



17. september 2023

J.nr. 20.00-11

Kitaani Tunumilu raajanik aalisarneq pillugu siunnersuutip 2024-moortup eqikkarnera

Eqikkaanermi matumani siornamut sanilliullugu siunnersuineri allannguutit nassuiarneqarput NAFO-millu pisassat amerlassusissaattut siunnersuutigineqartut saqqummiunneqarlutik. Innersuussutit tapiliussami itisilerneqarput.

Kitaani 2024imi raajartassiissutissatut 95.000 tonsiussasut innersuussutigineqarpoq, tassa 2023imut sanilliullugu 15.000 tonsinik ikinnerullutik. Tunumi 2024imi raajat 2.500 tonsit aalisarneqarsinnaanissaat innersuussutigineqarpoq, tassa 2023imut sanillikullugu 500 tonsinik amerlanerusussaallutik.

Raajat 2024imut siunnersuutigineqartut

Kitaa

95.000 tonsit.

2023imut siunnersuut: 110.000 tons.

2023imi naatsorsuutigineqartut tamakkiisut:

110.000 tonsit missaat

Tunu

2.500 tonsit.

2023imut siunnersuut: 2.000 tons.

2023imi naatsorsuutigineqartut tamakkiisut: <

6.000 tons.

Siunnersuut pisortatigoortoq Aalisarnermut Naalackersuisoqarfiup tigusimasaata assinga NAFO-p nittartagaani (www.nafo.int) ukiup matuma ingerlanerani pissarsiassaalerumaarpoq. Tamannattaq atuuppoq Pinngortitaleriffiup siunnersuinerminut tunngavilersuutigisaminik allattugaanut. Allattukkat amerlanerusut kissaatigineqarpata soorunami Pinngortitaleriffimmit pissarsiarineqarsinnaapput.

Pinngortitaleriffiup ungasinngitsukkut ingerlatsivimmit aalisarnermillu ingerlatsisunit aallartitaasussat siunnersuummut tunngaviusut sukumiisumik misissuataarneqarnissaannut, tamatumunnga atatillugu apeqqutit akissuteqarfiginissaannut ilisimasanillu avitseqatigiinnissamut, qaaqqujumaarpai.

Inussiarnersumik inuulluaqqusillunga

Helle Siegstad

Immikkoortortami pisortaq

Kitaani raajat

NAFO siunnersuivoq 2024-mi pisat 95.000 tonsit qaangissanngikkaat, taamaalilluni 2023imi siunnersuinermit sanilliullugu 15.000 tonsinik ikinnerupput.

Siunnersuineq pillugu

Kitaani qanoq-atsigisumik pisaqarsinnaanermik siunnersuuteqarnermut ukiumi matumani *raajaqassutsip nalilerneqarneranit inernerusup raajat amerlassusiisa aalaakkaasuunerannik*, taamaakkaluatorli raajanik amerlanerusunik nerisaqartussanik *saarulleqarnerulernissaanik*, takutitsineranik tunngaveqarluni aalajangigaavoq. Peqassutsip annertunerpaamik ilanngarneqarsinnaanerata 50%imik qaangerneqariataarneqarsinnaanissaa ukiumi tassani periataarsinnaavoq.

Avataasiorlutik kilisattartut 2023imi Kitaata sikuanik juulip naanissaa tikillugu ajornartorsiortitaasimapput (sinerissap qanittuani raajarniat eqqorneqarsimangitsut). Kitaata sikua aamma Pinngortitaleriffiup kilisalluni misissuineranut aporfeqartitsisimavoq, sumiiffiillu ilai 2023imi misissuilluni angalanermi misissuiffigineqarsinnaasimangillat. Taamaattumik misissuinerit paasisat amigaatigineqarnerisa kingunerisaanik ukiumi kingullerni tallimani paasissutissat nalunaarsorneqarsimasut agguaqatigiisinneri atorneqarsimammata 2024imut siunnersuinerit nalinginnaasutut qularnaatsiginngilaq.

Periuserineqartup peqassutsip qanoq allanngoriartuuteqarnera ersersittarpa, ukiunilu siuliinitulli, ukiup siuliani pisat (Takussutissiaq 1), *raajaqassuseq oqimaassusinnngorlugu* peqassutsimik misissuinerit aallaavigalugit naatsorsorneqarnerat, kilisannermi *kalinnermi pisarineqartartut saarulliillu raajatortartut amerlassusaasa oqimaassusinnngortinneri* aallaavigalugit naatsorsuisoqartarpoq. Naatsorsorneqarnerini ersippoq 2004imi peqassuseq oqimaassusinnngortillugu annertunerpaajusimasoq tamatumalu kingorna 2014 tikillugu appariaateqartoqarsimasoq. 2017imiit peqassuseq aalaakkaasimavoq, 2024illu naanerata tungaanut peqassuseq oqimaassusinnngortikkaanni peqassutsip annertunerpaamik ilanngartorneqarsinnaanera raajaqassutsip annertunerpaamik atorluarneqarsinnaanissaa qaangerlugu inissisimasoqartoq naatsorsorneqarsinnaasimavoq. (Takussutissiaq 2).

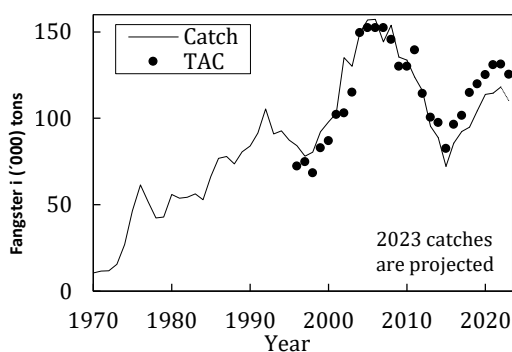
Raajat ukiumi marlunni uumareersimasut amerlassusaat ukiumi tulliuttuni pingasuni pisarineqarsinnaalertussaasut 2023imi ukiumi taakkunani agguaqatigiisitsilluni naatsorsuinerit inernerata nalaaniippoq. (Takussutissiaq 4).

Raajat nalinginnaasumik peqassutsiminnarnik ilanngaataasartut (Takussutissiaq 3) 2014ip kingorna sivikitsumik appariaateqarput, 2023illi tungaanut amerleriaqqillutik Z_{msy} missaaniilerlutik.

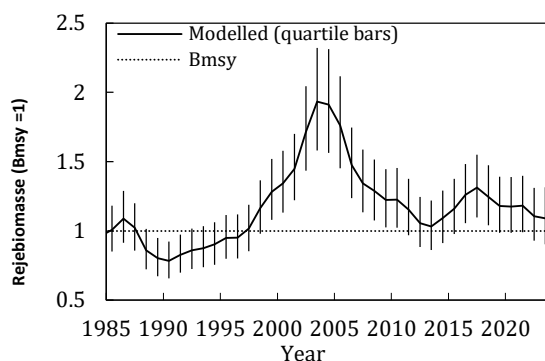
Tabel 1. Kitaani Canadamilu tamakkiisumik tulaassorneqartut (tons) ukiumi 2014 – 2023

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
NIPAG	88 765	72 256	85 527	92 584	94 878	104 314	113 758	114 569	118 127	110 000 ²

¹ forventet

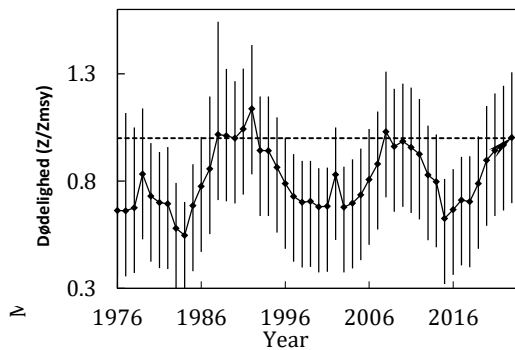


Takussutissiaq 1. Pisat tamakkiisut (1970-2023)

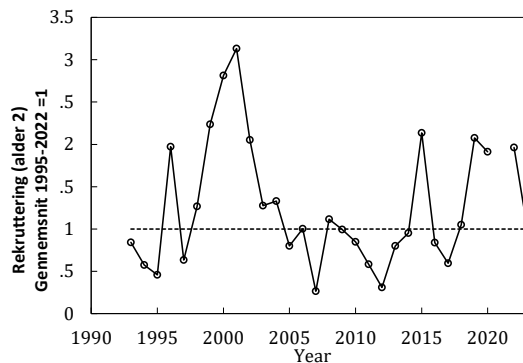


Takussutissiaq 2. Raajaqassuseq oqimaassusinnngorlugu (Qarasaasiaq atorlugu naatsorsuinerit; 1970-2023)

Tapiliussat



Takussutissiaq 3. Peqassutsimit tamakkiisumik ilanngaataasartut (aalisarnikkut saarullinnillu nerineqarnikkut (1970-2023))



Takussutissiaq 4. Pisarineqarsinnaangortut (utoqqaassusaat 2; 1970-2023)

Ilisimatuussutsikkut siunnersuummi Naalakkersuisut Kitaani raajarniarnermik ingerlatsinermit tunngaviusussatut aalajangersagaat tunngavigalugit nalilerneqarpoq 2024imi 95.000 tonsinik aalisarnikkut piujuartitsiniarluni peqassutsimit atuineq qulakkeerneqassasoq. Tamanna isumaqarpoq ilanngarsinnaanerpaaffiup, aalisarnikkut piujuannartitsiniarsinnaajunnaarfiup killingata, ($Z_{msy}-p$), qaangerneqaratarsinnaaneranut ilimanassuseq 35 %-ip iluaniippoq, peqassutsillu minnerpaaffigilersinnaasaata, ($B_{lim}-ip$), ataaniilernissaata ilimanassusia appasilluni.

Tunumi raajat

NAFO-p siunnersuutigaa 2024imi pisarineqartussat 2.500 tonsit, 2023imi siunnersuinermit sanilliullugu 500 tonsinik amerlanerussasut. Peqassutsip siaruarsimaffia pillugu qulakkeerinnittoqarsimanngilaq, uumassuilinnilli misissuinerit aalisarnermillu paasisutissat pissarsiarineqarsinnaasut takussutissiipput raajat sumiiffimmi killilimmi ataatsimoornerannik. NAFO-p ilisimatuussutsikkut siunnersuisuisa qarasaasiaq atorlugu naatsorsuutip SPiCT-p Tunumi raajaqassutsip nalilerneqarnissaannut ukioq manna atortussatut atorneqarsinnaanera akueraat.

Siunnersuinermit tunngasoq

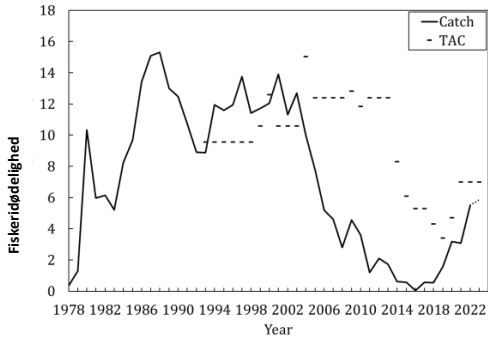
Pisat 2017ip kingornagut amerliartorsimapput (Takussutissiaq 5). 2017-ip kingornagut pisat amerliartorsimapput (Takussutissiaq 5 takuuk). 2023-mi raajaqassuseq raajaqassutsip pitsaanerpaaffigisinaasaanit 22%-imik appasinnerusumi inissisimavoq (Takussutissiaq 6 takuuk), aalisarneqarnikkullu ilanngarneqarsinnaanerpaaffik aalisarnikkut ilanngarneqarsinnaanerpaaffiup qulaani inissisimalluni (Takussutissiaq 7 takuuk). Aalisartoqarpallaarsimanngimmat qularnarpoq aalisarnermi pisat oqimaassusiisa sumiiffimmi tassani uumasooqassuseq sunniivigisassagaat. Tamatuma saniatigut 2020-mi 2022-2023milu peqassutsimik oqimaassusinngortitsilluni misissuinerit 2014-imillu aalisartut Tunumi Dohrn Bankemi sumiiffimmi annikitsuinnarmi pisimapput. Pisarineqarsinnaangortunut kisitsisitigut ersersitsisoqanngilaq sumiiffimmi misissuiffiusumi raajaqqat (suli inerissimanngitsut) ikittuinnaat pisarineqarsimammata.

Tabeli 2. Tunumi 2013-imit 2023-mut raajat tulaassat tamakkiisut (tonsinnigorlugit)

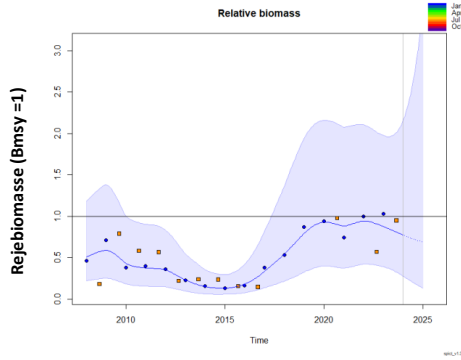
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
NIPAG pisat	622	576	49	561	547	1 580	3 172	3 067	5 596	5 867 ¹

¹ naatsorsuutigineqartoq

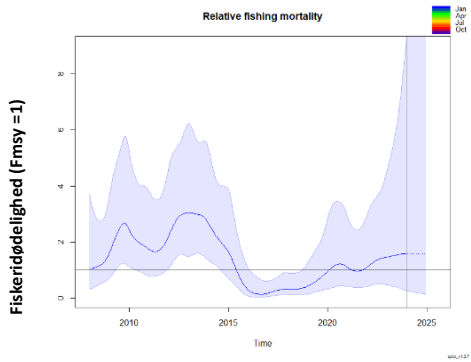
Tapiliussat



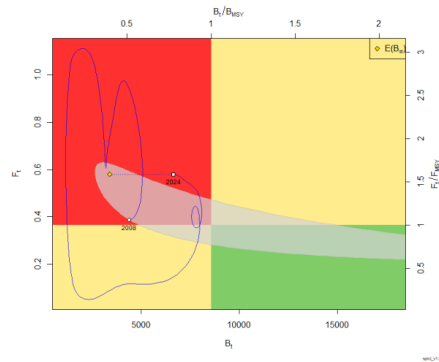
Takusutissiaq 5. Pisat tamakkiisut (1978-2023)



Takusutissiaq 6. Raajaqassuseq qarasaasiaq atorlugu naatsorsuinermit (1987-2023)



Takusutissiaq 7. Peqassutimik ilanngaataasartut qarasaasiaq atorlugu naatsorsuinermit (1987-2023)



Takusutissiaq 8. Peqassuseq qarasaasiaq atorlugu naatsorsuinermit (1987-2023)

Northern shrimp in Subarea 1 and Div. 0A

Advice September 2023 for 2024




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 5%), Scientific Council advises that catches in 2024 should not exceed 95 000 t.

With regard to the Canadian harvest strategy, Scientific Council notes that catches of 95 000 t in 2024 would result in a 35% risk of exceeding Z_{msy} in 2024, and a 34% risk of exceeding Z_{msy} in 2025 and 2026, assuming catches at the same level as in 2024.

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 5%). Canada has a harvest strategy with the objective to maintain the stock in the Healthy Zone (>80% of B_{msy}); when the biomass is above 80% of B_{msy} , the risk of being above Z_{msy} should not exceed 35%, based on the 3-year projections. Advice was also drafted to be consistent with the NAFO precautionary approach (FC Doc. 04-12).

<i>Objective</i>	<i>Status</i>	<i>Comment/consideration</i>
Maintain risk of being above Z_{msy} not exceeding 35%		The TAC set for 2023 equates to a risk of being above Z_{msy} by the end of 2023 of 50%
Maintain the stock in the Healthy Zone (>80% of B_{msy})		The stock is above B_{msy} in 2023
Maintain risk of biomass being below B_{lim} of less than 1%		The risk of biomass in 2023 being below B_{lim} is less than 1%

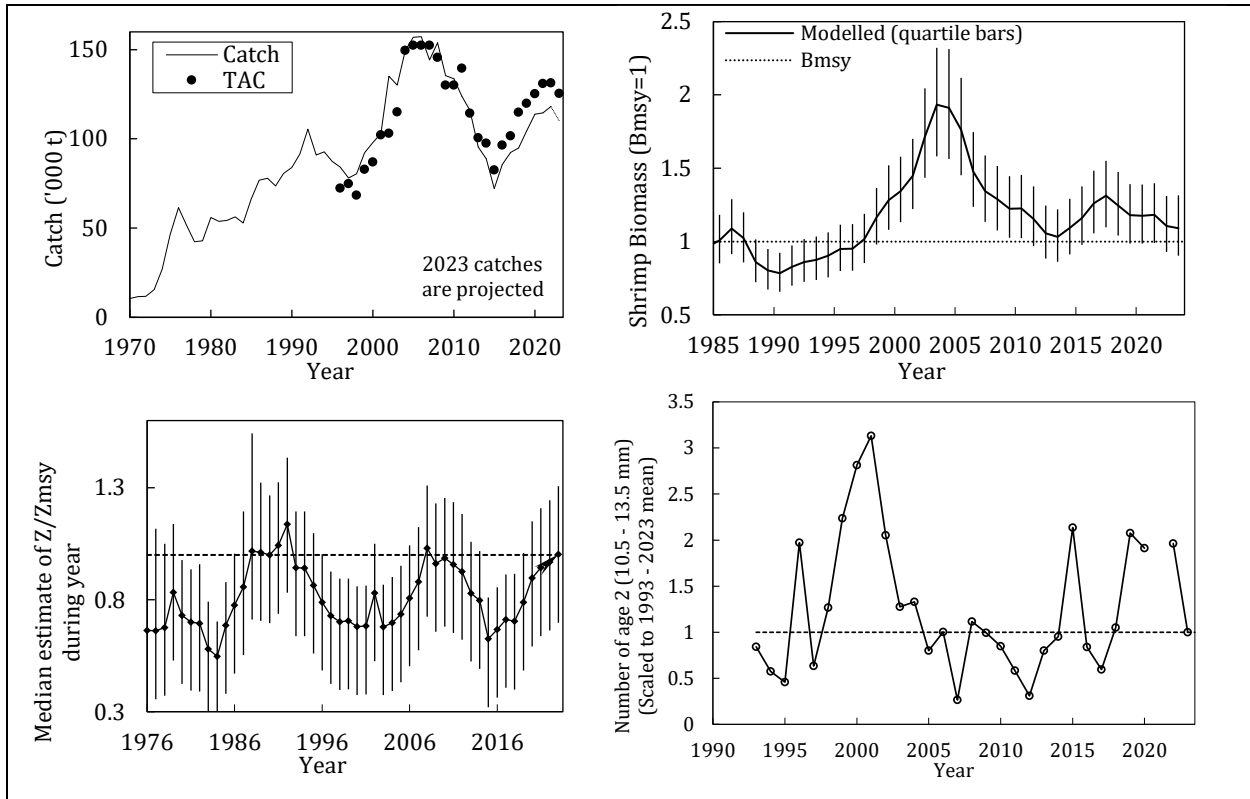
 OK
 Intermediate

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. In 2022, more than 99% of the landings were from Greenland.

Stock status

Biomass in 2023 is above B_{msy} and the probability of being below B_{lim} is very low (<1%). The probability of mortality in 2023 being above Z_{msy} is 50%. Recruitment (number of age-2 shrimp) in 2023 was near the time-series average.



Reference points

B_{lim} has been established as 30% B_{msy} , and Z_{msy} has been set as the mortality reference point. B_{msy} and Z_{msy} are estimated directly from the assessment model.

Projections

Predicted probabilities of transgressing precautionary reference points in 2024 – 2026 under eight catch options and subject to predation by a cod stock with an effective biomass of 17 Kt.

Risk of:	Catch option ('000 tons)							
	85	90	95	100	105	110	115	120
falling below Bmsy end 2024 (%)	38	38	38	39	39	40	41	42
falling below Bmsy end 2025 (%)	36	37	38	40	40	42	43	44
falling below Bmsy end 2026 (%)	36	37	37	41	42	43	45	46
falling below Blim end 2024 (%)	0	0	0	0	0	0	0	0
falling below Blim end 2025 (%)	0	0	0	0	0	0	0	0
falling below Blim end 2026 (%)	0	0	0	0	0	0	0	0
exceeding Zmsy in 2024 (%)	26	30	35	39	44	47	51	54
exceeding Zmsy in 2025 (%)	26	31	34	40	44	47	51	55
exceeding Zmsy in 2026 (%)	26	30	34	40	44	48	52	56
falling below Bmsy 80% end 2024 (%)	15	15	16	16	16	16	17	18
falling below Bmsy 80% end 2025 (%)	15	16	17	19	18	19	21	22
falling below Bmsy 80% end 2026 (%)	16	17	18	20	21	22	24	25

Assessment

A Schaefer surplus-production model was used for the assessment of this stock.

The next assessment is scheduled for 2024.

Human impact

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

Biological and Environmental Interactions

There is no integrated summary information available on the structure, status and trends of the marine ecosystem for the area inhabited by this stock.

Cod is an important predator on shrimp. 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.

Ecosystem sustainability of catches

Shrimp is included in the benthivore guild. There are currently no Ecosystem Production Units defined nor Total Catch Index (TCI) information for the distribution area of this stock.

Fishery

Shrimps are caught in a directed trawl fishery. The fishery is regulated by TAC.

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

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enacted TAC ¹	97 649	82 561	96 426	101 706	114 876	119 875	125 229	130 937	131 292	125 583
STATLANT 21	88 834	71 779	84 303	91 725	91 869	102 706	110 250	107 571	115 772	
NIPAG	88 765	72 256	85 527	92 584	94 878	104 314	113 758	114 569	118 127	110 000 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

The advice is subject to some uncertainty due to abnormal spatial distribution of sea ice north of 66°N in Greenland EEZ in 2023, which prevented trawling at many of the planned stations during the survey. Due to poor survey coverage in the northern survey area, it is uncertain if this year's survey results reflect the stock trajectory and status.

SC recommends that the projection table should be given in projected catch increments of no less than 5 Kt due to uncertainty in calculating risk levels.

Source of Information

SCS Doc 13/04, FC Docs 04-18, SCR Docs. 20/053, 20/057, 22/045, 23/046, 23/047, 23/048.

Northern shrimp in Denmark Strait and off East Greenland
 Advice September 2023 for 2024

Recommendation

Catches up to 2500t are projected to result in a very low probability (less than 10%) of the stock going below Blim

Management objectives

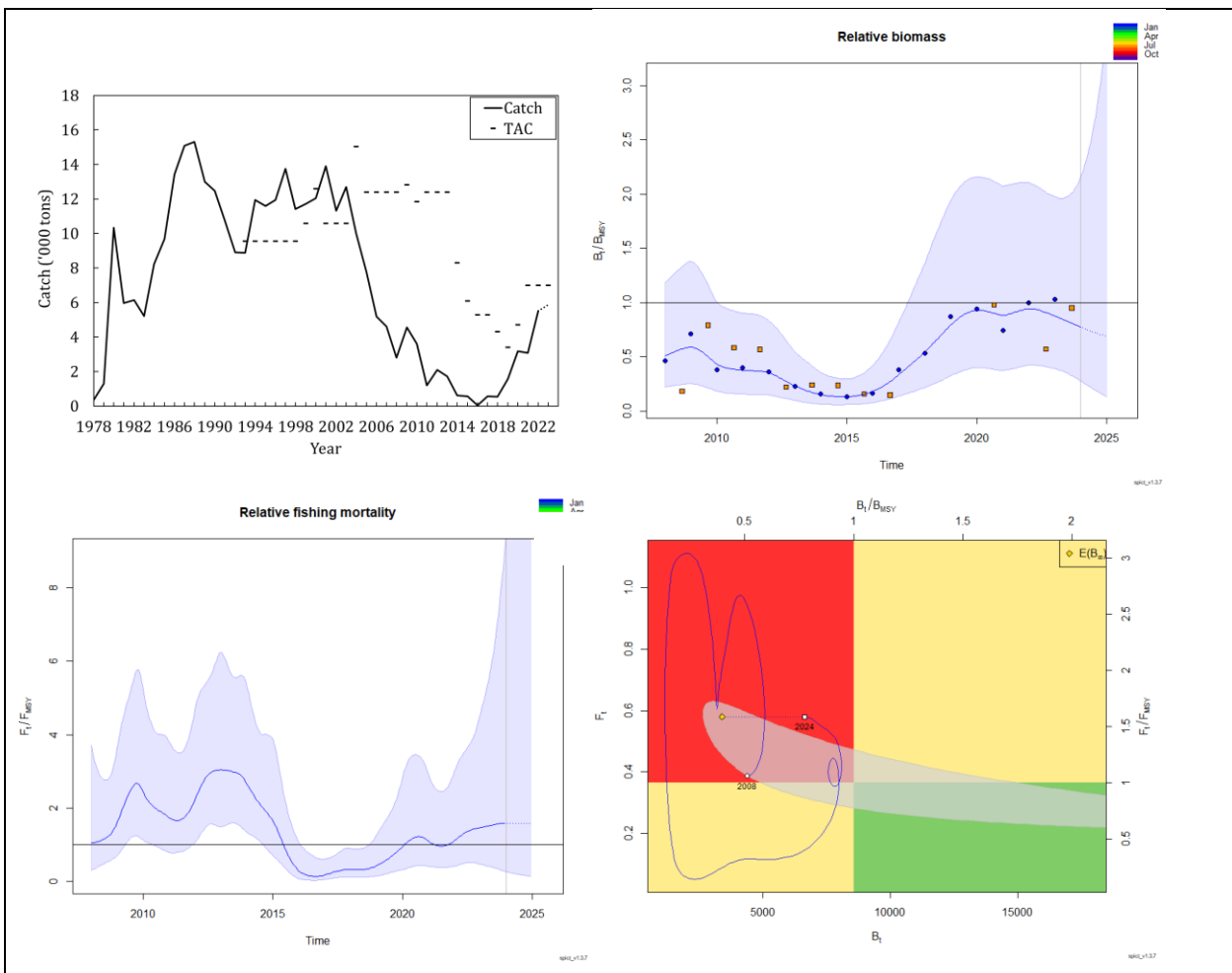
No explicit management plan or management objectives have been defined by the Government of Greenland. Advice was drafted to be consistent with the NAFO precautionary approach (FC Doc 04-12).

Management unit

The shrimp stock is distributed off East Greenland in ICES Div. 14b and 5a and is assessed as a single stock.

Stock status

Median biomass is below Bmsy ($B/B_{msy} = 0.78$) and the probability of being below Blim is less than 5%. Fishing mortality is above Fmsy ($F/F_{msy} = 1.59$). No estimates of recruitment are available.



Reference points

Blim is defined as 30% of Bmsy. The relative reference points Bmsy and Fmsy are estimated within the SPiCT model. The current relative B/B_{msy} is 0.78 and the relative F/F_{msy} is 1.59. The probability of being below Blim is currently very low (less than 5%)

Projections

Relative reference points are estimated for six catch options for 2024.

Catch (t)	B/Bmsy	F/Fmsy	Prob B > Bmsy	Prob B < Blim	Prob F > Fmsy
1500	0.96	0.56	0.47	0.02	0.32
2000	0.90	0.77	0.43	0.03	0.42
2500	0.83	0.99	0.39	0.06	0.50
3000	0.77	1.24	0.36	0.10	0.57
3500	0.71	1.51	0.33	0.15	0.63
4000	0.64	1.81	0.31	0.20	0.68

Assessment

The Surplus Production in Continuous Time (SPiCT) model was used for the assessment of this stock.

The next assessment is scheduled for 2024.

Human impact

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

Biological and Environmental Interactions

There is no integrated summary information available on the structure, status and trends of the marine ecosystem for the area inhabited by this stock. Cod is an important predator on shrimp. The cod stock has fluctuated in East Greenland waters since 2014. The impact on the shrimp biomass is unknown.

Ecosystem sustainability of catches

Shrimp is included in the benthivore guild. There are currently no EPU defined nor TCI information for the distribution area of this stock.

Fishery

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

Recent catches and TAC (t) were as follows:

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enacted TAC	8 300	6 100	5 300	5 300	4 300	3 384	4 750	7 000	6 850	6 850
SC Recommended TAC	2 000	2 000	2 000	2 000	2 000	2 000	3 000	3 000	3 000	2000
NIPAG catch	622	576	49	561	547	1 580	3 172	3 067	5 596	5 867 ¹

¹ To June 30

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 Docs. 23/049, 23/050, 23/051, 21/044, FC Doc. 04-18