



11. november 2019

J.nr. 20.00-11

Sammendrag af rådgivning for 2020 om fiskeri på rejebestandene ved Vest- og Østgrønland

Dette sammendrag beskriver kort ændringer i forhold til sidste års rådgivning og præsenterer de anbefalede fangstmængder fra NAFO. Anbefalingerne uddybes i Appendiks.

Den anbefalede fangstmængde i 2020 for rejer ved Vestgrønland er på 110.000 tons. Det er en forøgelse på 5.000 t i forhold til 2019. For rejefiskeriet ved Østgrønland er rådgivningen uændret på 2.000 tons.

Rådgivning for 2020

Rejer

Vestgrønland

110.000 tons.

Rådgivning for 2019: 105.000 tons.

Total fangst forventet i 2019: ca. 102.000 tons.

Rejer

Østgrønland

2.000 tons.

Samme rådgivning for 2019: 2.000 tons.

Total fangst forventet i 2019: < 1.600 tons.

Den officielle rådgivning, som Departementet for Fiskeri modtager en kopi af, vil være tilgængelig på NAFO's hjemmeside (www.nafo.int) senere på året. Dette gælder også de af Grønlands Naturinstitut udarbejdede baggrundsdokumenter til nærværende rådgivning. Hvis der ønskes yderligere dokumentation, står Naturinstituttet naturligvis til rådighed.

Grønlands Naturinstitut vil snarest invitere repræsentanter fra forvaltningen og erhvervet til en grundig gennemgang af baggrunden for rådgivningen, herunder besvarelse af spørgsmål og udveksling af viden.

Med venlig hilsen

Helle Siegstad

Afdelingschef

Appendiks

Rådgivningens engelske originaltekst findes sidst i dokumentet.

Rejer i Vestgrønland

NAFO rådgiver, at fangsterne i 2020 ikke bør overstige 110.000 tons. Rådgivningen for 2019 var på 105.000 tons.

Om rådgivningen

Fangstniveauet ved *Vestgrønland* er fastsat med udgangspunkt i, at resultaterne fra årets assesement viser, at rejebestanden er stabil.

Modellen, der beregner udviklingen i bestanden, anvender som i tidligere år: rejefiskeriets fangster (Figur 1), rejebiomassen beregnet ud fra de biologiske undersøgelser, fiskeriets fangstrater samt biomassen af de torsk, der spiser rejer.

Modellen har beregnet en maksimal biomasse i 2004 og herefter et fald frem til 2013. Biomasseniveauet har været stabilt siden 2017 og er i slutningen af 2019 beregnet til at være over den biomasse, der kan sikre et optimalt bæredygtigt udbytte af rejebestanden (Figur 2). I 2019 er biomassen i Disko Bugt faldet markant, men den er øget i udenskærs området og samlet set vurderes bestanden stabil.

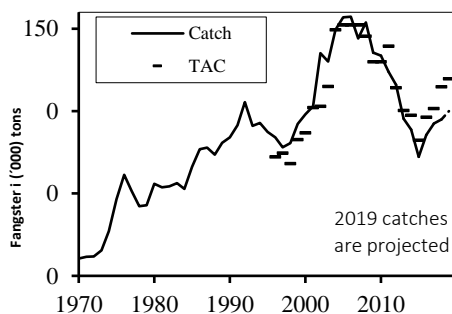
Antallet af 2-årige rejer, der forventes at komme ind i fiskeriet inden for de næste tre til fire år, er i 2019 over gennemsnittet for tidsserien og på niveau med den høje 2015 værdi (Figur 4).

Den totale dødelighed har i perioden 2008 til 2014 ligget tæt på det niveau, der kan sikre en bæredygtig udnyttelse af ressourcen (Z_{msy}). Efter 2014 falder dødelighed kortvarigt, men stiger igen i 2019 til et niveau tæt på Z_{msy} (Figur 3).

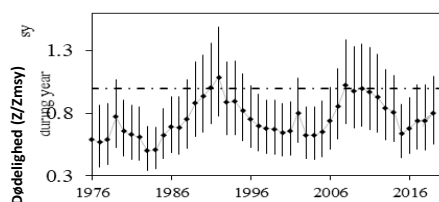
Tabel 1. Totale landinger (tons) af rejer i Vestgrønland og Canada fra 2011 til 2019

År	2012	2013	2014	2015	2016	2017	2018	2019
Grønland	115.965	95.379	88.765	72.254	84.356	89.396	93.189	100.000 ¹
Canada	12	2	0	2	1.171	3.215	1.689	2.000 ¹

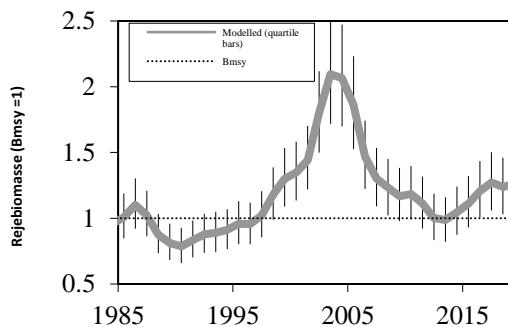
¹ forventet



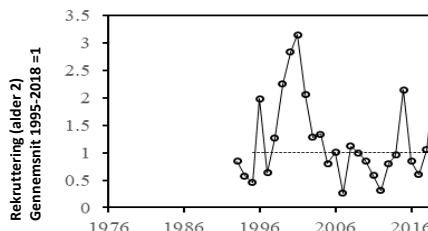
Figur 1. Samlede fangster fra 1970-2019



Figur 3. Total dødelighed (fiskeri og torsken prædation)



Figur 2. Biomasse af rejer (fra model)



Figur 4. Rekruttering (alder 2)

Det videnskabelig råd har med udgangspunkt i de af Naalakkersuisut fastsatte forvaltningskriterier for rejefiskeriet i Vestgrønland vurderet, at et fiskeri på 110.000 t i 2020 vil sikre en bæredygtig udnyttelse af bestanden. Det betyder at risikoen for at overskride en dødelighed hvor fiskeriet ikke længere er bæredygtigt (Z_{msy}) er 35% og hvor risikoen for at biomassen kommer under det laveste niveau (B_{lim}) er lav.

Rejer i Østgrønland

NAFO rådgiver, at fangsterne i 2020 ikke bør overstige 2.000 tons. Dette er samme rådgivning som i 2019.

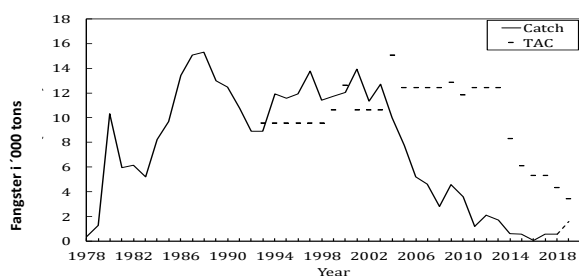
Om rådgivningen

Fangstraterne er steget og var i første halvdel af 2019 rekord høje. Fiskeriet er i de senere år foregået på mindre områder og indsatsen har været relativ lav. NAFO's videnskabelige råd vurderer, at fangstraterne ikke nødvendigvis afspejler hele bestandens tilstand. Det er især på grund af de manglende fiskeriuafhængige data, at NAFO ikke i stand til at ændre den nuværende rådgivning der er givet de seneste 5. Derfor rådgiver NAFO fortsat at fangsterne ikke overstiger 2.000 tons. NAFO anbefaler yderligere at der fremadrettet bliver foretaget bestandsundersøgelser til brug for de kommende rådgivninger.

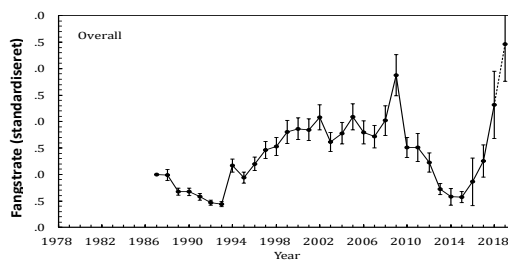
Tabel 2. Totale landinger (tons) af rejer i Østgrønland fra 2012 til 2019

År	2012	2013	2014	2015	2016	2017	2018	2019
Grønland	2.109	1.717	622	576	49	561	547	1.579 ¹

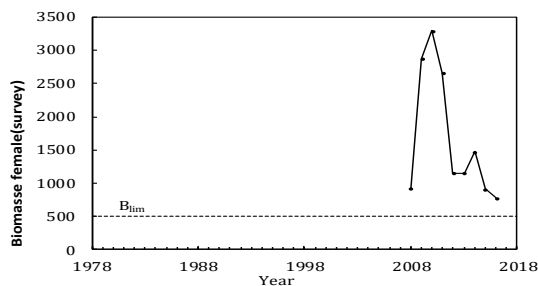
¹ forventet



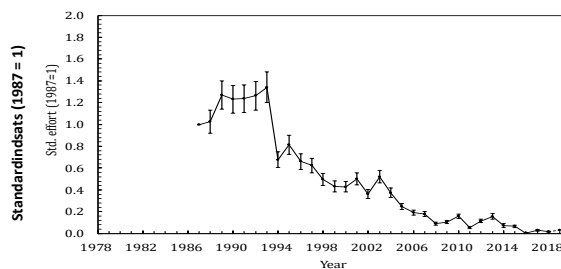
Figur 5. Samlede fangster fra 1978-2019



Figur 6. Fangstrater (1986-2019)



Figur 7. Biomasse (hunner) fra survey (2008 – 2016)



Figur 8. Fiskeriindsats (1986 – 2019)

Northern shrimp in Subarea 1 and Div. 0A

Advice November 2019 for 2020

Recommendation

In line with Greenland's stated management objective of maintaining a mortality risk of no more than 35% (subject to a risk of biomass being below B_{lim} of less than 1%), Scientific Council advises that catches in 2019 should not exceed 110 000 t.

Management Objectives

A management plan and management objectives have been defined by the Government of Greenland in 2018. The objective is to maintain a mortality risk of no more than 35% (subject to a risk of biomass being below B_{lim} of less than 1%). Canada has a harvest strategy with the objective to maintain a mortality risk less than 35%, based on three year projections. Advice was also drafted to be consistent with the NAFO precautionary approach (FC Doc. 04-12).

Objective	Status	Comment/consideration
Apply Precautionary Approach	●	Stock status is both estimated and forecast relative to precautionary reference points

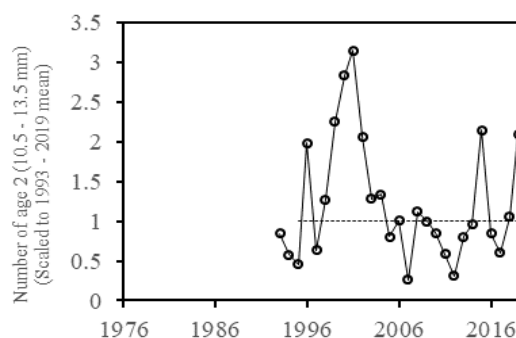
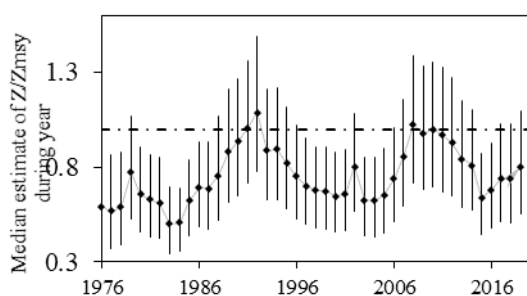
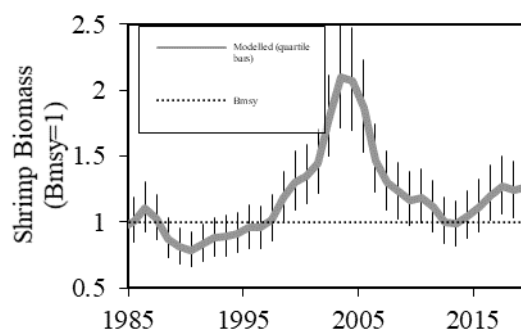
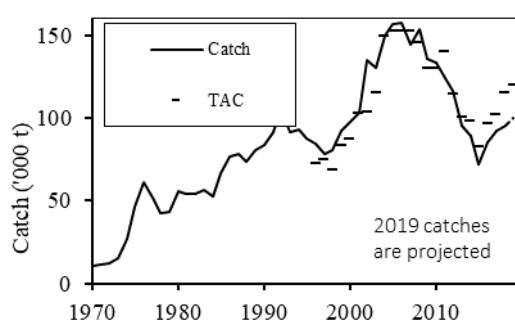
● OK

Management unit

The stock, considered distinct from all others, is distributed throughout Subarea 1, extends into Div. 0A east of 60°30'W, and is assessed as a single stock. 97% of the landings in 2018 were from Greenland.

Stock status

Biomass at the end of 2019 is above B_{msy} and the probability of being below B_{lim} is very low (<1%). The probability of mortality in 2019 being above Z_{msy} is 32%. Recruitment (numbers of age-2 shrimps) are above average.



Reference points

B_{lim} has been established as 30% B_{msy} , and Z_{msy} (fishery and cod predation) has been set as the mortality reference point (FC Doc. 04-18). B_{msy} and Z_{msy} are estimated directly from the assessment model.

Projections

Predicted probabilities of transgressing precautionary reference points in 2020 – 2022 under eight catch options and subject to predation by a cod stock with an effective biomass of 21 Kt.

21 000 t cod Risk of:	Catch option ('000 tonnes)							
	85	90	95	100	105	110	115	120
falling below Bmsy end 2020 (%)	23	23	23	24	24	24	24	25
falling below Bmsy end 2021 (%)	24	24	25	25	26	27	27	27
falling below Bmsy end 2022 (%)	24	25	26	27	29	29	30	31
falling below Blim end 2020 (%)	0	0	0	0	0	0	0	0
falling below Blim end 2021 (%)	0	0	0	0	0	0	0	0
falling below Blim end 2022 (%)	0	0	0	0	0	0	0	0
exceeding Zmsy in 2020 (%)	17	20	24	27	30	34	37	40
exceeding Zmsy in 2021 (%)	18	21	25	28	32	35	38	41
exceeding Zmsy in 2022 (%)	19	22	26	29	33	36	39	43

Assessment

Advice is based on risk analysis coming from a quantitative model. The analytical assessment was run in 2019 with revised treatment of the input data (SCR Doc.19-46, 19-48) and with updated data series.

The next assessment is scheduled for 2020.

Human impact

Mortality related to the fishery has been documented. Other human sources (e.g. pollution, shipping, oil-industry) are considered minor.

Biological and Environmental Interactions

Cod is an important predator on shrimps. This assessment incorporates this interaction. Other predation is likely but not explicitly considered. Shrimps might be important predators on, for example, fish eggs and larvae.

Fishery

Shrimps are caught in a directed trawl fishery. Bycatch of fish in the shrimp fishery is around 1% by weight. The fishery is regulated by TAC.

Recent catches and TACs (t) have been as follows:

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Enacted TAC ¹	130 153	139 583	114 425	100 596 ¹	97 649 ¹	82 561 ¹	96 426 ¹	101 706 ¹	114 876 ¹	119 875 ¹
STATLANT 21	129 179	123 195	114 970	91 802	88 834	71 779	84 303	91 725	91 869	
NIPAG	133 991	123 989	115 977	95 381	88 765	72 256	85 527	92 584	94 878	102 000 ²

¹ Sum of TACs autonomously set by Canada and Greenland.

² Projected to year end

Effects of the fishery on the ecosystem

Measures to reduce effects of the fishery on the ecosystem include area closures, moving rules and gear modifications to reduce damage to benthic communities and reduce bycatch.

Special comment

From 1993 to 2010 the Greenlandic survey in the Canadian area (SFA1) was conducted annually. In this period average biomass, in that area, was 2% of the total biomass estimated in Subarea 1 and Div. 0A. From 2011, due to ice cover, there has only been sporadic information from the Greenlandic survey in the Canadian area (SFA1). The area was surveyed only in 2013 and 2017. In 2013, the biomass in that area (SFA1) was less than 1% of the total estimated biomass in in Subarea 1 and Div. 0A and about 2% in 2017.

Source of Information SCS Doc 13/04, FC Docs 04-18, SCR Docs 19-43, 44, 45, 46, 48, 49.

Northern shrimp in Denmark Strait and off East Greenland

Advice October 2019 for 2020

Recommendation

In 2016 the stock remained at a low level, comparable to previous years. CPUE has increased in recent years and in the first half of 2019 was at a record high level. However, fishing in recent years has been carried out in a localized area and the effort has been relatively low. Given the limited amount of current information, SC is not able to provide advice on the sustainable exploitation of this stock. Therefore SC has no information to change the advice from the last five years that catches should not exceed 2 000 t. SC advises that a survey should be carried out in future years.

Management objectives

No explicit management plan or management objectives have been defined by the Government of Greenland.

Objective	Status	Comment/consideration
Apply Precautionary Approach	●	B_{lim} is defined. No fishing mortality reference point defined

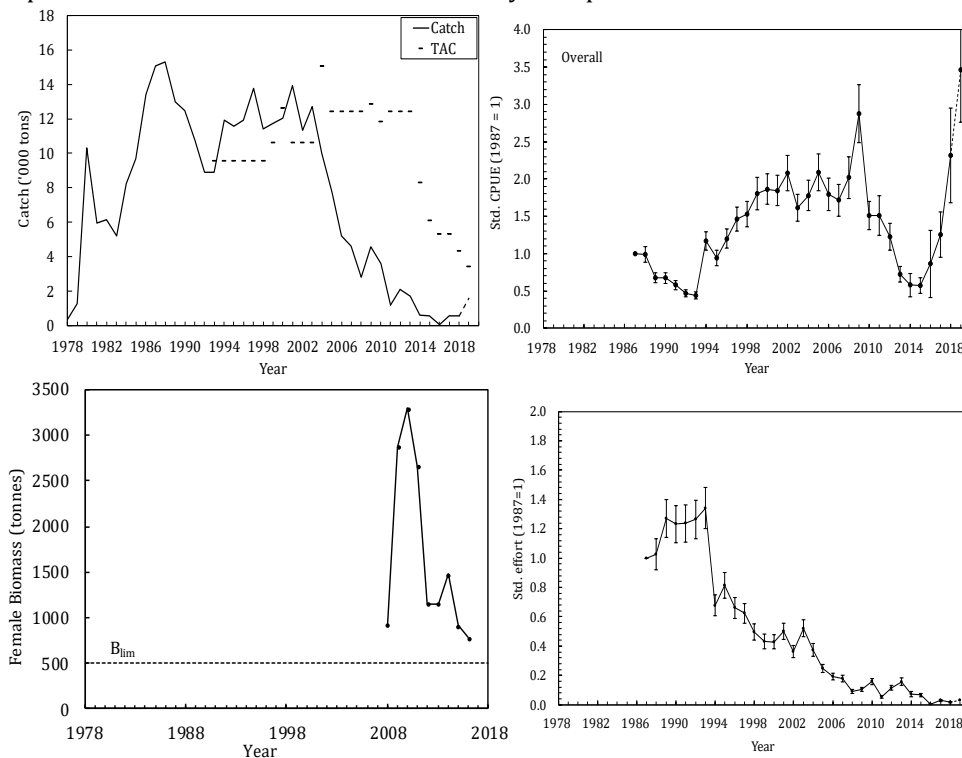
● Intermediate

Management unit

The shrimp stock is distributed off East Greenland in ICES Div. XIVb and Va and is assessed as a single population.

Stock status

The stock size remained at a very low level (relatively close to B_{lim}) in 2016 despite several years of very low exploitation rates. There is no new fishery independent information to indicate a change in stock status.



Reference points

Scientific Council considers that a female survey biomass index of 15% of its maximum observed level provides a proxy for B_{lim} (SCS Doc. 04-12).

Projections

Quantitative assessment of risk at various catch options is not possible for this stock at this time.

Assessment

Advice is based on qualitative evaluation of biomass indices in relation to historic levels.

Evaluation of stock status is based upon interpretation of commercial fishery and research survey data. The trends in the survey and the standardized CPUE have been similar since the start of the survey, however they diverged in 2016, the last year for which there are survey data available. Recent increasing CPUE values may indicate an improvement of the shrimp density in the northern area, however this may not reflect overall stock status as the fishery occurs in a localized area and includes only a small number of hauls. No survey was carried out in the period 2017 to 2019.

Human impact

Mainly fishery related mortality has been documented. Other sources (e.g. pollution, shipping, oil-industry) are considered minor.

Biological and Environmental Interactions

Cod is an important predator on shrimp. The cod stock has generally been decreasing in East Greenland waters since 2012.

Fishery

Shrimp is caught in a directed trawl fishery. The fishery is regulated by TAC and bycatch reduction measures include move-on rules and Nordmøre grates.

Recent catches (tonnes) were as follows:

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Enacted TAC	11835	12400	12400	12400	8300	6100	5300	5300	4300	3384
SC Recommended TAC	12400	12400	12400	12400	2000	2000	2000	2000	2000	2000
NIPAG	3602	1199	2109	1717	622	576	49	561	547	1579 ¹

¹ To July 2019

Effects of the fishery on the ecosystem

Measures to reduce effects of the fishery on the ecosystem include move-on rules to protect sponges and corals.

Source of Information

SCR Doc. 19-059