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**Pacific Region**

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- Aquaculture
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- Science and Research
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**AQUACULTURE MANAGEMENT**

**Public Reporting on Aquaculture in the Pacific Region**

**Overview**

As part of the British Columbia Aquaculture Regulatory Program (BCARP), Fisheries and Oceans Canada (DFO) provides stakeholders and the general public with timely information and data on the environmental and operational performance of the aquaculture industry in B.C.

DFO is committed to a regulatory approach that ensures the



**About Aquaculture in the Pacific Region**

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**Program Administration**

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  - Enhancement Facilities
  - Freshwater
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  - Shellfish
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**Public Reporting**

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Proactive Disclosure

Program (DFO) provides stakeholders and the general public with timely information and data on the environmental and operational performance of the aquaculture industry in B.C.

DFO is committed to a regulatory approach that ensures the industry operates in a sustainable manner that minimizes the impacts of aquaculture on wild stocks while streamlining and simplifying the regulatory requirements that the industry must meet. Increased accountability through public reporting, the implementation of new regulatory processes and extensive compliance monitoring will help the Department to achieve this goal.

In accordance with the [Pacific Aquaculture Regulations](#), which came into effect on December 18, 2010, Conditions of Licence were developed for each aquaculture sector. These conditions clearly state the obligations of each licence holder and prescribe standards and protocols for the operation of aquaculture facilities. Licence holders must record and report data and information to DFO in several categories such as fish health, facility operations, marine mammal interactions and fish escapes. In addition



The vessel "Salmon Bay" used by DFO staff to conduct monitoring activities at aquaculture facilities

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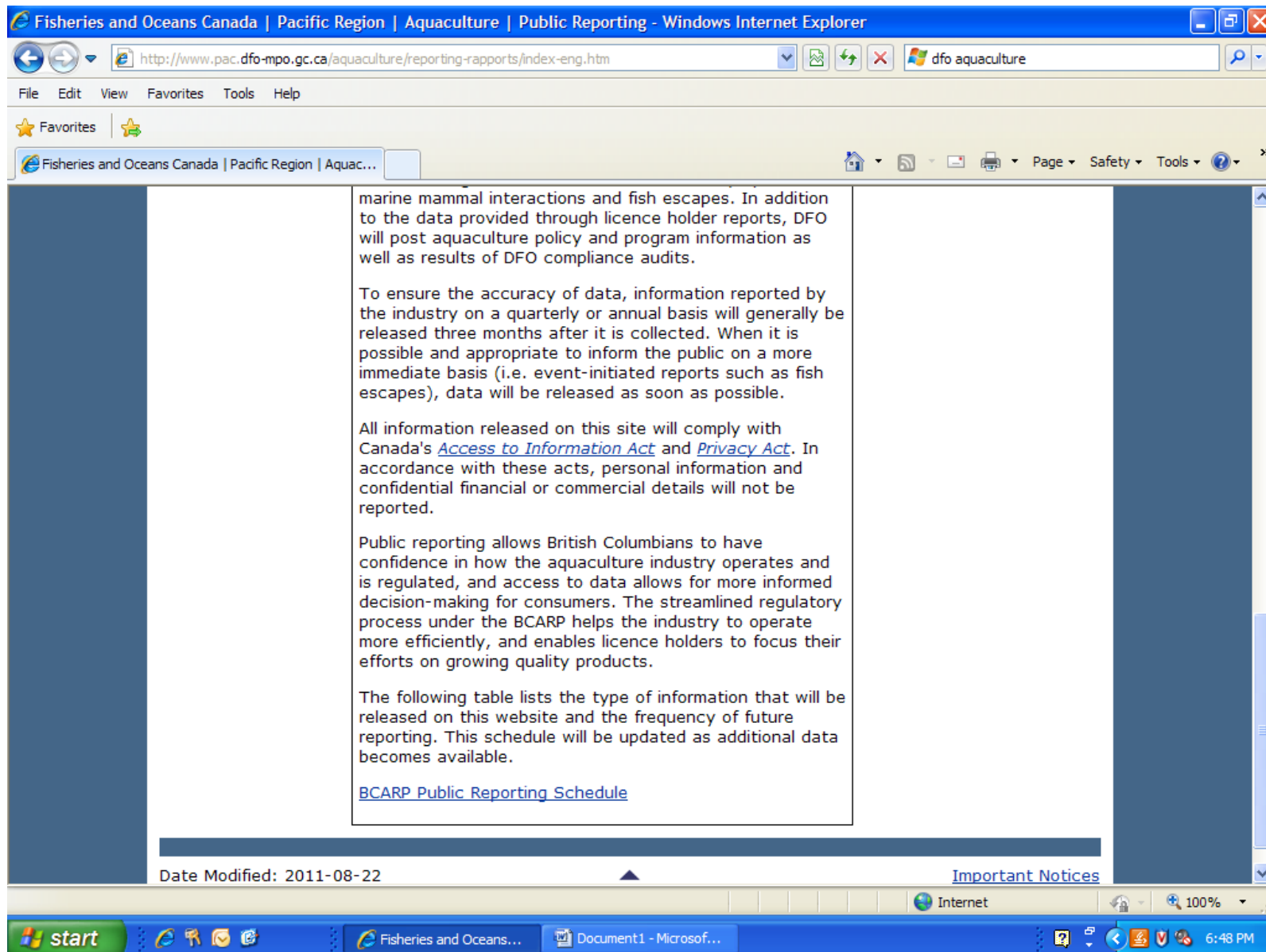
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## Public Reporting on Aquaculture in the Pacific Region - Escapes

Fisheries and Oceans Canada (DFO) is committed to ensuring the aquaculture industry operates in a sustainable manner, with minimal impact on wild fish populations and the marine environment. Aquaculture facilities are capable of holding large numbers of fish at various stages of growth. In the case of marine finfish, these fish have been transferred to the site from an inland freshwater facility in order to complete their growth cycle. At harvest, fish are collected from the marine sites by vessel and transported to a processing facility. Damage to marine-based containment nets as a result of storms, handling, marine mammal interactions, or other events may lead to escapes. The [Pacific Aquaculture Regulations](#) and Conditions of Licence for aquaculture in B.C. require licence holders to take various escape prevention measures, including maintaining cage and nets in a manner to prevent escapes. When there is evidence that an escape event has occurred, licence holders are required to report the incident to DFO's Observe Record and Report Line (ORR 1-800-465-4336), providing details as to the cause of the event, and the type and number of fish involved. Where applicable, the licence holder must conduct a recapture fishery, initiated within 24 hours of the event. A written report, summarizing the event and the results of the recapture fishery (if applicable), must also be submitted to DFO .



A DFO Biologist conducts monitoring activities at a finfish aquaculture facility

Both DFO and the industry place high importance on preventing escapes, both to prevent losses of farm stock and to minimize any potential impacts of escaped fish on wild fish stocks. DFO Aquaculture Management staff investigate the causes escapes and also identify the operational or infrastructure variable that could make facilities vulnerable to escape events. A monitoring and audit program is in place to monitor compliance with Conditions of Licence related to the maintenance of cage and net integrity, ensuring nets are of the appropriate strength and age, in good repair, and deployed correctly. This program is aimed at promoting ongoing improvement to maintenance programs, staff training, as well as innovations and advancements in net cage technologies.

[More information on stock containment](#)

### Background information on Atlantic salmon escapes

In the early 1900s, Atlantic salmon were introduced into B.C. waters in significant numbers. Scientific opinion, supported by the fact that self-sustaining populations of escaped farm Atlantic salmon have not been observed anywhere outside their natural range, suggests that the risk to wild stocks from escaped farmed Atlantic salmon is low. Research on the potential effects of escaped salmon indicates there is minimal interaction between farmed and wild fish - either through competition for habitat and food, or as predators.

Escaped farm salmon have a low survival rate. Fed from birth and domesticated over many generations, these fish are poorly suited to survive in the wild, especially compared to wild fish. Although farmed Atlantic salmon can successfully mate with wild Atlantic salmon, neither farmed nor wild Atlantic salmon have been shown to successfully mate with wild Pacific salmon.

## **Monitoring of Atlantic salmon escapes**

The [Atlantic Salmon Watch Program](#) was established in B.C. in 1991. This research program monitors commercial and sport catches and documents escaped Atlantic salmon year-round. Observations reported by recreational and commercial fishers, processors, field biologists and hatchery workers provide valuable insight into the abundance, distribution and biology of Atlantic salmon in B.C. and surrounding areas.

## **Escape Incident Reports**

This table will be updated with details provided by industry as incidents occur.

[2011 Escapes](#)

Date Modified: 2011-08-24

## **Escapes**

*(to be included as introductory text for Escape incident reports-attached-posted under the public reporting section of the Pacific Region aquaculture website)*

Fisheries and Oceans Canada (DFO) is committed to ensuring the aquaculture industry operates in a sustainable manner, with minimal impact on wild fish populations and the marine environment. Aquaculture facilities are capable of holding large numbers of fish at various stages of growth. In the case of marine finfish, these fish have been transferred to the site from an inland freshwater facility in order to complete their growth cycle. At harvest, fish are collected from the marine sites by vessel and transported to a processing facility. Damage to marine-based containment nets as a result of storms, handling, marine mammal interactions, or other events may lead to escapes. The *Pacific Aquaculture Regulations* and Conditions of Licence for aquaculture in B.C. require licence holders to take various escape prevention measures, including maintaining cage and nets in a manner to prevent escapes. When there is evidence that an escape event has occurred, licence holders are required to report the incident to DFO's Observe Record and Report Line (ORR 1-800-465-4336), providing details as to the cause of the event, and the type and number of fish involved. Where applicable, the licence holder must conduct a recapture fishery, initiated within 24 hours of the event. A written report, summarizing the event and the results of the recapture fishery (if applicable), must also be submitted to DFO .

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More information on stock containment can be found at:

<http://www.dfo-mpo.gc.ca/fm-gp/sustainable-durable/aquaculture/resources-stock-eng.htm>

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### **Escape Incident Reports**

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**2011 Escapes** (*insert Excel spreadsheet-Escape Incident Reports*)



### Ensuring Sustainable Fisheries

## ESCAPES

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## Public Reporting on Aquaculture in the Pacific Region - Incidental Catch

Fisheries and Oceans Canada (DFO) is committed to ensuring that the aquaculture industry in B.C. operates in a way that minimizes the impact on wild fisheries and the coastal ecology. Wild fish naturally swim naturally into net penscages at aquaculture facilities, and co-exist with farmed fish. There is past and on-going research to determine if wild fish are being preyed upon within the net pens, but at this time predation appears to be minimal. In some cases, these wild fish may grow too large to swim back out of the cages net pens or remain resident in the aquaculture facility. When the time comes for the harvest or transfer of farmed fish, these wild fish are identified as "incidental catch" if they are caught along with farmed fish, as the aquaculture facility is not licensed for their cultivation or sale of farmed fish.

Incidental by-catch and discarding of non-targeted species also occurs in many fisheries. As the regulator of the aquaculture industry in B.C., DFO requires that finfish aquaculture licence holders take all reasonable measures to prevent the incidental catch of wild fish caught as a result of during the harvest of farmed fish from an aquaculture farm site, or during the transfer of farmed fish. These efforts include designing and using nets and equipment in a way that reduces the risk of incidental catch. If, despite these efforts incidental catch does occur, finfish licence holders must release, in the least harmful mannerway possible, any live fish captured in this way. When mortalities do occur, facility operators are required to make a reasonable effort to retain and account for dead incidental catch, and dispose of it in same manner as dead farmed stock. Conditions of Licence require facility operators to maintain an incidental catch log, and provide a report to DFO quarterly.

The table below lists the reported incidental catch at B.C. marine finfish facilities.

Data for this quarter may not be available for all farms. Sites that do not currently have fish on-site, that have nil reports or where harvesting or transfer activities did not occur during the reporting period, are not currently required by the Conditions of Licence to provide reports.

[Q1 Data, January-March, 2011](#)



Two DFO biologists conduct benthic monitoring at a finfish aquaculture facility

Date Modified: 2011-08-24

Fisheries and Oceans Canada (DFO) is committed to ensuring that the aquaculture industry in B.C. operates in a way that minimizes the impact on wild fisheries and the coastal ecology. Wild fish naturally swim into cages at aquaculture facilities, and co-exist with farmed fish. There is past and on-going research to determine if wild fish are being preyed upon within the net pens, but at this time predation appears to be minimal. In some cases, these wild fish may grow too large to swim back out of the cages or remain resident in the aquaculture facility. When the time comes for the harvest or transfer of farmed fish, these wild fish are identified as "incidental catch" if they are caught along with farmed fish, as the aquaculture facility is not licensed for their cultivation or sale.

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**Q1 Data, January-March, 2011**



**INCIDENTAL CATCH**  
January-March, 2011

Licence Number	Licence Holder	Site Common Name	DFO Pacific Fishery Management Area	Species Caught		Total Incidental Catch
AQFF 776	Creative Salmon Company Ltd.	Baxter Islet	24	Hake	<i>Merluccius Productus</i>	3
				Herring	<i>Clupea pallasii</i>	466
				Perch	<i>Rhacochilus vacca</i>	10
				Sculpin	<i>Cottus spp.</i>	18
				Sole	<i>Parophrys vetulus</i>	8
				Staghorn Sculpin	<i>Leptocottus armatus</i>	17
				Surf Perch	<i>Perca flavescens</i>	540
AQFF 1596	Creative Salmon Company Ltd.	Dawley Pass	24	Herring	<i>Clupea pallasii</i>	1267
				Surf Perch	<i>Perca flavescens</i>	14
AQFF 234	Ewos Canada Ltd, DBA: Mainstream Canada	Dixon Point, Shelter Inlet	24	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	1
				Herring	<i>Clupea pallasii</i>	154
				Rockfish	<i>Sebastes spp.</i>	1
AQFF 1401	Ewos Canada Ltd, DBA: Mainstream Canada	Okisollo Channel, N of Quadra Island	13	Herring	<i>Clupea pallasii</i>	5
AQFF 728	Ewos Canada Ltd, DBA: Mainstream Canada	Sir Edmond Bay, NE Shore Broughton Inlet	12	Pacific Cod	<i>Gadus macrocephalus</i>	3
AQFF 306	Ewos Canada Ltd, DBA: Mainstream Canada	Venture Point, Sonora Island	13	Herring	<i>Clupea pallasii</i>	1372
				Pacific Cod	<i>Gadus macrocephalus</i>	33
AQFF 871	Grieg Seafood BC Ltd.	Barnes Bay, Sonora Island	13	Black Cod	<i>Anoplopoma Fimbria</i>	3
				Chinook salmon	<i>Oncorhynchus tshawytscha</i>	1
				Chum salmon	<i>Oncorhynchus keta</i>	28
				Coho salmon	<i>Oncorhynchus kisutch</i>	3
				Herring	<i>Clupea pallasii</i>	26
				Lingcod	<i>Ophiodon elongatus</i>	1
				Pacific Cod	<i>Gadus macrocephalus</i>	7
AQFF 1705	Grieg Seafood BC Ltd.	Williamson Passage, Nootka Sound	25	Pink salmon	<i>Oncorhynchus gorbuscha</i>	3
				Black Cod	<i>Anoplopoma Fimbria</i>	7
				Herring	<i>Clupea pallasii</i>	70
				Pacific Cod	<i>Gadus macrocephalus</i>	6
AQFF 1288	Marine Harvest Canada Inc.	Doyle Island (Gordon Grp)	12	Rock Cod	<i>Sebastes spp.</i>	21
			12	Herring	<i>Clupea pallasii</i>	1
AQFF 1293	Marine Harvest Canada Inc.	Duncan Island (Goletas Ch)	12	Yellowtail rockfish	<i>Sebastes flavidus</i>	11
			12	Pacific cod	<i>Gadus macrocephalus</i>	1
			12	Herring	<i>Clupea pallasii</i>	1
AQFF 1691	Marine Harvest Canada Inc.	Kid Bay	7	Yellowtail rockfish	<i>Sebastes flavidus</i>	15
				Pile perch	<i>Rhacochilus vacca</i>	10
AQFF 144	Marine Harvest Canada Inc.	Koskimo Bay	27	Shiner perch	<i>Cymatogaster aggregata</i>	5
				Yellowtail rockfish	<i>Sebastes flavidus</i>	1
				Yellowtail rockfish	<i>Sebastes flavidus</i>	61
AQFF 1237	Marine Harvest Canada Inc.	Monday Rocks	27	Kelp greenling	<i>Hexagrammos decagrammus</i>	1
				Pacific cod	<i>Gadus macrocephalus</i>	5
				Herring	<i>Clupea pallasii</i>	64
				Shiner perch	<i>Cymatogaster aggregata</i>	5
				Striped seaperch	<i>Embiotoca lateralis</i>	160
				Yellowtail rockfish	<i>Sebastes flavidus</i>	1540*

\*The population of Yellowtail rockfish in B.C.'s coastal waters is not at risk, and is harvested commercially in the amount of 4000 tonnes per year. The population will not be significantly impacted by the incidental catch of 1540 fish.

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## Public Reporting on Aquaculture in the Pacific Region - Marine Mammal Interactions

Fisheries and Oceans Canada (DFO) is the agency responsible for the management, including conservation and protection, of marine mammals in Canada. Provisions in the [Pacific Aquaculture Regulations](#) allow for the Department to license fish farms to undertake predator of marine mammals that pose an imminent danger to the aquaculture facility or human life, should reasonable deterrent efforts fail.

Fish farming in British Columbia has increased substantially over the past few decades, both in the number and their spatial distribution. Over this same period, seal and sea lion populations have also increased. The relative density and abundance of fish found in aquaculture facilities can attract marine mammals such as seals and sea lions, which may come to identify these facilities as potential sources of food. The resulting interactions that arise can lead to losses of fish and damage to facilities and equipment. In some instances, the safety of facility personnel can also be jeopardized. The Conditions of Licence for aquaculture site in B.C. require facility operators to have a Predator Management Plan in place, including measures to deter and minimize marine mammal interactions at fish farms. In addition to protecting farmed stocks and facility infrastructure, these measures aim to protect marine mammals by reducing the number of accidental drownings that can occur when these animals attempt to feed on the farmed fish and become entangled in lines and nets.

DFO is working with industry towards the development and improvement of mitigation measures to prevent interactions and control predators that do come into contact with fish farms. At present, the most common system includes anti-predator netting, surrounding the entire facility structure on all sides and from below. DFO biologists conduct site audits and inspections to ensure that licence holders are complying with their licence conditions and implementing elements of their predator management plans in an effort to minimize interactions between marine mammals and aquaculture facilities.

In the event that mitigation measures and deterrence efforts fail, and in instances where California sea lions or harbour seals represent an imminent danger to the aquaculture facility or to human life, they may, by regulation, be lethally removed in a humane manner. Under special circumstances, additional licences can be obtained to lethally control other species. These instances are reviewed on a case by case basis by DFO biologists and the outcomes are carefully monitored.

### [Additional information on marine mammals in the Pacific Region](#)

\*Data for this quarter may not be available for all farms. All sites that have infrastructure in the water during a Licence year are required to report quarterly and therefore, sites that do not currently have nets in the water have not been included in this report.

- [Reports on Authorized Predator Control Activities Q1 Data, January-March, 2011](#)
- [Reports on Marine Mammal Accidental Drownings Q1 Data, January-March, 2011](#)

Date Modified: 2011-08-22

## Marine Mammal Interactions

Fisheries and Oceans Canada (DFO) is the agency responsible for the management, including conservation and protection, of marine mammals in Canada. Provisions in the [Pacific Aquaculture Regulations](#) allow for licensing predator control of marine mammals that pose an imminent danger to the aquaculture facility or human life should all reasonable deterrent efforts fail.

Fish farming in British Columbia has increased substantially over the past few decades, increasing in number and spatial distribution. Over this same period, seal and sea lion populations have also increased, and have been considered to be at carrying capacity since 2000. As a consequence of the relative density and abundance of fish found in aquaculture facilities, they can pose an attraction to marine mammals such as seals and sea lions which may come to identify these facilities as potential sources of food. The interactions that arise can lead to losses of fish and damage to facilities and equipment. In some instances, the safety of facility personnel can be jeopardized. The Conditions of Licence for aquaculture require facility operators to have a Predator Management Plan in place, including measures to deter and minimize marine mammal interactions. In addition to protecting farmed stocks and facility infrastructure, these measures aim to protect marine mammals by reducing the number of accidental drownings that can occur when these animals attempt to feed on the farmed fish and become entangled in equipment.

DFO is working with industry towards the development and improvement of non-destructive mitigation measures to prevent interactions and control predators that do come in to conflict. At present, the most common system includes anti-predator netting, surrounding the entire facility structure on all sides and from below. DFO biologists conduct site audits and inspections to ensure that Licence Holders are complying with their Licence Conditions and implementing elements of their Predator Management Plans in an effort to minimize interactions between marine mammals and aquaculture facilities.

In the event that mitigation measures and deterrence efforts fail, and in instances where California Sea Lions or Harbour Seals represent an imminent danger to the aquaculture facility or to human life, they may, by regulation, be lethally removed in a humane manner. Under special circumstances, additional licences can be obtained to lethally control other species. These instances are reviewed on a case by case basis by DFO biologists and the outcomes are carefully monitored.


More information on marine mammals in the Pacific Region can be found at:  
<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/mammals-mammiferes/index-eng.htm>

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**Reports on Authorized Predator Control Activities  
Q1 Data, January-March, 2011**

**Reports on Marine Mammal Accidental Drownings  
Q1 Data, January-March, 2011**



<div>  <b>AQUACULTURE MANAGEMENT</b>  <small>Ensuring Sustainable Fisheries</small> </div> <div> <b>MARINE MAMMAL ACCIDENTAL DROWNINGS</b>                      January-March, 2011                 </div>						
Licence Number	Licence Holder	Site Common Name	DFO Pacific Fishery Management Area	Marine Mammal Species		
				Harbour Seal	California Sea Lion	Other
AQ 776	Creative Salmon Company Ltd.	Baxter Islet, Dawley Passage	24	0	0	0
AQ 1596	Creative Salmon Company Ltd.	Dawley Pass	24	0	0	0
AQ 233	Creative Salmon Company Ltd.	Indian Bay	24	0	0	0
AQ 1899	Creative Salmon Company Ltd.	Warne Island	24	0	0	0
AQ 1537	Ewos Canada Ltd, DBA: Mainstream Canada	Bare Bluff	24	0	0	0
AQ 169	Ewos Canada Ltd, DBA: Mainstream Canada	Barkley	23	0	0	0
AQ 227	Ewos Canada Ltd, DBA: Mainstream Canada	Bawden Point	24	0	0	0
AQ 520	Ewos Canada Ltd, DBA: Mainstream Canada	Bedwell	24	0	0	0
AQ 1148	Ewos Canada Ltd, DBA: Mainstream Canada	Binns Island	24	0	0	0
AQ 1401	Ewos Canada Ltd, DBA: Mainstream Canada	Brent Island	13	0	0	0
AQ 1144	Ewos Canada Ltd, DBA: Mainstream Canada	Burdwood	12	0	0	0
AQ 819	Ewos Canada Ltd, DBA: Mainstream Canada	Cecil	12	0	0	0
AQ 753	Ewos Canada Ltd, DBA: Mainstream Canada	Cormorant	24	0	0	0
AQ 458	Ewos Canada Ltd, DBA: Mainstream Canada	Cypress	12	0	0	0
AQ 234	Ewos Canada Ltd, DBA: Mainstream Canada	Dixon	24	1	0	0
AQ 540	Ewos Canada Ltd, DBA: Mainstream Canada	Fortune Channel	24	0	0	0
AQ 869	Ewos Canada Ltd, DBA: Mainstream Canada	Maude Island	12	0	0	0
AQ 1291	Ewos Canada Ltd, DBA: Mainstream Canada	McIntyre Lake	24	0	0	0
AQ 1507	Ewos Canada Ltd, DBA: Mainstream Canada	Millar Channel	24	0	0	0
AQ 543	Ewos Canada Ltd, DBA: Mainstream Canada	Mussel Rock	24	2	0	0
AQ 526	Ewos Canada Ltd, DBA: Mainstream Canada	Rant Point	24	0	0	0
AQ 304	Ewos Canada Ltd, DBA: Mainstream Canada	Raza Island	13	0	0	0
AQ 314	Ewos Canada Ltd, DBA: Mainstream Canada	Ross Pass	24	0	0	0
AQ 527	Ewos Canada Ltd, DBA: Mainstream Canada	Saranac Island	24	0	0	0
AQ 728	Ewos Canada Ltd, DBA: Mainstream Canada	Sir Edmund Bay	12	0	0	0
AQ 306	Ewos Canada Ltd, DBA: Mainstream Canada	Venture Point	13	0	0	0
AQ 1335	Ewos Canada Ltd, DBA: Mainstream Canada	Wehlis Bay	12	0	0	0
AQ 1472	Ewos Canada Ltd, DBA: Mainstream Canada	West Side	24	0	1	0
AQ 1698	Grieg Seafood BC Ltd.	Ahlstrom Point	16	0	0	0
AQ 1738	Grieg Seafood BC Ltd.	Atrevida Point	25	0	0	0
AQ 871	Grieg Seafood BC Ltd.	Barnes Bay	13	0	0	0
AQ 1825	Grieg Seafood BC Ltd.	Bennett Point	12	0	0	0
AQ 1789	Grieg Seafood BC Ltd.	Concepcion	25	0	0	0
AQ 1697	Grieg Seafood BC Ltd.	Culloden Point	16	0	0	0
AQ 1863	Grieg Seafood BC Ltd.	Esperanza, Hecate Channel	25	0	0	0
AQ 1862	Grieg Seafood BC Ltd.	Hecate	25	0	0	0
AQ 408	Grieg Seafood BC Ltd.	Kunechin	16	0	0	0
AQ 412	Grieg Seafood BC Ltd.	Kunechin-Site 9	16	0	0	0
AQ 1849	Grieg Seafood BC Ltd.	Muchalat North	25	0	0	0
AQ 572	Grieg Seafood BC Ltd.	Newcomb Point	16	0	0	0
AQ 332	Grieg Seafood BC Ltd.	Salten	16	0	0	0
AQ 746	Grieg Seafood BC Ltd.	Site 13	16	0	0	0
AQ 1079	Grieg Seafood BC Ltd.	Steamer Point	25	0	0	0
AQ 221	Grieg Seafood BC Ltd.	Vantage Point	16	0	0	0
AQ 1705	Grieg Seafood BC Ltd.	Williamson Passage	25	0	0	0
AQ 270	OMEGA PACIFIC SEAFARMS INC.	Jane Bay, Barkley Sound	23	0	0	0
AQ 456	Saltstream Engineering	Doctor Bay	13	0	0	0



**MARINE MAMMAL INTERACTIONS**  
 January-March, 2011

Licence Number	Licence Holder	Site Common Name	DFO Pacific Fishery Management Area	Type of Marine Mammal Interaction					
				Accidental Drowning			Entanglement		
				Harbour Seal	California Sea Lion	Other	Harbour Seals	California Sea Lions	Other
AQ 776	Creative Salmon Company Ltd.	Baxter Islet, Dawley Passage	24	0	0	0	0	0	0
AQ 1596	Creative Salmon Company Ltd.	Dawley Pass	24	0	0	0	0	0	0
AQ 233	Creative Salmon Company Ltd.	Indian Bay	24	0	0	0	0	0	0
AQ 1899	Creative Salmon Company Ltd.	Warne Island	24	0	0	0	0	0	0
AQ 1537	Ewos Canada Ltd, DBA: Mainstream Canada	Bare Bluff	24	0	0	0	0	0	0
AQ 169	Ewos Canada Ltd, DBA: Mainstream Canada	Barkley	23	0	0	0	0	0	0
AQ 227	Ewos Canada Ltd, DBA: Mainstream Canada	Bawden Point	24	0	0	0	0	0	0
AQ 520	Ewos Canada Ltd, DBA: Mainstream Canada	Bedwell	24	0	0	0	0	0	0
AQ 1148	Ewos Canada Ltd, DBA: Mainstream Canada	Binns Island	24	0	0	0	0	0	0
AQ 1401	Ewos Canada Ltd, DBA: Mainstream Canada	Brent Island	13	0	0	0	0	0	0
AQ 1144	Ewos Canada Ltd, DBA: Mainstream Canada	Burdwood	12	0	0	0	0	0	0
AQ 819	Ewos Canada Ltd, DBA: Mainstream Canada	Cecil	12	0	0	0	0	0	0
AQ 753	Ewos Canada Ltd, DBA: Mainstream Canada	Cormorant	24	0	0	0	0	0	0
AQ 458	Ewos Canada Ltd, DBA: Mainstream Canada	Cypress	12	0	0	0	0	0	0
AQ 234	Ewos Canada Ltd, DBA: Mainstream Canada	Dixon	24	1	0	0	0	0	0
AQ 540	Ewos Canada Ltd, DBA: Mainstream Canada	Fortune Channel	24	0	0	0	0	0	0
AQ 869	Ewos Canada Ltd, DBA: Mainstream Canada	Maude Island	12	0	0	0	0	0	0
AQ 1291	Ewos Canada Ltd, DBA: Mainstream Canada	McIntyre Lake	24	0	0	0	0	0	0
AQ 1507	Ewos Canada Ltd, DBA: Mainstream Canada	Millar Channel	24	0	0	0	0	0	0
AQ 543	Ewos Canada Ltd, DBA: Mainstream Canada	Mussel Rock	24	2	0	0	0	0	0
AQ 526	Ewos Canada Ltd, DBA: Mainstream Canada	Rant Point	24	0	0	0	0	0	0
AQ 304	Ewos Canada Ltd, DBA: Mainstream Canada	Raza Island	13	0	0	0	0	0	0
AQ 314	Ewos Canada Ltd, DBA: Mainstream Canada	Ross Pass	24	0	0	0	0	0	0
AQ 527	Ewos Canada Ltd, DBA: Mainstream Canada	Saranac Island	24	0	0	0	0	0	0
AQ 728	Ewos Canada Ltd, DBA: Mainstream Canada	Sir Edmund Bay	12	0	0	0	0	0	0



**MARINE MAMMAL INTERACTIONS**  
January-March, 2011

Licence Number	Licence Holder	Site Common Name	DFO Pacific Fishery Management Area	Type of Marine Mammal Interaction					
				Accidental Drowning			Entanglement		
				Harbour Seal	California Sea Lion	Other	Harbour Seals	California Sea Lions	Other
AQ 306	Ewos Canada Ltd, DBA: Mainstream Canada	Venture Point	13	0	0	0	0	0	0
AQ 1335	Ewos Canada Ltd, DBA: Mainstream Canada	Wehlis Bay	12	0	0	0	0	0	0
AQ 1472	Ewos Canada Ltd, DBA: Mainstream Canada	West Side	24	0	1	0	0	0	0
AQ 1698	Grieg Seafood BC Ltd.	Ahlstrom Point	16	0	0	0	0	0	0
AQ 1738	Grieg Seafood BC Ltd.	Atrevida Point	25	0	0	0	0	0	0
AQ 871	Grieg Seafood BC Ltd.	Barnes Bay	13	0	0	0	0	0	0
AQ 1825	Grieg Seafood BC Ltd.	Bennett Point	12	0	0	0	0	0	0
AQ 1789	Grieg Seafood BC Ltd.	Concepcion	25	0	0	0	0	0	0
AQ 1697	Grieg Seafood BC Ltd.	Culloden Point	16	0	0	0	0	0	0
AQ 1863	Grieg Seafood BC Ltd.	Esperanza, Hecate Channel	25	0	0	0	0	0	0
AQ 1862	Grieg Seafood BC Ltd.	Hecate	25	0	0	0	0	0	0
AQ 408	Grieg Seafood BC Ltd.	Kunechin	16	0	0	0	0	0	0
AQ 412	Grieg Seafood BC Ltd.	Kunechin-Site 9	16	0	0	0	0	0	0
AQ 1849	Grieg Seafood BC Ltd.	Muchalat North	25	0	0	0	0	0	0
AQ 572	Grieg Seafood BC Ltd.	Newcomb Point	16	0	0	0	0	0	0
AQ 332	Grieg Seafood BC Ltd.	Salten	16	0	0	0	0	0	0
AQ 746	Grieg Seafood BC Ltd.	Site 13	16	0	0	0	0	0	0
AQ 1079	Grieg Seafood BC Ltd.	Steamer Point	25	0	0	0	0	0	0
AQ 221	Grieg Seafood BC Ltd.	Vantage Point	16	0	0	0	0	0	0
AQ 1705	Grieg Seafood BC Ltd.	Williamson Passage	25	0	0	0	0	0	0
AQ 270	OMEGA PACIFIC SEAFARMS INC.	Jane Bay, Barkley Sound	23	0	0	0	0	0	0
AQ 456	Saltstream Engineering	Doctor Bay	13	0	0	0	0	0	0



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## Public Reporting on Aquaculture in the Pacific Region - Salmon Egg Imports

Stringent regulations are in place to protect Canada's aquatic species (farmed and wild) from disease.

Transfers of fish into and within British Columbia are reviewed by the [Introductions and Transfers Committee](#) for risks associated with genetics, ecology and diseases. Transfers must not have disease agents that may be harmful to wild populations.

### Atlantic salmon eggs authorized for import into B.C. from 1985 to Present

**Atlantic salmon eggs authorized for import into B.C. from 1985 to Present**

Year	Maximum number of eggs authorized for import	Area of origin
<b>1985</b>	130,000	Scotland
<b>1986</b>	1,144,000	Scotland
<b>1987</b>	1,281,000	Scotland; Washington State
<b>1988</b>	2,700,000	Scotland; Washington
<b>1989</b>	500,000	Washington State
<b>1990</b>	0	
<b>1991</b>	735,000	New Brunswick; Ireland; Washington State
<b>1992</b>	640,000	New Brunswick; Washington State
<b>1993</b>	1,447,000	New Brunswick; Ireland; Washington State
<b>1994</b>	750,000	Washington State
<b>1995</b>	775,000	Washington State; Ireland
<b>1996</b>	1,500,000	Washington State
<b>1997</b>	1,600,000	Washington State
<b>1998</b>	2,400,000	Washington State
<b>1999</b>	2,400,000	Washington State

<b>2000</b>	2,500,000	Washington State
<b>2001</b>	800,000	Washington State
<b>2002</b>	0	
<b>2003</b>	0	
<b>2004</b>	4,700,000	Iceland
<b>2005</b>	80,000*	Iceland
<b>2006</b>	0	
<b>2007</b>	1,750,000	Iceland
<b>2008</b>	800,000	Iceland
<b>2009</b>	600,000	Iceland
<b>2010</b>	0	

\*Although these eggs were viable and free of disease, the importing company made the decision not to cultivate them based on operational priorities. After receiving authorization from DFO, the eggs were destroyed.

N.B. July 15, 2011 – As a result of an intensive audit of departmental records and historical fish health documents, this table has been updated to clarify several points:

- Data is now available from 1985 to 2010
- From 2000-2010, numbers reflect the actual number of eggs imported. Numbers from 1985-1999 reflect the number of eggs requested for import through the Introductions and Transfers database.
- Where the request for import and the actual import occurred in different years, the number of eggs imported is reflected in the actual year.

Date Modified: 2011-08-22

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## Public Reporting on Aquaculture in the Pacific Region - Sea Lice

Fisheries and Oceans Canada (DFO) is committed to the sustainable management of B.C.'s aquaculture industry. Through sound regulatory and management processes, we work to ensure the health and safety of fisheries, the consumer, and the environment.

DFO is committed to protecting fish stocks, both farmed and wild, and the Department's dedicated staff work diligently to ensure the sustainability of all fisheries. DFO and the aquaculture industry's sea lice monitoring and control programs are designed to minimize the potential harmful exposure of wild and farmed fish to sea lice.

The term sea lice actually refers to several life stages and species of parasitic copepods that infect fish and also serve as planktonic food for young fish. Sea lice are naturally occurring parasites that reside on both wild and farmed fish. They temporarily attach themselves to the skin, fins, and gills of fish and feed on mucus and skin.

When jurisdiction for regulation of the aquaculture industry transferred to DFO in December 2010, new conditions of licence for aquaculture operators were developed which detail the monitoring and reporting requirements for licence holders. The [Finfish Aquaculture Conditions of Licence](#) require facility operators to submit an annual Fish Health Management Plan which contains measures to ensure the continued health of fish stocks. One aspect of this plan is sea lice management. Facility operators perform regular inspections of fish stocks to record and report the abundance of sea lice on a monthly basis. When the number of lice per fish exceeds acceptable levels (i.e. three motile salmon lice per fish), licence holders must initiate appropriate health management procedures, based on the recommendations of veterinarians, to meet the licence conditions. These procedures include the application of an in-feed treatment that reduces lice numbers on the fish. The treatment must be prescribed by a veterinarian and is authorized for use by Health Canada. When fish are near harvest, treatment is not recommended. If the trigger of three motile salmon lice per fish is reached at this point, farmers may choose to harvest their stocks.

### Sea Lice Monitoring

Section 6 of the Finfish Aquaculture Conditions of Licence lays out the sea lice monitoring program that operators in B.C. must follow. Detailed protocols (found in Appendix VII) ensure that sampling is random and representative of the site's entire fish population. Aside from very specific instances in which operators are exempt from regular monitoring activities (see section 6.1), operators are required to abide by these protocols. The results of industry's sea lice assessments are provided to DFO monthly, and posted on this website quarterly. DFO staff conduct regular audits to verify the validity of industry's lice counts. For quality assurance, assessments are performed alongside industry staff, so that farm staff count half the selected fish and DFO staff count the other half.

DFO plans to target 25 per cent of the active Atlantic salmon farms in B.C. for sea lice audits each quarter. During the period of wild smolt out-migration (April, May, June), the target audit

frequency doubles to 50 per cent of the active farms in the province. Farms are selected for audit by assigning a random number to each active farm within a fish health zone. For the purpose of sea lice monitoring, a farm is considered “active” if the site holds fish for at least 30 days, and has a minimum of three fully stocked pens on-site during the quarter in which sampling is to occur. To ensure sampling is random, each fish health zone is weighted based on its percentage of active farms in relation to the total number of farms in the province. This percentage equals the percentage of farms that are then chosen for audit within that zone. For example, if an area contains 30 per cent of the total number of active farms in B.C., then 30 per cent of the farms randomly chosen for audit by DFO would be from that zone.

When counting lice, four reporting categories are considered:

1. Motiles. This includes all free-moving life stages of ***Lepeophtheirus salmonis*** (Salmon louse), including all females.
2. Females. This includes all adult female lice, with or without egg strings, of *Lepeophtheirus salmonis*.
3. Chalimus. This includes attached immature stages of both ***Caligus*** species (Herring louse) and *Lepeophtheirus* species. Both types are categorised as chalimus due to the fact that louse identification at very early life stages is only practical using a microscope and not during cage-side inspections.
4. *Caligus*. All motile life stages of *Caligus* species found.

Between March 1st and June 30th, if the observed number of motile *Lepeophtheirus salmonis* reaches three or more per fish, facility operators are required to inform DFO within 48 hours of that discovery. The monitoring of female *Lepeophtheirus salmonis* is useful for trends analysis and to compare with other countries, which sometimes monitor female lice more so than motile lice. In B.C. anti-sea lice prescription treatments are sometimes applied to the farmed salmon before March, or before the trigger of three lice is reached, to ensure a reduction of the lice abundance in the spring time and to minimize any potential spread of the parasites during the wild smolt out-migration. *Caligus* lice are transient and are not known to be of concern to salmon. Regardless, their abundance is routinely recorded and reported but no additional action is expected of the farmer.

The table below indicates the Atlantic salmon farms that were active during the quarter, and the results of industry's sea lice monitoring program.

DFO's sea lice monitoring and audit operation was implemented in April 2011, and results of this program will be released in the fall of 2011 along with quarter two industry counts.

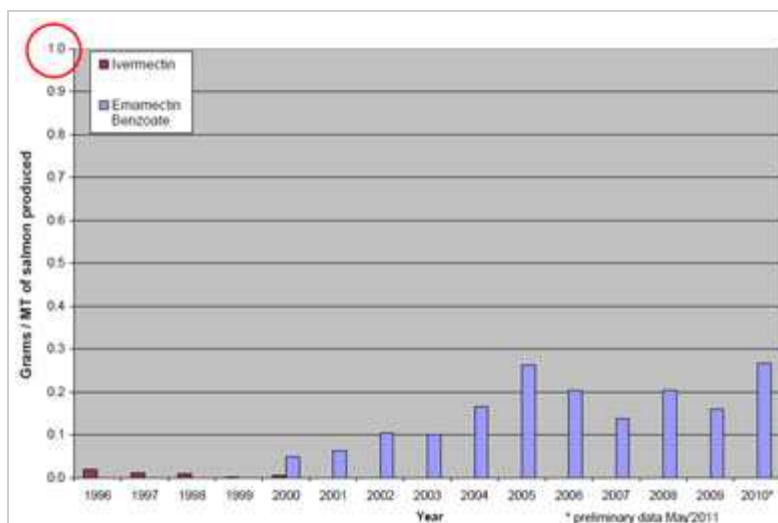
In the first quarter of 2011, the lack of a standardized reporting template meant that not all farms reported the number of counts performed each month. Where the number of counts is listed as “not specified”, the number is equal to or greater than one.

Data for this quarter may not be available for all farms. Sites that are inactive, or that have nil reports are not currently required by the Conditions of Licence to provide reports. DFO is working closely with industry to ensure compliance with the reporting requirements of the conditions of licence, and to increase future reporting rates.

- [Sea Lice Abundance Counts \(as assessed and reported by individual companies of BC's Salmon Aquaculture Industry\) 2011, Q1 Data, January-March, 2011](#)

### **Use of In-Feed Sea Lice Therapeutants in British Columbia (1996-2010)**





Annual Use of In-Feed Anti-lice Medication (Slice®) used in BC, 1996-2010 (click on image for larger version)

Based on data gathered by the B.C. Ministry of Agriculture since 1996, the overall use of the anti-lice medication, Slice®, remains low. The higher volume of drug used in farmed salmon in 2010 corresponds to the increased number of lice that accompanied wild salmon stocks during the elevated return of Fraser River sockeye salmon to the Pacific coast in 2010. As a result, the moderate increase in use of medication is largely attributable to the elevation of lice abundance in all areas of the B.C. coastline during those same seasons. Slice® medicated feed was applied to farmed fish in the fall of 2010 to reduced the lice numbers by December 2010 and beyond.

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Fisheries and Oceans Canada (DFO) is committed to the sustainable management of B.C.'s aquaculture industry. Sound regulatory and management processes ensure the health and safety of the fisheries, the consumer, and the environment.

DFO is committed to protecting fish stocks, both farmed and wild, and dedicated researchers and scientists work diligently alongside industry to ensure the sustainability of all fisheries. DFO and the aquaculture industry's sea lice monitoring programs are designed to minimize potential harmful exposure of fish to sea lice. The term sea lice actually refers to several life stages and species of parasitic copepods that infect fish and also serve as planktonic food for young fish. Sea lice are naturally occurring parasites that reside on both wild and farmed fish. They temporarily attach themselves to the skin, fins, and gills of fish and feed on mucus and skin.

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## **Sea Lice Monitoring**

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site during the quarter in which sampling is to occur. To ensure sampling is random, each fish health zone is weighted based on its percentage in relation to the total number of farms in the province. This percentage equals the percentage of farms that are then chosen for audit within that zone. For example, if an area contains 30 percent of the total number of active farms in B.C., then 30 percent of the farms randomly chosen for audit by DFO would be from that zone. [Click here to view the map of B.C. fish health zones.](#)

When counting lice, four reporting categories are considered:

- 1) Motiles. This includes all free-moving life stages of ***Lepeophtheirus salmonis*** (Salmon louse), including all females.
- 2) Females. This includes all adult female lice, with or without egg strings, of *Lepeophtheirus salmonis*.
- 3) Chalimus. This includes attached immature stages of both ***Caligus*** species (Herring louse) and *Lepeophtheirus* species. Both types are categorised as chalimus due to the fact that louse identification at very early life stages is only practical using a microscope and not during cage-side inspections.
- 4) Caligus. All motile life stages of *Caligus* species found.

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Data for this quarter may not be available for all farms. Sites that are inactive, or that have nil reports are not currently required by the Conditions of Licence to provide reports.

DFO is working closely with industry to ensure compliance with the reporting requirements of the Conditions of Licence, and to increase future reporting rates.

**Table A: Sea Lice Abundance Counts (as assessed and reported by individual companies of BC's Salmon Aquaculture Industry) (see excel spreadsheet)**  
**2011**

↓

**Q1 Data, January-March, 2011**

**Figure 1: Annual Use of In-Feed Anti-louse Medication (Slice®) used in BC, 1996-2010**

Based on data gathered by the B.C. Ministry of Agriculture since 1996, the overall use of the anti-lice medication, Slice®, remains low. The higher volume of drug used in farmed salmon in 2010 corresponds to the increased number of lice that accompanied wild salmon stocks during the elevated return to the Pacific coast in 2010. As a result, the moderate increase in use of medication is largely attributable to the elevation of lice abundance in all areas of the B.C. coastline during those same seasons. Slice® medicated feed was applied to farmed fish in the fall of 2010 to reduced the lice numbers by December 2010 and beyond.

**SEA LICE COUNTS**  
January-March, 2011

Licence Holder	Site Common Name	Fish Health Zone	Month	Number of Counts Performed	Average Number of Lice per Fish				Comments
*Note: 2nd count precluded by a treatment **Note: Used April 1st count as the 2nd count of March ***Note: Harvesting enabled counts in two pens ****Note: Only two pens on site *****Note: Fish transferred mid-month					<i>Lepeophtheirus salmonis</i> "Salmon Louse"		Chalimus	<i>Caligus</i> species "Herring Louse"	
					Motiles	Females			
			January						
		2.3							
Mainstream Canada	Dixon			not specified	0.1	0.1	0.1	0.2	
Mainstream Canada	Millar			not specified	0.1	0.0	8.2	0.0	
Mainstream Canada	Ross Pass			not specified	0.2	0.1	0.9	0.4	
Mainstream Canada	Binns Island			not specified	0.0	0.0	0.0	0.0	
Mainstream Canada	Rant Pt			not specified	0.2	0.1	0.1	0.2	
Mainstream Canada	Westside			not specified	0.0	0.0	0.0	0.0	
Mainstream Canada	McIntyre Lake			not specified	0.1	0.1	0.0	0.0	
Mainstream Canada	Fortune			not specified	0.4	0.3	0.0	0.0	
		2.4							
Grieg Seafood	Muchalat N			1	0.1	0.1	0.0	0.0	
Grieg Seafood	Atrevida			1	0.0	0.0	0.0	0.0	
Grieg Seafood	Williamson			1	0.8	0.5	0.0	0.0	
Grieg Seafood	Esperanza			1	0.5	0.1	0.1	0.0	
Grieg Seafood	Steamer Pt			1	0.3	0.1	0.0	0.0	
Marine Harvest	Cleagh Crk			2	2.6	0.6	0.8	0.6	
Marine Harvest	Mahatta E			1	0.0	0.0	0.1	0.0	
Marine Harvest	Mahatta W			1	0.3	0.2	0.0	0.0	
Marine Harvest	Monday Rocks			1	16.8	7.5	0.6	0.3	Fish were subsequently harvested
Marine Harvest	Koskimo Bay			1	0.7	0.5	0.0	0.0	
		3.1							
Grieg Seafood	Ahlstrom			1	1.0	0.4	0.0	0.0	
Grieg Seafood	Culloden			1	0.1	0.0	0.0	0.5	
Grieg Seafood	Farm 13			1	0.1	0.0	0.0	0.0	
Grieg Seafood	Salten			1	0.0	0.0	0.0	0.0	
Marine Harvest	Glacial Crk			1	3.0	2.2	0.3	0.0	Treatment initiated
		3.2							
Grieg Seafood	Barnes Bay			1	0.3	0.1	0.0	0.0	
Grieg Seafood	Conville Bay			1	1.0	0.1	0.0	0.2	
Mainstream Canada	Raza			not specified	1.5	1.0	0.1	0.2	
Marine Harvest	Thurlow S			1	0.9	0.3	0.0	0.0	
Marine Harvest	Brougham Pt			1	0.6	0.2	0.0	0.0	
Marine Harvest	Frederick Arm			1	0.1	0.1	0.0	0.0	
Marine Harvest	Farside			1	0.4	0.3	0.0	0.0	
Marine Harvest	Phillips Arm			1	0.1	0.1	0.0	0.0	
Marine Harvest	Bickley			1	0.2	0.1	0.0	0.0	
Marine Harvest	Chancellor			1	0.2	0.1	0.4	0.1	
Marine Harvest	Lees Bay			1	0.2	0.0	0.2	0.0	
		3.3							
Grieg Seafood	Bennett Pt			1	0.2	0.1	0.3	0.0	
Mainstream Canada	Burdwood			not specified	2.1	0.7	1.5	0.4	
Mainstream Canada	Sir Ed			not specified	0.7	0.3	0.3	0.2	
Mainstream Canada	Cypress			not specified	0.4	0.2	0.1	0.0	
Marine Harvest	Hardwicke			1	0.2	0.1	0.2	0.0	
Marine Harvest	Shaw Pt			1	0.9	0.3	0.6	0.0	
Marine Harvest	Doctor Islets			1	0.1	0.0	0.3	0.0	
Marine Harvest	Port Elizabeth			1	0.5	0.2	0.1	0.0	
Marine Harvest	Potts Bay			2	2.8	1.8	5.2	1.4	
Marine Harvest	Swanson			2	0.4	0.2	0.1	0.0	
Marine Harvest	Arrow			1	0.3	0.0	0.2	0.1	
Marine Harvest	Wicklow			1	0.0	0.0	0.6	0.0	
		3.4							
Mainstream Canada	Simmonds			not specified	0.8	0.5	0.0	0.1	
Marine Harvest	Raynor			1	1.8	0.4	0.3	0.6	
Marine Harvest	Bell			1	0.0	0.0	0.0	0.0	
Marine Harvest	Duncan			1	0.0	0.0	0.0	0.0	

**SEA LICE COUNTS**  
January-March, 2011

Licence Holder	Site Common Name	Fish Health Zone	Month	Number of Counts Performed	Average Number of Lice per Fish				Comments
*Note: 2nd count precluded by a treatment **Note: Used April 1st count as the 2nd count of March ***Note: Harvesting enabled counts in two pens ****Note: Only two pens on site *****Note: Fish transferred mid-month					Lepeophtheirus salmonis "Salmon Louse"		Chalimus	Caligus species "Herring Louse"	
					Motiles	Females			
Marine Harvest	Doyle			1	3.7	2.3	0.1	0.3	Fish were subsequently harvested
		3.5							
Marine Harvest	Lochalsh Bay			1	0.6	0.2	0.9	0.3	
Marine Harvest	Goat Cove			1	0.8	0.3	0.1	0.0	
Marine Harvest	Kid Bay			1	1.1	0.5	0.0	0.0	
Marine Harvest	Lime Point			1	0.2	0.1	0.0	0.0	
Marine Harvest	Sheep Passage			1	0.1	0.0	0.0	0.0	
			February						
		2.3							
Mainstream Canada	Dixon			not specified	0.4	0.1	0.9	0.0	
Mainstream Canada	Millar			not specified	14.4	1.0	20.5	0.0	Treatment was initiated, successfully reducing the number of motile <i>Lepeophtheirus salmonis</i> to 0.2 by March
Mainstream Canada	Barkley****			not specified	0.0	0.0	0.0	0.0	
Mainstream Canada	Ross Pass			not specified	1.1	0.1	4.4	0.7	
Mainstream Canada	Binns Island			not specified	0.1	0.0	0.1	0.2	
Mainstream Canada	Rant Pt			not specified	0.2	0.1	0.2	0.1	
Mainstream Canada	Cormorant			not specified	0.0	0.0	0.0	0.0	
Mainstream Canada	Westside			not specified	0.1	0.0	0.0	0.0	
Mainstream Canada	McIntyre Lake			not specified	0.1	0.1	0.0	0.0	
Mainstream Canada	Fortune			not specified	0.4	0.2	0.0	0.0	
		2.4							
Grieg Seafood	Muchalat N			1	0.1	0.0	0.0	0.0	
Grieg Seafood	Atrevida			1	0.3	0.1	0.0	0.0	
Grieg Seafood	Concepcion			1	0.0	0.0	0.0	0.0	
Grieg Seafood	Williamson			1	0.8	0.6	0.0	0.0	
Grieg Seafood	Esperanza			1	0.3	0.1	0.1	0.0	
Grieg Seafood	Steamer Pt			1	0.9	0.3	0.4	0.1	
Marine Harvest	Cleagh Crk			3	2.2	0.5	0.6	1.1	
Marine Harvest	Mahatta E			1	1.1	0.7	1.6	0.0	
Marine Harvest	Mahatta W			1	0.4	0.1	1.1	0.1	
Marine Harvest	Koskimo Bay			1	0.2	0.1	0.1	0.1	
		3.1							
Grieg Seafood	Ahlstrom			1	2.0	0.4	0.0	0.0	
Grieg Seafood	Culloden			1	0.3	0.1	0.0	0.2	
Grieg Seafood	Farm 13			****1	0.1	0.0	0.0	0.0	
Grieg Seafood	Salten			*****1	0.0	0.0	0.0	0.0	
		3.2							
Grieg Seafood	Barnes Bay			***1	0.6	0.4	0.7	0.0	
Grieg Seafood	Convillie Bay			1	0.3	0.0	1.7	0.0	
Mainstream Canada	Raza			not specified	0.5	0.4	0.0	0.0	
Marine Harvest	Thurlow S			1	0.1	0.0	0.1	0.0	
Marine Harvest	Brougham Pt			1	0.2	0.1	0.0	0.0	
Marine Harvest	Sonora Pt			1	1.4	0.2	0.4	0.4	
Marine Harvest	Frederick Arm			1	0.2	0.2	0.0	0.0	
Marine Harvest	Farside			1	0.4	0.3	0.0	0.0	
Marine Harvest	Phillips Arm			1	0.2	0.1	0.0	0.0	
Marine Harvest	Bickley			1	0.1	0.0	0.1	0.0	
Marine Harvest	Chancellor			1	0.4	0.1	0.1	0.7	
Marine Harvest	Lees Bay			1	0.3	0.0	0.2	0.3	
		3.3							
Grieg Seafood	Bennett Pt			1	0.5	0.2	0.1	0.0	
Mainstream Canada	Burdwood			not specified	0.1	0.0	0.0	0.0	
Mainstream Canada	Sir Ed			not specified	1.5	0.9	0.1	0.1	
Mainstream Canada	Maude			not specified	0.2	0.0	0.1	0.1	



**SEA LICE COUNTS**  
January-March, 2011

Licence Holder	Site Common Name	Fish Health Zone	Month	Number of Counts Performed	Average Number of Lice per Fish				Comments
*Note: 2nd count precluded by a treatment **Note: Used April 1st count as the 2nd count of March ***Note: Harvesting enabled counts in two pens ****Note: Only two pens on site *****Note: Fish transferred mid-month					Lepeophtheirus salmonis "Salmon Louse"		Chalimus	Caligus species "Herring Louse"	
					Motiles	Females			
Mainstream Canada	Cypress			not specified	0.4	0.1	0.0	0.0	
Marine Harvest	Hardwicke			1	0.3	0.0	0.8	0.1	
Marine Harvest	Shaw Pt			1	0.4	0.1	0.0	0.0	
Marine Harvest	Doctor Islets			1	0.1	0.0	0.0	0.0	
Marine Harvest	Port Elizabeth			1	0.4	0.1	0.0	0.0	
Marine Harvest	Upper Retreat			1	0.1	0.0	0.5	0.1	
Marine Harvest	Potts			1	0.9	0.6	0.4	0.0	
Marine Harvest	Swanson			1	0.0	0.0	0.0	0.0	
Marine Harvest	Arrow			1	0.4	0.1	0.4	0.3	
Marine Harvest	Wicklow			1	0.1	0.0	1.5	0.2	
		3.4							
Marine Harvest	Bell			1	0.0	0.0	0.0	0.0	
Marine Harvest	Shelter Pass			1	0.0	0.0	0.0	0.0	
		3.5							
Marine Harvest	Goat Cove			1	0.2	0.2	0.0	0.0	
Marine Harvest	Kid Bay			1	0.4	0.2	0.1	0.0	
Marine Harvest	Lime Point			1	0.2	0.0	0.4	0.0	
Marine Harvest	Sheep Passage			1	0.0	0.0	0.0	0.0	
Marine Harvest	Lochalsh Bay			1	0.5	0.3	3.2	0.8	
			March						
		2.3							
Mainstream Canada	Millar			2	0.2	0.0	3.5	0.0	
Mainstream Canada	Ross Pass			1	0.3	0.1	1.7	0.0	
Mainstream Canada	Binns Island			2	0.5	0.4	0.3	0.7	
Mainstream Canada	Rant Pt			2	0.5	0.2	0.0	0.1	
Mainstream Canada	Cormorant			*****1	0.0	0.0	0.1	0.0	
Mainstream Canada	McIntyre Lake			2	0.3	0.1	0.1	0.0	
Mainstream Canada	Fortune			2	0.0	0.0	0.0	0.0	
		2.4							
Grieg Seafood	Muchalat N			2	0.5	0.2	0.0	0.0	
Grieg Seafood	Atrevida			2	0.4	0.2	0.1	0.0	
Grieg Seafood	Concepcion			2	0.1	0.0	0.0	0.0	
Grieg Seafood	Williamson			2	0.8	0.4	0.0	0.0	
Grieg Seafood	Esperanza			2	1.4	0.6	0.1	0.0	
Grieg Seafood	Steamer Pt			2	1.1	0.5	0.0	0.0	
Marine Harvest	Cleagh Crk			3	0.3	0.1	0.3	0.0	
Marine Harvest	Mahatta E			2	1.4	0.6	1.3	0.1	
Marine Harvest	Mahatta W			2	0.7	0.3	0.8	0.2	
Marine Harvest	Koskimo Bay			1	0.1	0.1	0.2	0.0	
		3.1							
Grieg Seafood	Ahlstrom			2	0.4	0.3	0.2	6.0	
Grieg Seafood	Culloden			2	0.3	0.1	0.0	0.6	
Grieg Seafood	Farm 13			****2	0.1	0.0	0.0	0.0	
		3.2							
Grieg Seafood	Conville Bay			*					No counts due to treatment
Mainstream Canada	Raza			2	0.2	0.1	0.0	0.1	
Marine Harvest	Thurlow S			3	0.1	0.0	0.6	0.2	
Marine Harvest	Brougham Pt			3	0.6	0.2	0.0	0.0	
Marine Harvest	Sonora Pt			2	2.5	0.4	2.8	1.5	Treatment pending
Marine Harvest	Frederick Arm			2	0.2	0.1	0.0	0.0	
Marine Harvest	Farside			2	0.3	0.3	0.2	0.0	
Marine Harvest	Phillips Arm			2	0.3	0.1	0.0	0.0	
Marine Harvest	Bickley			2	0.0	0.0	0.1	0.0	
Marine Harvest	Chancellor			2	0.9	0.2	0.2	0.4	
Marine Harvest	Lees Bay			2	0.5	0.2	0.8	0.5	
		3.3							
Grieg Seafood	Bennett Pt			2	0.4	0.2	0.2	0.1	
Mainstream Canada	Burdwood			2	0.2	0.1	0.0	0.0	
Mainstream Canada	**Cypress			1	0.5	0.2	0.0	0.0	
Mainstream Canada	Maude			2	0.0	0.0	0.0	0.0	
Marine Harvest	Hardwicke			2	0.5	0.1	2.2	0.8	



# SEA LICE COUNTS January-March, 2011

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					Motiles	Females			
Marine Harvest	Shaw Pt			2	0.4	0.3	0.1	0.0	
Marine Harvest	Doctor Islets			2	0.0	0.0	0.0	0.0	
Marine Harvest	Port Elizabeth			2	0.1	0.0	0.0	0.0	
Marine Harvest	Upper Retreat			2	0.1	0.0	0.6	0.5	
Marine Harvest	**Potts			2	0.0	0.0	0.0	0.1	
Marine Harvest	Swanson			2	0.1	0.0	0.3	0.1	
Marine Harvest	Arrow			2	0.3	0.1	0.2	0.3	
Marine Harvest	Wicklow			2	0.2	0.1	2.0	0.7	
		3.4							
Mainstream Canada	Wehlis			*1	0.1	0.0	0.2	0.1	
Marine Harvest	Marsh			2	1.1	0.2	0.6	0.5	
Marine Harvest	Shelter Bay			2	0.0	0.0	0.0	0.1	
Marine Harvest	Shelter Pass			2	0.1	0.0	0.0	0.0	
		3.5							
Marine Harvest	Goat Cove			2	0.2	0.1	0.1	0.0	
Marine Harvest	Kid Bay			2	0.4	0.2	0.3	0.0	
Marine Harvest	Lime Point			**2	0.1	0.0	0.2	0.0	
Marine Harvest	Sheep Passage			2	0.1	0.1	0.5	0.0	
Marine Harvest	Jackson Pass			2	0.1	0.1	0.3	0.3	
Marine Harvest	Lochalsh Bay			2	0.5	0.2	1.7	0.7	