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Denmark/Greenland Research Report for 2023

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This report presents catch statistics from the commercial Greenland fishery in 2023 off West Greenland. Catches for main species by NAFO division based on STATLANT 21A are presented in Table 1. Information on length frequency and biological samples taken by technicians from the Greenland Institute of Natural Resources (GINR) or fishermen working onboard the commercial vessels is also presented. Length distributions of Greenland halibut samples from offshore catches are presented in Table 3. A total of 158 length samples were taken, and 939 564 individuals, including Greenland halibut, cod, and roundnose grenadier were measured in NAFO Div. 1A to 1F. In total, 504 otoliths were collected from Greenland halibut and Atlantic cod in Div. 1A to 1F (Table 4). Length distributions from Greenland halibut in 1AB and 1CD are presented in Table 5 and 6.

Furthermore, the report gives a brief overview of the research carried out by the GINR (Fig. 1). For further information on GINR survey activities planned in 2024, visit www.natur.gl. For future research activities, education, collaboration opportunities, infrastructure, logistics, and much more, visit Isaaffik – the Arctic gateway www.isaaffik.org.

WEST GREENLAND (NAFO SUBAREA 1)

A. Status of the fisheries

In 2023, Greenlandic commercial vessels were not engaged in fisheries in other NAFO subareas than Subarea 1.

Provisional STATLANT 21A statistics for the fisheries are presented in Table 1.

1. Shrimp

The shrimp stock off West Greenland is distributed mainly in NAFO Subarea 1 (Greenland EEZ), but a small part of the habitat, and of the stock, intrudes into the eastern edge of Div. 0A (Canadian EEZ). Canada has defined 'Shrimp Fishing Area 1' (Canadian SFA1), to be part of Div. 0A located east of 60° 30'W, i.e. east of the deepest water in this part of Davis Strait.

At the west coast of Greenland northern shrimp is found mainly at depths between 150 and 600 m. The stock is assessed as a single population. The Greenland fishery exploits the stock in Subarea 1 (Div. 1A– 1F). The Canadian fishery has been limited to Div. 0A (SFA1).

Four fleets, one from Canada and three from Greenland (Kongelige Grønlandske Handel (KGH) fleet fishing from 1976 to 1990, the offshore fleet and coastal fleet) have participated in the fishery since the late 1970s. The Canadian fleet and the Greenland offshore fleet (> 75 GRT) have been restricted by areas and quotas since 1977. The fishery by the Greenland coastal fleet (< 75 GRT) was unrestricted until 1997 when quota regulation was imposed. Mesh size is at least 44 mm in Greenland, 40 mm in Canada. Sorting grids to reduce fish bycatch are required in both of the Greenland fleets and in the Canadian fleet. Discarding of shrimps is prohibited.

Greenland requires that logbooks should record catch live weight. A former allowance for crushed and broken shrimps in reckoning quota draw-downs was abolished in 2011 to bring the total catch live weight into closer agreement with the enacted TAC.

Catches of shrimp gradually increased throughout the 1980s and 1990s and reached a level around 157 000 t by 2005-2008 but have since decreased to 72 256 t in 2015. Since 2016 the catches have been increasing in conjunction with increasing TACs.

2. Greenland halibut

The stocks of Greenland halibut in the North West Atlantic are assessed in several management units. Greenland halibut in East Greenland (ICES 14) is considered to be a part of a stock also distributed in Icelandic and Faroese waters. Greenland halibut in the Baffin Bay and the Davis Strait, (NAFO SA 0 + 1 offshore) is assessed as one stock while the inshore stocks in NAFO Div. 1A-F are considered isolated from the offshore stock and assessed per fjord area. In 1994 analysis of tagging and other biological information resulted in the creation of separate management areas for inshore Div. 1A (Disko Bay, Uummannaq, and Upernavik districts). In 2020 it was decided that the inshore Div.1B-F stock was also to be separated into three separate management units, i.e. 1BC, 1D, and 1EF.

In 2023, total catches of Greenland halibut (*Reinhardtius hippoglossoides*) in NAFO Subarea 1 increased to 42 594 t, of which 18 635 t were taken offshore by large vessels, and 23 959 t were landed from small boats operating inshore in the fjords from South Greenland to Qaanaaq. Offshore catches were mainly taken by trawlers at the traditional fishing grounds in Div.1CD and west of Disko Island in Division 1A, while inshore catches are from sea-ice fishing, small vessels, and open boats using gillnets and longlines.

Greenland vessels operating offshore caught 15 583 t (4171 t in division 1AB + 3573 t in division 1CD) and other nations caught 6104 t (103 t in division 1AB + 2173 t in division 1CD). Inshore landings in Div. 1A were distributed from the Qaanaaq fjord (82 t), the fjords near Upernavik (7335 t), the Uummannaq fjord (8250 t), and the Disko Bay (11 430 t). In the fjords south of West Greenland (1B-F) catches increased to 2 005 in 2023 of which 1 035 t were taken inshore in 1D. Trawl fishery is banned inshore, except for shrimp trawl fishery in Disko Bay and a small area inshore in Division 1B. Sorting grids in the shrimp fishery have been mandatory offshore since 2002 with a sorting grid dispensation given to the smaller shrimp vessels operating inshore until 2011.

3. Cod

Cod (*Gadus morhua*) found in Greenland is a mixture of four separate “stocks” that are defined by their spawning areas: I) offshore West Greenland waters; II) inshore West Greenland fjord cod, III) offshore East Greenland and offshore Icelandic waters and IV) inshore Icelandic waters (Therkildsen et al. 2013). Therkildsen et al. (2013) showed a relatively stable spatial and temporal distribution of these spawning stocks

during actual spawning events, but the proportional contribution of the different components to commercial and survey catches in different areas, seasons and years and the associated variation is unclear. However, Icelandic inputs are believed to have been responsible for the previous large year classes in Greenland (i.e. 1984 and 2003). A proportion of these cod return to Iceland when reaching maturity. Previously the stocks have been assessed together. From 2012 the inshore component (West Greenland, NAFO Subarea 1) was assessed separately from all offshore components (Therkildsen, 2013). From 2016 the offshore components have been assessed separately with the West Greenland offshore component being comprised in the offshore area corresponding to NAFO subdivisions 1A, 1B, 1C, 1D, and 1E. The East Greenland offshore component is comprised of the offshore area corresponding to NAFO subdivision 1F in South West Greenland and East Greenland (ICES subarea 14b). The stocks are assessed by the ICES North-Western Working Group (NWWG), see ICES (2023), and ACFM (2023) report. Total catches inshore and offshore 1A-F in 2023 were 24 087 t.

4. Capelin

The capelin (*Mallotus villosus*) fishery in West Greenland is carried out inshore and in the spawning season only (May-July). Only part of the catches are reported, as capelin are used directly by fishermen for bait and dog food during the capelin season. Reported catches of capelin amounted to 235 t in 2023 and comprise a mixture of factory-landed capelin for bait, human and animal consumption landed from small open boats mostly, and logbook reported bycatch in other fisheries.

5. Redfish

Two species of redfish of commercial interest occur off West Greenland inshore and offshore, golden redfish (*Sebastes norvegicus*), and deep-sea redfish (*Sebastes mentella*). Relationships to other North Atlantic redfish stocks are unclear, but the nearest stocks are the demersal and pelagic stocks in East Greenland and the Irminger Sea. Redfish catches in West Greenland are reported as redfish (unspecified, mainly bycatch), golden redfish and beaked redfish (deep-sea redfish).

Demersal redfish
In 2023, logbook reported catch and bycatch of redfish in the Greenlandic fleet targeting shrimp increased to 272 t, which fits well with the increasing recruitment observed in surveys. Inshore reported factory landings of commercially sized redfish amounted to 75 t.

Pelagic redfish
The aggregations of pelagic redfish *S. mentella* found in the NAFO Convention Area likely belong to the same stock of pelagic redfish from the Irminger Sea. The stock is assessed by ICES (2023), and the assessment covers the pelagic redfish in ICES Divisions 5a, 5b, and 14 and in the NAFO Div. 1F, 2H and 2J. The pelagic fishery on *S. mentella* in NAFO Div. 1F started in 1999 and from 2000 - 2009 significant catches with up to 20% of total catches as in 2003 were taken in NAFO Divisions 1F outside Greenland EEZ and 2J. In 2013, 3113 t were taken in NAFO 1F, but since then no catches have been reported from 1F.

6. Grenadiers

There are two species of grenadiers of commercial interest in Greenland, roundnose grenadier (*Coryphaenoides rupestris*) and roughead grenadier (*Macrourus berglax)*. Grenadiers are mainly taken as a bycatch in the Greenland halibut fishery inshore and offshore. In 2023, 72 t of roundnose grenadier were reported from offshore vessels. Less than 1 t were reported as landed to factories inshore.

7. Snow Crab

Snow crab (*Chionoecetes opilio*) is distributed along the west coast of Greenland from division 1A to 1F. The fishery is conducted only by Greenland vessels. From 2005-2020, the crab resource has been managed in 6 areas (from North to South: Upernavik, Uummannaq-Disko Bay, Sisimiut, Maniitsoq-Kangaamiut, Nuuk-Paamiut, and Narsaq-Qaqortoq). From 2020, the management areas of Sisimiut and Nuuk – Paamiut were furthermore divided in inshore as well as an offshore part, separated by the 3-nautical mile line. The fishing fleet is dominated by small vessels (less than 75 GRT), which have exclusive rights for fishing inshore as well as offshore. No large vessels (greater than 75 GRT), which were only allowed to fish offshore, have been in the fishery since 2005. Total allowable catch (TAC) restrictions have been imposed since 1995, but have only limited the catch in some years and management areas since 2004.

The number of vessels with licenses to participate in the snow crab fishery increased from 1999 to 2002 from approximately 120 vessels to 392 vessels. Since then, the number of vessels has decreased substantially as the abundance of the resource has also declined. Since 2008, approximately less than 40 vessels have been active in the snow crab fishery.

The total catch in NAFO Subarea 1 peaked in 2001 with approximately 15 100 t. From 2001 to 2011 total landings decreased markedly to 2000 t. In subsequent years total annual catches fluctuated around this level, but increased again from 2017 and amounted to approximately 3000 tons in 2021. Most of the landings are based on the fishery in the management areas of Nuuk-Paamiut, Disko Bay-Uummannaq, and Sisimiut. In 2022 and 2023, they are not reported in STATLANT.

8. Wolffish

There are three species of wolffish in Subarea 1, Atlantic wolffish (*Anarhichas lupus*), spotted wolffish (*Anarhichas minor*), and northern wolffish (*Anarhichas denticulatus*). Only the first two are of commercial interest. In the past, these stocks have mainly been taken as a bycatch in the offshore fisheries targeting cod, Greenland halibut, and shrimp, but occasionally are directly targeted. In 2023, 182 t of wolffish were caught in NAFO subarea 1.

9. Scallops

Total catches of Icelandic scallops (*Chlamys islandica*) in NAFO Subarea 1 increased to 569 t in 2021. All catches are taken in inshore areas in Div. 1A, 1B, 1C, and 1D. New fishing grounds near Sisimiut (1B) were found in 2003, and quotas for two new areas were introduced in 2004. Only one vessel is currently involved in this fishery. No catches are reported in STATLANT in 2023.

10. Lumpfish

Total landings of lumpfish (*Cyclopterus lumpus*) in NAFO Subarea 1 increased from 1200 t in 2000 to almost 9000 t in 2003 and remained at a high level until 2011, when catches reached 11 443 t. Catches are taken in inshore areas in Div. 1A, 1B, 1C, 1D, 1E, and 1F, with the majority being caught in 1D. The fishery is conducted over a short time period of one to two months, and over a vast coastline from 59° N to 72° N. Total landings of lumpfish (for roe) in 2021 were 85 t. Lumpfish is not reported in the STATLANT21A.

11. Greenland cod

Greenland cod (*Gadus macrocephalus/Gadus ogac*) is mostly taken as bycatch in other fisheries or by directed fishery in fjords where it is more abundant. Greenland cod is mostly used for human consumption as dried or frozen fish for the local Greenlandic market. Total reported landings in 2023 amounted to 22 t of which the majority was landed to factories inshore in division 1B.

12. Arctic charr

Arctic charr (*Salvinus alpinus*) is taken in gillnets when returning to natal rivers during their annual feeding migrations in coastal areas. Factory landings were 7 t in 2023, and the production is mainly for the Greenlandic market. There is no reporting required for private fisheries, which presumably is considerably larger. Arctic charr is not reported in STATLANT21A.

13. Atlantic halibut

Catches of Atlantic halibut (*Hippoglossus hippoglossus*) peaked at the beginning of the 1960s and the mid-1980s at a level of 600 to 1000 t per year. With the implementation of sorting grids in the shrimp fishery, bycatch of Atlantic Halibut is rare offshore. In 2023, 10 t of landings were reported of which the majority was taken in Division 1C. There is no reporting required for Atlantic halibut landed and consumed locally.

14. Polar cod/Arctic cod

Reported catches of Arctic cod (*Boreagadus saida*) are mainly taken as bycatch in the shrimp fishery and directed fishery from small boats near glaciers and used directly for bait in the longline fishery targeting Greenland halibut. In 2023, 19 t were reported as factory landings. Arctic cod is not reported in STATLANT 21A.

15. Large sharks

Large sharks (FAO: SHX/GSK) are without doubt exclusively Greenland sharks *Somniosus microcephalus*. In 2023, 64 t of large sharks were reported.

16. Sea cucumber

A trial fishery for orange-footed sea cucumber (*Cucumaria frondosa*) (FAO: CUX) was initiated in 2019, and total catches amounted to 106 t. In 2020, only 2 t were reported and no fishery occurred since 2021 due to lack of permits.

B. Special Research Studies

a. Hydrography Studies

Hydrographic conditions are yearly monitored at 10 hydrographic standard sections and stations in June/July across the continental shelf off West Greenland. Data are uploaded to the ICES database (Mortensen, 2024).

b. Trawl Surveys in Greenland

The Greenland shrimp and fish survey in NAFO SA 1 and ICES 14b:

Since 1988, an annual buffered stratified random trawl survey SFW (Shrimp and Fish West Greenland) has been conducted by the GINR on the West Greenlandic shelf between 59° 15'N and 72° 30'N from the 3- mile limit down to the 600 m and the Disko Bay. The main purpose of the survey is to evaluate the biomass and abundance of the northern shrimp (*Pandalus borealis*), but since 1992 data on fish species have been included. In 2007 this survey was expanded to include the East Greenland shelf to Dohrn Bank at 67° N. The survey was conducted with RV Paamiut from 1988 to 2017 and with the chartered commercial vessels Sjurdarberg in 2018 and Helga Maria, in 2019 and 2020. No survey was performed in 2021. In 2022, the survey was carried out with a new vessel owned by the GINR, RV Tarajoq (Nygaard and Nogueira, 2024). Comparative analysis of the Cosmos gear performance and other analysis for the 4 vessels (RV Paamiut 2005-2017, CV Sjudarberg 2018, CV Helga Maria 2019-2020, and RV Tarajoq 2022) that have been used to carry out the 1AF offshore shrimp and fish survey were performed (Nogueira et al. 2023). SC concluded that the 2018, 2019-2020, and 2022 surveys could be comparable to estimates from previous surveys conducted by RV Paamiut and results could be used for NAFO Subarea 1 shrimp and groundfish assessments.

Greenland halibut trawl survey in NAFO 1CD:
A Greenland offshore trawl survey for Greenland halibut was initiated in 1997. The survey is a continuation of the joint Japanese/Greenland survey carried out in the period 1987-95. From 1997 the survey was conducted with RV Paamiut, using an Alfredo III gear, and covered NAFO Div. 1C and 1D between the 3-mile line and the midline against Canada at depths between 400 and 1500 m. The survey was conducted with the chartered commercial vessel Helga Maria, using also Alefredo III gear, in 2019. The survey was not conducted in 2020 and 2021. In 2022-2023, a new survey series started with a new research vessel, RV Tarajoq, and a new gear, Bacalao 476 (Nogueira and Estévez-Barcia, 2024).

Greenland halibut trawl survey in NAFO1AB offshore:
In 2001 the survey area was expanded to include NAFO Div. 1B-1A (to 74° N), and in 2004 a survey was conducted in the northern part of Baffin Bay (73° N - 77° N) (Div. 1A) at depths down to 1500 m. In 2010 a survey was conducted in Div. 1A to 75° 30' where 93 successful hauls were made. There has been no deep-sea survey in the area since then.

EU-Germany survey in ICES 14b and NAFO 1:
An annual stratified random trawl survey has been conducted by Germany since 1982 in West and East Greenland from 67° N in West Greenland to 67° N in East Greenland, covering the depth zone between 0-400 m. The main purpose of the survey is to evaluate the biomass and abundance of Atlantic cod. The survey is conducted with the German vessel Walther Herwing III.

Nuuk Fjord trawl survey in NAFO 1D inshore:
In 2015, a trawl survey was initiated in the Nuuk fjord with the GINR research vessel RV Sanna. The purpose is to evaluate the local stock of Greenland halibut, shrimp, and Atlantic cod. The survey continued without interruption since 2017 (Nygaard et al., 2023).

c) Gillnet surveys

Cod recruitment gillnet survey
A survey using gangs of gill nets with different mesh sizes has been developed and used since 1985 to assess

the abundance of age 2 and age 3 cod in the inshore areas of NAFO subdivisions 1B and 1D (previously NAFO subdivision 1F was also surveyed).

Greenland halibut gillnet surveys in NAFO 1A inshore:
In 2001, the longline survey in Disko Bay was changed to a gillnet survey. The survey normally covers four transects, and each gillnet set is compiled of 4 different nets with different mesh sizes (46, 55, 60, 70, and 90 mm half mesh). From 2013 to 2016, the surveys in Uummannaq and Upernavik gradually changed from longline surveys to gillnet surveys (Nygaard, 2023a, Nygaard, 2023b, Nygaard, 2023c).

d) Snow crab surveys

The annual monitoring program (trap survey) was initiated in 1997 in Disko Bay (Div. 1A) and Sisimiut (Div. 1B). Since 2001, the offshore trap survey has been conducted, yearly, in more southern areas in West Greenland (Div. 1C and 1D) but has been canceled since 2010. The trap survey in Disko Bay has been canceled since 2018 and only the management area of Sisimiut is monitored on an annual basis. Large and small meshed conical traps are used. Snow crabs are enumerated by sex, carapace width, and carapace condition. The chelae height is measured in males and the abdomen width in females, respectively for maturity determination. Ovary contents, clutch weight, sperm load, and egg development stage in females are determined, and females are sampled for fecundity studies. The objective of both monitoring programs is to assess the abundance of snow crab in inshore and offshore waters of Greenland. Results from this survey are presented in the advising documents of the GINR.

A map of GINR research vessel stations for 2023 is given in Fig 1.

e) GINR Research vessels

The Greenland Institute of Natural Resources operates 2 larger multipurpose research vessels.

RV Tarajoq - OYLD

RV Tarajoq is operational since 2022. Tarajoq was commissioned in 2021. The vessel is 61 m long and 16 m. BRT is 2 841 t. Speed up to 14 knots and pull +50 t. Tarajoq has room for 12 crew members and 20 scientists. Tarajoq is equipped for bottom trawling, pelagic trawling, with A-frame, scientific Simrad EK80 echosounders, and a deep water multibeam and sub-bottom profiler, and has various labs and a hydrographic hangar.

RV Sanna - OZEK

RV Sanna was commissioned in 2012 and mainly operates inshore. Sanna is 32 m long and 10 m wide. BRT is 458 t. Speed is up to 11 knots. Sanna is capable of both bottom and pelagic trawling and is equipped with A-frame, scientific Simrad EK80 echosounders, and hull-mounted multibeam echo sounder Reson SeaBat T50-R with extended range projector to achieve 1000 m water depth range.

Besides these larger vessels GINR operates various smaller vessels and boats.

f) Marine mammals

For yearly summaries of studies of marine mammals in Greenland, see the annual reports of the North Atlantic Marine Mammal Commission (NAMMCO).

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Table 1. Greenland Catches (tons) in NAFO Area in 2023 by species and Division, based on the STATLANT 21 A.

Code	Species	Common name	1A	1B	1C	1D	1E	1F	TOTAL
CAB	Northern wolffish	Anarhichas denticulatus	7.7	1.1	2.7	3.5	0	0	15
CAP	Capelin	Mallotus villosus	205.7	0.1	0	11	4.9	13.2	234.9
CAT	Wolffishes(=Catfishes) nei	Anarhichas spp	10.4	26.7	53.9	5.7	3.9	19.5	120.1
CFB	Black dogfish	Centroscyllium fabricii	0.6	0.1	2	0.5	0	0	3.2
COD	Atlantic cod	Gadus morhua	2690.4	4049.7	7531.99	7821.16	1313.56	680.25	24087.06
GHL	Greenland halibut	Reinhardtius hippoglossoides	34303.3	1056.8	2616.8	3900.4	264.1	453.4	42594.8
GSK	Greenland shark	Somniosus microcephalus	36.3	2.4	11.5	13.5	0	0	63.7
PRA	Northern prawn	Pandalus borealis	45832.3	47621.8	3740.1	9322.7	3694.2	0	110211.1
RED	Atlantic redfishes nei	Sebastes spp	72.1	139	37.5	37	6.6	33.2	325.4
RNG	Roundnose grenadier	Coryphaenoides rupestris	14	2.1	4.4	6.5	0	0	27
SKA	Raja rays nei	Raja spp	50.8	6.2	4	4.3	0	0	65.3
GRC	Greenland cod	Gadus ogac	0	22.1	0	0	0	0	22.1
HAL	Atlantic halibut	Hippoglossus hippoglossus	0	0.1	8.4	1.8	0.1	0	10.4
CAA	Atlantic wolffish	Anarhichas lupus	0	0	0	0.2	0.4	0.6	1.2
CAS	Spotted wolffish	Anarhichas minor	0	0	0	1.1	13.7	45.9	60.7
USK	Tusk(=Cusk)	Brosme brosme	0	0	0	0.1	6.8	4.4	11.3

Table 2. Samples and individuals sampled from the commercial fleet by species, gear, and NAFO Division in 2023.

Code	Species	Common name	Div.	Gear	Numb.ind	Sample Size
COD	*Gadus morhua*	Atlantic cod	1A	Longline	141	1
COD	*Gadus morhua*	Atlantic cod	1A	NA	171308	11
COD	*Gadus morhua*	Atlantic cod	1C	Fishing rods	506	2
COD	*Gadus morhua*	Atlantic cod	1C	Pound nets	924	6
COD	*Gadus morhua*	Atlantic cod	1D	Fishing rods	510	3
COD	*Gadus morhua*	Atlantic cod	1D	Longline	203	1
COD	*Gadus morhua*	Atlantic cod	1D	Pound nets	681	4
COD	*Gadus morhua*	Atlantic cod	1D	Trawl	605	4
COD	*Gadus morhua*	Atlantic cod	1D	NA	1394716	12
COD	*Gadus morhua*	Atlantic cod	NA	Trawl	754	5
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1A	Gillnet	44	2
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1A	Longline	1324687	48
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1A	Trawl	10734	53
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1A	NA	1902339	24
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1B	Trawl	1041	4
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1C	Trawl	970	6
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	1D	Trawl	1033	7
GHL	*Reinhardtius hippoglossoides*	Greenland halibut	NA	Trawl	8414	57
TOTAL					4819610	250

Table 3. Biological samples collected in NAFO by species and Division in 2023.

Code	Species	Division	Otolith	Maturity
COD	*Gadus morhua*	1C	71	-
COD	*Gadus morhua*	1D	601	-
COD	*Gadus morhua*	1E	1084	151
COD	*Gadus morhua*	1F	143	-
COD	*Gadus morhua*	-	2	-
REB	REB	-	32	32
RED	RED	-	1	-
REG	REG	-	35	30
GHL	*Reinhardtius hippoglossoides*	1A	243	243
GHL	*Reinhardtius hippoglossoides*	1C	204	204
GHL	*Reinhardtius hippoglossoides*	1D	189	189
GHL	*Reinhardtius hippoglossoides*	-	105	105
TOTAL			2710	954

Table 4. Length distribution of Greenland halibut samples in 1AB offshore.

Length	3rdQ.	4rdQ.
23	1	0
24	1	0
25	1	0
26	2	0
27	5	0
28	5	1
29	10	1
30	12	6
31	13	8
32	23	2
33	27	1
34	31	14
35	50	3
36	70	27
37	60	1
38	87	3
39	98	74
40	89	2
41	129	5
42	127	10
43	157	10
44	174	6
45	210	13
46	221	11
47	194	10
48	217	10
49	231	12
50	261	10
51	224	8
52	242	9
53	234	7
54	227	6
55	231	5
56	250	3
57	238	2
58	224	1
59	226	1
60	219	1
61	185	77
62	203	69
63	153	72
64	136	69
65	109	1
66	131	34
67	85	29
68	81	23
69	72	25
70	58	22
71	48	9
72	30	11
73	36	9
74	33	5
75	25	6
76	17	1
77	9	3
78	9	1
79	21	5
80	7	2
81	10	2
82	8	2
83	2	2
84	5	4
85	4	1
86	6	0
87	6	1
88	3	0
89	5	0
90	4	0
91	1	0
92	1	1
93	2	0
94	1	0
95	1	0
96	2	0
97	2	9
98	3	1
99	1	0
Ind samples	6336	779
Samples	25	36
Mean L (cm)	53.6	57.7

Table 5. Length distribution of Greenland halibut samples in 1CD offshore.

Length	3rdQ.	4rdQ.
33	1	0
34	0	0
35	0	0
36	1	0
37	1	0
38	1	2
39	2	2
40	1	0
41	0	2
42	3	2
43	10	3
44	11	5
45	13	3
46	19	2
47	29	5
48	28	4
49	22	2
50	37	5
51	28	9
52	35	6
53	31	11
54	30	10
55	29	13
56	22	9
57	15	9
58	21	7
59	19	8
60	21	60
61	8	6
62	2	8
63	2	2
64	0	4
65	0	3
66	0	3
67	0	1
68	1	1
69	1	1
70	0	1
71	0	2
72	6	1
73	2	1
74	2	1
75	0	2
76	0	1
77	0	1
78	3	0
79	0	0
80	0	1
81	0	0
82	0	1
83	3	0
84	1	1
85	1	0
86	5	0
87	1	1
88	3	0
89	4	0
90	7	0
91	0	0
92	0	0
93	4	0
94	1	0
95	5	0
96	4	0
97	3	1
98	0	0
99	5	0
100	3	0
101	0	0
102	1	0
103	0	0
104	0	0
105	0	0
106	2	0
107	0	0
108	0	0
109	0	0
110	2	0
Ind samples	512	223
Samples	10	15
Mean L (cm)	56.9	57.3

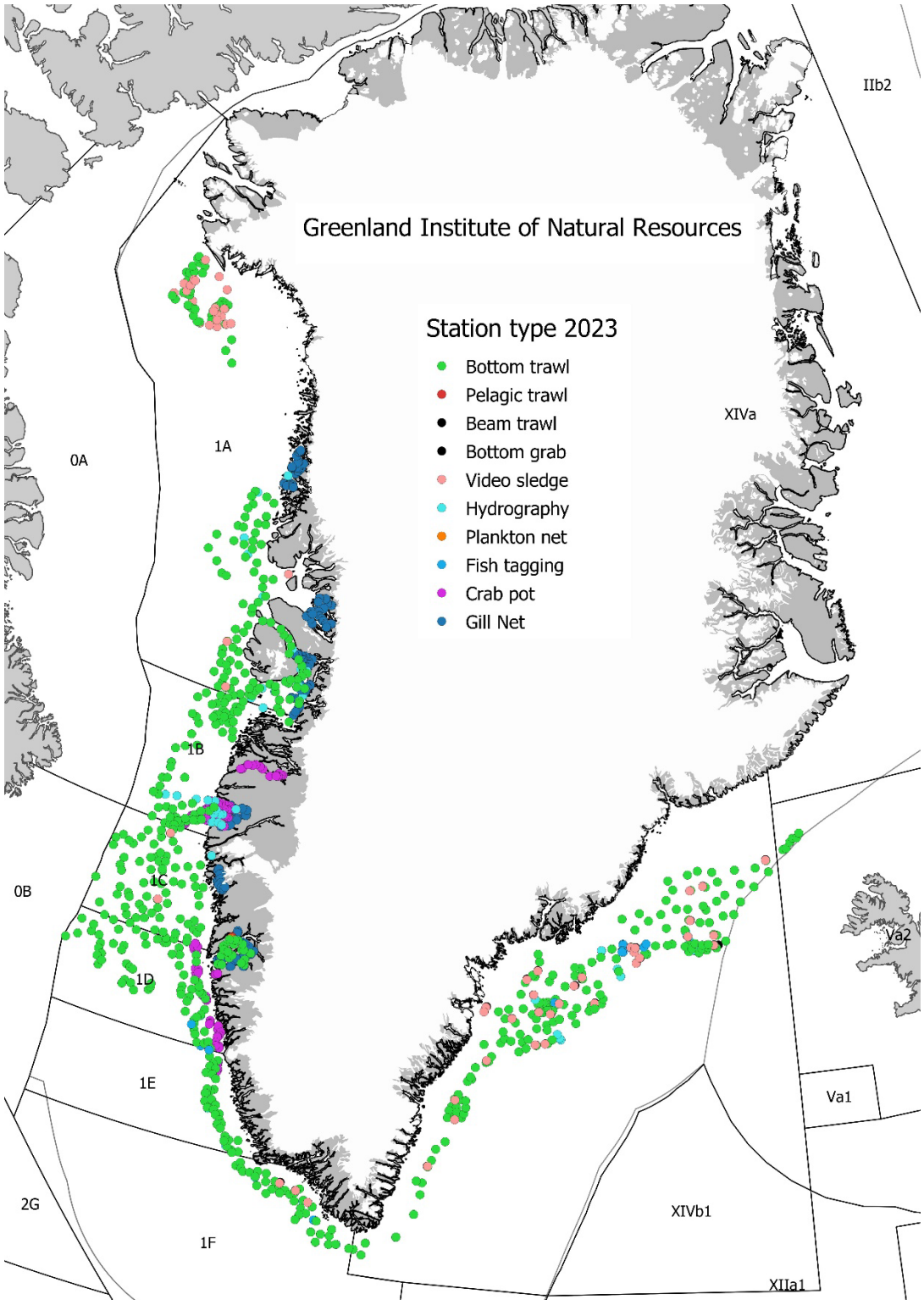

Figure 1. Distribution of stations from GINR surveys completed in Subarea 1 (and East Greenland). Stations from hydrography samples taken onboard the Royal Danish Navy vessel HDMS Knud Rasmussen are not included.