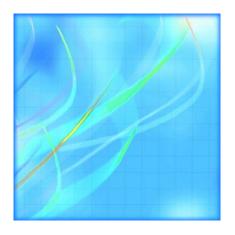
Catalogue no. 23-222-X

# **Aquaculture Statistics**

2014





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# **Aquaculture Statistics**

2014

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## Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

# **User information**

# **Symbols**

The following standard symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- p preliminary
- r revised
- x suppressed to meet the confidentiality requirements of the Statistics Act
- E use with caution
- F too unreliable to be published
- \* significantly different from reference category (p < 0.05)

# **Acknowledgements**

Special thanks are extended to Fisheries and Oceans Canada for its contribution to the realization of this publication.

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# Note to users

Aquaculture is defined as the managed production of fish. In Canada, the industry is dominated by the production of finfish, primarily salmon off the coasts of British Columbia and New Brunswick. Production of shellfish is smaller with Prince Edward Island and British Columbia being the major producing provinces.

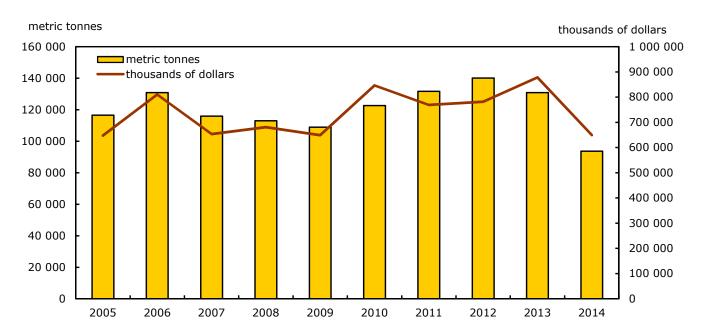
The annual publication, Aquaculture Statistics 23-222-X, presents an overview of this sector using data collected from the Survey of Aquaculture Industry. The survey is designed to provide economic variables that result in the aquaculture value added account, which measures the economic production (value added) of goods and services from aquaculture establishments.

The data presented are used by aquaculture industry analysts and producers as they make production and marketing decisions and by government analysts or special interest groups to monitor the industry or develop policies related to aquaculture in Canada. The data are also used in the Canadian System of National Accounts to develop provincial and national level accounts.

# **Highlights**

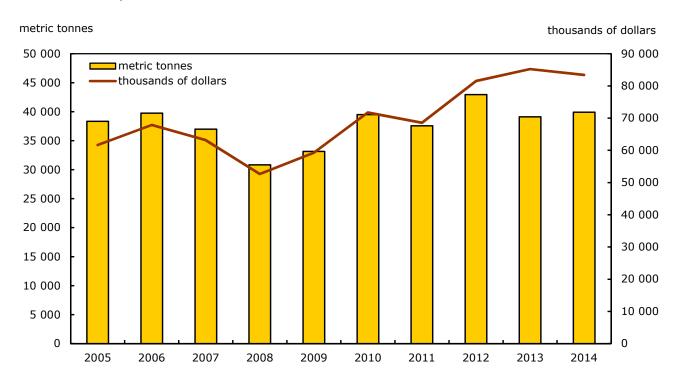
- Sales of aquaculture products and services amounted to \$735.4 million in 2014, a decrease of 23.1% from 2013.
   In 2013, to avoid the onset of disease some aquaculture farms harvested their fish earlier in the growing cycle.
   The early harvest increased the reported sales of aquaculture products in 2013 but diminished the inventory of finished goods available in 2014 resulting in the observed decrease in sales of aquaculture products.
- Finfish sales, which accounted for 87.9% of sales of aquaculture products and services in 2014, decreased 25.5% to \$646.2 million.
- The gross value added to the economy by the aquaculture industry decreased to \$244.5 million, down from \$392.8 million in 2013. Nova Scotia and Prince Edward Island were the only provinces to experience growth in 2014.
- The value of total exports of farmed salmon including fillets decreased by 24.9% and the value of farmed mussel exports decreased by 6.6% compared to 2013.

Chart 1
Canadian finfish production



Source(s): Statistics Canada, CANSIM table 003-0001.

**Chart 2 Canadian shellfish production** 



Source(s): Statistics Canada, CANSIM table 003-0001.

Chart 3
Canadian exports of atlantic salmon and atlantic salmon fillets

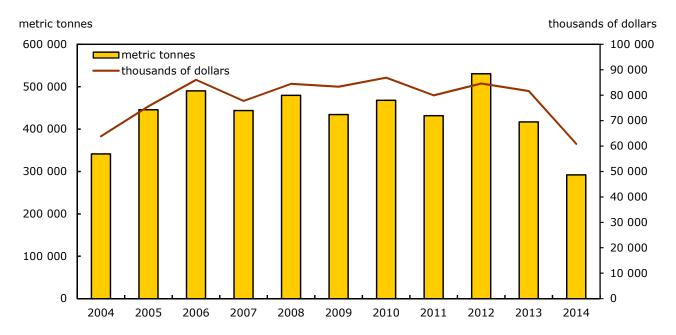
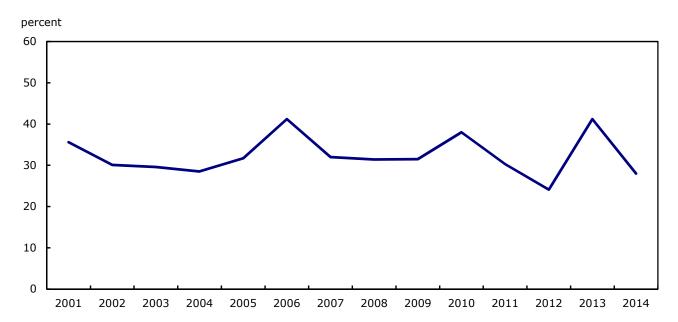


Chart 4 Gross value-added (at factor cost compared) to the value of production



# **Related products**

# Selected publications from Statistics Canada

21-207-X Statistics on income of farm families	
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# **Selected CANSIM tables from Statistics Canada**

003-0001	Aquaculture, production and value
003-0003	Aquaculture economic statistics, value added account

# **Selected surveys from Statistics Canada**

3479	Aquaculture, production and value, Annual
4701	Survey of the Aquaculture Industry

# Selected summary tables from Statistics Canada

• Canadian Statistics - Aquaculture industry, by selected provinces

# **Statistical tables**

Table 1-1 Aquaculture, production and value, by province and Canada — 2010

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Canada <sup>1</sup>
						tonnes					
Production											
Salmon Trout Steelhead Other finfish	  	  	5,088 91 0 126	25,625 150 0 0	0 337 0 71	4,060 0 0	X X X	x x x x	x x x x	70,831 600 0 884	101,544 6,844 0 1,355
Total finfish	12,899		5,305	25,775	408	4,060	x	x	x	72,315	122,641
Clams Oysters Mussels Scallops Other shellfish	0 0 2,461 0 0	0 2,478 20,112 0 0	438 205 2,121 2 41	0 881 95 0	0 0 523 0 23	0 0 0 0	x x x x	x x x x	x x x x	1,485 7,550 364 695 26	1,923 11,113 25,675 697 90
Total shellfish	2,461	22,589	2,807	976	546	0	х	x	x	10,120	39,500
Total aquaculture	15,360	22,589	8,112	26,751	954	4,060	х	x	x	82,435	162,141
Re-stocking <sup>2</sup>					874			•			874
Total aquaculture (including re-stocking) <sup>2</sup>	15,360	22,589	8,112	26,751	1,828	4,060	X	x	x	82,435	163,015
Malus					lilousa	rius or doir	ais				
Value Salmon Trout Steelhead Other finfish	  		32,040 891 0 3,907	162,000 700 0 0	0 1,813 0 482	0 17,100 0 0	x x x x	x x x x	x x x x	499,608 4,852 0 10,800	693,648 33,269 0 17,169
Total finfish	100,301	2,200	36,839	162,700	2,295	17,100	x	x	x	515,260	846,587
Clams Oysters Mussels Scallops Other shellfish	0 0 6,009 0	5,844 26,603 0	1,736 720 2,548 15 837	0 3,355 100 0	0 0 680 0 90	0 0 0 0	x x x x x	x x x x x	x x x x	8,159 8,957 1,809 2,904 1,401	9,895 18,876 37,748 2,919 2,328
Total shellfish	6,009	32,447	5,856	3,455	769	0	х	x	x	23,230	71,767
Total aquaculture	106,310	34,647	42,695	166,155	3,065	17,100	х	x	x	538,490	918,354
Re-stocking <sup>2</sup>	•				8,852						8,852
Total aquaculture (including re-stocking) <sup>2</sup>	106,310	34,647	42,695	166,155	11,917	17,100	x	x	x	538,490	927,206

<sup>1.</sup> Provinces with data not available are not included in the Canada or provincial totals.

Sales to outfitters: operations offering lodging and services for hunting, fishing and trapping.
 Note(s): The production and value of aquaculture includes the amount and value produced on sites and excludes hatcheries or processing. Shellfish also includes some wild production. The data are collected from each of the provincial ministries responsible for aquaculture.

Table 1-2 Aquaculture, production and value, by province and Canada — 2011

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Canada
						tonnes					
Production											
Salmon Trout Steelhead		 	5,624 124 0	21,560 80 0	0 357 0	0 3,385 0	x x x	x x x	X X X	83,144 64 694	110,328 5,600 694
Other finfish			85	0	64	23	Х	Х	х	389	788
Total finfish	14,264		5,833	21,640	421	3,408	х	х	х	84,291	131,674
Clams Oysters Mussels Scallops Other shellfish	3,000 0 0 0	2,682 20,894 0 0	341 246 1,374 1 21	0 609 25 0 0	0 0 317 28 50	0 0 0 0	x x x x x	x x x x	x x x x	1,172 6,242 288 271 0	1,513 9,779 25,897 300 71
Total shellfish	3,000	23,576	1,983	634	394	0	х	x	х	7,973	37,560
Total aquaculture	17,264	23,576	7,817	22,274	815	3,408	x	x	x	92,264	169,235
Re-stocking <sup>2</sup>					824						824
Total aquaculture (including re-stocking) <sup>2</sup>	17,264	23,576	7,817	22,274	1,639	3,408	x	x	x	92,264	170,059
					tnousa	nds of doll	ars				
Value											
Salmon Trout Steelhead Other finfish	  	  	31,234 1,796 0 4,592	140,241 400 0 0	0 2,266 0 81	0 17,200 0 500	x x x x	x x x	x x x x	435,667 408 5,269 4,364	607,142 29,927 5,269 11,184
Total finfish	111,829	3,700	37,622	140,641	2,347	17,700	x	x	x	445,708	769,052
Clams Oysters Mussels Scallops Other shellfish	0 0 8,221 0 0	0 6,622 26,716 0 0	1,396 894 1,584 11 1,582	0 2,645 28 0 0	0 0 411 179 74	0 0 0 0	x x x x	x x x x x	x x x x	6,652 8,380 1,471 1,714 0	8,048 18,541 38,431 1,904 1,656
Total shellfish	8,221	33,338	5,467	2,673	664	0	x	x	x	18,217	68,580
Total aquaculture	120,050	37,038	43,089	143,314	3,011	17,700	х	x	x	463,925	837,632
Re-stocking <sup>2</sup>					8,469						8,469
Total aquaculture (including re-stocking) <sup>2</sup>	120,050	37,038	43,089	143,314	11,480	17,700	x	x	x	463,925	846,101

<sup>1.</sup> Provinces with data not available are not included in the Canada or provincial totals.

Sales to outfitters: operations offering lodging and services for hunting, fishing and trapping.
 Note(s): The production and value of aquaculture includes the amount and value produced on sites and excludes hatcheries or processing. Shellfish also includes some wild production. The data are collected from each of the provincial ministries responsible for aquaculture.

Table 1-3 Aquaculture, production and value, by province and Canada — 2012

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Canada
						tonnes					
Production											
Salmon Trout Steelhead Other finfish	  	  	5,903 113 0 264	30,217 142 0 0	0 420 0 1	0 3,700 0 21	X X X	х х х	x x x x	79,981 88 505 139	116,101 6,077 505 645
Total finfish	16,831		6,280	30,359	421	3,721	x	x	x	80,713	140,159
Clams Oysters Mussels Scallops Other shellfish	0 0 4,397 0 0	0 2,787 22,690 0	406 105 1,396 2 40	1,118 4 0	0 0 271 15 46	0 0 0 0	x x x x	x x x x	x x x x	2,710 6,487 274 198 0	3,116 10,497 29,033 215 86
Total shellfish	4,397	25,477	1,949	1,122	333	0	x	x	x	9,669	42,947
Total aquaculture	21,228	25,477	8,229	31,481	754	3,721	x	x	x	90,382	183,106
Re-stocking <sup>2</sup>		-			806						806
Total aquaculture (including re-stocking) <sup>2</sup>	21,228	25,477	8,229	31,481	1,560	3,721	x	x	x	90,382	183,912
					thousa	nds of doll	ars				
Value											
Salmon Trout Steelhead Other finfish	  	  	40,124 1,412 0 4,687	184,966 1,420 0 0	0 1,951 0 78	0 18,300 0 500	x x x x	x x x x	X X X	409,143 478 5,183 1,197	634,233 31,516 5,183 8,058
Total finfish	99,286	3,200	46,223	186,386	2,029	18,800	x	x	x	416,001	781,476
Clams Oysters Mussels Scallops Other shellfish	0 0 13,518 0 0	7,617 30,014 0 0	1,258 1,140 1,876 13 1,525	5,220 9 0	0 0 353 209 70	0 0 0 0	x x x x	x x x x x	x x x x	6,291 10,251 855 1,338 0	7,549 24,228 46,625 1,560 1,595
Total shellfish	13,518	37,631	5,812	5,229	631	0	x	x	x	18,735	81,557
Total aquaculture	112,804	40,831	52,035	191,615	2,661	18,800	x	x	x	434,736	863,033
Re-stocking <sup>2</sup>					8,584						8,584
Total aquaculture (including re-stocking) <sup>2</sup>	112,804	40,831	52,035	191,615	11,245	18,800	x	x	x	434,736	871,617

<sup>1.</sup> Provinces with data not available are not included in the Canada or provincial totals.

Sales to outfitters: operations offering lodging and services for hunting, fishing and trapping.
 Note(s): The production and value of aquaculture includes the amount and value produced on sites and excludes hatcheries or processing. Shellfish also includes some wild production. The data are collected from each of the provincial ministries responsible for aquaculture.

Table 1-4
Aquaculture, production and value, by province and Canada — 2013

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Canada ´
						tonnes					
Production											
Salmon Trout Steelhead Other finfish	  		6,616 104 0 255	18,837  0 0	0 1,262 0 1	0 3,580 0 210	X X X	х х х	x x x x	74,673 62 682 391	100,126 6,695 682 1,179
Total finfish	22,196		6,975	18,837	1,263	3,790	x	x	x	75,808	130,879
Clams Oysters Mussels Scallops Other shellfish	0 0 4,354 0 0	3,278 20,009 0	358 356 1,051 12 0	0 739  5 5	0 10 448 11 22	0 0 0 0	x x x x	x x x x	x x x x	2,476 5,592 291 91 0	2,834 9,975 26,154 119 27
Total shellfish	4,354	23,287	1,777	749	491	0	x	x	x	8,450	39,108
Total aquaculture	26,550	23,287	8,752	19,586	1,754	3,790	x	x	x	84,258	169,987
					thousa	nds of doll	lars				
Value											
Salmon Trout Steelhead Other finfish	  	  	41,956 1,042 0 6,867	117,334  0 0	0 10,735 0 119	0 18,000 0 1,200	x x x x	x x x	x x x x	475,769 501 4,635 4,664	635,059 38,555 4,635 15,190
Total finfish	181,833	3,000	49,865	117,334	10,854	19,200	x	x	x	485,569	878,272
Clams Oysters Mussels Scallops Other shellfish	0 0 15,139 0 0	0 8,671 28,673 0 0	1,090 1,463 1,601 78 0	0 5,665  11 2	0 170 584 141 29	0 0 0 0	x x x x	x x x x	x x x x	7,014 12,357 1,824 726 0	8,104 28,326 47,821 956 31
Total shellfish	15,139	37,344	4,232	5,678	925	0	х	x	x	21,921	85,239
Total aquaculture	196,972	40,344	54,097	123,012	11,779	19,200	х	х	х	507,490	963,510

<sup>1.</sup> Provinces with data not available are not included in the Canada or provincial totals.

**Note(s):** The production and value of aquaculture includes the amount and value produced on sites and excludes hatcheries or processing. Shellfish also includes some wild production. The data are collected from each of the provincial ministries responsible for aquaculture.

Table 1-5
Aquaculture, production and value, by province and Canada — 2014

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Canada <sup>1</sup>
						tonnes					
Production											
Salmon Trout Steelhead		  	6,824  0	17,184  0	0 1,143 0	4,000 0	X X X	x x x	X X X	54,971 44 790	78,979 6,698 790
Other finfish			278	0	1	210	Х	Х	Х	471	1,209
Total finfish	5,980		7,102	17,184	1,144	4,210	x	x	x	56,276	93,656
Clams Oysters Mussels Scallops Other shellfish	0 0 3,260 0 0	0 3,321 20,269 0	299 314 970  58	0 847  5 41	0 14 373 9 20	0 0 0 0	x x x x	x x x x	x x x x	1,327 8,108 592 100 0	1,626 12,604 25,464 114 119
Total shellfish	3,260	23,590	1,641	893	416	0	x	x	x	10,127	39,927
Total aquaculture	9,240	23,590	8,743	18,077	1,560	4,210	x	x	x	66,403	133,583
					thousa	nds of doll	ars				
Value											
Salmon Trout Steelhead Other finfish	  	  	49,664  0 6,399	117,744  0 0	9,329 0 94	0 20,500 0 1,300	x x x x	x x x	X X X	380,354 344 5,917 3,198	547,762 37,612 5,917 12,795
Total finfish	42,446	3,410	56,063	117,744	9,423	21,800	х	x	х	389,813	649,942
Clams Oysters Mussels Scallops Other shellfish	0 0 11,640 0 0	0 8,784 29,046 0 0	368 1,181 1,212  1,534	0 6,326  22 135	0 275 609 142 26	0 0 0 0	x x x x x	x x x x	x x x x	6,040 13,014 2,584 490 0	6,408 29,580 45,091 654 1,695
Total shellfish	11,640	37,830	4,295	6,483	1,052	0	x	x	x	22,128	83,428
Total aquaculture	54,086	41,240	60,358	124,227	10,475	21,800	х	х	х	411,941	733,370

<sup>1.</sup> Provinces with data not available are not included in the Canada or provincial totals.

**Note(s):** The production and value of aquaculture includes the amount and value produced on sites and excludes hatcheries or processing. Shellfish also includes some wild production. The data are collected from each of the provincial ministries responsible for aquaculture.

Table 2-1 Exports of selected Canadian aquaculture products, by country of destination — 2010 and 2011

Destination		201	0			201	1					
	Mussels	Other Salmon <sup>1</sup>	Atlantic Salmon <sup>2</sup>	Atlantic Salmon fillets	Mussels	Other Salmon <sup>1</sup>	Atlantic Salmon <sup>2</sup>	Atlantic Salmon fillets				
				tonne	s							
United States	12,690	1,697	70,036	6,357	13,740	1,392	66,141	4,377				
California	52	846	24,694	122	41	593	26,649	205				
Maine	2,661	0	4,837	199	2,741	0	3,695	171				
Massachusetts	7,863	169	8,662	1,180	8,503	301	7,349	578				
New York	947	147	11,808	823	942	149	10,597	308				
Washington	50	433	10,506	668	39	225	9,562	401				
Other	1,116	102	9,529	3,365	1,474	124	8,289	2,716				
France	0	0	1	1	0	0	9	5				
Japan	0	213	437	397	Ö	445	187	501				
Taiwan	0	1	166	70	0	69	8	122				
Other	30	4	512	2	73	43	389	186				
Total	12,719	1,914	71,152	6,827	13,813	1,949	66,734	5,192				
		thousands of dollars										
United States	33,142	11,190	432,283	78,407	35,575	13,159	414,412	55,822				
California	274	5,701	152,917	1,345	181	5,619	158,025	2,199				
Maine	5,979	0	26,549	2,508	5,872	0	22,359	2,262				
Massachusetts	21,562	2,506	51,283	14,580	23,241	3,218	44,743	7,691				
New York	2,392	215	69,758	10,304	2,406	1,331	71,933	3,500				
Washington	158	2,009	71,557	6,384	167	1,898	61,359	3,505				
Other	2,777	758	60,219	43,286	3,706	1,093	55,992	36,663				
France	0	1	10	17	0	0	93	61				
Japan	0	3,115	2,708	2,263	0	5,886	1,439	2,831				
Taiwan	0	6	1,222	410	1	559	47	760				
Other	152	32	3,825	16	321	388	2,693	1,233				
Total	33,295	14,345	440,049	81,113	35,897	19,992	418,684	60,707				

Includes Coho and Spring (Chinook).
 Includes fresh, chilled and frozen.

Table 2-2 Exports of selected Canadian aquaculture products, by country of destination — 2012 and 2013

Destination		201	2			201	3				
	Mussels	Other Salmon <sup>1</sup>	Atlantic Salmon <sup>2</sup>	Atlantic Salmon fillets	Mussels	Other Salmon <sup>1</sup>	Atlantic Salmon <sup>2</sup>	Atlantic Salmon fillets			
				tonne	s						
United States	14,941	1,169	82,119	4,393	14,560	2,037	61,497	5,697			
California	28	511	32,475	3	15	904	21,598	65			
Maine	3,053	0	1,924	1,209	2,644	0	390	2,415			
Massachusetts	9,755	222	12,912	398	9,587	261	11,553	526			
New York	516	94	15,109	286	395	197	12,537	338			
Washington	5	281	9,586	64	19	537	5,589	44			
Other	1,584	61	10,113	2,433	1,900	140	9,829	2,309			
France	0	6	0	0	0	2	0	0			
Japan	0	98	406	509	0	83	1,380	0			
Taiwan	0	3	340	81	0	0	542	0			
Other	60	1	557	1	60	1	375	4			
Total	15,001	1,277	83,422	4,985	14,619	2,123	63,793	5,701			
		thousands of dollars									
United States	39,149	10,390	457,099	38,838	39,863	18,284	418,176	55,279			
California	107	5,052	180,319	27	64	8,219	139,757	439			
Maine	6,617	0	10,410	6,163	5,744	0	2,094	12,648			
Massachusetts	27,249	2,455	69,139	4,104	28,392	2,916	69,133	6,727			
New York	1,245	139	86,538	2,153	1,013	1,912	95,050	3,500			
Washington	28	2,124	51,327	682	88	3,860	37,431	476			
Other	3,901	620	59,365	25,709	4,562	1,377	74,711	31,488			
France	0	65	2	3	0	21	4	0			
Japan	0	1,122	2,897	2,791	0	900	10,544	0			
Taiwan	0	19	1,951	447	1	0	3,605	0			
Other	290	8	3,293	13	236	7	2,139	75			
Total	39,439	11,605	465,242	42,092	40,100	19,212	434,469	55,355			

Includes Coho and Spring (Chinook).
 Includes fresh, chilled and frozen.

Table 2-3 Exports of selected Canadian aquaculture products, by country of destination — 2014  $\,$ 

Destination		2014						
	Mussels	Other Salmon <sup>1</sup>	Atlantic Salmon <sup>2</sup>	Atlantic Salmon fillets				
		tonnes						
United States California Maine Massachusetts New York Washington Other	13,488 46 2,577 8,902 317 27 1,618	1,580 733 0 256 127 307 157	44,520 16,826 1,459 3,438 9,597 4,825 8,374	3,168 29 831 447 371 22 1,468				
France Japan Taiwan Other	0 1 0 50	10 223 0 1	2 599 156 269	0 0 0 1				
Total	13,540	1,814	45,546	3,169				
	thousands of dollars							
United States California Maine Massachusetts New York Washington Other	37,261 276 5,621 26,311 857 102 4,094	15,074 7,181 0 3,203 257 2,857 1,576	<b>321,823</b> 119,363 9,146 23,336 73,073 32,434 64,470	<b>37,066</b> 330 5,485 5,156 4,518 288 21,289				
France Japan Taiwan Other	1 8 0 200	93 2,167 0 11	7 4,262 987 813	4 0 0 12				
Total	37,470	17,346	327,894	37,082				

Includes Coho and Spring (Chinook).
 Includes fresh, chilled and frozen.

Table 3-1
Value added account - Aquaculture industry, by province and Canada — 2010

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	British Columbia	Canada
	Labradoi	Island		thousands of	dollars			
Sources of output								
Sales of aqua products and services	x	33,835	36,218	233,165	x	18,295	531,739	974,836
Whole fish dressed, fresh or chilled Fish eggs and live fish for grow-out Whole fish live except for grow-out Whole fish, dressed and frozen Fish fillets, fresh or frozen Fish, dried, smoked or in brine	x 0 70,975 0 0	0 x x 0 0	13,785 x 6,575 0 x 23	90,465 x 108,335 0 x 0	2,360 5,155 5 x	15,240 1,185 1,700 0 x 55	444,395 x x x x x	598,360 39,195 x x 67,970 357
Total finfish	x	х	31,198	227,290	10,270	х	512,364	905,017
Total molluscs	x	31,160	5,020	х	х	0	15,785	61,345
Other goods and services, not elsewhere specified	х	x	0	х	х	x	3,590	8,474
Subsidies	x	0	х	х	х	х	х	1,770
Other operating revenue	x	905	х	х	х	х	х	13,540
Total operating revenue	x	34,740	38,303	242,000	x	18,925	533,689	990,146
Change in inventory value, goods	4,650	355	1,260	21,040	-460	-1,200	15,035	40,680
Gross output	x	35,095	39,563	263,040	x	17,725	548,724	1,030,826
Product inputs								
Product expenses	x	9,029	22,612	152,559	x	10,795	368,072	646,924
Feed Therapeutants	42,595 1,135	x x	9,800 670	82,140 12,520	x x	6,900 220	164,500 12,385	308,825 27,099
Purchases, eggs and fish for grow-out Purchases, fish for processing and	12,870	2,120 0	X	18,140	<b>x</b>	800	5,115	45,229
resale Insurance premiums Energy (electricity, fuel, et cetera) Goods transportation and storage Processing services Rental and leasing expenses	x x x 1,780 2,768 x	580 889 x 165 120	x 707 930 x x 480	x 6,200 4,496 2,869 x 950	x x x x x	x 135 620 x x 320	7,527 10,050 34,270 37,730 5,140	1,481 18,013 21,111 40,029 41,568 8,422
Maintenance and repairs, buildings Maintenance and repairs, machinery Professional services Other operating expenses, not elsewhere specified	530 x 940	370 1,100 145 3,005	340 325 210 2,290	515 3,239 935 19,543	x x 125 x	30 110 160 1,190	x 26,530 7,415 53,814	4,946 34,034 9,930 86,237
Change in inventory value, raw materials	-110	315	5	-95	-810	-580	-1,480	-2,755
Total of product inputs	×	8,714	22,607	152,654	x	11,375	369,552	649,679
Gross value added (factor cost)	37,770	26,381	16,956	110,386	4,132	6,350	179,172	381,147
Selected primary inputs								
Salaries and wages Employer portion of employee benefits Depreciation Interest paid	10,818 1,545 x x	6,745 675 2,090 430	4,975 700 2,185 665	22,595 2,725 27,025 7,185	2,125 280 x x	2,100 330 650 375	60,010 10,685 30,645 3,560	109,368 16,940 74,300 17,014

<sup>1.</sup> Canada total excludes Manitoba, Saskatchewan and Alberta. **Note(s):** Data and account structure are subject to revision.

Table 3-2 Value added account - Aquaculture industry, by province and Canada — 2011

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	British Columbia	Canada
	Edbrador	loidild		thousands of	dollars			
Sources of output								
Sales of aqua products and services	x	x	41,485	195,495	12,390	17,250	472,190	831,995
Whole fish dressed, fresh or chilled Fish eggs and live fish for grow-out Whole fish live except for grow-out Whole fish, dressed and frozen Fish fillets, fresh or frozen	x x 6,780 0	0 x 0 0	3,460 x 0	81,980 2,330 x 0	1,875 2,140 5,550 0	6,730 9,340 670 0	390,910 x x 0	522,855 43,695 126,610 0 65,090
Fish, dried, smoked or in brine	0	0	x 0	x 0	X X	X X	х 0	270
Total finfish	x	х	37,560	189,240	10,465	х	451,135	758,520
Total molluscs	6,970	31,905	х	х	595	0	15,510	61,455
Other goods and services, not elsewhere specified	х	х	205	x	х	х	5,545	12,020
Subsidies	x	5	х	65	170	Х	815	1,845
Other operating revenue	x	х	х	6,455	495	х	2,610	12,635
Total operating revenue	x	x	43,905	202,015	13,055	17,885	475,615	846,475
Change in inventory value, goods	x	х	-3,205	2,055	-490	790	-2,190	60,680
Gross output	121,200	36,520	40,700	204,070	12,565	18,675	473,425	907,155
Product inputs								
Product expenses	x	10,855	x	159,640	5,190	10,615	344,800	643,775
Feed Therapeutants	43,330 1,550	x 75	12,070 900	67,220 5,735	x 80	6,195 130	166,555 9,280	297,225 17,750
Purchases, eggs and fish for grow-out Purchases, fish for processing and	19,065	2,315 0	X	x	250	1,140	3,635	45,065
resale Insurance premiums Energy (electricity, fuel, et cetera) Goods transportation and storage Processing services Rental and leasing expenses	x x 1,985 1,770 3,030 x	365 960 520 x 195	x 745 1,070 110 120 455	x x 3,895 2,690 5 x	70 235 870 75 x 80	x 125 545 205 x 245	x 7,430 9,515 28,175 32,245 5,060	34,515 15,220 18,840 33,545 35,725 8,905
Maintenance and repairs, buildings Maintenance and repairs, machinery Professional services Other operating expenses, not	x 300 1,135	255 1,505 710	540 805 385	x 7,165 2,500	200 365 155	40 150 315	21,500 8,075	4,385 31,790 13,275
elsewhere specified	5,330	3,490	4,630	20,205	1,100	1,460	51,320	87,535
Change in inventory value, raw materials	x	105	х	-125	170	25	1,295	3,795
Total of product inputs	80,920	10,750	29,430	159,765	5,020	10,590	343,505	639,980
Gross value added (factor cost)	40,280	25,770	11,270	44,305	7,545	8,085	129,920	267,175
Selected primary inputs								
Salaries and wages Employer portion of employee benefits Depreciation Interest paid	8,470 1,210 x x	6,955 735 2,315 635	5,645 705 6,210 465	18,510 2,135 23,735 4,525	2,205 195 x x	2,170 235 x x	62,855 10,500 26,860 3,930	106,810 15,715 68,295 12,575

<sup>1.</sup> Canada total excludes Manitoba, Saskatchewan and Alberta. **Note(s):** Data and account structure are subject to revision.

Table 3-3
Value added account - Aquaculture industry, by province and Canada — 2012

	Newfoundland and	Prince Edward	Nova Scotia	New Brunswick	Quebec	Ontario	British Columbia	Canada
	Labrador	Island			delle ee			
				thousands of	dollars			
Sources of output								
Sales of aqua products and services	106,210	39,945	44,035	190,700	11,825	18,580	436,235	847,530
Whole fish dressed, fresh or chilled Fish eggs and live fish for grow-out Whole fish live except for grow-out Whole fish, dressed and frozen Fish fillets, fresh or frozen Fish, dried, smoked or in brine	56,740 15 36,925 0 0	0 x 0 0 0	5,860 4,575 x 0 x 0	72,035 7,220 x 0 x	2,020 x 5,795 0 x	14,580 1,980 960 0 x x	361,625 14,465 35 4,195 32,715 0	512,860 33,180 153,785 4,195 56,500 330
Total finfish	93,680	х	39,070	182,810	10,665	х	413,035	760,850
Total molluscs	11,170	36,090	X	X	535	0	18,295	75,780
Other goods and services, not elsewhere specified	1,360	x	х	х	625	15	4,905	10,900
Subsidies	x	5	80	235	185	x	3,240	4,135
Other operating revenue	x	200	2,375	4,950	75	х	3,455	11,840
Total operating revenue	106,500	40,150	46,490	195,885	12,085	19,465	442,930	863,505
Change in inventory value, goods	23,410	1,510	-300	2,325	425	-560	-20,080	6,730
Gross output	129,910	41,660	46,190	198,210	12,510	18,905	422,850	870,235
Product inputs								
Product expenses	105,960	10,960	30,960	158,590	5,160	11,380	347,835	670,845
Feed Therapeutants	59,660 x	245 125	12,435 990	60,895 x	x 95	x 165	159,950 9,500	301,590 21,190
Purchases, eggs and fish for grow-out Purchases, fish for processing and	16,090	3,655	х	12,480	155	х	5,975	42,510
resale Insurance premiums Energy (electricity, fuel, et cetera) Goods transportation and storage Processing services Rental and leasing expenses	x x 1,775 2,875 x 720	0 320 1,040 585 225 415	x 1,025 1,110 x x x 450	x x 3,920 x 15 765	x 185 920 70 x 95	x 155 720 145 x 475	825 8,500 12,960 23,505 28,150 5,995	43,610 18,555 22,445 30,565 32,745 8,915
Maintenance and repairs, buildings Maintenance and repairs, machinery Professional services Other operating expenses, not elsewhere specified	x 200 825 9,250	250 1,325 555 2,220	515 1,240 360 4,360	7,980 2,060 19,305	185 220 165 1,165	50 315 215 1,210	5,410 18,380 7,160 61,525	8,685 29,660 11,340 99,035
Change in inventory value, raw materials	2,925	-40	35	805	-55	-205	480	3,945
Total of product inputs	103,035	11,000	30,925	157,785	5,215	11,585	347,355	666,900
Gross value added (factor cost)	26,875	30,660	15,265	40,425	7,295	7,320	75,495	203,335
Selected primary inputs								
Salaries and wages Employer portion of employee benefits Depreciation Interest paid	10,190 1,745 x x	7,595 905 2,680 705	5,430 525 x x	16,735 1,910 18,170 9,655	2,160 215 945 155	2,755 290 895 295	60,515 9,890 30,820 3,770	105,380 15,480 64,975 27,090

<sup>1.</sup> Canada total excludes Manitoba, Saskatchewan and Alberta. **Note(s):** Data and account structure are subject to revision.

Table 3-4 Value added account - Aquaculture industry, by province and Canada — 2013

	Newfoundland and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	British Columbia	Canada
				thousands of	dollars			
Sources of output								
Sales of aqua products and services	196,975	40,390	54,610	123,010	12,185	19,245	510,290	956,705
Whole fish dressed, fresh or chilled Fish eggs and live fish for grow-out Whole fish live except for grow-out Whole fish, dressed and frozen Fish fillets, fresh or frozen Fish, dried, smoked or in brine	x 0 48,465 0 0	x x 0 x x	3,970 1,960 x 0 x	98,465 0 0	2,665 1,095 x 0 x	15,170 2,195 865 0 965 5	459,970 x 0 x x x	633,905 21,405 190,080 5,310 16,300 645
Total finfish	x	Х	49,860	Х	10,850	19,200	485,570	867,645
Total molluscs	x	37,345	х	5,675	895	0	х	85,210
Other goods and services, not elsewhere specified	х	х	х	x	440	45	х	3,850
Subsidies	x	х	х	235	775	175	1,245	2,625
Other operating revenue	x	Х	х	х	805	460	5,600	52,755
Total operating revenue	x	41,080	57,885	x	13,765	19,880	517,135	1,012,085
Change in inventory value, goods	х	655	6,285	х	-240	955	13,935	165
Gross output	185,760	41,735	64,170	155,160	13,525	20,835	531,070	1,012,250
Product inputs								
Product expenses	97,205	15,810	x	x	6,775	12,665	322,515	625,015
Feed Therapeutants	x x	480 85	14,635 x	x x	1,745 75	6,570 110	141,850 14,655	264,030 23,905
Purchases, eggs and fish for grow-out Purchases, fish for processing and	X	4,980	7,355	X	225	1,780	x	56,385
resale Insurance premiums Energy (electricity, fuel, et cetera) Goods transportation and storage Processing services Rental and leasing expenses Maintenance and repairs <sup>2</sup> Professional services Other operating expenses, not	x 1,715 x x 290 x	x 540 1,105 430 135 600 1,950 x	1,490 1,150 675 x 310 1,850 780	x x x 0 x 0 x x 2,600	x 290 x 140 x 150 675 635	x 205 530 275 x x 540 465	7,030 12,415 25,005 20,510 5,930 21,735 9,275	27,165 16,830 20,860 31,485 26,495 8,125 32,565 16,315
elsewhere specified	6,870	х	х	23,300	1,790	1,890	56,700	100,855
Change in inventory value, raw materials	-355	155	х	x	120	-115	1,640	5,535
Total of product inputs	97,560	15,655	39,280	126,675	6,655	12,780	320,875	619,480
Gross value added (factor cost)	88,200	26,080	24,890	28,485	6,870	8,055	210,195	392,770
Selected primary inputs								
Salaries and wages Employer portion of employee benefits Depreciation Interest paid	10,070 1,400 x x	8,370 945 3,280 935	5,350 515 5,875 x	14,970 1,505 x 12,440	2,080 190 1,555 375	2,900 305 925 425	59,295 9,290 30,550 x	103,035 14,150 64,215 23,335

Canada total excludes Manitoba, Saskatchewan and Alberta.
 Starting in 2013, maintenance and repair expenses for buildings and machinery are combined.
 Note(s): Data and account structure are subject to revision.

Table 3-5 Value added account - Aquaculture industry, by province and Canada — 2014

	Newfoundland and	Prince Edward	Nova Scotia	New Brunswick	Quebec	Ontario	British Columbia	Canada
	Labrador	Island						
_				thousands of d	ollars			
Sources of output								
Sales of aqua products and services	59,605	41,980	60,425	124,660	11,070	21,875	415,770	735,385
Whole fish dressed, fresh or chilled Fish eggs and live fish for grow-out Whole fish live except for grow-out Whole fish, dressed and frozen	x 0 x 0	x x 0 x	x x x 0	x x x 0	1,230 1,130 5,600 0	14,355 2,920 1,010 20	369,950 13,500 0 x	441,930 22,105 163,530 4,590
Fish fillets, fresh or frozen Fish, dried, smoked or in brine	0 0	X X	X X	0	X X	X X	x 0	11,900 2,160
Total finfish	47,965	3,410	x	х	9,420	x	389,815	646,215
Total molluscs	11,640	38,385	х	х	1,025	0	22,130	83,965
Other goods and services, not elsewhere specified	0	185	x	x	625	х	3,825	5,205
Subsidies	x	x	х	300	735	95	800	2,915
Other operating revenue	x	х	х	5,945	325	530	9,475	32,475
Total operating revenue	x	48,215	x	130,905	12,135	22,500	437,540	770,775
Change in inventory value, goods	x	2,065	x	23,915	15	-745	72,350	144,875
Gross output	103,830	50,280	74,430	154,820	12,150	21,755	509,890	915,650
Product inputs								
Product expenses	98,415	21,005	40,190	133,510	6,680	19,105	352,485	671,390
Feed Therapeutants	52,270 4,975	165 20	x 535	x x	1,810 65	7,660 x	183,620 19,560	317,765 30,885
Purchases, eggs and fish for grow-out Purchases, fish for processing and	17,625	5,595	7,215	x	420	4,760	х	61,145
resale Insurance premiums Energy (electricity, fuel, et cetera) Goods transportation and storage Processing services Rental and leasing expenses Maintenance and repairs <sup>2</sup> Professional services	x 3,080 1,445 x x 505 x 2,105	880 450 935 985 60 395 1,710 1,585	x 850 x x 640 x 730	x x 1,395 815 x 745 x 2,010	85 265 810 220 x 145 740 675	5 300 865 435 x 490 735 680	x 7,770 14,895 24,555 17,285 7,665 24,780 10,525	24,420 18,665 21,195 30,665 22,340 10,585 40,855 18,310
Other operating expenses, not elsewhere specified	6,425	8,225	4,090	х	x	2,265	38,010	74,560
Change in inventory value, raw materials	x	105	x	355	-40	-230	4,645	195
Total of product inputs	x	20,900	x	133,155	6,720	19,335	347,840	671,195
Gross value added (factor cost)	x	29,380	x	21,665	5,430	2,420	162,050	244,455
Selected primary inputs								
Salaries and wages Employer portion of employee benefits Depreciation nterest paid	8,985 1,250 7,605 4,220	8,260 935 3,260 880	5,805 600 5,020 950	15,540 1,640 12,020 x	2,215 240 1,195 315	3,490 370 1,245 560	61,795 10,105 30,775 x	106,090 15,140 61,120 18,045

<sup>1.</sup> Canada total excludes Manitoba, Saskatchewan and Alberta.

Starting in 2013, maintenance and repair expenses for buildings and machinery are combined.
 Note(s): Data and account structure are subject to revision.

# **Concepts and methods**

Aquaculture is the managed production of fish. The North American Industrial Classification System (NAICS) defines the Canadian aquaculture industry as establishments which are primarily engaged in farm-raising aquatic animals and plants. Establishments primarily engaged in raising both aquatic animals and plants in integrated growing operations, aquaponics, are also included. These activities can occur both in natural waters and in artificial aquatic impoundments and include the use of some form of intervention in the rearing or growing process to enhance production.

The aquaculture industry includes hatcheries and sales within the industry, for example, sales from a hatchery to a grow-out operation. The aquaculture industry does not include sport fishing or the wild fishery.

In Canada, the aquaculture industry is dominated by the production of finfish, primarily salmon, off the coasts of British Columbia, Newfoundland and Labrador and New Brunswick. Production of shellfish is smaller with Prince Edward Island and British Columbia being the major producing provinces.

# Production and value of aquaculture

The aquaculture production and value data, produced by species and province, represent the quantity of production and the farm-gate value of that production.

The aquaculture production and value data are provided annually from each of the provincial ministries responsible for aquaculture. Producers must report their production and value as part of their provincial licensing agreements.

Generally, finfish production is reported as gutted head-on and the value is based on a farm-gate value. Shellfish is reported as whole, again based on a farm-gate value.

# **Exports of selected aquaculture products**

Canadian import and export statistics are derived by the International Accounts and Trade Division of Statistics Canada from administrative records collected by the Canada Border Services Agency. The one exception to this process is Canada-United States trade. As of January 1, 1990, Canada and the United States have been using one another's import data as its own export data. Export data are available by province of origin.

Exports for four categories of aquaculture products have been selected. All of these categories define the products as fresh, chilled or frozen and are based on the Harmonized Commodity Description and Coding System, a multipurpose international nomenclature developed by the World Customs Organization.

Small quantities of fish fillets may be included in other categories that include products from the commercial fishery. However, as exports of these categories are relatively low, the number of individual aquaculture categories is limited.

# Aquaculture value added

## **Concepts**

The aquaculture value added account is designed to measure the economic production (value added) of goods and services from aquaculture establishments. Economic production can be defined as any process that creates value or adds value to existing goods. Consistent with this definition, the Canadian System of National Accounts defines economic production as the production of goods or services, which are exchanged for money in the marketplace.

The value added account displays the inputs and outputs (revenues and expenses excluding the change in inventory values) on a calendar year basis. These data are displayed by province, with the exception of the Prairie Provinces where aquaculture is a relatively small industry. Gross value added at factor cost is residually derived by subtracting product inputs, or purchases from other businesses, from the gross output of the sector.

The estimates also include the costs and revenues derived from processing where it is an integral part of the establishment but not the main activity or source of revenue.

#### **Methods**

Starting in reference year 2013, these data are produced as part of Statistics Canada's Integrated Business Statistics Program (IBSP) replacing the Unified Enterprise Survey.

The IBSP incorporates business surveys into a single framework, using questionnaires with a consistent look, structure and content.

The questionnaire satisfies the statistical requirements for financial information as expressed by the Canadian System of National Accounts and businesses and associations operating within the aquaculture industry.

In addition, surveys share common sampling, collection and processing methodologies that are driven by metadata. Common tools are in place to edit, correct, and analyse data. Using common tools helps ensure data quality, while avoiding overlap between surveys and minimizing response burden to the greatest extent possible.

#### **Frame**

The IBSP provides a standardized framework for economic surveys conducted at Statistics Canada. Statistics Canada's Business Register (BR) is the common frame for all surveys using the IBSP model. The BR identifies all businesses operating in Canada and foreign businesses that have links to Canadian companies. It includes information about where businesses are located, how businesses are organized, the industries they operate in and their size in terms of revenues earned and number of employees. The BR is a data service centre updated through a number of sources including administrative data files, feedback received from conducting Statistics Canada business surveys, and profiling activities including direct contact with companies to obtain information about their operations and Internet research findings.

# **Target population**

The target population is all establishments classified to aquaculture under the North American Industrial Classification System (NAICS 2012) code 112510 that operated for at least one day during the reference year.

This industry comprises establishments primarily engaged in farm-raising finfish, shellfish, or any other kind of aquatic animal.

These establishments use some form of intervention in the rearing process to enhance production, such as keeping animals in captivity, regular stocking and feeding of animals, and protecting them from predators.

The aquaculture industry includes hatcheries and sales within the industry, for example, sales from a hatchery to a grow-out operation are included. The aquaculture industry does not include sport fishing and the wild fishery.

#### Sampling

This is a sample survey with a cross-sectional design.

Two sources of data are used to derive the estimates:

- A probability sample survey of aquaculture establishments with a gross business revenue greater than or equal to a cut-off that varies by province from \$30,000 to \$105,000.
- Tax data are used to estimate for businesses with gross business revenue less than the cut-off and for imputation of non-response records.

The frame that is used for the selection of the probability sample is Statistics Canada's Business Register. This list frame is updated and verified prior to sample selection. For 2014, the frame included 938 establishments classified to aquaculture.

Before a sample is taken, the records are stratified by province. Within each province, to improve the efficiency of the sample design, strata are defined using the gross revenue variable on the Business Register.

The "must-take" stratum contains the enterprises (with all its associated establishments) with revenue greater than or equal to a derived threshold. A "must-take" threshold is derived for each province and for each of the commodities (finfish or molluscs). All establishments with a revenue above one of the thresholds are sent a questionnaire.

The "take-none" stratum contains the establishments with gross business revenue less than a cut-off. Take-none strata serve to reduce respondent burden by excluding the smaller businesses from the surveyed population. These businesses should represent at most ten percent of total sales. Instead of sending questionnaires to these businesses, the estimates will be produced through the use of administrative data.

For the establishments not selected in the "must-take" (greater than the "must-take" threshold) or "take none" (less than the cut-off), three strata are defined to improve the efficiency of the sample design. There is a "take-all" stratum (all establishments are sent a questionnaire) and there are two "take-some" strata (a sample of establishments are selected and sent a questionnaire).

The overall sample size for 2014 was 139 establishments.

#### **Data collection**

The survey is collected primarily through an electronic questionnaire while providing respondents with an option to receive a paper questionnaire, reply by telephone interview or use other electronic reporting methods. Once collected, data are examined for inconsistencies and errors using automated edits followed by an analytical review. Data for non-response and no-contact are imputed using tax and historically reported data.

#### **Estimation**

The general estimation system is used to provide estimates for the entire observed population.

When some enterprises have reported data combining many units located in more than one province or territory, or in more than one industrial classification, data allocation is required. Factors based on information from sources such as tax files and Business Register profiles are used to allocate the data reported on the combined report among the various estimation units where this enterprise is in operation.

The sample used for estimation comes from a two phase sampling process. An initial sampling weight (the design weight) is calculated for each unit of the survey and is simply the multiplication of the inverse of the probability of selection from each phase. It is then adjusted to take into account units that might have been misclassified (large units found in a stratum of small units for example). In addition, the sampling weights derived are modified and adjusted using updated information from taxation data. Using a statistical technique called calibration, the final set of weights is adjusted in such a way that the sample represents as closely as possible the taxation data of the population of this industry.

The weight calculated for each sampling unit indicates how many other units it represents. The final weights are usually either one or greater than one. Sampling units which are "Take-all" have sampling weights of one and only represent themselves; units with larger than expected size are seen as misclassified and their weight is usually adjusted so that they only represent themselves.

The sampling unit being the enterprise, it can represent numerous locations which might contribute to different parts of the population (different sub-industries, province/territory, etc.). Each location is considered an estimation unit. The characteristics of the estimation units are used to derive the domains of estimation, including the industrial classification and the geography. Estimation for the survey portion is done by simple aggregation of the weighted values of all sampled locations that are found in the domain of estimation. Estimates are computed for several domains of estimation such as industrial groups and provinces/territories, based on the most recent classification information available for the location and the survey reference period. It should be noted that this classification information may differ from the original sampling classification because records may have changed in size, industry, or location. Changes in classification are reflected immediately in the estimates.

In the case of the ineligible for sampling portion (also called take-none portion) of the target population defined in Statistics Canada's Business Activity, Expenditure and Output Survey, taxation data is simply aggregated to come up with an estimate. If an estimate is required and taxation data is not available, modeling using auxiliary taxation data is done in order to create data for all requested variables for each unit in the take-none portion. These are also simply aggregated to produce the estimate. The overall estimate includes the estimates from both the surveyed portion and the take-none portion.

## **Quality evaluation**

Prior to the data release, combined survey results are analyzed for comparability; in general, this includes a detailed review of: individual responses (especially for the largest companies), general economic conditions, coherence with results from related economic indicators, historical trends, and information from other external sources (e.g. associations, trade publications, newspaper articles).

The survey estimates are also analyzed with trends observed in related Statistics Canada data series.

## **Data accuracy**

All surveys are subject to sampling and non-sampling errors. Sampling error occurs because population estimates are derived from a sample of the population rather than the entire population. Non-sampling error is not related to sampling and may occur for various reasons during the collection and processing of data. For example, non-response is an important source of non-sampling error. Under or over-coverage of the population, differences in the interpretations of questions and mistakes in recording, coding and processing data are other examples of non-sampling errors. To the maximum extent possible, these errors are minimized through careful design of the survey questionnaire, verification of the survey data, and follow-up with respondents when needed to maximize response rates.

Measures of sampling error are calculated for each estimate. Also, when non-response occurs, it is taken into account and the quality is reduced based on its importance to the estimate. Other indicators of quality are also provided such as the response rate. Both the sampling error and the non-response rate are combined into one quality rating code. This code uses letters that ranges from A to F where A means the data is of excellent quality and F means it is unreliable. Estimates with a quality of F are not published. These quality rating codes can be requested and should always be taken into consideration.

Of the sampled units contributing to the estimate, the weighted response rate for 2014 was 77.7%.

Finally, the aquaculture estimates were compared to, and found to be consistent with, administrative data sources obtained from the provinces; reinforcing confidence in the quality of the aquaculture statistics. All of the data are reviewed for accuracy and consistency and provide a reliable portrait of the aquaculture industry.