



North American Commission

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Labrador Subsistence Food Fisheries – Mixed-Stock Fisheries Context

(Tabled by Canada)

Labrador Subsistence Food Fisheries – Mixed-Stock Fisheries Context

EXECUTIVE SUMMARY

- The Atlantic salmon subsistence fisheries in Labrador take place in estuaries and coastal areas using gillnets and are considered to be mixed stock fisheries. The majority of the salmon harvest in these fisheries take place in fishing locations categorized as estuaries with a reduced potential to intercept salmon from non-local stocks.
- The management of these fisheries includes a number of conditions related to gear, seasons, weekly fishery closures, carcass tagging of harvested salmon, a logbook program for reporting catches, a limit on total harvest using tags, and a prohibition on sales of Atlantic salmon.
- Reported annual harvests of salmon have ranged from 15.6 t to 42.4 t during 2000 to 2019, representing from 4,800 to 11,100 small salmon and 1,400 to 6,400 large salmon annually. The reported harvest in any year has been less than the maximum number of tags available for these fisheries. Reported harvest in 2019 was 37.8 t.
- Sampling of the fishery catches has taken place every year since 2006 by the members and officers of the Indigenous communities involved in the fisheries, and the information and data shared with Fisheries and Oceans Canada. Sampling continued in 2019 with a total of 866 samples obtained, representing 6.7% of the harvest by number.
- The single nucleotide polymorphisms (SNP) genetic baseline of salmon populations in eastern North America can accurately resolve the origin of salmon to 21 reporting groups in eastern North America and 10 reporting groups from Europe. Rivers in Labrador are associated to three groups, which are essentially structured by Salmon Fishing Areas (1A, 1B, 2, 14B) of Labrador.
- Finer scale genetic analyses of the regional contributions of Atlantic salmon to the sampled catches in the Labrador subsistence fisheries in 2019 indicate that the large majority (> 98%) of the samples assigned to the three Labrador reporting groups, with fisheries catches in each SFA assigning to their respective reporting groups. No USA origin salmon were identified from samples in 2019.

INTRODUCTION

In support of the North American Commission agenda item to address mixed stock fisheries in domestic waters of Commission member Parties, this document presents the following information:

- management measures for the Labrador subsistence fisheries on Atlantic salmon in 2019;
- harvest by location and size group of salmon in 2019;
- summary of the biological sampling program in 2019; and
- results from the determination of the origin of salmon sampled from these fisheries in 2019 using genetic identification techniques.

Fisheries for Atlantic salmon that occur at sea, along the coast, and in some cases in estuaries, have the potential to exploit salmon from multiple stock origins. The most important mixed-stock fisheries in Canada historically were the commercial fisheries which occurred in the marine coastal areas and in estuaries throughout eastern Canada. Since 2000, all commercial Atlantic salmon fisheries under Canadian jurisdiction have been closed and the sale of Canadian origin wild Atlantic salmon, regardless of fishery source, is prohibited.

Since the closure of the commercial fisheries for salmon in Canada, salmon are exploited by three user groups: Indigenous communities, Labrador resident food fisheries, and recreational fisheries. As reported to ICES and NASCO, the proportions of the Atlantic salmon harvest in Canada from all sources (Indigenous, recreational, Labrador resident food) which takes place in rivers (on single stocks), in estuaries, and in coastal areas have varied annually. Coastal harvests have ranged between 2 t and 9 t during 2000 to 2019, representing from 2% to 9% (7.1% in 2019) of the total annual harvest of Atlantic salmon in Canada. Harvests in recreational fisheries occur exclusively in rivers. Harvests in Indigenous food, social and ceremonial fisheries of Quebec and the Maritime provinces occur in rivers and estuaries, whereas harvests in the subsistence food fisheries (Indigenous and resident) of Labrador occur in estuaries and coastal areas.

The Indigenous peoples fisheries that occur in estuaries of Quebec and the Maritime provinces take place in the vicinity of single rivers, generally in tidal waters of rivers, and consequently are not considered to be mixed-stock fisheries. While the net fisheries for the Labrador subsistence food fisheries are authorized for coastal waters, current fishing activity occurs with gillnets very close to the communities that are located in deep bays along the coast away from the headlands where interception of non-local stocks of salmon historically was an issue. Despite this important change in the location of the current Labrador subsistence fisheries compared to the locations of the historical commercial marine fisheries, the Labrador subsistence fisheries are considered by NASCO as mixed stock fisheries and have been shown to intercept salmon from other regions of eastern North America.

GEOGRAPHIC LOCATION OF FISHERIES FOR ATLANTIC SALMON

The subsistence food fisheries in Labrador take place in estuaries and coastal areas.

During 2000 to 2019, the percent of the total Labrador subsistence harvest which was taken in coastal areas has ranged from 15.0% to 25.2%. In 2019, 31.2 t (82.5%) of total subsistence fisheries harvest of Atlantic salmon were from areas classified as estuaries and 6.6 t (17.5%) were from coasts (Tables 1 and 2).

MANAGEMENT OF THE 2019 LABRADOR SUBSISTENCE FOOD FISHERIES

There are two types of subsistence net fisheries in Labrador that are authorized by Fisheries and Oceans Canada (DFO) to harvest Atlantic salmon:

- Resident subsistence trout fisheries that permits bycatch of Atlantic salmon, and
- Indigenous food, social, and ceremonial (FSC) fisheries that direct for Atlantic salmon.

In previous years, the fishing season and mesh sizes in the various fisheries have been modified in an effort to reduce the capture of large salmon while at the same time providing an opportunity to harvest small salmon, trout, and Arctic charr.

General management measures for these net fisheries:

- Carcass tags are required for all harvested Atlantic salmon;
- Harvest allocations are limited by the number of tags provided to each group;
- The number of fishers is limited to one designate or licence holder per household;
- Monofilament netting materials are not permitted. Nylon twine only permitted;
- Net must be set in a straight line;
- Gear must be clearly marked with the full name of the fisher and other group specific information as required;
- No fishing (nets must be removed from the water) for a 24 hour period between 6:00 pm Sunday and 6:00 pm Monday;
- Nets are not to be left unattended for a period of more than 24 hours;
- Completed logbook of catch must be submitted to DFO at the end of season; and
- All sales of Atlantic salmon are prohibited.

Resident Subsistence Trout Fishery

There is a long-standing tradition of trout net fishing in Labrador targeting Speckled trout (*Salvelinus fontinalis*) and Arctic charr (*Salvelinus alpinus*). Following the 1998 closure of the commercial salmon fishery in Labrador, there was an increased dependency on the trout fishery for subsistence purposes. A subsistence trout net licence is required and provided to residents of Labrador to harvest trout. A limit on the number of resident licences has only been set for Central Labrador (includes Lake Melville) at 151. There is a recognized bycatch of Atlantic salmon in trout nets and management measures are in place to minimize this harvest.

- 262 licences were issued in 2019:
 - Northern Labrador (SFA 1A) – 7
 - Central Labrador (includes Lake Melville) (SFA 1B) – 143
 - Southern Labrador (SFA 2) – 112

Additional management measures for this fishery:

- Seasonal limit of 50 trout/charr;
- Maximum bycatch of three Atlantic salmon;
- Fishing must cease when either the three salmon bycatch or 50 trout/charr limits are taken;
- Licence holders are permitted to use a single net with a maximum length of 15 fathoms;
- Mesh size permitted is not less than 102 mm (4 inches);

- Mesh size greater than 127mm (5 inches) is not permitted in Northern Labrador;
- Seasons in 2019 varied by location (Figure 1):
 - Northern Labrador (SFA 1A): 15 June to 14 July;
 - Central Labrador (SFA 1B) (includes Lake Melville):
07 June to 30 June and 19 July to 11 August (Kenamu River closes 31 July);
 - Southern Labrador (SFA 2): 11 July to 29 July.

Indigenous food, social, and ceremonial (FSC) fisheries

In response to the Supreme Court of Canada decision interpreting Section 35 of the Constitution Act of 1982, DFO provided resource access to Indigenous groups of Labrador for FSC purposes. Between 1999 and 2005, a FSC fishery was made available for members of the Labrador Inuit Association (LIA) in Northern Labrador (SFA 1A) as well as the Lake Melville area (SFA 1B) (Figure 1). In 2006, with the signing of the LIA Land Claims Agreement, a subsistence fishery with the Nunatsiavut Government (NG) which is the successor organization to the LIA was negotiated within Upper Lake Melville (ULM) and the Labrador Inuit Settlement Area (LISA). The Innu Nation also fishes for salmon in Lake Melville from the community of Sheshatshiu located in SFA 1B and Northern Labrador from Natuashish located in SFA 1A (Figure 1). In 2004, members of the NunatuKavut Community Council (NCC) on the south coast of Labrador negotiated a subsistence fishery with DFO on the south coast in SFA 2 (Figure 1). The NCC further negotiated access to ULM since 2013.

In 2019, a total of 19,700 FSC tags were allocated. The number of unused tags returned at the end of the season is incomplete.

Indigenous groups with FSC fisheries in Labrador and specific measures for each FSC group are described below.

1. Nunatsiavut Government (Upper Lake Melville and Labrador Inuit Settlement Area)

- 7,206 beneficiaries
- 744 designated fishers
- 8,700 tags were issued in 2019
- Upper Lake Melville (ULM)
 - 4,000 tags were issued
 - The minimum mesh size is 3 inches and the maximum mesh size is 4 inches
 - The maximum length of net permitted per household is 25 fathoms
 - Fishing season extends from 15 June to 8 July and 19 July to 31 August
 - Fishing is allowed in tidal waters of the ULM outside of the LISA
- Labrador Inuit Settlement Area (LISA)
 - 4,700 (4,200 plus 500 requested reserve; there is an annual reserve of 500 tags set aside for further allocation if requested)
 - There are various minimum mesh size requirements from 3 to 5 inches
 - The maximum length of net permitted per household is 25 fathoms
 - Fishing season extends from 15 June to 31 August
 - Fishing is allowed in tidal waters in various locations close to communities (Rigolet, Postville, Makkovik, Hopedale and Nain)

2. Innu Nation (Sheshatshiu and Natuashish)

- 2,200 members
- 99 designated fishers
- 2,500 tags were issued in 2019

- Sheshatshiu
 - 2,000 tags were issued
 - Minimum mesh size of 3 inches and maximum mesh size of 4 inches
 - The area of Lake Melville inside a line drawn from Point Epinette to Seal Point (The Kenamu Zone), the maximum length of net permitted per household is 25 fathoms. Fishers may have 2 nets where each net is a maximum of 12.5 fathoms.
 - Outside of the Kenamu Zone, designates are permitted to use up to a maximum of 37.5 fathoms of net which can be either 3 nets of 12.5 fathoms “OR” two nets comprised of one of 25 fathoms and one of 12.5 fathoms.
 - Fishing season extends from June 15 to September 15.
 - Fishing is permitted from Fish Cove Point, north to Cape Harrison, including Lake Melville and the inland waters of Little Lake and Grand Lake in Upper Lake Melville.
 - Fishing activity in tidal waters does not occur outside the waters of Upper Lake Melville in the Kenamu River-Sheshatshiu areas.

- Natuashish
 - 500 tags were issued
 - Minimum mesh size of 3.5 inches and maximum mesh size of 5 inches
 - The maximum length of net permitted per household is 25 fathoms. Fishers may have 2 nets where each net is a maximum of 12.5 fathoms.
 - Fishing season extends from 15 May to 31 August.
 - Fishing is permitted in the tidal waters extending north and east from Cape Harrigan inclusive of Big Bay and south and east of Anaktalik Bay inclusive of Anaktalik and Anktalik Bays including the inland waters of Sango Pond and Big Sango Lake.

3. NunatuKavut Community Council (Southern Labrador and Upper Lake Melville)

- 6,000 members
- 1,287 designated fishers
- 7,000 tags were issued in 2019

- Southern Labrador
 - 6,400 tags were issued
 - Minimum mesh size of 3.5 inches and maximum mesh size of 4 inches
 - The maximum length of net permitted per household is 25 fathom and designates may only have one net
 - Fishing season extends from 7 July to 15 August
 - Fishing takes place in tidal waters

- Central Labrador - Upper Lake Melville
 - 600 tags were issued
 - The Upper Lake Melville fishing area is defined by the tidal waters inside and west of the boundary line that marks the Labrador Inuit Marine Zone in SFA 1B (Figure 1).

- Minimum mesh size of 3.5 inches and maximum mesh size of 4 inches.
- The maximum length of net permitted per household is 15 fathoms and designates may only have one net.
- Fishing season extends from 15 June to 8 July, and 19 July to 31 August

LABRADOR SUBSISTENCE FISHERIES HARVEST

FSC and resident subsistence fishers use logbooks to record catch and effort information. Data from returned logbooks are compiled by each user group and submitted to Fisheries and Oceans Canada at the end of the season. Total harvests are estimated by adjusting the reported catches proportionately to the total licenced/designated fishers. The combined logbook return rate was 74% in 2019. The rate of reporting compliance of the four subsistence food fisheries ranged from 68% to 100% in 2019.

Details of the harvest of Atlantic salmon by size group (small and large salmon) in terms of weight (kg) and by Salmon Fishing Area for 2019 are provided in Table 3. The large salmon size group comprised 65% by weight and 45% by number of the total harvest of salmon in 2019 (Table 3).

Harvests are separated for the Labrador resident subsistence trout fishery (Table 4) and the Indigenous food, social and ceremonial (FSC) fisheries (Table 5).

The harvest of Atlantic salmon in the Labrador resident trout fisheries decreased after 2003 as many individuals fishing under the Labrador resident licence began fishing and reporting under the NCC negotiated subsistence fishery. Since 2004, the harvest of Atlantic salmon in the resident trout fishery has varied between 1.4 t and 2.9 t. In 2019, the total harvest was 1.6 t, including 283 small salmon and 252 large salmon (Table 4).

The reported harvest in the Indigenous peoples FSC fisheries in Labrador over the period 2004 to 2019 ranged from 24.7 t to 40.4 t, with large salmon representing between 34% and 67% of the total harvest of salmon by weight and 21% to 48% of the total by number. In 2019, the Indigenous peoples FSC fisheries harvest totalled 36.2 t, including 6,800 small salmon and 5,600 large salmon by number (Table 5).

Sampling Program: Labrador Subsistence Food Fishery

Salmon harvested in the Labrador subsistence fisheries (SFAs 1 and 2, Figure 1) were sampled opportunistically for length, weight, sex, scales (for age analysis), and tissue (genetic analysis). Fish were also examined for the presence of external tags or marks.

In 2019, a total of 866 samples (6.7% of harvest by number) were collected from the Labrador subsistence fisheries: 72 from Northern Labrador (SFA 1A), 271 from Lake Melville (SFA 1B), and 523 from Southern Labrador (SFA 2).

Sampling in 2019 was conducted in 13 communities (4 in SFA 1A, 4 in SFA 1B, and 5 in SFA 2) throughout the fishing season (Table 6 and Figure 2).

Not all scales can be interpreted for sea age and/or river age. Based on the interpretation of the scale samples (n=831), percent sea age composition was 70% 1SW, 25% 2SW, 0% 3SW and 5% previously spawned salmon. All of the salmon samples interpreted for river age (n=823) were 3 to 6 years (modal age 4, 65%) (Table 7). There were no river age 1 and few river age 2 (n=2) salmon sampled, suggesting, as in previous years (2006 to 2018), that very few salmon from the most southern stocks of North America (USA, Scotia-Fundy) were exploited in these fisheries.

Origin of catches in 2019

In 2019, a total of 500 of 847 tissue samples collected from the Labrador subsistence salmon fisheries were analysed using the SNP panel with 31 range-wide reporting groups (Table 8, Figures 3 and 4). The percent of the catch which was processed for stock origin (3.9%), is less than the percent of the catch sampled (6.7% by number) due to resource constraints, however, emphasis was placed on genotyping samples from the coastal areas (SFA 1A, 2) where interception of non-local stocks has been more prevalent in the past (Figure 5). Of the 500 samples analysed, 485 provided successful genetic stock origin results. A summary of the stock origin analyses by size category and Salmon Fishing Area is provided in Table 9.

The estimated percent contributions (and associated 95% credible interval) to each reporting group in 2019 are summarized in Figures 6 and 7. As in previous years, the estimated origin of the samples was dominated (>98%) by the Labrador reporting groups. The dominance of the Labrador reporting groups is consistent with previous analyses conducted for the period 2006–2018 which estimated >95.0% of the harvest was attributable to Labrador stocks (ICES, 2019). Furthermore, assignment of harvest within the three Labrador genetic reporting groups suggest largely local harvest within salmon fishing areas, for example origin of salmon from the Lake Melville (SFA 1B) fishery are dominated by salmon from the Lake Melville reporting group.

No samples in 2019 were assigned to the USA reporting group, as was the case in 2018.

Table 1. Labrador subsistence fisheries harvest (weight in t; Indigenous and resident food) by geographic location from 2000 to 2019.

Year	Harvest (t)			Harvest (%)	
	Estuarine	Coastal	Total	Estuarine	Coastal
2000	13.28	2.34	15.61	85.0	15.0
2001	13.50	2.79	16.29	82.9	17.1
2002	13.99	3.59	17.57	79.6	20.4
2003	17.49	4.62	22.11	79.1	20.9
2004	24.86	6.79	31.65	78.6	21.4
2005	24.72	7.20	31.91	77.5	22.5
2006	25.00	7.77	32.72	76.3	23.7
2007	20.45	6.01	26.46	77.3	22.7
2008	27.04	9.09	36.13	74.8	25.2
2009	22.61	7.20	29.81	75.9	24.1
2010	29.57	6.23	35.80	82.6	17.4
2011	33.84	7.52	41.36	81.8	18.2
2012	28.69	7.87	36.56	78.5	21.5
2013	31.66	8.31	39.97	79.2	20.8
2014	25.72	7.06	32.77	78.5	21.5
2015	34.27	8.16	42.44	80.8	19.2
2016	32.64	6.96	39.59	82.4	17.6
2017	30.34	9.04	39.37	77.0	23.0
2018	26.27	6.80	33.07	79.4	20.6
2019	31.21	6.62	37.83	82.5	17.5

Table 2. Percent of the Labrador subsistence fisheries Atlantic salmon harvest (by weight) taken in coastal areas from 2009 to 2019. All other harvest is taken in estuaries. Salmon Fishing Areas are shown in Figure 1.

Year	SFA 1A	SFA 1B	SFA 1 Total	SFA 2	Labrador Total
	Northern Labrador	Lake Melville		Southern Labrador	
2009	33.0	0.0	16.9	33.0	24.1
2010	33.0	0.0	9.5	33.0	17.4
2011	32.0	0.0	10.0	33.0	18.2
2012	31.0	0.0	16.5	32.1	21.5
2013	29.0	0.0	13.4	34.1	20.8
2014	35.0	0.0	16.3	32.0	21.5
2015	29.0	0.0	13.3	30.0	19.2
2016	31.0	0.0	12.0	31.0	17.6
2017	36.0	0.0	19.9	30.0	23.0
2018	28.0	0.0	13.5	32.0	20.6
2019	28.3	0.0	8.2	31.8	17.5

Table 3. Labrador subsistence food fisheries harvest (weight in kg, and number of fish) of Atlantic salmon in 2019 by size group and Salmon Fishing Area.

Year	Weight (kg)			Number of fish			% Large	
	Small	Large	Total	Small	Large	Total	By weight	By number
SFA 1A Northern Labrador	738	2,876	3,614	373	688	1,061	79.6%	64.8%
SFA 1B Lake Melville	5,139	14,208	19,347	2,686	3,100	5,786	73.4%	53.6%
SFA 2 Southern Labrador	7,353	7,516	14,869	3,992	2,021	6,013	50.6%	33.6%
Labrador Total	13,229	24,600	37,830	7,051	5,809	12,860	65.0%	45.2%

Table 4. Labrador resident trout fisheries harvest (weight in kg, and number of fish) of Atlantic salmon in 2019 by size group and Salmon Fishing Area.

Year	Weight (kg)			Number of fish			% Large	
	Small	Large	Total	Small	Large	Total	By weight	By number
SFA 1A Northern Labrador	2	92	94	1	12	13	97.8%	92.3%
SFA 1B Lake Melville	190	598	789	95	138	233	75.9%	59.3%
SFA 2 Southern Labrador	346	394	740	187	102	289	53.2%	35.4%
Labrador Total	538	1,084	1,623	283	252	535	66.8%	47.2%

Table 5. Labrador Indigenous food, social, and ceremonial fisheries harvest (weight in kg, and number of fish) of Atlantic salmon in 2019 by size group and Salmon Fishing Area.

Year	Weight (kg)			Number of fish			% Large	
	Small	Large	Total	Small	Large	Total	By weight	By number
SFA 1A Northern Labrador	736	2,784	3,520	372	676	1,048	79.1%	64.5%
SFA 1B Lake Melville	4,948	13,610	18,558	2,591	2,962	5,553	73.3%	53.3%
SFA 2 Southern Labrador	7,006	7,123	14,129	3,805	1,919	5,724	50.4%	33.5%
Labrador Total	12,690	23,517	36,207	6,768	5,557	12,325	64.9%	45.1%

Table 6. Labrador Sampling Program: Bi-weekly catches and sampling summary 2019.

Catches	SFA 1A		SFA 1B		SFA 2		Total	
	Number	% of	Number	% of	Number	% of	Number	% of
May 15 – June 14	0	0	CLOSED		CLOSED		0	0
June 15 – June 30	4	0	493	9	CLOSED		497	4
July 1 – July 15	203	19	1,841	32	2,911	48	4,955	39
July 16 – July 31	525	49	2,856	49	2,548	42	5,929	46
Aug. 1 – Aug. 15	226	21	500	9	554	9	1,280	10
Aug. 16 – Aug. 31	94	9	96	2	CLOSED		190	1
Sept. 1 - Sept. 15	9	1	0	0	CLOSED		9	0
Total	1,061	100	5,786	100	6,013	100	12,860	100

Samples	SFA 1A		SFA 1B		SFA 2		Total	
	Number	% of	Number	% of	Number	% of	Number	% of
May 15 – June 14	0	0	CLOSED		CLOSED			0
June 15 – June 30	0	0	5	2	CLOSED		5	1
July 1 – July 15	8	11	121	45	231	44	360	42
July 16 – July 31	53	74	120	44	262	50	434	50
Aug. 1 – Aug. 15	6	8	20	7	30	6	57	7
Aug. 16 – Aug. 31	5	7	5	2	CLOSED		10	1
Sept. 1 - Sept. 15	0	0	0	0	CLOSED		0	0
Total	72	100	271	100	523	100	866	100

Table 7. Labrador Sampling Program: River age summary 2019.

Area	Number of scale samples	River age (%)						
		1	2	3	4	5	6	7
Northern Labrador (SFA 1A)	69	0.0	0.0	14.5	69.6	15.9	0.0	0.0
Lake Melville (SFA 1B)	242	0.0	0.4	9.1	66.1	23.1	1.2	0.0
Southern Labrador (SFA 2)	512	0.0	0.2	10.2	55.9	33.0	0.8	0.0
All areas	823	0.0	0.2	10.2	60.0	28.7	0.9	0.0

Table 8. Reporting groups and acronyms defined from the range wide single nucleotide polymorphism (SNP) genetic baseline for Atlantic salmon in the North Atlantic.

Reporting group	Group acronym
Ungava	UNG
Labrador Central	LAC
Lake Melville	MEL
Labrador South	LAS
St. Lawrence North Shore Lower	QLS
Anticosti	ANT
Gaspé Peninsula	GAS
Quebec City Region	QUE
Gulf of St. Lawrence	GUL
Inner Bay of Fundy	IBF
Eastern Nova Scotia	ENS
Western Nova Scotia	WNS
Saint John River & Aquaculture	SJR
Northern Newfoundland	NNF
Western Newfoundland	WNF
Newfoundland 1	NF1
Newfoundland 2	NF2
Fortune Bay	FTB
Burin Peninsula	BPN
Avalon Peninsula	AVA
Maine, United States	USA
Spain	SPN
France	FRN
European Broodstock	EUB
United Kingdom/Ireland	BRI
Barents-White Seas	BAR
Baltic Sea	BAL
Southern Norway	SNO
Northern Norway	NNO
Iceland	ICE
Greenland	GL

Table 9. Labrador Sampling Program: Summary of tissue samples collected that were analysed for stock origin by size group and Salmon Fishing Area in 2019.

Area	Size group	Number tissue samples collected	Number with origin	% Samples with origin	Catch by number	% tissue samples collected of catch	% of catch with origin
SFA 1A Northern Labrador	Small	26	21	81	373	7.0	5.6
	Large	46	41	89	688	6.7	6.0
	Total	72	62	86	1,061	6.8	5.8
SFA 1B Lake Melville	Small	143	48	34	2,686	5.3	1.8
	Large	125	30	24	3,100	4.0	1.0
	Total	268	78	29	5,786	4.6	1.3
SFA 2 Southern Labrador	Small	427	269	63	3,992	10.7	6.7
	Large	80	76	95	2,021	4.0	3.7
	Total	507	345	68	6,013	8.4	5.7
All areas		847	485	57	12,860	6.6	3.8

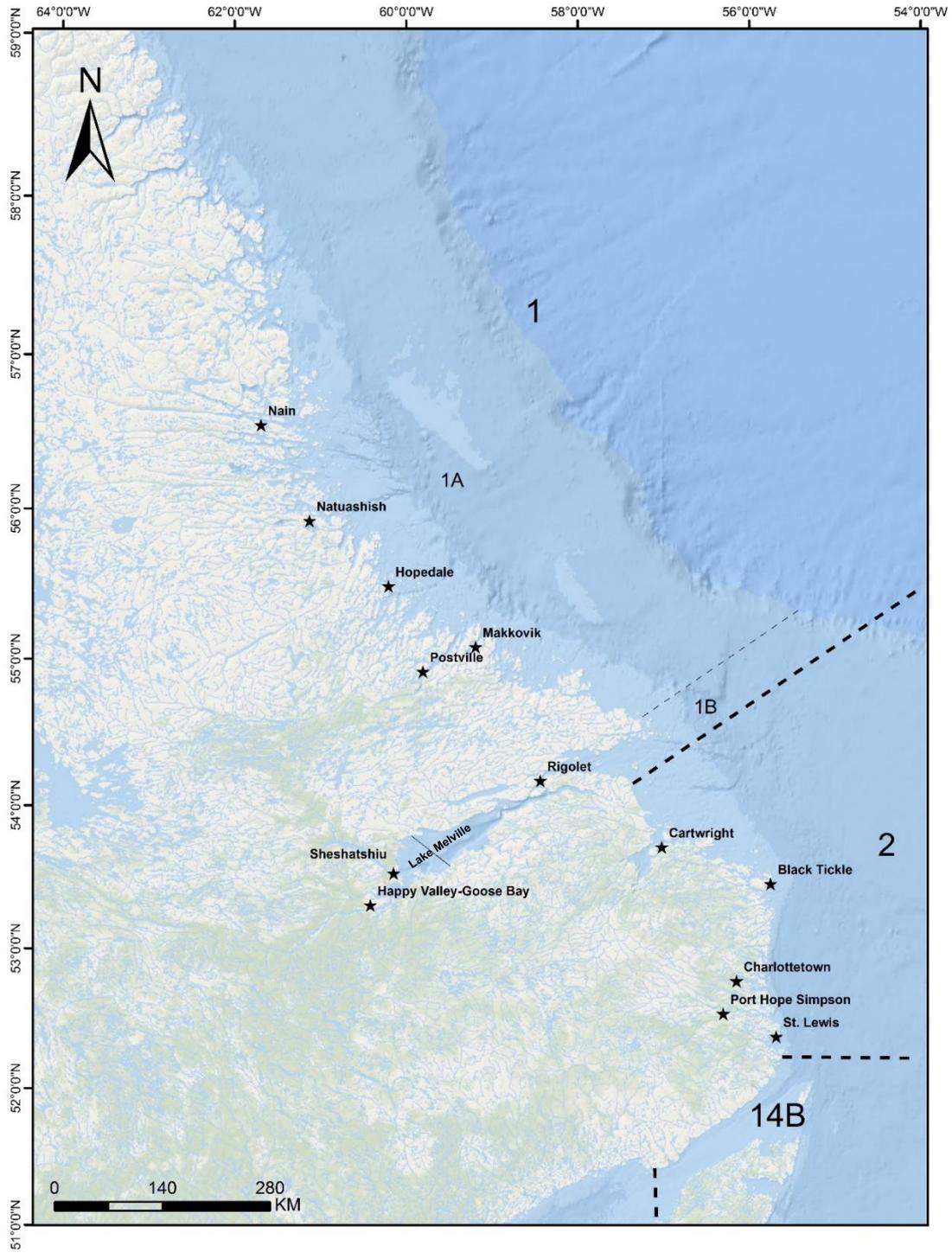


Figure 1. Map of Salmon Fishing Areas (SFAs 1A, 1B, 2 and 14B) and local communities in Labrador. Line across Lake Melville marks the division between Upper Lake Melville and the Labrador Inuit Settlement Area.

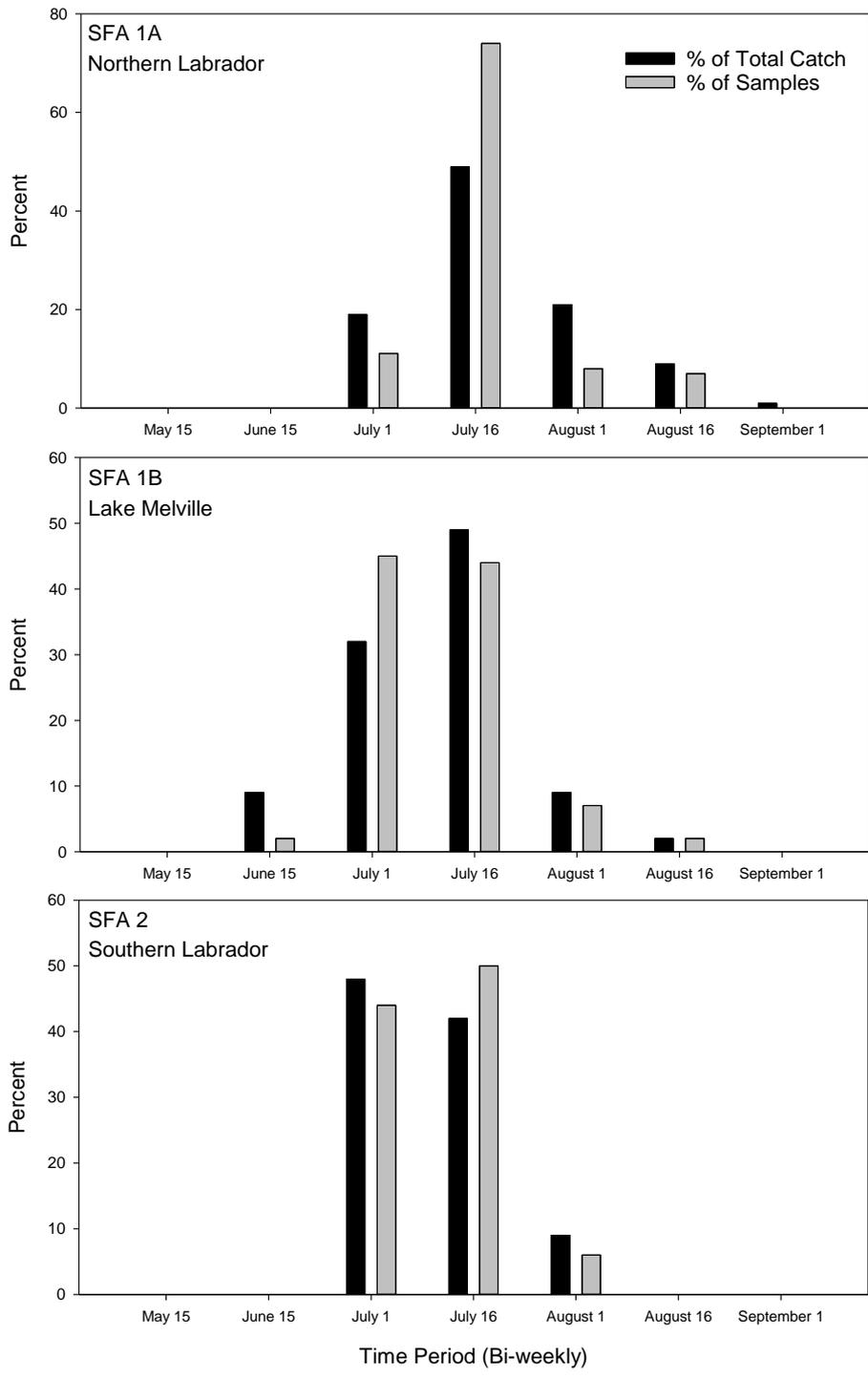


Figure 2. Bi-weekly distribution (%) of the total catch and biological samples collected by SFA.

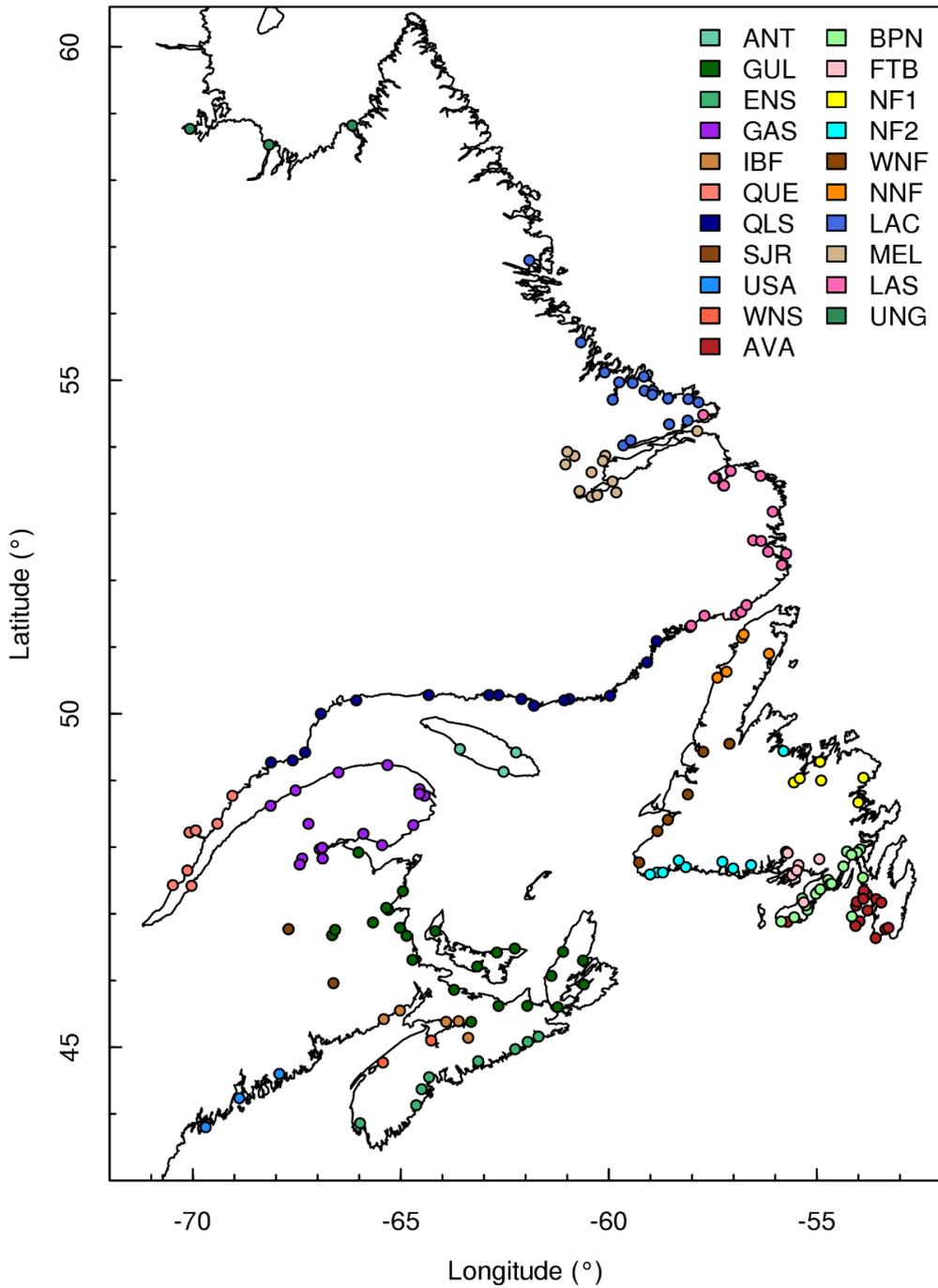


Figure 3. Map of North American sample locations used in the SNP baseline for Atlantic salmon. The 21 North American reporting groups are labelled and identified by colour. See Figure 4 for full range wide baseline sampling locations.

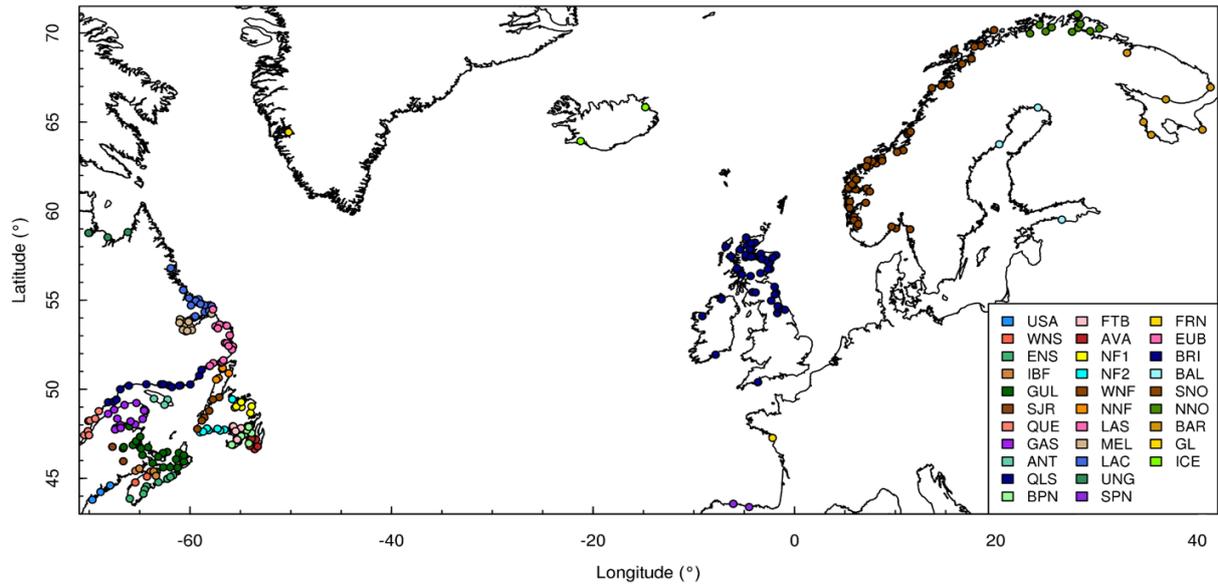


Figure 4. Map of range wide sample locations used in the SNP baseline for Atlantic salmon and the 31 defined reporting groups (labelled and identified by colour). See Figure 3 for finer resolution of North American locations.

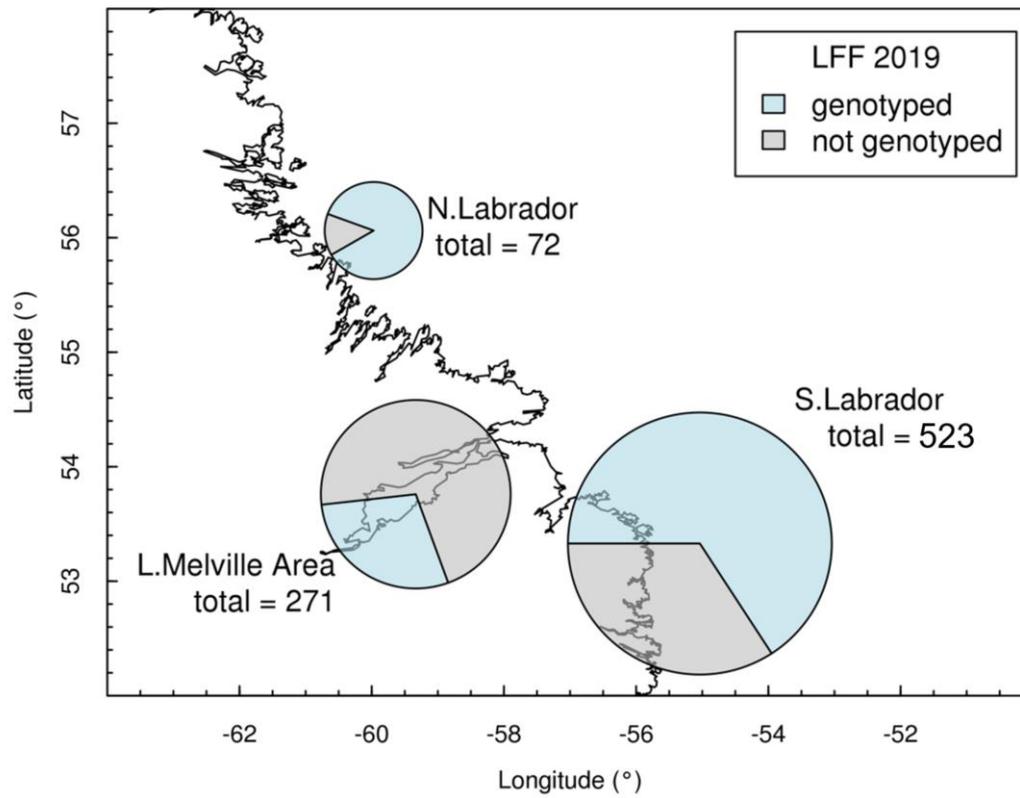


Figure 5. Total tissue samples available and proportions of samples genotyped by Salmon Fishing Area in the Labrador Atlantic salmon subsistence fisheries in 2019.

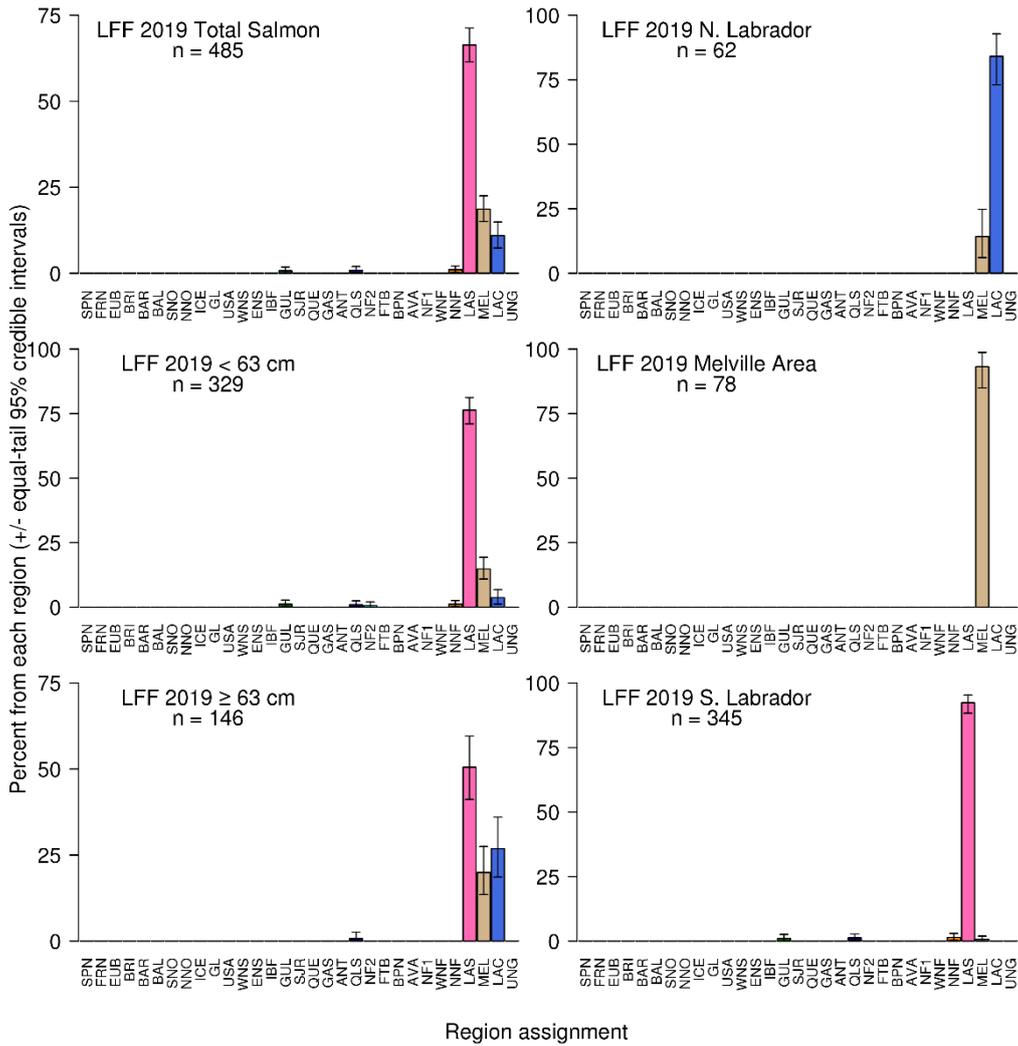


Figure 6. Bayesian estimate of mixture composition of samples from the Labrador Atlantic salmon fisheries for 2019 by size group (small <63 cm, large \geq 63 cm) and region (SFA 1A – N. Labrador, SFA 1B – Lake Melville, and SFA 2 – S. Labrador) using the SNP range wide baseline for Atlantic salmon. Baseline locations refer to reporting groups identified in Figures 3 and 4. Reporting group assignment acronyms are explained in Table 8. Note that credible intervals with a lower bound including zero indicate little support for the mean assignment value.

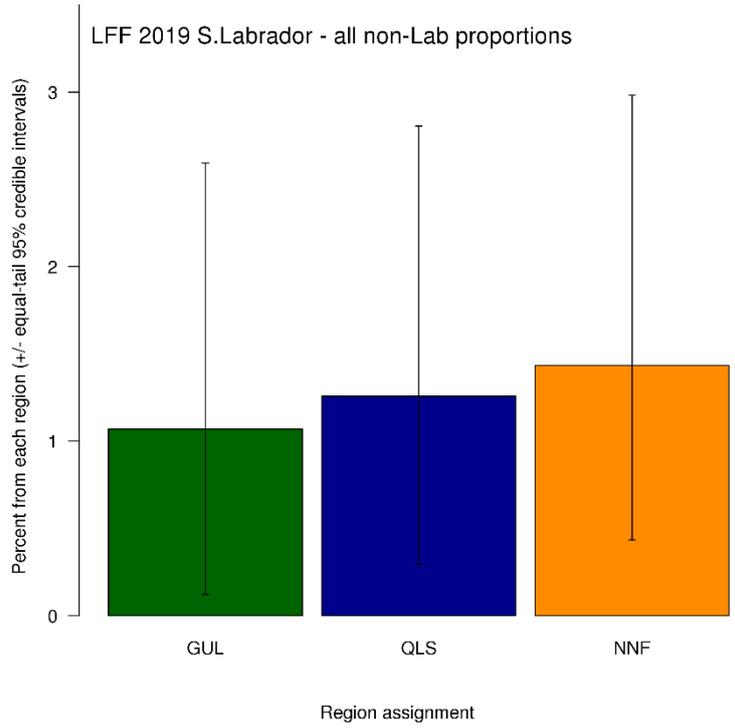


Figure 7. Bayesian estimate of mixture composition of samples from the Labrador Atlantic salmon fisheries for 2019 that were of non-Labrador origin (n=10, all collected in Southern Labrador SFA 2) using the SNP range wide baseline for Atlantic salmon. Baseline locations refer to reporting groups identified in Figures 3 and 4. Reporting group assignment acronyms are explained in Table 8. Note that credible intervals with a lower bound including zero indicate little support for the mean assignment value.