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Fisheries Management Focus Area Report

Denmark(Faroe Islands and Greenland) - Greenland

NAMMINERSORNERULLUTIK OQARTUSSAT · GRØNLANDS HJEMMESTYRE

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Uunga NASCO
Til

Assinga uunga
Kopi til

Focus Area Report on Management of Salmon Fisheries

Compared to salmon catches in the past, Greenland has responded to the alarming scientific advice by adopting major reductions in the Greenlandic salmon harvest. Therefore Greenland only allows subsistence fishery at present.
Because Greenland only has one salmon river, and the stocks exploited in Greenland therefore mainly originate in other countries, an essential part of the Greenlandic management measures for the salmon fishery are agreed to internationally within NASCO on the basis of the status of the North American and Southern European stocks contributing to the fishery.

Greenlandic Salmon Fisheries

In the light of recommendations from ACFM, NASCO at its annual meeting agrees to restrict the fishery at West Greenland *to that amount used for internal subsistence consumption in Greenland, which in the past has been estimated at 20 tons*. Hereafter the Greenland authorities set the commercial quota to nil, i.e. landings to fish plants, purchase of salmon to shops, and any export of salmon from Greenland are forbidden. Licensed fishermen are allowed to sell salmon at the open markets, to hotels, restaurants and institutions. Private fishery for own consumption without a license is allowed. All catches including private fishery for own consumption should be reported to the License Office on a daily basis. In agreement with the Organisation for Fishermen and Hunters in Greenland the licensed fishery for salmon usually is allowed from 1 August to 31 October. The salmon fishery is regulated according to The Greenland Home Rule Executive Order no. 21 of August 10, 2002. In case the stock abundance is improved and a

commercial quota were to be set this Executive Order will also be the foundation of the salmon management in Greenland.
Management measures regulating the exploitation of salmon include a quota system, which is not used at present, and subsistence fishery, which only allows sale to local markets, hotels, restaurants, hospitals, educational centres and other public eating places. Fishing authorities have also introduced seasonal fishery, which typically runs for three months from August to October and does not allow any form of fishery outside of this period
An important issue to the Greenlandic Home Rule is to provide appropriate information on the licences issued and the annual catch. The annual catch and geographical distribution of the fishery is reported to ICES by the Greenland Institute of Natural resources every year (table 1). Unfortunately the amount and nature of the gear used is not available. Licenses issued compared to "active licences" and received catch reports frequency is illustrated in the diagram below.

Year	Catch reports	Licences	Used licences	Percentage of used licences
2005	144	185	29	16.0 %
2006	234	165	51	30.9 %
2007	226	261	105	40.2 %

Exploited Stocks and the reference points

Greenland does not have its own home-water stock (with the exception of the river Kapisillit in Godthåb Fjord of which no abundance estimates exist) and so it is the mixed stock made up of both North American and European stocks that contributes to this fishery. The total pre-fishery abundance (PFA) of salmon from these stocks for 2006 is 608.000 fish. Projections for 2007 and 2008 for the North American stocks show the PFANA forecasts remain among the lowest in the time series. For 2007 and 2008, the median value is 114.000 and 120.000 fish, respectively and it is highly unlikely to meet the 2SW spawner reserve. The PFA for NEAC MSW southern stock complex is expected to decline in 2007 and 2008. For 2007, the median value is 461.000 fish and for 2008, the median forecast value is 440.000 fish. Thus, it is unlikely that spawner reserves will be met in either year.

Other data regarding home-water stock characteristics from the Greenlandic mixed stocks which primarily include, Newfoundland, Labrador, Québec, Gulf of St Lawrence, Scotia-Fundy and United States as the North American stocks and England, Wales, Northern Ireland, Scotland, Ireland and France as the southern European stocks are found in their respective national reports.

Stock relative to the abundance criteria

The salmon in the stock complex in the West Greenland fishery are mostly (>90%) non-maturing 1SW salmon, most of which are destined to return to home waters in North America or Europe as Multiple Sea Winter (2SW or 3SW) fish.

The reference points for West Greenland catch options are therefore the spawner reserves for the North American and Southern European stock complex. These numbers are based on region specific conservation limits derived in 3 ways. The conservation limits are calculated as the number of spawners required to fully seed the wetted area of the river or pseudo stock-recruitment observations used to

calculate a hockey stick relationship, with the inflection point defining the conservation limits or as the number of spawners that will achieve long-term average maximum sustainable yield (MSY), as derived from the adult-to-adult stock and recruitment relationship. The conservation limits are limit reference points (Slim), which should be avoided with high probability.

Conservation limits for North America are limited to 2SW salmon and Southern European stocks are limited to MSW salmon (2SW and 3SW). The 2SW spawner limits of salmon stocks from North America total 152.548 fish, with 123.349 required in Canadian rivers and 29.199 in USA rivers. The current conservation limit estimate for Southern European MSW stocks is approximately 275.000 fish with however a considerable uncertainty.

The stocks making up the stock complex at West Greenland with the exception of Newfoundland are all considered to be below the Slim and thus suffering reduced reproductive capacity. The stock complex at Newfoundland is at risk of suffering reduced reproductive capacity.

More specifically 2 SW spawners in the individual regions are:

Newfoundland: at risk of reduced reproductive capacity (132% of 2SW Slim)
Labrador: suffering reduced reproductive capacity (38% of 2SW Slim)
Québec: suffering reduced reproductive capacity (70% of 2SW Slim)
Gulf of St. Lawrence: suffering reduced reproductive capacity (86% of 2SW Slim)
Scotia-Fundy: suffering reduced reproductive capacity (6% of 2SW Slim) with Inner Bay of Fundy stocks listed as Endangered by the Committee on the Status of Endangered Wildlife in Canada.
United States: suffering reduced reproductive capacity (4% of 2SW Slim) with stocks in the Gulf of Maine District Population Segment listed as Endangered under the Endangered Species Act.
Southern European stock complex: suffering reduced reproductive capacity (94% of 2SW Slim).

Recent trends in the stocks making up the stock complex in West Greenland show the MSW stocks in North America have declined to among the lowest levels observed historically. The primary MSW European stocks originating from the southern stock complex has been declining steadily since the 1970s.

Referring to the ICES “Framework of indicators” the “main indicator” returns for the rivers shows no sign of improvements. The conclusions of the framework indicator analysis are that there is no significant change in management advice for 2008.

Other diversity criteria
N/A

Mixed stock fisheries
See paragraph 3 and 4.

Management actions to Control Harvest

The Greenlandic fishery is as all ready mentioned limited to subsistence fisheries, which is estimated to be around 20 tonnes a year. Because of the limited outtake, the primarily management objective is to ensure there is no commercial exploitation of salmon, expect from the small-scale sales in open markets mentioned above. This is done by ensuring that all commercial fisheries are licensed and the received catch reports provide a reliable picture of the real outtake in the salmon fishery.

The most present problem relating to salmon fisheries in Greenland is to provide reliable data on this type of fisheries. The licence system is believed to be a good basis for management. However, the Department of Fisheries, Hunting and Agriculture recognises that there is a discrepancy between the number of licences issued and the licences in relation to which catches are reported. The standard procedure of reporting in the coastal fishery is that the fish plant reports on behalf of the individual fishermen who in this way avoid too much paper work. Because the subsistence fishery in Greenland is characterized by not allowing any landings by fish plants, the individual fishermen have to report their catches themselves. This task has not been broadly recognised and the information about the consequence of the lack of the standard reporting procedure has not been sufficient. The Greenland Home Rule Authority has therefore initiated an information campaign in 2006 and 2007 to make licence holders and people fishing for salmon for non-commercial use aware of the fact that all catches must be reported. The effect on and development as regards the number of reports on salmon catches received as compared with the number of licences issued will thus be essential instruments in the assessment of the extent of salmon fisheries in Greenland. A spin-off effect may be a better basis for assessing non-reported catches, but it is still too early to draw any conclusions in that respect. Further to the efforts in the recent years, table 2 indicates the number of reports received which has reached a 10 year peak. There is no clear indication of when a reliable picture of the salmon fisheries is achieved but it is thought to be when the percentage of used licenses is about 50 %. Because the main objective is about changing people's behaviour, as regards reporting salmon catches, it cannot be expected to achieve 50 % within a year or two. Therefore, it is thought reasonable to take a five-year approach to achieve the mentioned output at 50 %.

The main future objective of Greenland's management of salmon is to provide satisfactory data on salmon fisheries. Therefore the output of this plan is to provide reports on the development in the:

- Number of licenses issued
- Catches per license
- The geographical distribution of catches
- Fishing gear reported per license

Concrete future actions to be taken to achieve satisfactory data on salmon fisheries:

- Annual information campaigns during the fishing period
- Salmon fishing becomes a part of the "Piniarneq" in 2008. "Piniarneq" is the booklet informing the Greenlandic population about hunting rules and hunting and fishing seasons.

It is believed the increase in catches in recent years is an expression of better reporting, and not of more intensive fishery due to higher fishing effort in the salmon fishery. Naturally, the annual catches every year are evaluated in respect of the existing management regime. As long as a reliable picture of the salmon fishery is not established, it cannot be concluded whether the increase in catches is an expression of a generally higher annual catch or just a temporary cyclic peak the present management is not likely to be reconsidered.

Aspects to be taken into account

At present there are no other actions to improve at sea survival other than the restrictions imposed on the fishery.

Uncertainty in the assessment

Because of the many factors relating to the large number of involved salmon rivers a common assessment of the necessary number of fish necessary to insure stock stability. Allthough it is possibly referring to individual rivers and regions to estimate conservation limits.

Abundance of the stock/diversity of the stock

see paragraph 4

Selectivity of the fisheries

N/A

Any non-fishery factors affecting the stock

The marine environment in West Greenland is considered pristine and is therefore not considered to have negative effects on salmon stocks for anthropogenic causes.

Other fisheries exploiting the stock

There is no specific knowledge of exploitation of salmon as by-catch in other fisheries of Greenland and it is therefore unlikely that significant numbers of salmon are caught outside the fishery that targets salmon.

Expected extent and timescale of effects

See paragraph 6

Socio economic factors

Because of the character of the Greenlandic fishery mentioned under paragraph 1 the fishery cannot be described as commercial or recreational. The economic impact of salmon fisheries is reduced only to subsistence fishery. Subsistence fisheries are considered necessary for the food supply of the Greenlandic population, especially the part of the population living in small settlements on the coast. This fishery is important for upholding a varied food supply and is considered an essential supplement for the low-income groups in Greenland. Self-sufficiency from natural resources is an integrated part of Greenlandic culture and has through generations been considered necessary for sustaining life.

Monitoring programmes

Every year a catch report is processed and evaluated on the background of management goals set out in the implementation plan.

Further Greenland contributes to the international sampling programme at West Greenland. In 2007, the sampling programme included sampling teams from Greenland, United States, United Kingdom and Ireland. Teams were in place a week after the opening of the fishery and continued working until 31 October. Specimens were sampled for presence of tags, fork length, weight, scales, and tissue samples for DNA analysis. Samples were obtained from four landing sites, in Qaqortoq (NAFO Division 1F), Nuuk (1D), Maniitsoq (1C) and Ilulissat (1B). The sampled salmon were measured, scales were removed for ageing, gutted weight recorded. The number of scale samples that were collected and aged and the total number of tissue samples that were removed and preserved for DNA analysis by North American collaborators are known yet.
It was planned to expand the sampling programmes in 2008 as a result of the NASCO Salsea programme. In relation to this "advanced" sampling programmes Greenland Institute of Natural Ressources were to provide a coordinator for the sampling in Greenland and assist the foreign sampler while conducting sampling in Greenland. Unfortunately the programme was postponed for 2009.

Table 1.Distribution of nominal catches (tons) of Atlantic salmon in Greenland by Greenlandic vessels 1977-2007. * catches in 2005 and 2006 has been corrected so they now represent whole weight (factor of 1.11).

Year	NAFO Division							West	East	Total
	1A	1B	1C	1D	1E	1F	NK	Greenland	Greenland	
1977	201	393	336	207	237	46	-	1,420	6	1426
1978	81	349	245	186	113	10	-	984	8	992
1979	120	343	524	213	164	31	-	1,395	+	1395
1980	52	275	404	231	158	74	-	1,194	+	1194
1981	105	403	348	203	153	32	20	1,264	+	1264
1982	111	330	239	136	167	76	18	1,077	+	1077
1983	14	77	93	41	55	30	-	310	+	310
1984	33	116	64	4	43	32	5	297	+	297
1985	85	124	198	207	147	103	-	864	7	871
1986	46	73	128	203	233	277	-	960	19	979
1987	48	114	229	205	261	109	-	966	+	966
1988	24	100	213	191	198	167	-	893	4	897
1989	9	28	81	73	75	71	-	337	-	337
1990	4	20	132	54	16	48	-	274	-	274
1991	12	36	120	38	108	158	-	472	4	476
1992	-	4	23	5	75	130	-	237	5	242
1993	-	-	-	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	-	-
1995	0	10	28	17	22	5	-	83	2	85
1996	0	0	50	8	23	10	-	92	0	92
1997	1	5	15	4	16	17	-	58	1	59
1998	1	2	2	4	1	2	-	11	0	11
1999	0	2	3	9	2	2	-	19	0	19
2000	0	0	1	7	0	13	-	21	0	21
2001	0	1	4	5	3	28	-	43	0	43
2002	0	0	2	4	1	2	-	9	0	9
2003	1	0	2	1	1	5	-	9	0	9
2004	3	1	4	2	3	2	-	15	0	15
2005*	1	3	2	1	3	5	-	15	0	15
2006*	6	2	3	4	2	4	-	22	0	22
2007	2	5	6	4	5	2	-	25	0	25

Table 2. Number of persons reporting salmon catches in the West Greenland fishery and presented in NAFO divisions. Reports received by fish plants (1987-97) and to the License Office (1998-2007). In 2007 a total of 132 persons have landed salmon.

Year	NAFO Division							Total [1]
	1A	1B	1C	1D	1E	1F	1NK	SA1
1987	78	67	74		99	233	28	579
1988	63	46	43	53	78	227	6	516
1989	30	41	98	46	46	131	1	393
1990	32	15	46	52	54	155	8	362
1991	53	39	100	41	54	123	0	410
1992	3	9	73	9	36	82	0	212
1993								
1994								
1995	0	17	52	21	24	31	0	145
1996	1	8	74	15	23	42	0	163
1997	0	16	50	7	2	6	0	80
1998	16	5	8	7	3	30	0	69
1999	3	8	24	18	21	29	0	102
2000	1	1	5	12	2	25	0	43
2001	2	7	13	15	6	37	0	76
2002	1	1	9	13	9	8	0	41
2003	11	1	4	4	12	10	0	42
2004	20	2	8	4	20	12	0	66
2005	11	7	17	5	17	18	0	75
2006	43	14	17	20	17	30	0	141
2007	29	12	26	10	33	22	0	132