



**Council**

**CNL(20)11**

*Scientific Research Fishing in the Convention Area*



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#### **1. Background**

Under Article 2 of the [Convention for the Conservation of Salmon in the North Atlantic Ocean](#) fishing of salmon is prohibited beyond areas of fisheries jurisdiction and within areas of fisheries jurisdiction beyond 12 nautical miles except in the West Greenland Commission area (up to 40 nautical miles) and in the North-East Atlantic (within the area of fisheries jurisdiction of the Faroe Islands).

Scientific research fishing may be undertaken in these areas on the condition that the requirements in the Annex of the Resolution By The Parties To The Convention For The Conservation Of Salmon In The North Atlantic Ocean Concerning Scientific Research Fishing ([CNL\(96\)60](#)) are met.

The Annex requires that:

*‘Any Party or Parties wishing to undertake scientific research fishing for Atlantic salmon in accordance with this Resolution shall deliver a proposal to the Secretary no less than 45 days before it wishes to commence fishing...*

*The Secretary shall immediately transmit copies of the proposal to all Parties.*

*The results of this scientific research fishing shall be made available to the Council of NASCO and to ICES as soon as practicable, including details of any catches.’*

#### **2. Proposal regarding scientific research fishing**

On 15 August 2019 the NASCO Secretariat received a proposal regarding scientific research fishing from the Norwegian Environment Agency. The proposal stated that:

*‘The proposed scientific research fishing is part of the project ATLANTIC SALMON AT SEA – factors affecting their growth and survival (SeaSalar) and is planned to be undertaken by the Arctic University of Norway (UiT), the Norwegian Institute for Nature Research (NINA) and the Institute of Marine Research (IMR).’*

The following information required by the Annex to Resolution CNL(96)60 was provided:

a) the purpose of the research fishing:

As part of the project ATLANTIC SALMON AT SEA – factors affecting their growth and survival (SeaSalar) UiT - the Arctic University of Norway, Norwegian Institute for Nature Research (NINA) and Institute of Marine Research (IMR) aim to conduct a sampling cruise in northern parts of the Norwegian Sea and western parts of the Barents Sea in October 2019. The cruise will be performed by the vessel "FF Helmer Hansen", with a principal aim of catching live Atlantic salmon for tagging. During the cruise the aim is to tag 30 Atlantic salmon with various archival tags, which records environmental variables that will enable the scientists to reconstruct their migration routes while at sea. This effort will increase the knowledge of the ocean distribution of Atlantic salmon, which in turn will facilitate a greater understanding of how environmental conditions in the ocean affect individual survival and population recruitment. Permission for tagging is given by the Norwegian Food Safety Authority (FOTS ID = 15950).

b) the dates during which the research fishing will take place:

From 5 to 25 October 2019.

c) the area in which the research fishing will take place:

The Norwegian economic zone, the fishery protection zone around Svalbard, the fishery zone around Jan Mayen and international waters adjacent to the Norwegian shelf.

d) the name, registration, call sign and a description of any participating vessels:

The name of the participating vessel is FF Helmer Hansen.

Registration: Norway (NOR)

Call sign: LAHV

IMO number: 8716655

MMSI number: 257471500

Colour: Blue / white

e) the type and amount of gear to be used:

The scientists will primarily fish for salmon using a pelagic trawl, specialised to catch live salmon. If trawl catches are low, they will also fish with three salmon lines with a total of 150 hooks that will be positioned at approximately 5 m depth.

f) the estimated total weight and numbers of salmon to be retained:

A maximum of 30 Atlantic salmon will be tagged with various archival tags, which records environmental variables so that migration routes while at sea can be reconstructed. The fish will be released after tagging.

### **3. Transmission of the proposal to all Parties**

The Secretary immediately transmitted the proposal to all Parties. No objections to the scientific research fishing were received.

The Norwegian Environment Agency were informed of this on 19 September 2019.

### **4. The results of the scientific research fishing**

The Norwegian Environment Agency provided a report showing the results of the scientific research fishing, including details of catch (Annex 1).

More information about the SeaSalar project can be found on its website <https://www.seasalar.no/>.

Secretariat  
Edinburgh  
15 April 2020

**Cruise report from postsmolt and salmon cruise with RV Helmer Hansen  
05-17.10.2019**

**Aims of the research cruise**

The aims of this research cruise were primarily to try to catch live adult salmon in the open ocean in areas close to the Svalbard archipelago, and tag individuals captured in good condition with satellite tags or DST tags, depending on size of the fish. A secondary objective was to establish whether postsmolts were using these areas as feeding grounds at this time of year. A third objective was to collect hydrographical data, and water samples for eDNA analysis. The eDNA samples would later be tested for the presence of salmon DNA, but also DNA from the different whale species present in this area.

**Methodological approach**

While postsmolts are readily captured in pelagic trawls in areas where they are present, adult salmon with their potential for higher swimming speed are caught more irregularly. The ecosystem cruise for mapping herring and mackerel distribution in the North Atlantic conducted every summer by Norway, Iceland, the Faroes and Greenland (IESSNS survey) regularly catch between 40-60 postsmolt as bycatch every year in pelagic trawling for mackerel and herring, while a much smaller number of older salmon are caught, usually in the range 5-10. We therefore suspect that some of them are able to avoid/swim away from the trawl at the trawling speeds being used.

For this cruise we used two alternative methods to try to catch postsmolts and salmon. The main method was trawling with a specially designed salmon trawl, fitted with a so called “Fish-lift” at the cod end of the trawl (Fig 1). The Fish-lift is an aluminum box/chamber fitted with floatation that prevents any fish being caught from being squeezed together in the cod end of the trawl. The trawl was fitted with sufficient floatation to keep the upper lip of the trawl at the surface. Depending on trawling speed, the vertical opening of the trawl varied between 12-15 m. Higher trawling speeds would reduce the vertical opening. Most trawls were conducted with a speed around 4 knots, and with 180 m wire length.

As an alternate method for catching larger salmon, longlines were also used at four different localities. The longlines had a length of 500m, and 50 hooks, baited with herring and capelin.



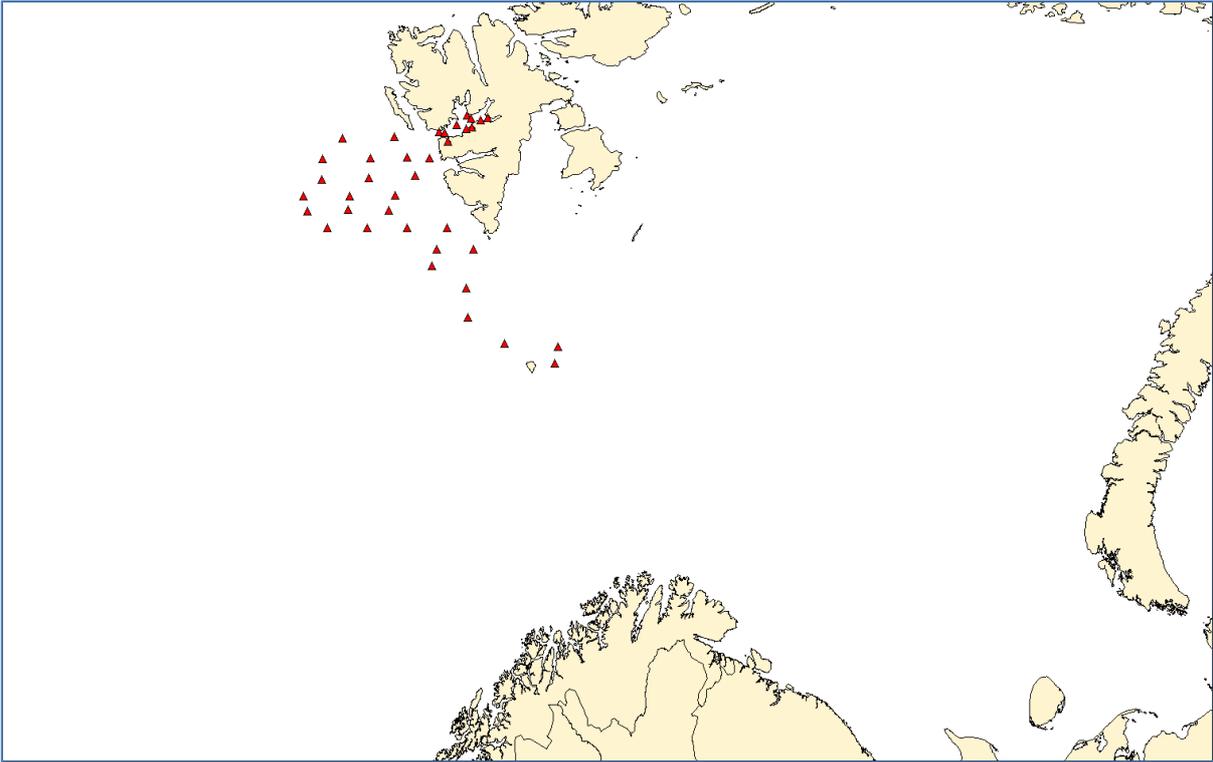
**Figure 1.** Fish-lift and inspection of the catch at the end of the trawl haul

## **Results & Discussion**

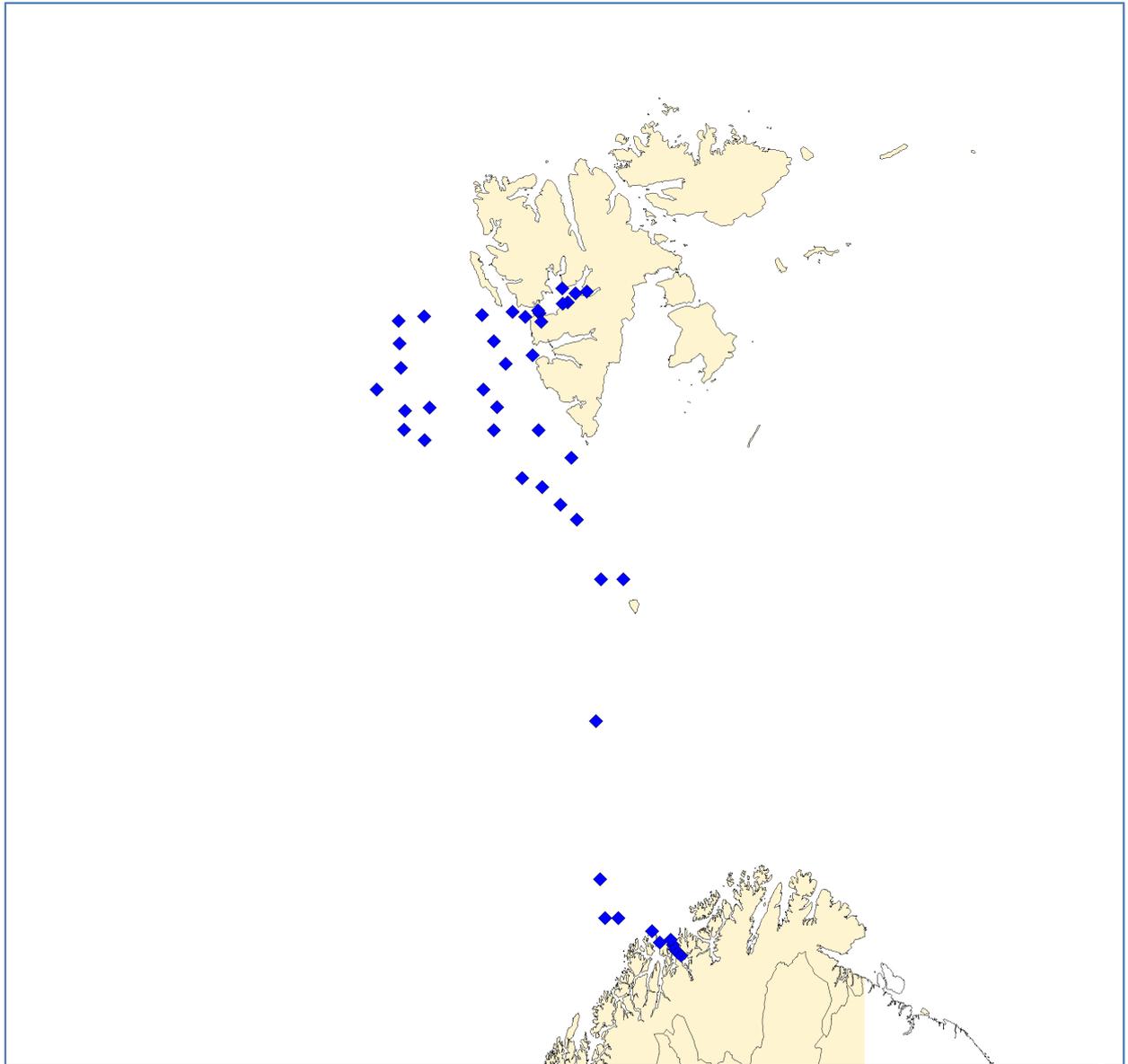
In total, 37 hauls with the salmon trawl was conducted. The duration of the hauls was between two and four hours with an average speed of 3.8 knots. The area covered was the Isfjord fjord system at Spitsbergen, and transects along the southwestern coast of Spitzbergen down to Bear Island (see fig 2). The catch was limited to a few species, with lumpstickers (*Cyclopterus lumpus*) being present in almost all trawls. Other species observed were herring (*Clupea harengus*), cod (*Gadus morhua*), polar cod (*Boreogadus saida*), arctic staghorn sculpin (*Gymnocanthus tricuspis*), redfish (*Sebastes sp.*), and sand eels (*Ammodytes sp.*), see table 1 for a brief summary of catches.

The composition of the catch, and the presence of agile swimmers such as juvenile cod, suggests that the trawl was functioning properly and should have been able to catch postsmolts, and possibly salmon. The results therefore indicate that postsmolts do not have this northerly distribution at this time of year. From other studies it is known that older fish are in these areas in this time period, but none were caught during the cruise, possibly due to low density and catchability issues with faster swimming adult salmon.

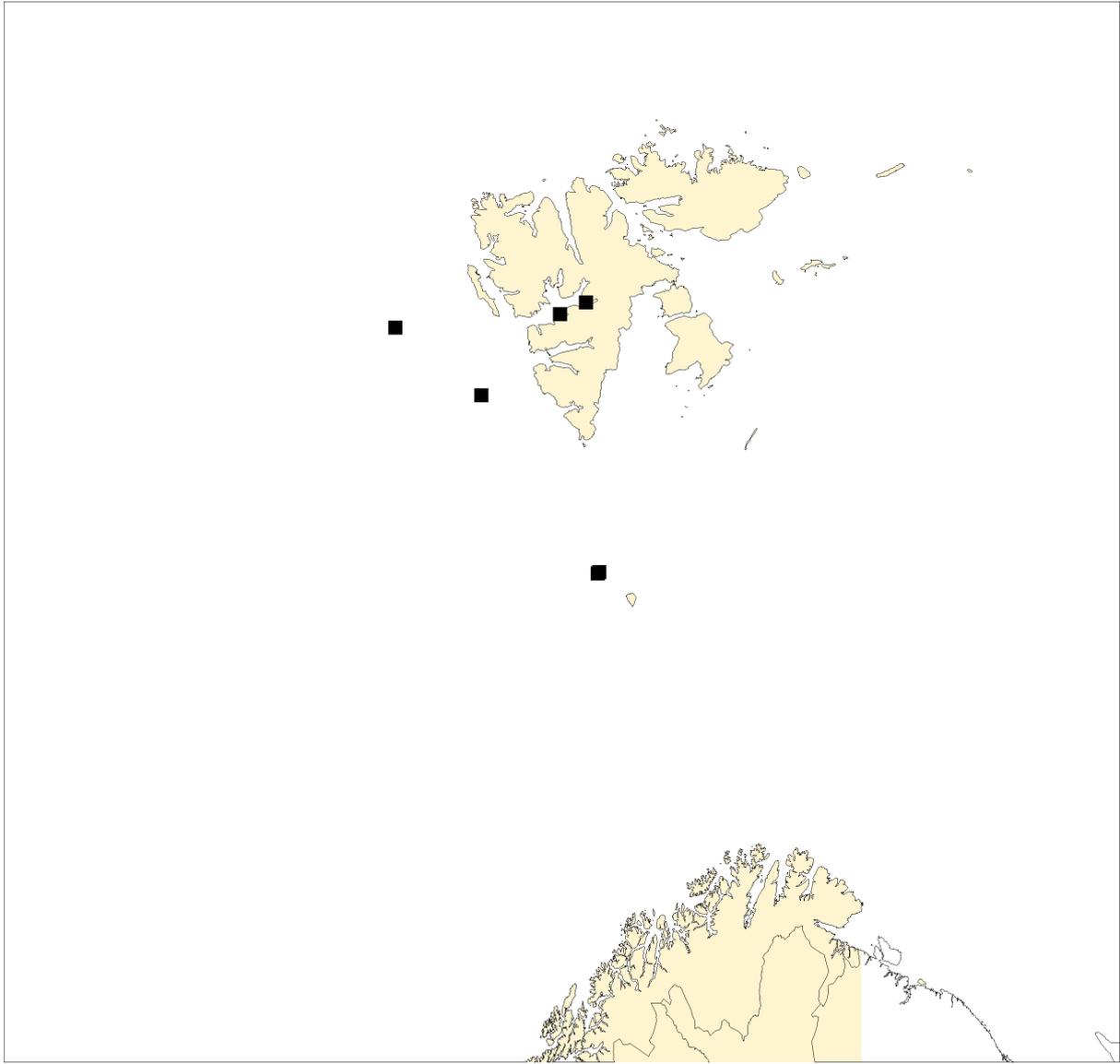
Longlines were set at five different locations (see fig. 4), but no salmon were caught. Water samples for eDNA analysis were collected at a number of stations (see fig. 3). Results from analyses of these samples are expected to be available in late 2020.



**Figure 2.** Pelagic trawl stations



**Figure 3.** CTD and water sampling stations



**Figure 4.** Longline stations

**Table 1.** Summary of catches at pelagic trawl stations

<b>Station number</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Date(UTC)</b>	<b>Time(UTC)</b>	<b>Catch</b>
1320	78.2561265	15.5769547	06.10.2019	08:10:15	4 small cod, about 15 lumpsuckers (large and small), around 30 herring, one polar cod
1322	78.3708996	16.0834995	06.10.2019	11:42:35	A lot of small herring (thousands), a lot of small lumpsuckers (hundreds), a few polar cod, one redfish ( <i>Sebastes</i> )
1324	78.4070702	16.521929	06.10.2019	17:17:28	Around 70 cod size 25-30cm, 20 lumpsuckers.
1326	78.4462131	15.2833794	06.10.2019	22:04:31	No catch due to problem with trawl
1327	78.3909458	15.5386749	07.10.2019	02:26:03	A few herring, five cod, a few sand eels and 80 lumpsuckers
1330	78.2308406	15.2337432	07.10.2019	11:03:00	60 lumpsuckers, 30 herring
1333	78.0265047	14.1962464	07.10.2019	17:01:46	92 small cod, 12 herring, 18 lumpsuckers
1335	78.1765247	13.6652584	07.10.2019	22:25:42	A few lumpsuckers and one cod
1336	78.2882564	14.7095574	08.10.2019	03:23:08	18 lumpsuckers, 1 polar cod
1338	78.1607018	13.9650581	08.10.2019	10:05:46	One arctic staghorn sculpin, 44 lumpsuckers
1341	78.0996098	11.0414254	08.10.2019	17:11:23	10 lumpsuckers
1343	78.0836278	8.02989858	09.10.2019	01:33:18	26 lumpsuckers
1348	77.7448138	6.84704537	09.10.2019	15:45:11	No catch due to problem with trawl

1349	77.7599276	9.63638213	10.10.2019	01:44:40	53 lumpsuckers, 1 herring
1351	77.7748219	11.7997135	10.10.2019	07:54:07	71 lumpsuckers
1352	77.766269	13.1149149	10.10.2019	12:59:01	18 lumpsuckers, 1 cod
1356	77.491453	12.2678724	10.10.2019	19:15:48	103 lumpsuckers, 3 <i>Periphylla</i>
1357	77.447152	9.56961677	11.10.2019	01:26:18	8 lumpsuckers, juveniles of redfish
1359	77.42817	6.81665645	11.10.2019	08:21:51	25 lumpsuckers
1361	77.1557343	5.72559063	11.10.2019	15:31:54	27 lumpsuckers, 1 herring, 8 <i>Periphylla</i>
1362	77.163421	8.43331733	11.10.2019	22:07:26	25 lumpsuckers, juvenile redfish
1366	77.1672035	11.0998663	12.10.2019	15:35:32	119 lumpsuckers, 1 haddock, 3 herring
1368	76.9322538	10.7206979	12.10.2019	22:21:10	91 lumpsuckers
1370	76.9397795	8.31937858	13.10.2019	05:22:15	16 lumpsuckers
1372	76.9207283	5.9356843	13.10.2019	11:49:06	16 lumpsuckers
1374	76.652351	7.11543395	13.10.2019	18:56:34	17 lumpsuckers, 3 <i>Periphylla</i>
1376	76.6488436	9.4357289	14.10.2019	01:39:26	19 lumpsuckers, 1 squid
1378	76.6550704	11.7773723	14.10.2019	08:06:55	15 lumpsuckers
1380	76.6473863	14.1183411	14.10.2019	14:47:51	120 lumpsuckers, capelin juveniles

1382	76.3123997	15.6816818	14.10.2019	20:47:00	237 lumpsuckers
1383	76.3173617	13.5089705	15.10.2019	03:09:51	40 lumpsuckers, 1 herring
1385	76.0468005	13.2292071	15.10.2019	10:02:13	16 lumpsuckers
1388	75.697923	15.2611754	15.10.2019	17:16:18	77 lumpsuckers, 1 redfish ( <i>Sebastes</i> ), 1 herring
1390	75.2290048	15.335569	16.10.2019	00:10:07	37 lumpsuckers, 1 haddock
1396	74.8094228	17.4744403	16.10.2019	15:03:57	35 lumpsuckers, 2 herring
1398	74.7590224	20.6067907	16.10.2019	23:22:11	16 lumpsuckers, 1 herring