

**West Greenland Commission**

**WGC(02)5**

***Report on European Union Participation in NASCO  
West Greenland Sampling Agreement in 2001***



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#### **1. Objectives**

Under the NASCO West Greenland Sampling Agreement, 2001 (WGC(01)14), Parties to the NASCO West Greenland Commission agreed to provide staff to sample catches of Atlantic Salmon in the West Greenland fishery during the 2001 fishing season. The objectives of the sampling programme were:

- Obtaining biological data including lengths and weights of landed fish
- Examination of fish for tags, fin clips and other marks
- Collection of scale samples to be used for age and growth analyses
- Collection of tissue samples to be used for genetic analysis and disease sampling
- Collection of other biological data as requested by ICES scientists and NASCO co-operators

Samplers from both North America and Europe were deployed during the course of the commercial salmon fishing season, as far as possible covering the whole fishery both temporally and spatially. Samplers worked throughout the course of the season in Nuuk, Qeqertarsuatsiaq, Kangaamiut and Qaqortoq (Fig 1). The EU agreed to provide a minimum of six person weeks in support of the programme, and, in the event, provided staff for about nine weeks, as follows:

Country	Institute	Period	Location
UK	CEFAS, Lowestoft	27 Aug to 9 Sept	Qaqortoq
	FRS, Montrose	7 Sept to 1 Oct	Qaqortoq
ROI	Marine Institute	25 Aug to 11 Sept	Kangaamuit

The USA and Canada provided a further four staff, and the deployment of the EU staff was co-ordinated by the USA. The Greenland Institute also provided staff to assist with the sampling and to act as translators.

This report provides observations by the EU samplers on the operation of the fishery during the 2001 season and details the sampling undertaken.

#### **2. Quotas, catches and fishing periods**

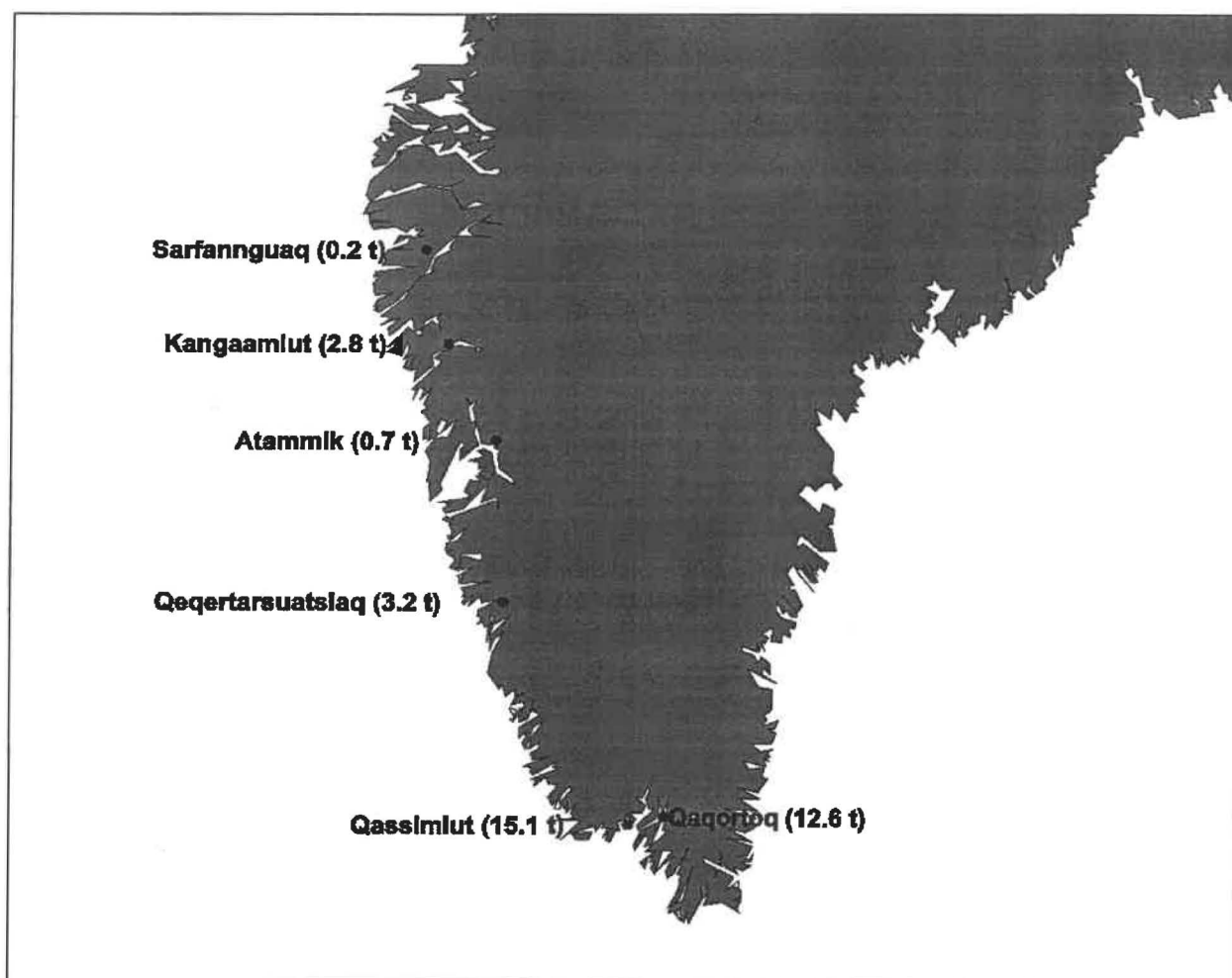
Under the NASCO *Ad hoc* Management Programme for the 2001 Fishery at West Greenland (WGC(01)16) the season for the commercial fishery was divided into three periods, with the continuation of the fishery into subsequent periods dependent on sufficiently high catch per unit effort (CPUE) being obtained in previous periods. The quotas, provisional catches and CPUEs for the three periods are summarised in Table 1. The CPUE remained sufficiently high for the fishery to continue throughout all three periods, with the quotas for the second and third periods being set to values corresponding to the attainment of 'medium' levels of CPUE in previous periods. This gave a total quota of 114 tonnes.

The quotas were not met in any of the three fishing periods, and overall 34.5 tonnes of salmon were reported to have been landed in the commercial fishery, which was 30.3% of the total quota. A more detailed breakdown of the provisional commercial catches is provided in Appendix 1. The majority of landings (80%) were made to the two most southerly NUKA plants at Qassimiut and Qaqortoq.

**Table 1. Quotas & Catches in the West Greenland Salmon Fishery for 2001**

Dates		Quota (tonnes)	Catch in Period (tonnes)	Cumulative Catch (tonnes)	Cumulative CPUE (Kg/landing)	Cumulative CPUE Classification
From	To					
13/08/01	17/08/01	28	9.9	9.9	115	Medium
20/08/01	31/08/01	32 (+18.1 carried over)	11.6	21.5	110.8	Medium
03/09/01	28/09/01	54 (+38.5 carried over)	13.0	34.5	123.7	Medium

In addition to the commercial fishery, a private (non-commercial) fishery operated throughout the period in a number of West Greenland communities. This was not subject to quota restrictions, and was for personal or local consumption only. A catch of 8 tonnes was reported in this fishery between 13 August and 11 October, and a detailed breakdown of provisional these catches (provisional) is given in Appendix 2. Observations of landings at Qaqortoq suggest that many non-commercial landings were unreported.



**Figure 1** – Map of South Greenland showing communities to which salmon were landed commercially in 2001 (with total landed weights in parentheses)

### **3. Samplers' observations on the fishery**

During their stay in Greenland the samplers also made observations of the fishery and the way that catches were handled. These observations were based upon events in a small number of locations during a limited part of the fishing season. They may not therefore be typical of the whole fishery.

The vessels operating in the salmon fishery were small (only vessels <10m are allowed to fish for salmon) with some having wheelhouses but many being open dinghies about 6 or 7m in length. Vessels were normally operated by two people and the gear used was drift nets. Fish were landed gutted for hygiene reasons, but calculated whole weight is used throughout this report (1.11 x gutted weight).

NUKA is a hunter/gatherer organisation which provides a market for a range of natural products at set prices, and processes, packages and distributes them for both the domestic and export market. There are several NUKA processing plants around West Greenland. The salmon purchased by the NUKA plants were thoroughly cleaned, glazed and frozen whole. Different plants process different products at various times of the year with salt cod, wild crowberries and salmon being processed at NUKA Qaqortoq during August and September 2001. The sister company to NUKA, Royal Greenland, processes catches from larger fishing vessels (e.g. shrimps).

Other species landed by local inshore fishermen included mainly cod, with some harbour porpoise and catfish. Salmon were purchased by NUKA (Qaqortoq) for £0.78 per kg (gutted with heads on). Although the price per kilogram for cod was less than that for salmon, the average cod catch was greater. It was therefore more profitable for fishermen to fish for cod than salmon. There were also other more profitable fisheries in operation in West Greenland, in particular the snow crab fishery. Fishermen from other communities further north were largely targeting snow crab, but there was no processing facility for this species at Qaqortoq. As a result of these market forces, effort directed at the salmon fishery was low, particularly in communities from which a snow crab fishery was in operation, but would likely have increased had catches and prices been higher.

The NUKA staff at Qaqortoq seemed disappointed with the small amount of salmon landed as it made processing less cost-effective (the plant was capable of processing 3 tonnes per day, but total landings per day averaged less than 500 kg). In addition to this, at the start of the season NUKA intended to purchase 90 tonnes of salmon for processing of which 60 tonnes was intended for export, however only 34.5 tonnes was landed through the plants.

### **4. Sampling programmes**

Landed fish were sampled at random and, where possible, the total catch was examined. Fish were measured (fork length) and weighed (gutted weight). Scales were taken for ageing and tissue for DNA analysis; both scale and tissue analyses contribute to the estimation of continent of origin. Samples for ISA (Infectious Salmon Anaemia) were taken in Nuuk only. In addition, fish were examined for external tags, brands or elastomer marks and adipose-clipped fish were sampled for microtags.

### ***Qaqortoq***

A total of 11 different named fishermen landed to the NUKA plant between 27 August and 9 September. Only three different fishermen landed to the NUKA plant between 12 and 28 September. From around the 15 September, there was a noticeable drop in the salmon catch at Qaqortoq. Very few fish were being sold to the NUKA plant. Many different fishermen were landing small numbers (<10) of salmon, and fish were either sold on the quayside or at the market. Two EU samplers worked at Qaqortoq and examined both commercial and private fisheries landings during these periods.

During the first period, commercial catch rates averaged 99 kg per individual landing and ranged from 21 kg to 337 kg. The total weight landed to the plant averaged 286 kg per available fishing day throughout this period and ranged from 31 kg to 1055 kg. Fish averaged 3 kg in weight and appeared to be in excellent condition with a high fat content. The majority of fish observed being landed were sold to the NUKA A/S processing plant in Qaqortoq, the only fish-processing facility in the town. Salmon were also sold in small quantities at the local open-air market alongside a range of other catches including cod, catfish and marine mammals. One small landing of salmon (25 kg) would saturate this market for at least a day.

During the second period, commercial catches sold to the NUKA plant averaged 79 kg per individual landing and ranged from 33 kg to 206 kg. The average weight of salmon sold to the NUKA plant was 23 kg per available fishing day. Private landings averaged 16 kg per individual landing and ranged from 7 kg to 28 kg. Average weight of salmon sold privately was 9 kg per available fishing day. Individual fish averaged 3.4 kg and 3.6 kg in the commercial and private fisheries respectively. Private catches were not reported to the relevant authority and are therefore not included in Appendix 2.

Observations at Qaqortoq suggest that the majority (around 80%+) of landings were sold to NUKA, with a few smaller non-commercial landings going straight onto the back of trucks or being sold on the local market.

### ***Kangaamuit***

The third EU sampler began work at Nuuk and then transferred to Kangaamuit, which was the northernmost port where landings were reported during the second fishing period. The majority of salmon landings in Kangaamuit were dispatched to the NUKA fish-processing plant from local fishermen. Fishing effort during the sampling period was low as a consequence of the low price offered by the fish plant for salmon. In addition the season coincided with the caribou-hunting season which was more lucrative. The total reported salmon landings for Kangaamuit were 865.5kg of which 96.1% were sampled.

### ***Nuuk***

After the completion of sampling in Kangaamuit this observer transferred south to Nuuk. In Nuuk, salmon landings were either brought to the local meat market or sold locally to the hospital, hotels, restaurants, shops, etc. This made sampling more difficult as all likely sources had to be checked daily throughout Nuuk. The Fishery Licence Office did not record salmon landings in Nuuk, therefore there was no official landings record for the sampling period although all known landings were sampled before the closure of the fishery.

## **5. Sampling Practicalities**

Staff at the plants were very co-operative, and often assisted with preparing for the sampling. When fish were brought for weighing in, questions could be directed to the fishermen regarding where they had been fishing, whether the entire catch was present and for any comments they had regarding the fishing. The fishermen were also generally helpful and did not mind this questioning, although few of them spoke English. The fish were sampled immediately after sale to NUKA. Landings were small and sporadic. The amount of sampling time available varied and depended upon both the timing and size of the catch. The plants were closed at weekends.

In order to ensure that the majority of fish could be sampled it was necessary for observers to be available for as much time as possible to intercept the fish before any trading took place, and it was useful to spend the time between samples waiting at a point where the incoming boats could be observed unloading their catches. In this way, it was possible to check what proportion of the catch was being landed to NUKA and what proportion was being sold on the local outdoor market or elsewhere. In some instance it was possible to sample catches on their way to the outdoor markets; the fish on the markets could also be checked for the presence of coded wire tags (CWTs).

## **6. References**

(WGC(01)14) 2001. West Greenland Fishery Sampling Agreement, 2001. NASCO Report of the Annual Meetings of the Commissions.

(WGC(01)16) 2001. *Ad hoc* Management Programme for the 2001 Fishery at West Greenland. NASCO Report of the Annual Meetings of the Commissions.



**Appendix 1. Commercial Landings of Atlantic salmon at West Greenland in 2001 (kg whole fresh (ungutted)**  
(Latest update: 9.11.2001)

Date	Atammik	Kangaa' miut	Qaqortoq	Qassimiut	Qeqertar' suatsiaq	Sarfann' guaq	Grand Total
27-Jun		5.0					5.0
13-Aug			674.9		365.2		1040.1
14-Aug			2659.6	933.0	369.6		3962.1
15-Aug			710.4	212.0	84.4		1006.8
16-Aug			812.5	789.2	363.0		1964.7
17-Aug			789.2	526.1	146.5		1461.9
18-Aug				475.6			475.6
20-Aug		134.3	1687.2	1342.5	364.1		3528.1
21-Aug			137.6		61.1		198.7
22-Aug			275.3		96.6		371.9
23-Aug		28.9	976.8	453.4	267.5		1726.6
24-Aug			127.7	118.2	334.1		580.0
26-Aug		187.6					187.6
27-Aug		132.1	414.0		167.6		713.7
28-Aug	34.41	388.5	239.8		118.8	2.8	784.2
29-Aug		103.2	1054.5	1011.8	109.9		2279.4
30-Aug	78.81	233.1	331.9		116.6		760.4
31-Aug		103.8	316.4		40.0		460.1
03-Sep		76.6	31.1		12.2	31.1	151.0
04-Sep		105.5	115.4	1809.3		16.7	2046.8
05-Sep		54.9	132.1	133.2		15.5	335.8
06-Sep		190.9	44.4	313.6		45.5	594.4
07-Sep		122.1	180.9			38.9	341.9
08-Sep				2641.8			2641.8
10-Sep		117.7	460.7			21.1	599.4
11-Sep		137.6		3064.7			3202.3
12-Sep		107.7					107.7
14-Sep		94.4	206.5				300.8
15-Sep				783.7			783.7
17-Sep		55.5		86.6			142.1
18-Sep		72.2	40.0	368.5			480.6
19-Sep		116.6					116.6
20-Sep	258.63	53.3					311.9
21-Sep			33.3				33.3
24-Sep	203.13	46.6	74.4		174.3		498.4
25-Sep			41.1				41.1
28-Sep	132.09	144.3					276.4
<b>Grand Total</b>	<b>707.07</b>	<b>2812.2</b>	<b>12567.4</b>	<b>15063.2</b>	<b>3191.3</b>	<b>171.5</b>	<b>34,512.7</b>

**Appendix 2. Private Landings of Atlantic salmon at West Greenland in 2001 - kg whole fresh (ungutted)**  
(Latest update: 9.11.2001)

Date	Arsuk	Kangi' linnguit	Manii' tsoq	Narsaq	Nuuk	Paamiut	Qaqor' toq	Qeqert' arsuaq	Sisimiut	Grand Total
13-Aug				57.7						97.7
14-Aug				27.8				29.4	48.8	106.0
15-Aug						41.6		51.1	112.1	204.8
16-Aug		6.7				43.8	58.3		249.8	358.5
17-Aug		3.3		22.2				69.9	198.7	294.2
18-Aug		5.6						30.0		35.5
19-Aug				5.6						5.6
20-Aug					79.9				190.9	270.8
21-Aug	79.9	3.3		66.6			46.3		5.6	201.7
22-Aug	1320.9			55.5	166.5					1542.9
23-Aug		10.0		129.9					43.3	183.2
27-Aug			319.7						102.1	421.8
28-Aug							62.2		124.3	186.5
31-Aug		106.6								106.6
03-Sep				66.6						66.6
05-Sep									153.2	153.2
06-Sep					688.2	26.6				714.8
07-Sep	1375.3									1375.3
10-Sep						27.8				27.8
11-Sep			55.5							55.5
12-Sep					166.5	57.7		75.5		299.7
17-Sep		27.8								27.8
18-Sep					149.9					149.9
19-Sep					83.3					83.3
20-Sep		79.9			139.9					219.8
21-Sep					189.8					189.8
25-Sep			310.8							310.8
28-Sep					149.9					149.9
29-Sep					50.0					50.0
01-Oct					44.4					44.4
10-Oct					50.0					50.0
11-Oct							17.8			17.8
<b>Grand Total</b>	<b>2776.1</b>	<b>243.1</b>	<b>686.0</b>	<b>431.8</b>	<b>1958.0</b>	<b>197.6</b>	<b>184.5</b>	<b>255.9</b>	<b>1268.7</b>	<b>8001.7</b>