3	0
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Pelagic Longline Fishery	Atlantic	Pelagic long-line	45	6	3	0	0	0	0	0	1	15	3	0	6	0	0	0	0	5	9	4	0
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Gillnet	39	10	2	2	4	3	6	2	11	0	1	1	0	0	1	1	0	0	3	3	0

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			# Taxa caught	# Taxa with COSEWIC status	# Bird	# Coral	# Crustacean	# Echinoderm	# Flat fish	# Forage fish	# Groundfish	# Large pelagic	# Mammal	# Mollusc	# Other fish	# Other invertebrate	# Rock or shell	# Rockfish	# Salmon	# Sea turtle	# Shark	# Skate or ray	# Unknown
Fishery	Ocean and Fishing area	Gear type																					
Scotian Shelf northern prawn trawl	Atlantic	Otter trawl or Danish seine	30	5	0	0	4	0	4	4	7	0	0	0	9	0	0	1	0	0	0	1	0
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	Pacific	Bottom long-line	30	9	0	0	0	0	3	0	5	0	0	0	0	0	0	13	0	0	7	2	0
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Bottom long-line	22	12	0	0	1	0	3	0	12	0	0	0	1	0	0	1	0	0	1	3	0
Scotian Shelf Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	Atlantic	Baited trap	22	5	0	0	8	4	3	0	5	0	0	1	0	0	0	1	0	0	0	1	0
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Otter trawl or Danish seine	20	8	0	0	0	0	3	1	9	0	0	0	1	0	0	1	0	0	3	2	0
Canada Scotia-Fundy haddock	Atlantic - 5Zjm	Otter trawl or Danish seine	19	7	0	0	0	0	6	0	7	0	0	0	0	0	0	1	0	0	1	3	2
Canada Scotia-Fundy haddock	Atlantic - 4X5Y	Bottom long-line	18	8	0	0	0	0	3	0	8	0	0	0	0	0	0	1	0	0	2	5	2
Canada Scotia-Fundy haddock	Atlantic - 4X5Y	Otter trawl or Danish seine	17	5	0	0	1	0	6	0	8	0	0	0	0	0	0	1	0	0	0	0	2
Banquereau Arctic Surfclam Fishery	Atlantic	Dredge	16	0	0	0	1	4	0	0	0	0	0	8	0	1	2	0	0	0	0	0	0
Canada Scotia-Fundy haddock	Atlantic - 5Zjm	Bottom long-line	16	6	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	0	1	6	2

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			# Taxa caught	# Taxa with COSEWIC status	# Bird	# Coral	# Crustacean	# Echinoderm	# Flat fish	# Forage fish	# Groundfish	# Large pelagic	# Mammal	# Mollusc	# Other fish	# Other invertebrate	# Rock or shell	# Rockfish	# Salmon	# Sea turtle	# Shark	# Skate or ray	# Unknown
Fishery	Ocean and Fishing area	Gear type																					
Grand Bank Arctic Surfclam Fishery	Atlantic	Dredge	16	0	0	0	2	3	0	1	0	0	0	7	0	0	2	0	0	0	0	0	1
Gulf of St. Lawrence shrimp	Atlantic	Otter trawl or Danish seine	16	7	0	0	3	0	3	2	4	0	0	0	2	0	0	1	0	0	0	1	0
Canada Atlantic Halibut	Atlantic - 3Ps	Bottom long-line	15	7	0	0	0	0	5	0	9	0	0	0	0	0	0	1	0	0	0	1	0
Canada Atlantic Halibut	Atlantic - 3Ps	Gillnet	14	4	0	0	0	0	5	0	7	0	0	0	0	0	0	1	0	0	0	1	0
Canada Atlantic Halibut	Atlantic - 4X5Y	Otter trawl or Danish seine	14	3	0	0	0	0	4	0	8	0	0	0	0	0	0	1	0	0	0	1	0
APPIM Iles-de-la-Madeleine lobster ( <i>Homarus americanus</i> ) Trap Fishery	Atlantic	Baited trap	13	1	0	0	5	2	0	0	5	0	0	1	1	0	0	0	0	0	0	0	0
Canada Atlantic Halibut	Atlantic - 4X5Y	Bottom long-line	13	4	0	0	0	0	4	0	7	0	0	0	0	0	0	1	0	0	0	1	0
Canada Atlantic Halibut	Atlantic - 3Ps	Otter trawl or Danish seine	13	3	0	0	0	0	4	0	7	0	0	0	0	0	0	1	0	0	0	1	0
Eastern Canada offshore lobster	Atlantic	Baited trap	13	4	0	0	3	0	0	0	8	0	0	0	0	0	0	2	0	0	0	0	0
Canada Atlantic Halibut	Atlantic - 4VsW	Bottom long-line	12	4	0	0	0	0	3	0	7	0	0	0	0	0	0	1	0	0	0	1	0
Canada Atlantic Halibut	Atlantic - 4VsW	Otter trawl or Danish seine	12	3	0	0	0	0	3	0	8	0	0	0	0	0	0	1	0	0	0	0	0
Gaspesie lobster	Atlantic	Baited trap	12	2	0	0	4	2	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			# Taxa caught	# Taxa with COSEWIC status	# Bird	# Coral	# Crustacean	# Echinoderm	# Flat fish	# Forage fish	# Groundfish	# Large pelagic	# Mammal	# Mollusc	# Other fish	# Other invertebrate	# Rock or shell	# Rockfish	# Salmon	# Sea turtle	# Shark	# Skate or ray	# Unknown	
Fishery	Ocean and Fishing area	Gear type																						
<i>(Homarus americanus)</i> Trap Fishery																								
Canada Atlantic Halibut	Atlantic - 5Ze	Bottom long-line	11	4	0	0	0	0	2	0	7	0	0	0	0	0	0	1	0	0	0	1	0	
Canada Atlantic Halibut	Atlantic - 3NO	Otter trawl or Danish seine	11	2	0	0	0	0	4	0	5	0	0	0	0	0	0	1	0	0	0	1	0	
Canada Atlantic Halibut	Atlantic - 5Ze	Otter trawl or Danish seine	11	3	0	0	0	0	3	0	6	0	0	0	0	0	0	1	0	0	0	1	0	
NAFO Division 4R Atlantic Herring Purse Seine Fishery	Atlantic	Purse Seine	11	5	1	0	0	0	1	3	2	0	0	1	0	0	0	0	0	0	2	1	0	
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	Pacific	Korean trap long-line	11	2	0	0	0	0	3	0	4	0	0	0	0	0	0	4	0	0	0	0	0	
Canada Atlantic Halibut	Atlantic - 3NO	Gillnet	10	3	0	0	0	0	4	0	5	0	0	0	0	0	0	0	0	0	0	1	0	
Canada Atlantic Halibut	Atlantic - 3NO	Bottom long-line	9	4	0	0	0	0	2	0	7	0	0	0	0	0	0	0	0	0	0	1	0	
Canada Atlantic Halibut	Atlantic - 4X5Y	Gillnet	9	3	0	0	0	0	1	0	7	0	0	0	0	0	0	1	0	0	0	0	0	
Canada Atlantic Halibut	Atlantic - 4Vn	Otter trawl or Danish seine	9	2	0	0	0	0	3	0	5	0	0	0	0	0	0	1	0	0	0	0	0	
Canadian Highly Migratory Species Foundation (CHMSF) British Columbia	Pacific	Troll and jig	9	0	0	0	0	0	0	0	0	5	0	0	1	0	0	0	1	0	2	0	0	

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			# Taxa caught	# Taxa with COSEWIC status	# Bird	# Coral	# Crustacean	# Echinoderm	# Flat fish	# Forage fish	# Groundfish	# Large pelagic	# Mammal	# Mollusc	# Other fish	# Other invertebrate	# Rock or shell	# Rockfish	# Salmon	# Sea turtle	# Shark	# Skate or ray	# Unknown	
Fishery	Ocean and Fishing area	Gear type																						
albacore tuna North Pacific																								
Canada Atlantic Halibut	Atlantic - 4Vn	Bottom long-line	8	3	0	0	0	0	2	0	4	0	0	0	0	0	0	1	0	0	0	1	0	
Canada Atlantic Halibut	Atlantic - 5Ze	Gillnet	8	3	0	0	0	0	1	0	6	0	0	0	0	0	0	1	0	0	0	0	0	
Canada Northern and Striped Shrimp Fishery	Arctic - Div. 0B - EAZ	Otter trawl or Danish seine	8	5	0	0	2	0	1	0	4	0	0	0	0	0	0	1	0	0	0	0	0	
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 2G - SFA 4	Otter trawl or Danish seine	8	5	0	0	2	0	1	0	4	0	0	0	0	0	0	1	0	0	0	0	0	
Canada Atlantic Halibut	Atlantic - 3Ps	Handline	7	3	0	0	0	0	2	0	3	0	0	0	0	0	0	1	0	0	0	1	0	
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 2H - SFA 5	Otter trawl or Danish seine	7	4	0	0	2	0	1	1	2	0	0	0	0	0	0	1	0	0	0	0	0	
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 2J - SFA 5 and SFA 6	Otter trawl or Danish seine	7	4	0	0	2	0	1	1	2	0	0	0	0	0	0	1	0	0	0	0	0	
Canadian 4VWX Purse Seine Herring Fishery	Atlantic	Purse seine	7	3	0	0	1	0	0	2	2	1	0	0	0	0	0	0	0	0	1	0	0	
Eastern Canada offshore scallop	Atlantic	Dredge	7	0	0	0	0	0	1	0	3	0	0	1	0	1	0	0	0	0	0	1	0	
OCI Grand Bank Yellowtail Flounder Trawl Fishery	Atlantic	Otter trawl or Danish seine	7	2	0	0	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	1	0	
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 3K - SFA 6	Otter trawl or Danish seine	6	3	0	0	2	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fleet			# Taxa caught	# Taxa with COSEWIC status	# Bird	# Coral	# Crustacean	# Echinoderm	# Flat fish	# Forage fish	# Groundfish	# Large pelagic	# Mammal	# Mollusc	# Other fish	# Other invertebrate	# Rock or shell	# Rockfish	# Salmon	# Sea turtle	# Shark	# Skate or ray	# Unknown	
Fishery	Ocean and Fishing area	Gear type																						
Canada Northern and Striped Shrimp Fishery	Atlantic - Div. 3L - SFA 7	Otter trawl or Danish seine	6	3	0	0	2	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Atlantic	Handline	6	4	0	0	0	0	1	1	3	0	0	0	0	0	0	1	0	0	0	0	0	0
Canada Atlantic Halibut	Atlantic - 4VsW	Gillnet	5	2	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada Atlantic Halibut	Atlantic - 4X5Y	Handline	5	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada Atlantic Halibut	Atlantic - 5Ze	Handline	4	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada Northern and Striped Shrimp Fishery	Arctic - Div. 0A - SFA 1	Otter trawl or Danish seine	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada Atlantic Halibut	Atlantic - 4VsW	Handline	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL average (median)</b>	-	-	<b>16 (11)</b>	<b>4 (4)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>3 (2)</b>	<b>0 (0)</b>	<b>5 (5)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (0)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>2 (1)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (0)</b>	<b>1 (1)</b>	<b>0 (0)</b>	
<b>Pacific ocean average (median)</b>	-	-	<b>40 (51)</b>	<b>7 (8)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>5 (5)</b>	<b>1 (0)</b>	<b>8 (7)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>1 (1)</b>	<b>1 (1)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>15 (18)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>3 (3)</b>	<b>3 (3)</b>	<b>0 (0)</b>	
<b>Atlantic ocean average (median)</b>	-	-	<b>13 (11)</b>	<b>4 (3)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (0)</b>	<b>0 (0)</b>	<b>2 (2)</b>	<b>0 (0)</b>	<b>5 (5)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (1)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (1)</b>	<b>0 (0)</b>	
<b>Arctic ocean average (median)</b>	-	-	<b>5 (5)</b>	<b>3 (3)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>2 (2)</b>	<b>0 (0)</b>	<b>1 (1)</b>	<b>0 (0)</b>	<b>2 (2)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (1)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>	

**Table 13: The number of ETP (Endangered, Threatened, Protected; SARA or CITES Appendix I listed) species noted as interacting with MSC certified fisheries in Canada, with details on those interactions provided in their most recent MSC certification reports (n=32 reports), sorted by number of species with interactions, highest to lowest.**

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
Canada Pacific halibut (British Columbia)	Bottom longline, Troll, Handline	7	<b>Longspine thornyhead</b> - 0 to 197 interactions (197 interactions in 2008, since then numbers have been greatly reduced with 0 to 13 interactions per year to 2013; logbooks of hook and line fisheries between 2008 and 2013). <b>Rougheye rockfish type I and II</b> - between 144391 pounds and 212374 pounds, combined species (in 2009 to 2012).			<b>Basking shark</b> - 4 interactions (logbooks of hook and line fisheries between 2008 and 2013). <b>Bluntnose six gill shark</b> - 16 to 73 interactions per year (interactions on the decline since 2008; logbooks of hook and line fisheries between 2008 and 2013). <b>Tope shark</b> -1 to 105 interactions per year (logbooks of hook and line fisheries between 2008 and 2013).	<b>Black footed albatross</b> - 7 interactions (in 2012/13).
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Pelagic Longline Fishery	Pelagic longline	6		<b>Pilot whale</b> - 1 interaction (recorded by observers between 2002-2009). <b>Dolphin</b> - 4 interactions (recorded by observers between 2002-2009; note species not identified further in the ETP species interactions table in the report).	<b>Leatherback turtle</b> - 88 interactions (recorded by observers from 2002-2009). <b>Loggerhead turtle</b> - 426 interactions (recorded by observers from 2002-2009). <b>Green sea turtle</b> - 26 interactions (recorded by observers from 2002-2009). <b>Kemp's ridley turtle</b> - 4 interactions (recorded by observers from 2002-2009).		

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
					<b>Hard-shelled sea turtles</b> - 22 interactions (recorded by observers between 2002-2009).		
Newfoundland and Labrador snow crab	Trap	6	<b>Atlantic wolffish, Spotted wolffish, Northern wolffish</b> - 56 t per year combined average (2004-2008).	<b>Humpback whale</b> - 25 interactions (between 1993-2008). <b>Minke whale</b> - 1 interaction (between 1993-2008).	<b>Leatherback turtle</b> - 11 interactions (records in a database on entanglements maintained by DFO between 1985-2005).		
Canada Atlantic Halibut	Demersal longline, Demersal trawl, Gillnet, Handline	4	<b>Atlantic wolffish, Spotted wolffish, Northern wolffish</b> - interactions common ("encounter events are fairly common, particularly in divisions 3N and 4V. Reports of live release are between 74 and 96% based on the SARA logbook queries.").		<b>Loggerhead turtles</b> - interactions occur (there are recorded encounters in SARA log book registry query information for Scotia-Fundy and Newfoundland for demersal mobile and fixed gear types).		
APPIM Îles-de-la-Madeleine lobster ( <i>Homarus americanus</i> ) Trap Fishery	Trap	4	<b>Northern wolffish</b> - 2 interactions (SARA logbooks between 2007 and 2012). <b>Spotted wolffish</b> - 18 interactions (SARA log books between 2007 and 2012).	<b>Whale sp.</b> - 1 interaction (declared between 2004 and 2010).	<b>Leatherback turtle</b> - 1 interaction (SARA logbooks between 2007 and 2012).		
British Columbia hook and line spiny dogfish fishery	Bottom long line	4	<b>Rougheye rockfish type I and type II</b> - 393 interactions (between 2006/07 and 2009/10; 76 in the inside fishery, 317 in the outside fishery)			<b>Six gill shark</b> - 1209 interactions (in logbooks between 2006/07 and 2009/10; 579 in the inside fishery and 630 in the outside). <b>Tope shark</b> - 78 interactions (in logbooks between	

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
						2006/07 and 2009/10; all in the outside fishery).	
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	Bottom long line, Longline Korean trap	4* *Please note that no ETP species were stated explicitly as being considered in the ETP section of this report, although potential interactions with whales and sea birds were discussed. The species and interactions listed here were noted as being listed on SARA, but were found in different sections of the report.	<b>Rougheye rockfish type I and type II</b> – 59315 interactions (between March 2006 and July 2008; 24,015 in “Combination trips” assumed to be Longline, and 35,300 in “K” data, assumed to be Longline Korean trap)			<b>Six gill shark</b> - 233 interactions (between March 2006 and July 2008 in “Combination trips” assumed to be Longline)	<b>Black footed albatross</b> - 31 albatrosses interactions, most of these likely the black-footed albatross (between January 2006 and December 2008)
Canada Scotia-Fundy haddock	Longline, Otter trawl, Gillnet, Handline	3	<b>Northern wolffish</b> - between 0.003 mt to 0.081 mt (2004 to 2013 combined total, depending on if in fixed or mobile gear and if in 5Zjm or 4X5Y). <b>Atlantic wolffish</b> - between 0.753 mt to 5.888 mt (2004 to 2013 combined total, depending on if in fixed or mobile gear and if in 5Zjm or 4X5Y). <b>Spotted wolffish</b> - between 0.001 mt to 0.009 mt (2004 to 2013 combined total, depending on if in fixed or mobile gear and if in 5Zjm or 4X5Y).				
Scotian Shelf Snow Crab	Trap	3	<b>Spotted wolffish</b>		<b>Leatherback turtle</b>		

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
( <i>Chionoecetes opilio</i> ) Trap Fishery			- catches of 30 kg to 54 kg (between 2006 and 2009). <b>Atlantic wolffish</b> - catches of 32 kg to 80 kg (between 2006 and 2009).		- 3 interactions (recorded by observers).		
Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster ( <i>Homarus americanus</i> ) Trap Fisheries	Trap	3	<b>Spotted wolffish</b> - 12 interactions (SARA logbooks between 2007 and 2012; 4 interactions in NB and NS fisheries in the Gulf region, 8 in NB and NS fisheries in the Maritimes region). <b>Northern wolffish</b> - 26 interactions (SARA logbooks between 2007 and 2012; 5 interactions in NB and NS fisheries in the Gulf region, 21 in NB and NS fisheries in the Maritimes region).	<b>Humpback whale</b> - 1 interaction (Marine Mammal Response Program between 2011 and 2014; occurred in the Maritimes region). <b>Whale sp.</b> - 1 interaction (Marine Mammal Response Program between 2011 and 2014; occurred in the Gulf region).			
Gulf of St. Lawrence shrimp	Otter trawl	2	<b>Northern wolffish</b> - 0.04 t/yr (on average over 2007 to 2011). <b>Spotted wolffish</b> - 0.04 t/yr (on average over 2007 to 2011).				
Eastern Canada offshore scallop	New Bedford scallop dredge	2	<b>Northern wolffish</b> - caught in 2 trips, representing 0.008% and 0.022% of their catch (during 14 observed trips from October 2011 to April 2013). <b>Spotted wolffish</b> - caught in 1 trip, representing 0.001% of its catch (during 14				

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
			observed trips from October 2011 to April 2013).				
OCI Grand Bank Yellowtail Flounder Trawl Fishery	Rockhopper trawl	2	<b>Spotted wolffish</b> - 31.3 t (mean catch for fishery 2013-2014, as scaled from observer data from 17 trips). <b>Northern wolffish</b> - a negligible quantity (in 2013-2014 discarded from 17 observed trips).				
Canada Northern and Striped Shrimp Fishery	Otter trawl	2	<b>Northern wolffish</b> - most recently, no interactions (reported during observer coverage of 7 offshore vessels between 2012/13 and 2014/15), earlier between 0 kg and 1062 kg depending on SFA and if inshore or offshore fleet (2003 to 2007). <b>Spotted wolffish</b> - 0.2 t (reported during observer coverage of 7 offshore vessels between 2012/13 and 2014/15), earlier between 0 kg and 1582 kg depending on SFA and if inshore or offshore fleet (2003 to 2007).				
Prince Edward Island lobster ( <i>Homarus americanus</i> ) Trap Fishery	Trap	2	<b>Spotted wolffish</b> - 4 interactions (between 2007 and 2011 in SARA logbooks). <b>Northern wolffish</b>				



COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
			- 3 interactions (between 2007 and 2011 in SARA logbooks).				
Gaspésie lobster ( <i>Homarus americanus</i> ) Trap Fishery	Trap	2	<b>Atlantic wolffish</b> - 3 interactions (SARA logbooks between 2007 and 2013).	<b>Minke whale</b> - 8 interactions (between 2004 and 2009)			
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Handline, Demersal longline, Demersal gillnet, Otter trawl, Danish seine	2	<b>Atlantic wolffish</b> - 0.00% to 0.13% of catch are retained.		<b>Leatherback turtle</b> - 0 to 35 interactions (no interactions reported by observers of the 3Ps fishery, or in the 3Ps sentinel survey programme since 2001. Two interactions in SARA logbooks possibly this fishery in 2005. Thirty-five interactions with groundfish gillnets, longlines or mobile bottom gears around the Newfoundland coast over the period 1976 – 2010 as reported to the Whale Release and Strandings network, unclear if attributable to this specific fishery but unlikely that all occurred in the region of this fishery).		
FBSA Canada Full Bay Sea Scallop Fishery	Digby dredge	1	<b>Atlantic wolffish</b> - interactions occur ("Caught in the fishery")				
Eastern Canada offshore lobster	Trap	1	<b>Northern wolffish</b> - small quantities of northern wolffish (recorded in catches in any year				

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
			from 2006 – 2012 (figure in report but no number stated)).				
Canadian 4VWX Purse Seine Herring Fishery	Purse seine	1	<b>Spotted wolffish</b> - interactions in 2014, but details unavailable to preserve participant confidentiality				
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Harpoon Fishery	Harpoon	0 - Considered such a specific fishery, bycatch in general not a significant issue.					
Banquereau Arctic Surfclam Fishery	Hydraulic clam dredge	0 - No recorded interactions in consulted surveys or observer data for any species.					
Grand Bank Arctic Surfclam Fishery	Hydraulic clam dredge	0 - None reported from sampled fishery catches on Grand Bank from 2002 – 2009.					
Southern Gulf of St Lawrence Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	Trap	0 - No records exist of any involvement with any endangered whale species, and no corals or sponges are captured. But, note that Spotted wolffish catches are "considered so negligible that it is not worth tabulating or recording them".					
Gulf Nova Scotia Herring Federation Southern Gulf of St Lawrence Fall Herring Gillnet Fishery	Gillnet	0 - No ETP species interactions reported in DFO species-at-risk logbooks for the fall gillnet herring fishery					
NAFO Division 4R Atlantic Herring Purse Seine Fishery	Purse seine	0 - No interactions have been reported as bycatch through the observer					

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
		program, nor by fishermen.					
Scotian Shelf northern prawn trawl	Otter Trawl only	0 - Atlantic wolffish in small quantities, but not considered MSC-ETP in the report.					
US and Canada Pacific Hake Mid-water Trawl Fishery	Mid-water trawl	0 - "No ETP species occur in the Canadian Hake fishery (e.g., Appendix 1 Table 2) to a degree that the Hake fishery could cause adverse impacts."					
Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific	Troll, Jig	0 – no information about the Canadian fishery with regards to interactions reported, although <i>potential</i> ETP interactions discussed regarding 12 species.					
British Columbia Pink Salmon ( <i>Oncorhynchus gorbuscha</i> ) Seine, Troll and Gillnet Fishery	Seine, Gillnet, Troll, Beach seine, Fish wheels, Weirs, Dipnets	0 – Coho, Chinook, and Sockeye salmon considered, but no information regarding catches of these species in the ETP section of the report.					
British Columbia Chum Salmon ( <i>Oncorhynchus keta</i> ) Fisheries	Seine, Gillnet, Troll, Beach seine, Fish wheels, Weirs and Dipnets.	0 - Coho, Chinook, and Sockeye salmon considered, but no information regarding catches of these species in the ETP section of the report.					
British Columbia Commercial Sockeye Salmon Fisheries	Seine, Gillnet, Troll, Beach seine, Fish wheels, Weirs, Dip nets.	0 - No defined ETP section in this report. White sturgeon listed as a potential impacted species in one river system, and the					

Fishery	Gear types	Number of MSC-ETP species with interactions noted	Fish ETP species with interactions	Marine mammal ETP species with interactions	Sea turtle ETP species with interactions	Shark ETP species with interactions	Bird ETP species with interactions
		report indicates logbooks were are place record interactions with marine mammals and birds.					

**Table 14. The amount of at-sea observer coverage in MSC certified fisheries in Canada, as indicated in their most recent MSC certification reports (n=32 reports), sorted alphabetically.**

Fishery	Gear type	Observer coverage
APPIM Îles-de-la-Madeleine lobster ( <i>Homarus americanus</i> ) Trap Fishery	Trap	None, but logbooks in development.
Banquereau Arctic Surfclam Fishery	Hydraulic clam dredge	Limited on-board observer coverage, no value stated in the report.
Bay of Fundy, Scotian Shelf and Southern Gulf of St Lawrence lobster ( <i>Homarus americanus</i> ) Trap Fisheries	Traps	None.
British Columbia Chum Salmon ( <i>Oncorhynchus keta</i> ) Fisheries	Seine, Gillnet, Troll, Beach seine, Fish wheels, Weirs and Dipnets	No formal guidelines to indicate observer coverage. If there is no conservation issue, the level of observer coverage is low (0 to 2 observers per fishery), however if there is conservation concerns the coverage can increase (6 to 10 observers per fishery; with 30-100 vessels operating in the fishery).
British Columbia Commercial Sockeye Salmon Fisheries	Seine, Gillnet, Troll, Beach seine, Fish wheels, Weirs, Dip nets	Unknown.
British Columbia hook and line spiny dogfish fishery	Bottom longline	100% monitoring of catches since 2006/2007, either by at-sea observers or electronic monitoring, with usually the later.
British Columbia Pink Salmon ( <i>Oncorhynchus gorbuscha</i> ) Seine, Troll and Gillnet Fishery	Seine, Gillnet, Troll, Beach seine, Fish wheels, Weirs, Dipnets	No formal guidelines to indicate observer coverage. If there is no conservation issue, the level of observer coverage is low (0 to 2 observers per fishery), however if there is conservation concerns the coverage can increase (6 to 10 observers per fishery; with 30-100 vessels operating in the fishery).
Canada / Newfoundland 3Ps Atlantic Cod Fishery	Handline, Demersal longline, Demersal gillnet, Otter trawl, Danish seine	Overall at-sea observer coverage of 1.5% for fixed gear, and 14% for mobile gears.
Canada Atlantic Halibut	Demersal long-line, Demersal trawl, Gillnet, Handline	Observer coverage of 10% or less in the total area considered in the report, with the exception of 5Zc, where coverage is 20% or greater on average. Smaller boat sectors generally receives less observer coverage than larger boats sectors.
Canada Northern and Striped Shrimp Fishery	Otter trawl	Observers carried on 100% of offshore trips, meaning 70% of tows are observed. Target observer coverage of 10% for the inshore fishery (SFAs 4-7), with actual coverage carrying from 4.5% to 10% of fishing days between 2011/2012 and 2014/2015.
Canada Pacific halibut (British Columbia)	Bottom longline, Troll, Handline	Logbook, 100% at-sea and 100% dockside monitoring programs.
Canada Scotia-Fundy haddock	Longline, Otter trawl, Gillnet, Handline	Varies by gear type and area of the fishery. In area 4X5Y, the bottom longline fishery had an average of 1.67% observer coverage between 2004 and 2013, with a range of 0% to 4.54%. In area 4X5Y, the otter trawl fishery had an average of 3.92% observer coverage between 2004 and 2013, with a range of 0.45% to 16.02%. In area 5Zjm, the bottom longline fishery had an average of 13.49% observer coverage between 2004 and 2013, with a range of 2.0% to 23.59%. In area 5Zjm, the otter trawl fishery had an average of 36.16% observer coverage between 2004 and 2013, with a range of 13.49% to 96.29%.

COLLATERAL DAMAGE: How to reduce bycatch in Canada's commercial fisheries

Appendix II – Data tables

Canadian 4VWX Purse Seine Herring Fishery	Purse seine	1-4% of trips between 2010 and 2014.
Canadian Highly Migratory Species Foundation (CHMSF) British Columbia albacore tuna North Pacific	Troll and jig	None, but mandatory logbooks.
Eastern Canada offshore lobster	Lobster pot	Approximately 15% of fishing trips (6 trips per year).
Eastern Canada offshore scallop	New Bedford scallop rake or dredge	Approximately 10% observer coverage of the fishing effort (two trips per month) since July 2007. The program was limited to Georges Bank until 2011, but has since been expanded to other areas. There was limited coverage between 1991 and 2004, beginning in 2005 one trip per month was covered by observers.
FBSA Canada Full Bay Sea Scallop Fishery	Digby dredge	In SFA 29 W, 1 observed sea-day per active vessel, and no observer coverage in SFA 28. However, a pilot project with at-sea observer coverage was to be initiated in SFA 28 in 2015.
Gaspésie lobster ( <i>Homarus americanus</i> ) Trap Fishery	Traps	None.
Grand Bank Arctic Surfclam Fishery	Hydraulic clam dredge	Limited on-board observer coverage, no value stated in the report.
Gulf Nova Scotia Herring Federation Southern Gulf of St Lawrence Fall Herring Gillnet Fishery	Gillnet	None.
Gulf of St. Lawrence shrimp	Otter trawl	Target is set at 5% of sets, and is usually met or closely approached, with the exception of the Esquiman Channel area, where coverage in recent years has been around 2%.
NAFO Division 4R Atlantic Herring Purse Seine Fishery	Purse seine	Coverage varies, with no value stated in the report but scoring reflected low coverage.
Newfoundland and Labrador snow crab	Trap	Observer coverage averaged 10.6%, with a range of 5.5% to 13% per year from 2004 to 2008. The target observer coverage is 10%.
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Harpoon Fishery	Harpoon	None, in lieu contributions to scientific study of stock is required. If a licence holder is deemed to be non-compliant with the CHP or contract with the Swordfish Harpoon Association, they are subjected to 100% at-sea observer coverage.
North Atlantic Swordfish ( <i>Xiphias gladius</i> ) Canadian Pelagic Longline Fishery	Pelagic longline	Observer coverage ranged from 3.7% to 19%, depending on the year, with recommended minimum of 5% at-sea observer coverage. Coverage was 15% in 2001, 19% in 2002 but has been approximately 5% since 2003.
OCI Grand Bank Yellowtail Flounder Trawl Fishery	Rockhopper trawl	Minimum observer coverage of 25% (100% when fishing outside the EEZ), with actual coverage of 48% of all fishing days from 2011 to 2014.
Prince Edward Island lobster ( <i>Homarus americanus</i> ) Trap Fishery	Traps	None.
Scotian Shelf northern prawn trawl	Otter trawl	Observer coverage is low, 0-4 trips per year.
Scotian Shelf Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	Traps	Approximately 10% at-sea-observer coverage.
Southern Gulf of St Lawrence Snow Crab ( <i>Chionoecetes opilio</i> ) Trap Fishery	Traps	10-30% observer coverage.
The Canadian Pacific Sablefish ( <i>Anoplopoma fimbria</i> ) Fishery	Longline, Longline Korean trap	100% monitoring, either by at-sea observers or electronic monitoring.
US and Canada Pacific Hake Mid-water Trawl Fishery	Mid-water trawl	100% observer coverage.