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SCIENTIFIC COUNCIL - SEPTEMBER 2026

Report of the Scientific Council and STACFIS Shrimp Assessment Meeting

15 to 17 September 2026
Vilnius, Lithuania

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REPORT OF THE SCIENTIFIC COUNCIL AND STACFIS SHRIMP ASSESSMENT MEETING
15 - 17 September 2026, Vilnius, Lithuania

Chair: Diana González-Troncoso Rapporteur: NAFO Secretariat

I. PLENARY SESSIONS

Scientific Council met from 15 to 16 September 2026 at the Radisson Collection Astorija Conference Centre in Vilnius, Lithuania, to formulate management advice for Northern shrimp stocks. Representatives attended from Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Norway, the Russian Federation and Ukraine. A full list of participants is included in Appendix VI.

The Chair, Diana González-Troncoso (EU), opened the meeting at 09:46 on 15 September and welcomed participants. The provisional agenda was revised and adopted as circulated. The NAFO Secretariat (Andrea Perreault) was appointed as rapporteur.

II. REVIEW OF SCIENTIFIC COUNCIL RECOMMENDATIONS IN 2025

Recommendations from 2025 are considered in the relevant sections of this report.

III. STANDING COMMITTEE ON FISHERIES SCIENCE (STACFIS)

The September 2026 STACFIS report is presented as Appendix I in this report.

IV. REFERENCE POINTS FOR STOCKS WITH FULL ASSESSMENTS IN 2026

A new NAFO Precautionary Approach Framework (PAF) was approved in September 2024. To fully implement this PAF, the PA-WG agreed that the Designated Experts (DEs) for the stocks that are scheduled to undergo a full assessment in a given year would work towards the development of Reference Points (RPs) that can be used in the revised PAF that year.

During the June 2026 SC meeting, it was proposed that for the shrimp stocks with full assessment this year (3M shrimp, and from the Coastal States requests, Northern shrimp in Denmark Strait and off East Greenland, and Northern shrimp in Subarea 0 and Subarea 1) the RPs be calculated during the September 2026 Scientific Council Shrimp Assessment Meeting.

1. Northern shrimp in Divisions 3M

In 2026, a stochastic surplus production model (SPiCT) was applied to the shrimp stock in Division 3M. A model configuration was not accepted due to issues with model diagnostics, and further work is recommended. The current assessment of this stock is based on the interpretation of commercial fishery information and data from research surveys. Given that the Scientific Council is unable to conduct an analytical assessment for this stock at this moment, new reference points aligned with the NAFO Precautionary Approach Framework could not be developed.

A proxy for B_{lim} has been set to 15% of the maximum observed female biomass from the survey index. This corresponds to 15% of the index in 2002 which resulted in a value for B_{lim} of 2 564 t. A limit reference point for fishing mortality (F_{lim}) has not been defined.

2. Northern shrimp off West Greenland (NAFO Subarea 0 and Subarea 1)

Scientific Council noted that the Revised NAFO Precautionary Approach Framework (COM Doc. 25-16) allows stock-specific scientific judgement in its implementation. Reference points may be selected according to the type of stock being managed, the standard risk table is intended to be followed generally, and SC may provide additional interpretations and considerations relevant to the management decision.

The accepted assessment model for Northern shrimp off West Greenland (NAFO Subarea 0 and Subarea 1) explicitly incorporates mortality due to cod predation in addition to catch. SC therefore considered it

appropriate to retain total mortality as the primary mortality indicator because the accepted assessment explicitly includes both fishing mortality and cod-predation mortality.

3. Northern shrimp in the Denmark Strait and off East Greenland (ICES Divisions 14b and 5a)

The PAF Reference Points for this stock were approved during the September 2025 meeting and have not been changed.

V. MANAGEMENT ADVICE

1. Request from the Commission

The Commission requests are given in Annex 1 of Appendix II. Requests relating to Northern shrimp were addressed in the present meeting; the remainder having been previously addressed during the Scientific Council June 2026 meeting (SCS Doc. 26/12).

a) Northern shrimp in Division 3M — Advice September 2026 for 2027 and 2028

Recommendation for 2027 - 2028

The stock remains below B_{lim}.

Given that the Scientific Council is unable to conduct an analytical assessment for this stock at this moment, the range of Fishing Mortalities (Fs) required in the NAFO Precautionary Approach Framework cannot be provided.

The stock has remained in the Critical Zone under the recent Fs (F=0). However, maintaining F=0 in 2027 and 2028 would continue to provide the greatest probability of increasing the stock out of the Critical Zone.

Management objectives

No explicit management plan or management objectives defined by the Commission. NAFO General Principles are applied.

Convention Principle	Status	Comment
Restore to or maintain at B_{msy}	🔴	$B < B_{lim}$
Eliminate Overfishing (Stock)	🟢	F = 0
Eliminate Overfishing (Ecosystem)	🟢	Total EPU catches < 2TCI
Apply Precautionary Approach	🟡	B_{lim} defined, F_{lim} undefined
Minimize harmful impacts on living marine resources and ecosystems	🟢	No directed fishing
Preserve marine biodiversity	⚪	Cannot be evaluated

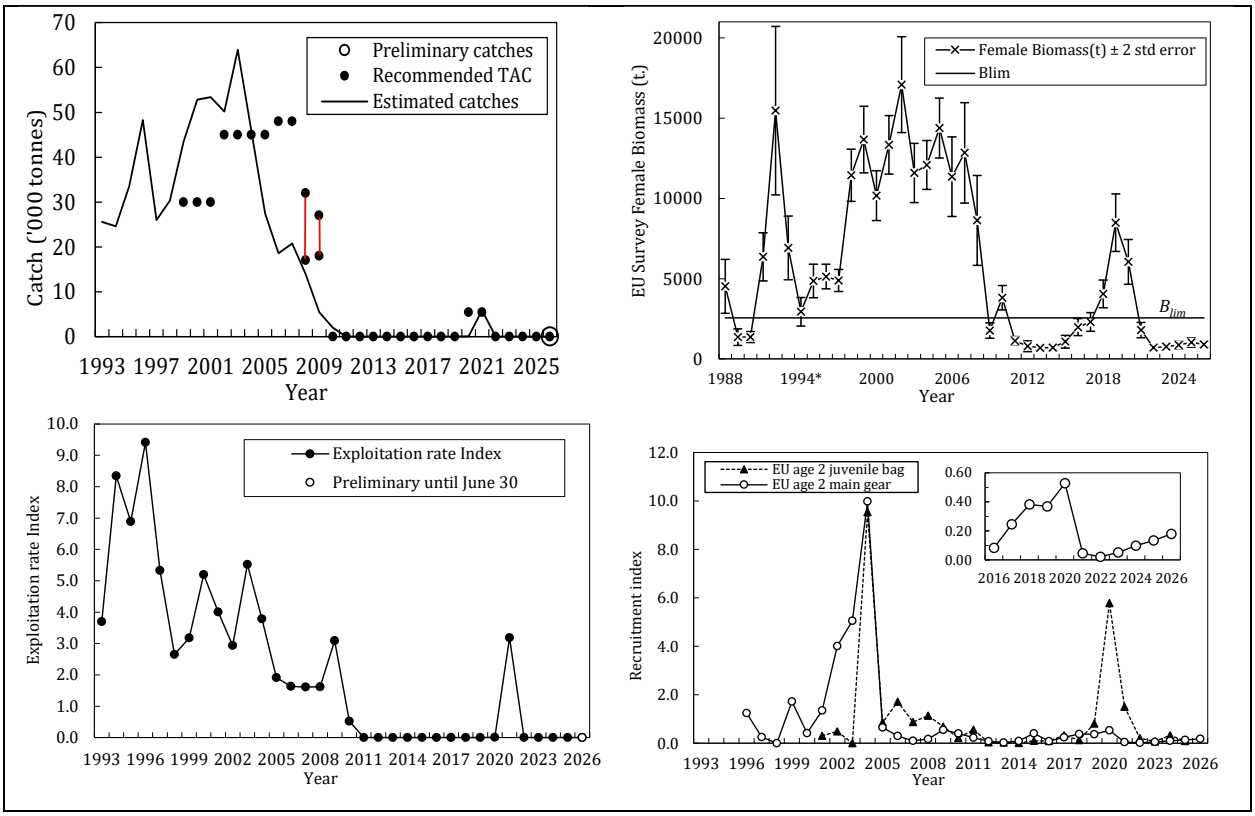
🟢 OK
🟡 Intermediate
🔴 Not accomplished
⚪ Unknown

Management unit

The northern shrimp stock on Flemish Cap is considered to be a separate population.

Stock status

Since 2021 the biomass has been below B_{lim}. Recruitment has been low since 2005. The exploitation rate from 2022 to 2025 was zero and is expected to be the same in 2026.



Reference points

Scientific Council considers a proxy for B_{lim} to be 15% of the maximum observed female survey biomass. This corresponds to an index value of 2 564 t. A limit reference point for fishing mortality has not been defined.

Projections

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

Assessment

No analytical assessment is available. Evaluation of stock status is based upon fishery and research survey data.

The next assessment will take place prior the NAFO Annual Meeting in September 2028.

Human impacts

Mainly fishery related mortality and low bycatch in other fisheries. Other sources (e.g. pollution, shipping, oil-industry) are un-documented.

Biological and Environmental Interactions

Multispecies models suggest that predation by Atlantic cod (*Gadus morhua*) and redfish (*Sebastes* spp.), together with fishing, were the main factors driving the shrimp stock to the collapse after 2007.

Results of modelling suggest that, in unexploited conditions, cod and redfish would be expected to be a highly dominant component of the system, and large shrimp stock sizes like the ones observed in the 1998 – 2007 period would not be a stable feature in the Flemish Cap. Potential changes in environmental conditions may add uncertainty in the ecosystem modelling.

The Flemish Cap (3M) Ecosystem Production Unit (EPU), with the exception of a short-lived increase in 2005-2009, has shown a fairly stable total biomass over time despite the changes in individual stocks. This indicates no major changes in overall ecosystem productivity.

Ecosystem sustainability of catches

The impact of bottom fishing activities on Vulnerable Marine Ecosystems (VMEs) in the NAFO Regulatory Area (NRA) was last assessed in 2021. The risk of Significant Adverse Impacts (SAIs) on sponge and large gorgonian VMEs was assessed to be low, while this risk for sea pen VMEs has been assessed as intermediate. The risks of SAIs on small gorgonian, black coral, bryozoan and sea squirt VMEs were assessed as high. A number of areas in the Flemish Cap (3M) EPU have been closed to bottom fishing to protect VMEs.

Div. 3M shrimp is included in the benthivore guild of the Flemish Cap (3M) Ecosystem Production Unit (EPU). The other NAFO managed stock in this guild and EPU is 3M American plaice. The Catch/Total Catch Index (TCI) for 2025 was below the 2TCI ecosystem reference point (3M Benthivore $Catch_{2025}$/TCI=0.02).

Fishery

This fishery is effort-regulated. A moratorium was imposed in 2011. The fishery was reopened in 2020. Fishing effort and catches were very low in 2020 but increased in 2021. With the new moratorium established in 2022, the catch from 2022 to 2025 was zero and is expected to be the same in 2026.

Recent catches (t) and agreed effort by the NAFO Commission were as follows (ndf = no directed fishery):

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Catches[1]	0	0	0	79	5 703	0	0	0	0	0[3]
Effort[2] (Agreed Days)	ndf	ndf	ndf	2 640	2 640	ndf	ndf	ndf	ndf	ndf
Effort days used	0	0	0	19	479	0	0	0	0	0

[1] CESAG estimates
[2] Effort regulated
[3] Preliminary catches until June 30

Special comments

Scientific Council **recommends** that *the management of 3M shrimp be converted from the existing "effort regulation" to "catch regulation" in line with all other stocks in the NAFO Regulatory Area.*

Source of Information

SCR Docs. 16/035; 18/024; 26/038, 039; SCS Doc. 04/12

b) Monitoring of Stocks for which Multi-year Advice was Provided in 2026

No interim monitoring updates of stocks were conducted this year as all stocks underwent full assessments.

2. Requests from Coastal States

Requests for management advice from Canada and Denmark (on behalf of Greenland) are presented in Annex 2 and 3 of Appendix II. Requests relating to Northern shrimp were addressed in the present meeting, the remainder having been previously addressed during the Scientific Council June 2026 meeting (SCS Doc. 26/12).

a) Northern shrimp in Subarea 0 and Subarea 1 — Advice September 2026 for 2027

Recommendation for 2027

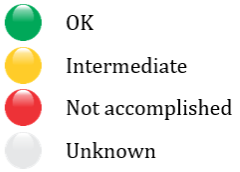
In line with Greenland's management objective of maintaining a mortality risk of no more than 35% (subject to a risk of biomass being below B_{lim} of less than 1%), Scientific Council advises that catches in 2027 should not exceed 80 000 t.

With regard to the Canadian harvest strategy, Scientific Council notes that catches of 80 000 t in 2027 would result in a 34%, 32% and 32% risk of exceeding Z_{msy} in 2027, 2028 and 2029, respectively, assuming catches and the stock biomass at the same level as in 2027.

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 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. NAFO General principles are applied.

Objective	Status	Comment/Consideration
Maintain risk of being above Z_{msy} not exceeding 35%		The projected catches for 2026 equates to a risk of being above Z_{msy} by the end of 2026 of 42%. Scientific Council noted that the current Z is still below the Z_{msy} point estimate
Maintain the stock in the Healthy Zone (>75% of B_{msy})		The stock is close to B_{msy} in 2026
Maintain risk of biomass being below B_{lim} of less than 1%		The risk of biomass in 2026 being below B_{lim} is less than 1%

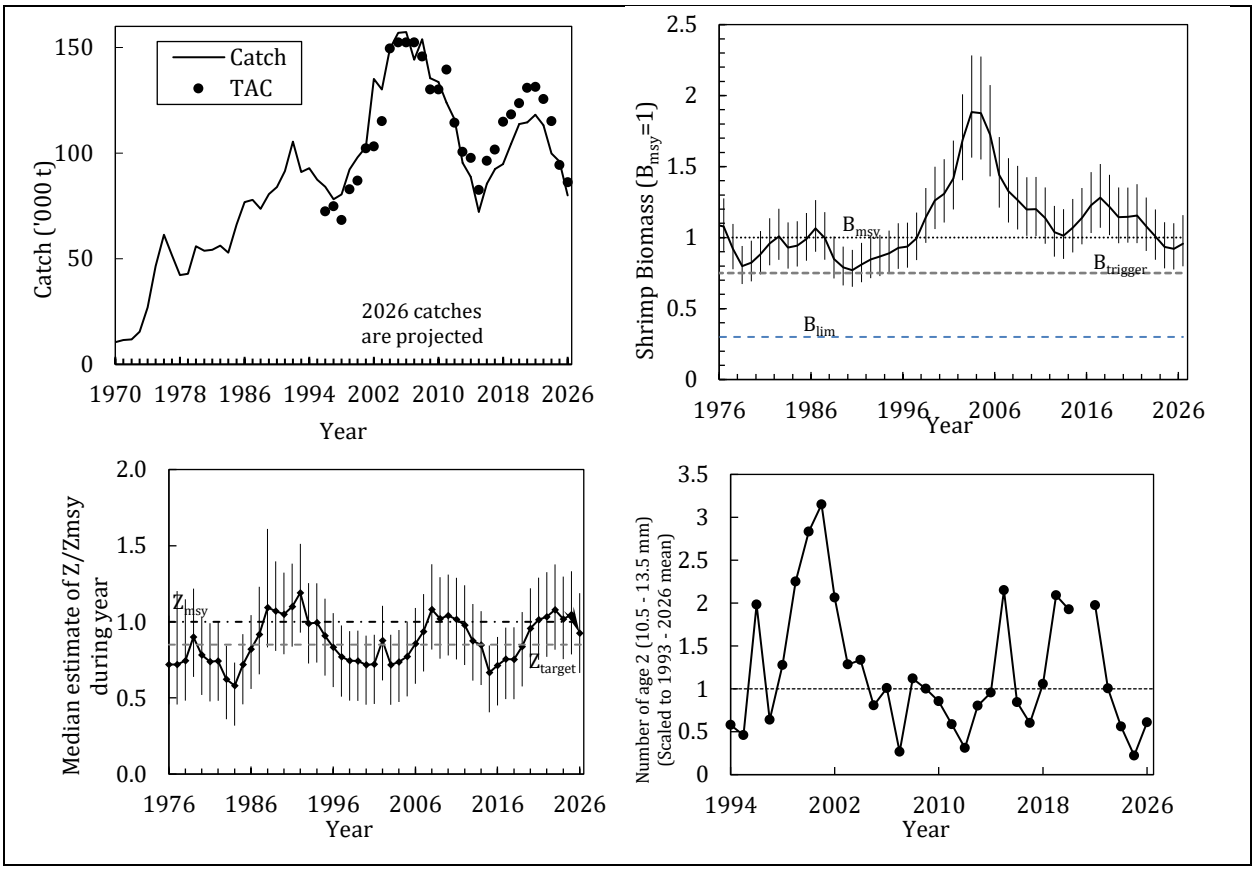


Management unit

The stock is distributed throughout Subarea 1, extends into Div. 0A east of 60°30'W, and is assessed as a single stock. In 2025, more than 99% of the landings were from Greenland.

Stock status

At the end of 2026, the stock is expected to be in the Healthy Zone of the NAFO PA Framework. Biomass is below B_{msy} but above $B_{trigger}$. The probability of being below B_{lim} is very low (<1%). The probability of total mortality (*Z*) being above Z_{msy} is 42%. Recruitment (number of age-2 shrimp) in 2026 was below the time-series average.



Reference points

B_{lim} has been established as 30% of B_{msy}, $B_{trigger}$ is defined as 75% of B_{msy}, Z_{target} is defined as 85% of Z_{msy} and Z_{msy} has been set as the mortality reference point. B_{msy}, $B_{trigger}$, Z_{msy} and Z_{target} are estimated directly from the assessment model.

Projections

Predicted probabilities of transgressing reference points in 2027-2029 under eight constant catch options and subject to predation by a cod stock with an effective biomass of 17 Kt were estimated.

17 000 t cod	Constant catch option ('000 t)							
Risk of:	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**
falling below B_{msy} end 2027 (%)	51	52	52	53	54	54	55	56
falling below B_{msy} end 2028 (%)	47	49	49	51	53	53	55	56
falling below B_{msy} end 2029 (%)	44	46	47	49	51	51	54	56
falling below B_{lim} end 2027 (%)	0	0	0	0	0	0	0	0
falling below B_{lim} end 2028 (%)	0	0	0	0	0	0	0	0
falling below B_{lim} end 2029 (%)	0	0	0	0	0	0	0	0
exceeding Z_{msy} in 2027 (%)	17	22	28	34	40	45	50	54
exceeding Z_{msy} in 2028 (%)	17	21	27	32	39	44	49	54
exceeding Z_{msy} in 2029 (%)	16	21	26	32	38	43	48	54
falling below B_{msy} 80% end 2027 (%)	23	24	25	25	27	27	28	28
falling below B_{msy} 80% end 2028 (%)	22	23	24	25	26	27	29	30
falling below B_{msy} 80% end 2029 (%)	21	22	24	25	26	28	31	31
falling below $B_{trigger}$ end 2027 (%)	18	18	19	19	20	21	21	22
falling below $B_{trigger}$ end 2028 (%)	17	18	18	20	20	22	23	24
falling below $B_{trigger}$ end 2029 (%)	16	17	18	20	21	23	25	26
exceeding Z_{target} in 2027 (%)	32	38	45	51	55	61	65	68
exceeding Z_{target} in 2028 (%)	30	36	42	48	54	58	63	67
exceeding Z_{target} in 2029 (%)	27	34	40	46	53	57	62	66

Assessment

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

The next assessment is scheduled for 2027.

Human impacts

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. Atlantic cod is an important predator on shrimp and this assessment incorporates this interaction. Other predation is likely but not explicitly considered. Shrimp 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 neither Ecosystem Production Units (EPUs) defined nor Total Catch Index (TCI) estimated for the distribution area of this stock.

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.

Fishery

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

Recent catches and TACs ('000 t) have been as follows:

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TAC										
SC Advised	90	105	105	110	115	115	110	95	80	75
Enacted GRL	87.9	99.9	103.4	108.3	113.7	113.8	109.1	101.7	82.3	74.5
*Greenland set aside to Canada	1.0	1.3	1.6	1.6	1.2	1.2	0.9	0.8	0.8	0.5
Enacted CAN	12.7	14.9	14.9	15.2	15.9	16.2	15.6	13.5	11.3	10.6
Enacted total	100.6	114.8	118.3	123.5	129.6	130.0	124.7	115.2	93.6	85.1
Catches (STACFIS)										
SA 1	89.4	93.2	102.0	113.1	114.3	118.1	113.0	99.8	96.1	80[1]
Division 0A	3.2	1.7	2.5	0.6	0.2	0.0	0.0	0.0[2]	0.0	0.0[1]
TOTAL	92.6	94.9	104.4	113.8	114.6	118.1	113.2	99.8	96.1	80.0[1]
STATLANT 21										
SA 1	88.9	90.5	98.2	110.1	107.4	117.8	110.2	97.2	93.6	
Division 0A	1.4	1.3	0.2	0.2	0.0	0.0	-	-	-	

[1] Projected total catch for the year.
[2] Total catch in Canadian Shrimp Fishing Area 1 in Division 0A was 1.214 t in 2024.
* Not included in enacted total

Special comment

Scientific Council **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, COM-SC Doc. 24-03, SCR Docs. 20/053, 20/057, 22/045, 26/030, 26/031, 26/032, 26/033.

b) Northern shrimp in Denmark Strait and off East Greenland — Advice September 2026 for 2027

Recommendation for 2027
Fishing at F_{target} in 2027 will result in catches of 1 822 t and provides a 54% probability of being below $B_{trigger}$. Applying the F range in the Cautious Zone of the NAFO PAF for 2027, catches at F lower leaf (726 t) provide a 42% probability of being below $B_{trigger}$ and catches at F upper leaf (1 561 t) provide a 52% probability of being below $B_{trigger}$.

Management objectives

No explicit management plan or management objectives have been defined by the Government of Greenland. NAFO General principles are applied.

Convention Principle	Status	Comment
Restore to or maintain at B_{msy}	Intermediate	$B_{lim} < B < B_{trigger}$ (Cautious Zone)
Eliminate Overfishing (Stock)	Not accomplished	F > Upper F range indicated by the PA
Eliminate Overfishing (Ecosystem)	Unknown	Cannot be evaluated
Apply Precautionary Approach	OK	All PA reference points defined
Minimize harmful impacts on living marine resources and ecosystems	Unknown	Cannot be evaluated
Preserve marine biodiversity	Unknown	Cannot be evaluated

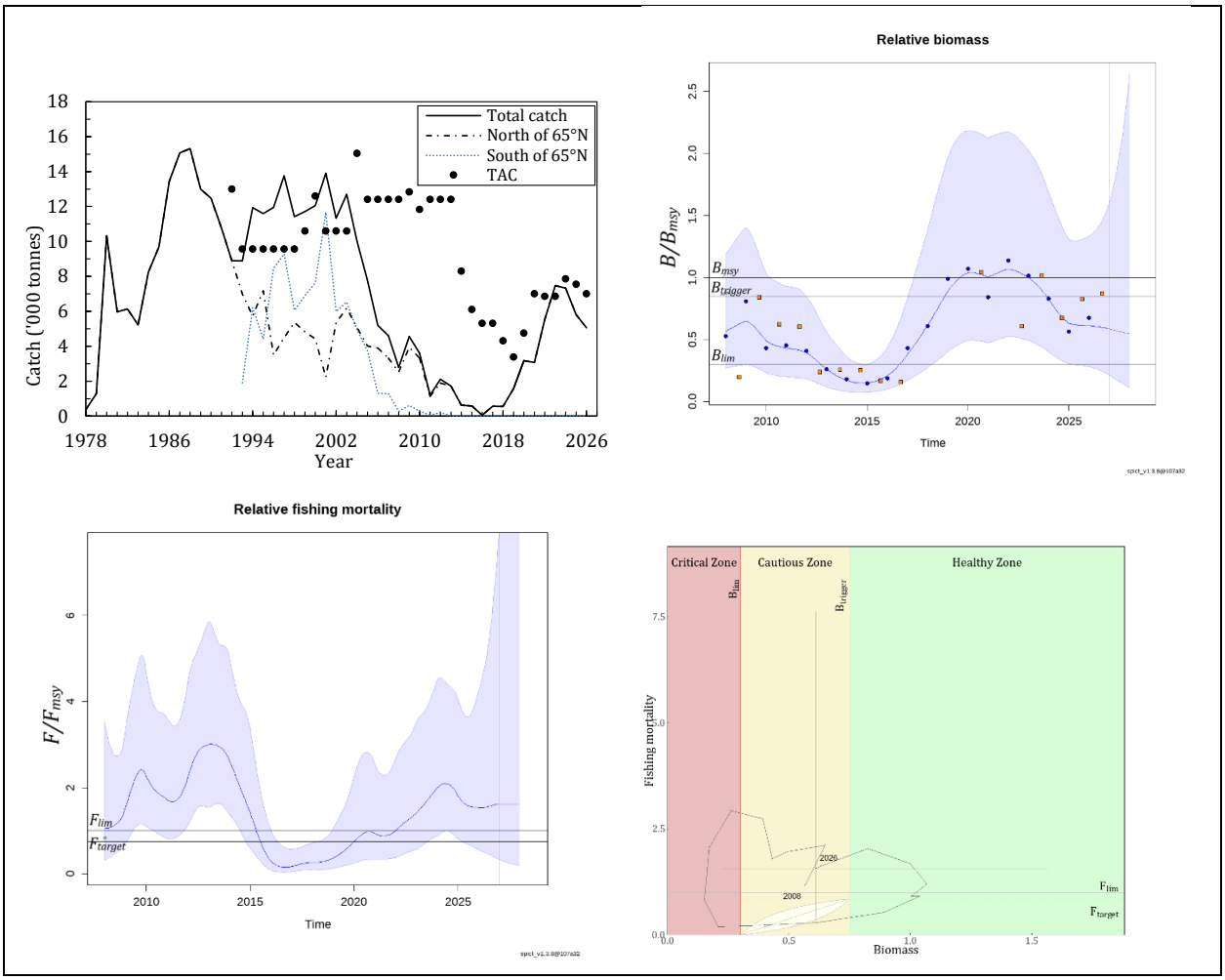
OK
Intermediate
Not accomplished
Unknown

Management unit

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

Stock status

At the end of 2026, the stock is in the Cautious Zone of the NAFO PA Framework. The median biomass is below B_{msy} and $B_{trigger}$ (B/B_{msy} = 0.59) and the probability of being below B_{lim} is 10%. Fishing mortality is above F_{target} and F_{lim} (F/F_{msy} = 1.62). No estimates of recruitment are available.



Reference points

B_{lim} is defined as 30% of B_{msy}. $B_{trigger}$ is defined as 75% of B_{msy}. F_{lim} is defined as F_{msy}. F_{target} is defined as 85% of F_{msy}. The relative reference points B_{msy} and F_{msy} are estimated within the SPiCT model.

Projections

Predicted probabilities of transgressing reference points are estimated for six catch options for 2027, F_{target}, F=0, and the three scenarios as required for the stocks in the Cautious Zone of the NAFO PA Framework.

		Catch 2026 = 7 000 t										
				Cautious Zone			Catch Options (t)					
		F=0	F_{Target}	F lower edge leaf	F midrib leaf	F upper edge leaf						
Yield	2027	0	1 822	726	1 213	1 561	500	1 000	2 000	3 000	4 000	5 000
$P(F > F_{lim})$	2027	0%	44%	14%	29%	38%	8%	23%	48%	66%	78%	87%
$P(B_{end2027} < B_{lim})$	2027	1%	8%	2%	4%	6%	2%	3%	10%	22%	36%	50%
$P(F > F_{target})$	2027	0%	50%	18%	34%	44%	10%	27%	54%	71%	82%	90%
$P(B_{end2027} < B_{trigger})$	2027	33%	54%	42%	48%	52%	39%	45%	56%	65%	71%	76%
$P(B_{end2027} < B_{msy})$	2027	57%	72%	64%	68%	70%	62%	66%	73%	77%	80%	82%
$P(B_{end2027} > B_{end2026})$	2027	100 %	79%	100%	96%	88%	100%	98%	72%	45%	32%	25%
$(B_{end2027}-B_{end2026})/B_{end2026}$		56%	19%	41%	31%	24%	46%	36%	15%	-5%	-27%	-49%

Catches above 3 000 t would result in a 20% or greater probability of B falling below B_{lim} and would likely result in continued decline of the stock.

Assessment

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

The next assessment is scheduled for 2027.

Human impacts

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. Atlantic cod is an important predator on shrimp, while the predation impact is unknown.

Ecosystem sustainability of catches

Shrimp is included in the benthivore guild. There are currently neither Ecosystem Production Units (EPUs) defined nor Total Catch Index (TCI) estimated for the distribution area of this stock.

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

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 ('000 t) were as follows:

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Enacted TAC	5.3	4.3	3.4	4.8	7.0	6.9	6.9	7.9	7.6	7.0
SC advised TAC	2.0	2.0	2.0	2.0	3.0	3.0	2.0	2.5	1.0	0.5-3.0
STACFIS Catch	0.6	0.5	1.6	3.2	3.1	5.5	7.5	7.3	5.8	5.1[1]

[1] To June 30

Source of Information

SCR Docs. 26/034, 26/035, 26/036, COM-SC Doc. 24-03

VI. OTHER MATTERS

1. Scheduling of Future Meetings

a) Scientific Council meetings

i) Scientific Council, 21 to 25 September 2026

The Scientific Council September 2026 meeting will be held in Vilnius, Lithuania, 21-25 September 2026.

ii) WG-ESA, 09-20 November 2026

The Working Group on Ecosystem Science and Assessment will be held virtually, 09-20 November 2026.

iii) STACREC May 2027

The Standing Committee STACREC will meet by WebEx in May 2027. Date to be determined.

iv) PA-WG Meeting May 2027

The Precautionary Approach Working Group will meet by WebEx in May 2027. Date to be determined.

v) Scientific Council, June 2027

The Scientific Council June meeting will be held in Halifax, Canada, 28 May-10 June 2027.

vi) Scientific Council Shrimp, September 2027

The Scientific Council September Shrimp 2027 meeting will be held in Halifax, Canada, September 2027, unless an invitation to host the meeting is extended by a Contracting Party and accepted by the Organization. Dates to be determined.

vii) Scientific Council, 20-24 September 2027

Scientific Council noted that the Annual Meeting will be held in the United Kingdom, 20-24 September 2027.

viii) WG-ESA, November 2027

Dates and location to be determined.

b) NAFO/ICES Joint Groups

i) ICES – NAFO Working Group on Deep-water Ecosystem (WG-DEC)

The next WG-DEC meeting will be held in Gijón (Spain), 15 – 19 March 2027.

ii) ICES/NAFO/NAMMCO Working Group on Harp and Hooded Seals (WG-HARP)

Dates and location to be determined.

c) Commission-Scientific Council Joint Working Groups

i) WG-RBMS

The joint Commission–Scientific Council Working Group on Risk Based Management Systems (WG-RBMS) will take place in April 2027, if necessary, location to be decided.

ii) CESAG

The next meeting of the Catch Estimation Strategy Advisory Group (CESAG) will take place via correspondence in 2027 unless new issues emerge.

iii) WG-EAFFM

The joint Commission–Scientific Council Working Group on Ecosystem Approach Framework to Fisheries Management (WG-EAFFM) will take place in July 2027, location to be decided.

iv) WG-RBMS

The joint Commission–Scientific Council Working Group on Risk Based Management Systems (WG-RBMS) will take place in July 2027, location to be decided.

2. Topics for Future Special Sessions

a) Common Scientific Challenges in Ecosystem-Based Assessment, Management, and Rebuilding of Deep-Water Shrimp Stocks project

SC noted the upcoming Common Scientific Challenges in Ecosystem-Based Assessment, Management, and Rebuilding of Deep-Water Shrimp Stocks (EB SHRIMP) project. The EB SHRIMP project aims to strengthen Nordic scientific collaboration on ecosystem-based assessment, management, and rebuilding of deep-water shrimp stocks. The project will bring together scientists, fisheries managers, and industry representatives from the Nordic countries, with participation from Canada, to exchange experience, identify common challenges, and coordinate approaches across regions.

The core activities of the project are two international workshops combining scientific presentations, case studies from different shrimp stocks, and structured discussions on ecosystem indicators, climate impacts, modelling approaches, and rebuilding strategies. The workshops will also serve as a platform for network building and identification of shared knowledge gaps and future research priorities.

Scientific Council expressed interest in supporting a NAFO scientist to participate in the EB SHRIMP project. This will be further discussed at the 2026 September Scientific Council Annual Meeting.

3. Other Business

a) The Northern shrimp in SSAR

Nicolas Le Corre (Canada) provided an update on Northern shrimp in the South Stock Assessment Region (SSAR), including an overview of recent updates to WG-RBMS and Scientific Council, details on the upcoming Canadian interim-year update, related environmental and ecosystem information, and an overview of recent SSAR and EU survey indices. The group expressed their thanks for the presentation and associated work.

VII. ADOPTION OF REPORTS

The STACFIS report was adopted on 16 September 2026. The Chair received approval to leave the report in draft form for about two weeks to allow for minor editing and proof-reading on the usual strict understanding there would be no substantive changes.

VIII. ADJOURNMENT

The Scientific Council meeting was adjourned at 16:30 on 16 September 2026. The Chairs thanked all participants, especially the Designated Experts, for their hard work. The Chairs thanked the NAFO Secretariat for all of their logistical support and the European Union for hosting the meeting. The report was adopted at the close of the meeting, subject to a period for editorial revision following this meeting.

APPENDIX I. REPORT OF STANDING COMMITTEE ON FISHERIES SCIENCE (STACFIS)

Chair: José De Oliveira Rapporteur: NAFO Secretariat

I. OPENING

STACFIS met from 15 to 16 September 2026 at the Radisson Collection Astorija Conference Centre in Vilnius, Lithuania, to review stock assessments of Northern shrimp stocks. Representatives attended from Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Norway, the Russian Federation and Ukraine. A full list of participants is included in Appendix VI.

The Chair, José De Oliveira (United Kingdom), opened the meeting at 09:56 on 15 September and welcomed participants. The provisional agenda was adopted as circulated. The NAFO Secretariat (Andrea Perreault) was appointed as rapporteur.

II. GENERAL REVIEW

1. Review of Research Recommendations in 2025

Recommendations applicable to individual stocks are given under each stock in the "stock assessments" section of this report.

2. Review of Catches

Catches and catch histories were reviewed on a stock-by-stock basis in connection with each stock.

III. STOCK ASSESSMENTS

STOCKS ON THE FLEMISH CAP (NAFO DIVISION 3M)

Environmental Overview

The STACFEN Committee did not meet during the 2026 SC June meeting. Therefore, no environmental overviews, including the update of environmental conditions for 2025, were available to SC. The lack of this information increases the uncertainty of all stock assessments, as any potentially relevant environmental connections would have gone undetected.

1. Northern shrimp (*Pandalus borealis*) on the Flemish Cap (NAFO Division 3M)

Full assessment (SCR Doc. 04/77, 16/35, 18/24, 26/38, 39)

a) Introduction

The shrimp fishery in Division 3M began in 1993. Catches peaked at over 60 000 t in 2003 and declined thereafter. A moratorium was imposed from 2011 to 2019. In 2020 the fishery was resumed with very low catches that increased to 5 703 t in 2021 (Figure 1.1). A new moratorium was established in 2022 in Division 3M.

Recent catches (t) and effort agreed by the NAFO Commission were as follows (ndf=no directed fishery):

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Catches[1]	0	0	0	79	5 703	0	0	0	0	0[3]
Effort[2] (Agreed Days)	ndf	ndf	ndf	2 640	2 640	ndf	ndf	ndf	ndf	ndf
Effort days used	0	0	0	19	479	0	0	0	0	0

[1] CESAG estimates
[2] Effort regulated
[3] Preliminary catches until June 30

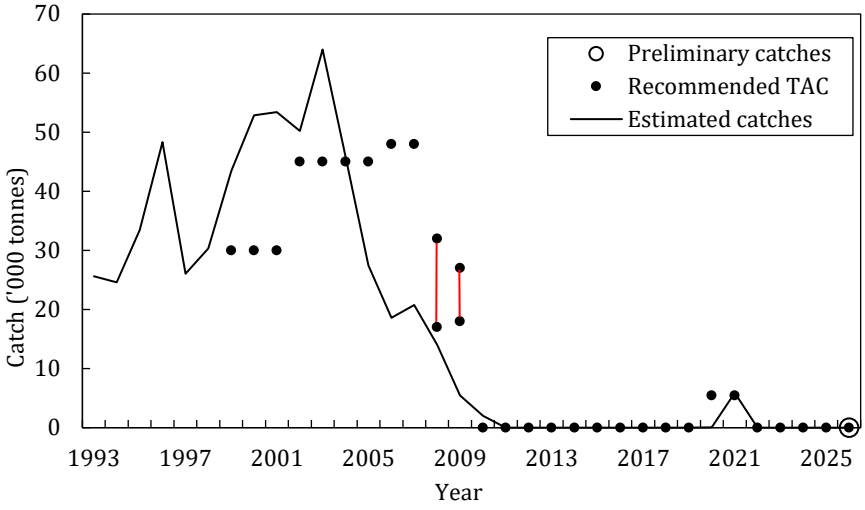


Figure 1.1. Shrimp in Div. 3M: recommended TAC and estimated catches ('000 t) for the period 1993-2026 (red lines in 2008 and 2009 indicate the catches range recommended by SC and open circle preliminary catches of 2026).

b) Data overview

i) Commercial fishery data

Catch and effort data were not available for 2011 - 2019 and for 2022 – 2026 due to the moratorium. The standardized CPUE series was not updated for 2020 or 2021.

ii) Research Survey Data

EU Bottom Trawl Research Survey. Stratified-random trawl surveys have been conducted on Flemish Cap, during the summer, from 1988 to 2026. A new vessel was introduced in 2003 which continued to use the same trawl that was employed since 1988. The series prior to 2003 was converted into comparable units with the new vessel using the methods approved by SC in 2004.

Biomass: The survey female biomass index was stable at a high level from 1998 to 2007, and subsequently declined until 2014. From 2015 to 2019, the female biomass index increased and was well above B_{lim} in 2019 but subsequently declined. Since 2021 the female biomass has been below B_{lim} (Figure 1.2).

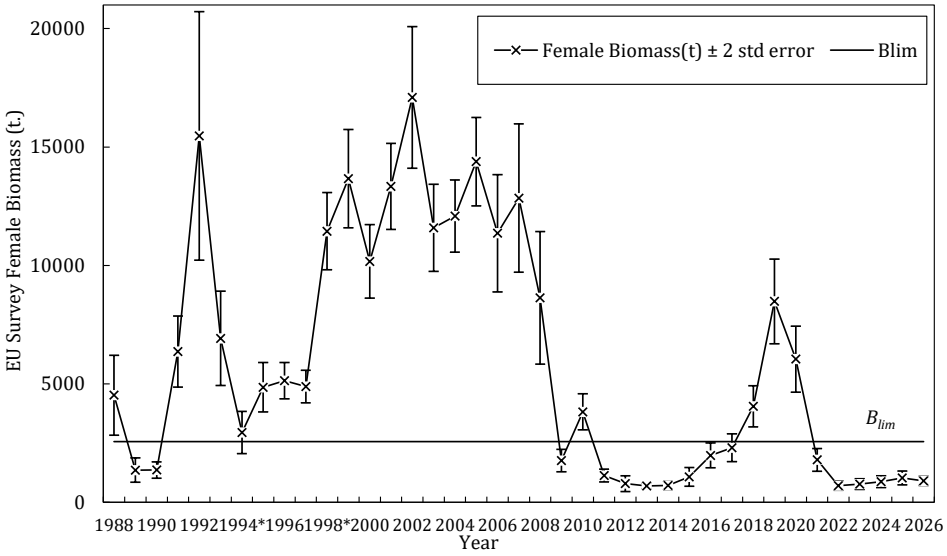


Figure. 1.2 Shrimp in Div. 3M: Female biomass index from EU trawl surveys, 1988-2026. Error bars are 2 std. err. Biomass values for 1994 and 1998 were underestimated and overestimated, respectively, due to changes in the mesh size of the cod end (40 mm and 25 mm, respectively).

Recruitment: Abundance at age 2 in the standard gear and in an additional small mesh size bag at the cod end of the trawl gear (juvenile bag) are used as the indicators of recruitment. Recruitment has been low since 2005, except in 2020, but this exception is only reflected in the juvenile bag index; the juvenile bag index spike in 2020 was not reflected in the subsequent survey female biomass index (Figure 1.2).

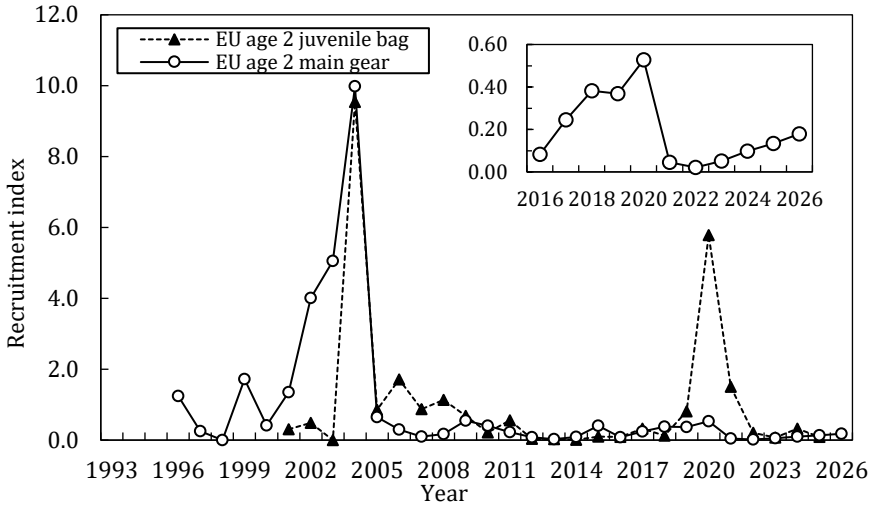


Figure. 1.3 Shrimp in Div. 3M: Abundance indices at age 2 from the EU survey. Each series was standardized to its mean. Inset shows EU main gear on a different vertical scale for the most recent period.

c) Assessment results

The current assessment of northern shrimp in Division 3M is based on the interpretation of commercial fishery information and data from research surveys. Currently, no analytical model is available.

Exploitation rate: Due to the moratorium, the exploitation rate index was zero from 2011 to 2019. In 2020, the fishery resumed but the effort directed to shrimp fisheries and catches were low resulting in a very low exploitation rate (0.01). In 2021 the exploitation rate increased notably (3.3) due to an increase in catches (5 703 t) and a decrease in the EU survey female biomass index (Figure 1.4). With the moratorium re-established in 2022, the exploitation rate from 2022 to 2025 was zero and is expected to be the same in 2026.

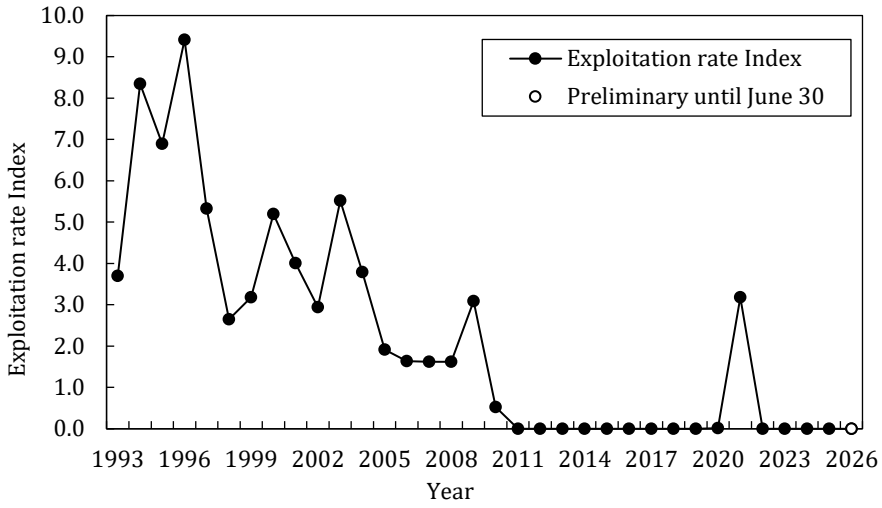


Figure. 1.4. Shrimp in Div. 3M: Exploitation rate index as derived by catch divided by the EU survey biomass index of the same year.

d) State of the stock

Since 2021 the biomass has been below B_{lim}. Recruitment has been low since 2005. The exploitation rate from 2022 to 2025 was zero and is expected to be the same in 2026.

e) Reference points

A proxy for B_{lim} has been set to 15% of the maximum observed female biomass from the survey index. This corresponds to an index value of 2 564 t (Figure 1.5). A limit reference point for fishing mortality has not been defined.

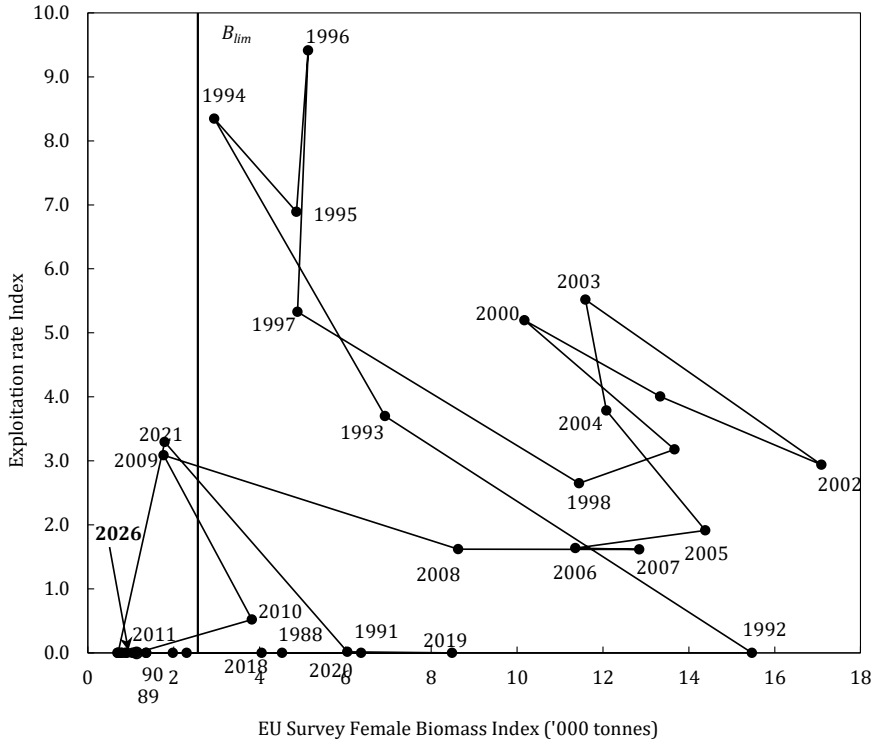


Figure. 1.5. Shrimp in Div. 3M: Exploitation rate index plotted against female biomass index from EU survey.

f) Ecosystem considerations

Multispecies models suggest that predation by cod and redfish, together with fishing, were the main factors driving the shrimp stock to collapse after 2007. Results of modelling suggest that, in unexploited conditions, cod and redfish would be expected to be a highly dominant component of the system, and high shrimp stock sizes like the ones observed in the 1998 – 2007 period would not be a stable feature in the Flemish Cap (Figure 1.6). It is uncertain whether this represents a causal relationship and/or covariance as a result of some environmental factor.

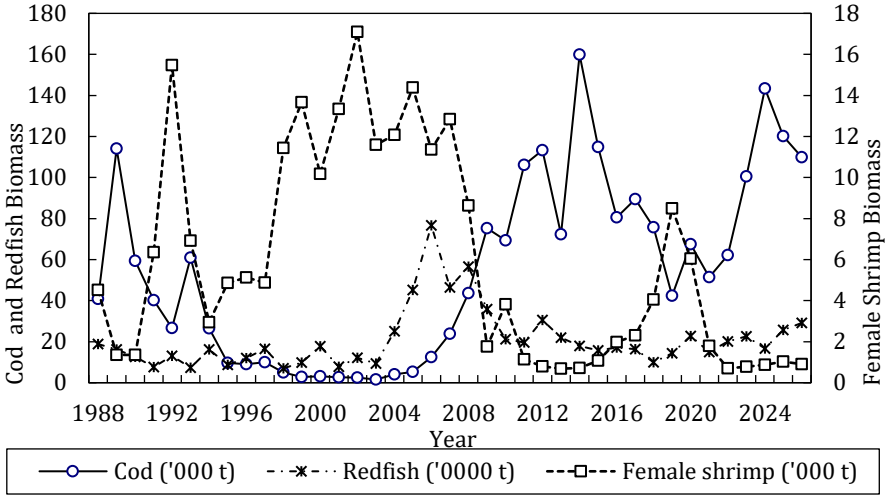


Figure. 1.6. Shrimp in Div. 3M: Cod, redfish and female shrimp biomass from EU trawl surveys, 1988-2026. Data from 2026 for cod and redfish are preliminary.

g) Research recommendations

NIPAG **recommended** in 2016 that *further exploration of the relationship between shrimp, cod and the environment be continued in WGESA and NIPAG encourages the shrimp experts to be involved in this work.*

No progress from last year. This recommendation is reiterated.

STACFIS **recommends** *exploration of a quantitative model for this stock.*

In 2026, a stochastic surplus production model (SPiCT) was applied to the shrimp stock in Division 3M. A model configuration was not accepted due to issues with model diagnostics, and further work is recommended.

STACFIS **recommends** that *an estimation of potential reference points be explored.*

No progress from last year.

The next assessment will take place prior the NAFO Annual Meeting in September 2028.

STOCKS OFF GREENLAND AND IN DAVIS STRAIT: SA 0 AND SA 1

Environmental Overview

The STACFEN Committee did not meet during the 2026 SC June meeting. Therefore, no environmental overviews, including the update of environmental conditions for 2025, were available to SC. The lack of this information increases the uncertainty of all stock assessments, as any potentially relevant environmental connections would have gone undetected.

2. Northern shrimp (*Pandalus borealis*) off West Greenland (NAFO Subarea 0 and Subarea 1)

Full Assessment (SCR Docs. 04/075, 076, 08/006, 11/053, 058, 12/044, 13/054, 20/053, 054, 058, 26/021, 030, 031, 032, 033)

a) Introduction

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

The stock is assessed as a single population.

b) Fisheries and catches

The Greenland fishery exploits the stock in Subarea 1 (Divisions 1A–1F). The Canadian fishery has been limited to Division 0A.

The Canadian and the Greenland offshore fleets have been restricted by areas and quotas since 1977. The Greenland coastal fleet has privileged access to inshore areas (primarily Disko Bay and Vaigat in the north, and Julianehåb Bay in the south). Sorting grids are required in both the Greenland and the Canadian fleets to reduce bycatch of fish. Discarding of shrimp is prohibited.

The enacted TAC for Greenland waters in 2026 was set at 75 521 t and, for Canadian waters, 10 625 t. The total enacted TAC between Greenland and Canada has historically exceeded the TAC recommended by the Scientific Council.

Total Greenlandic catch increased to an average over 150 000 t from 2005 to 2008 and decreased to 72 256 t in 2015 (Figure 2.1). Since 2016, the catch increased in conjunction with increasing TACs to a high of 113 223t in 2023. However, TAC has been declining over recent years and consequently catches declined to 96 121 t in 2025. The projected catch for 2026 is 80 000 t in the Greenlandic EEZ (Subarea 1). Since the early 2000s, the Greenlandic fishery has moved north and currently about 80% of the total catch is taken in Divisions 1A and 1B.

Canadian fishing effort has been sporadic and catches variable. In 2016, fishing increased in the Canadian EEZ with catches reaching a maximum of 3 215 t in 2017 and declining to very low levels since 2021. The projected catch for Canada from Division 0A in 2026 is expected to be low.

Recent catches, projected catch for 2026, and recommended and enacted TACs ('000 t) for Northern shrimp in Subarea 1 and Division 0A (east of 60°30'W) are as follows:

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TAC										
SC Advised	90	105	105	110	115	115	110	95	80	75
Enacted GRL	87.9	99.9	103.4	108.3	113.7	113.8	109.1	101.7	82.3	74.5
*Greenland set aside to Canada	1	1.3	1.6	1.6	1.2	1.2	0.9	0.8	0.8	0.5
Enacted CAN	12.7	14.9	14.9	15.2	15.9	16.2	15.6	13.5	11.3	10.6
Enacted total	100.6	114.8	118.3	123,5	129.6	130	124,7	115,2	93.6	85.1
Catches (STACFIS)										
SA 1	89.4	93.2	102	113.1	114.3	118.1	113	99.8	96.1	80[1]
Division 0A	3.2	1.7	2.5	0.6	0.2	0	0	0[2]	0	0[1]
TOTAL	92.6	94.9	104.4	113.8	114.6	118.1	113.2	99.8	96.1	8[1]
STATLANT 21										
SA 1	88.9	90.5	98.2	110.1	107.4	117.8	110.2	97.2	93.7	-
Division 0A	1.4	1.3	0.2	0.2	0	0	-	-	-	-

[1] Projected total catch for the year.
[2] Total catch in Canadian Shrimp Fishing Area 1 in Division 0A was 1.214 t in 2024.
* Not included in enacted total.

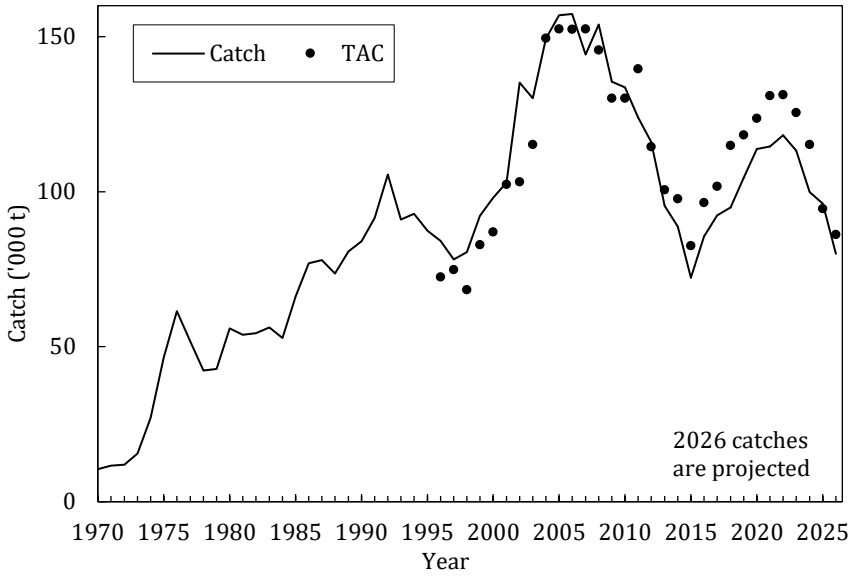


Figure 2.1. Northern shrimp in Subarea 0 and Subarea 1: Total enacted TACs and total catches.

c) Data overview

i) Commercial fisheries data

Fishing effort and CPUE. Catch and effort data from the fishery were available from Greenland logbooks for Subarea 1. In recent years both the distribution of the Greenland fishery and fishing power have changed substantially: for example, larger vessels have been allowed in a limited part of coastal areas; the coastal fleet has fished outside Disko Bay; the offshore fleet now commonly uses double trawls or triple trawls. Furthermore, quota transfers between the two fleets are now allowed.

CPUEs were standardized by linearized multiplicative models including terms for vessel, month, gear type, year and statistical area. Standardized CPUE series were done separately for three different fleets (Figure 2.2); the early offshore fleet fishing in Division 1A and part of Division 1B (Royal Greenlandic Trade (KGH)-index, 1976-1990), the present offshore fleet fishing in Subarea 1 (1987-2026) and the coastal fleet fishing in coastal and inshore areas (1989-2026). In recent years the CPUE of the coastal fleet has remained stable, while the CPUE of the offshore fleet increased to 2017 and then declined until 2025. Partial data from 2026 indicate CPUE for combined fleet components will increase slightly.

The three Greenland CPUE series are combined by assuming they all reflect the overall biomass series scaled by a constant fleet factor, and that the errors had a mean of zero and variances that were inversely proportional to the fishing ground of the fleet (standardised union series; Figure 2.2). The estimation was done in a Bayesian framework.

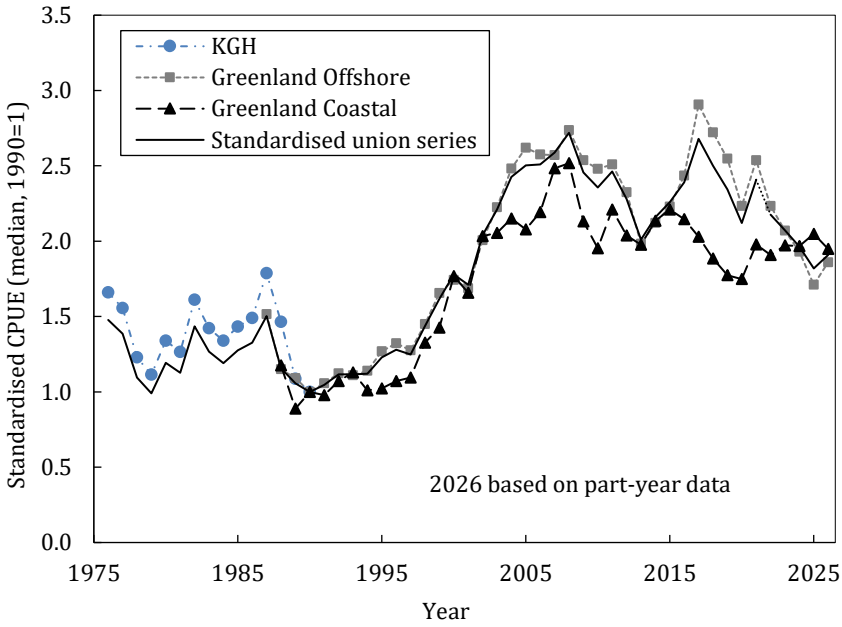


Figure 2.2. Northern shrimp in Subarea 0 and Subarea 1: Standardized Greenland CPUE index series in 1976-2026. The 2026 point is based on data from 1 January to 30 June 2026.

The distribution of catch and effort among statistical areas was summarized using Simpson's diversity index to calculate an 'effective' number of statistical areas being fished as an index of how widely the fishery is distributed (Figure 2.3). The 'effective' number of statistical areas being fished in Subarea 1 reached a plateau in 1992-2003. The range of the fishery has since contracted northwards, and the 'effective' number of statistical areas being fished has decreased.

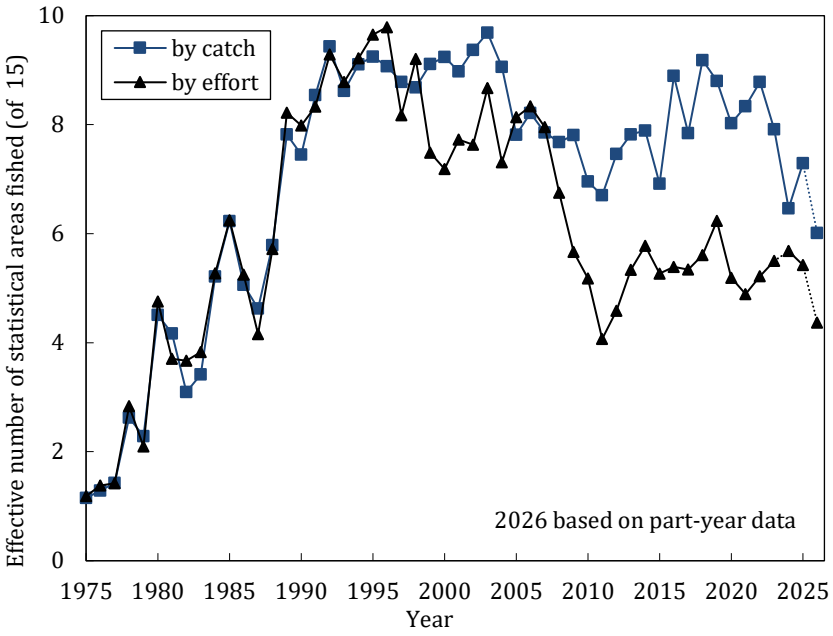


Figure 2.3. Northern shrimp in Subarea 0 and Subarea 1: Indices for the distribution of the Greenland fishery between statistical areas in 1975-2026. The 2026 point is based on data from 1 January to 30 June 2026.

Catch composition. The current data from the commercial samples in the Greenlandic EEZ provide valuable information of size composition of shrimp in the fishery. No information is available from SFA1 in the Canadian EEZ.

ii) Research survey data

Greenland trawl survey. Random stratified trawl surveys designed primarily to estimate shrimp stock biomass have been conducted since 1988 in offshore areas and since 1991 also inshore in Subarea 1. From 1993, the survey was extended southwards into Divisions 1E and 1F. A cod-end liner of 22 mm stretched mesh has been used since 1993. From its inception until 1998 the survey used 60-minute tows, but since 2005 all tows have lasted 15 minutes. In 2005 the *Skjervøy 3000* survey trawl was replaced by a *Cosmos 2000* with rock-hopper ground gear. Calibration trials were conducted, and the earlier data were adjusted.

In 2018 and 2019-2020, the annual trawl survey was conducted with two different chartered vessels during the same time of year as the usual survey, and in 2021 no survey was conducted due to vessel unavailability. Since 2022 the survey has been conducted with the new Greenlandic research vessel *Tarajoq*. All the standard gears were identical to those used on the research vessel *Paamiut* (such as Cosmos trawl, doors, all equipment such as bridles etc., *Marport* sensors on doors and headlines), and all the standard research protocols were followed in an attempt to make the surveys as identical as possible with the previous years' survey with the research vessel *Paamiut*. It is therefore assumed that the 2018, 2019-2020 and 2022-2026 results were directly comparable with the previous surveys; however, without comparative fishing there remains some uncertainty.

In 2023, there was heavy ice coverage north of 66°N in the Greenland EEZ, which prevented trawling at many planned stations during the survey. Due to poor survey coverage in the northern survey area, it is uncertain if the 2023 survey results reflect the stock trajectory and status. Hence, it was assumed that the commercially important areas in the north were not covered properly. In order to compensate for the un-surveyed area, an average of the past five-year values of biomass and density in the un-surveyed stratum/strata were used to replace missing values for the 2023 assessment of the West Greenland shrimp stock.

The survey average bottom temperature increased from about 1.7°C in 1990-1993 to about 3.1°C in 1997-2014 but declined to 2.1°C in 2018. Since 2022, temperature has averaged around 3°C but increased to 3.9°C in 2026. About 80% of the survey biomass is in water 150-400 m deep throughout the time series. Since 2001, most of the survey biomass has been in water 150-300 m deep. The proportion of survey biomass in Divisions 1E-F has been low in recent years and the distribution of survey biomass, like that of the fishery, has become more northerly.

Biomass. The survey index of total biomass remained fairly stable from 1988 to 1997. It then increased until 2003. Subsequent values declined, with the second lowest level in the last 22 years occurring in 2014 (Figure 2.4). Biomass was generally stable from 2017 to 2020, and has generally declined since then.

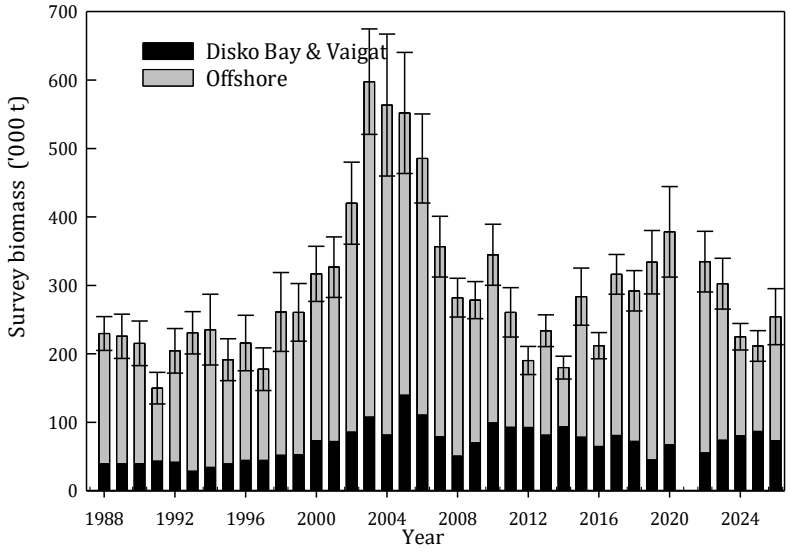


Figure 2.4. Northern shrimp in Subarea 0 and Subarea 1: Biomass index (survey mean catch rates) inshore (Disko Bay and Vaigat) and offshore, 1988-2026 (error bars ±1 SE).

Length and sex composition. In 2026, in Disko Bay the proportion of fishable males in the survey was above the mean of the 20-year time series, whereas the proportion of fishable males in the offshore regions was below. Females comprise a high proportion of the fishable biomass in both regions. The proportion of females was below the 20-year mean offshore, and close to the 20-year mean in Disko Bay.

The majority of the shrimp caught in the survey were above 17 mm carapace length (CL). While mean carapace length for males was equal for Disko Bay and Offshore regions (18.1 mm CL), females were a little larger in Disko Bay and Vaigat (23.85 mm CL) compared to those of offshore regions (23.1 mm CL) (Figure 2.5).

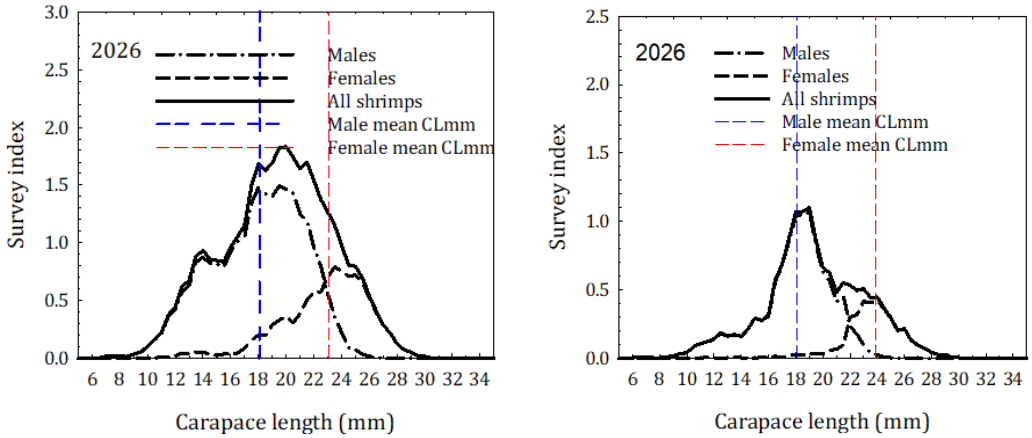


Figure 2.5. Northern shrimp in Subarea 0 and Subarea 1: Survey mean catch composition at length in offshore regions (left) and Disko Bay and Vaigat (right) in the West Greenland trawl survey in 2026.

Recruitment. Throughout the time series, age-2 (10.5 to 13.5 mm CL) recruitment has been variable and has declined from 2022, reaching the lowest in the series in 2025 but increasing again in 2026 (Figure 2.6).

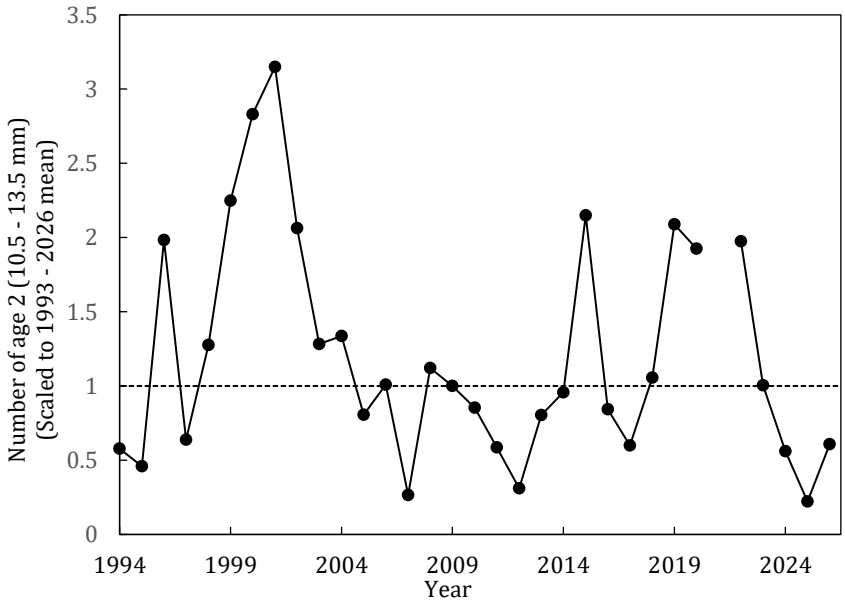


Figure 2.6. Northern shrimp in Subarea 0 and Subarea 1: Survey index of numbers at age 2 (10.5-13.5 mm CL), 1993-2026. Indices are standardized to the series mean (dashed line).

Predation index. Since 2020, the overall Atlantic cod stock biomass index used within the shrimp assessment model has been computed using a state-space assessment model (SAM) based on catch at age in the commercial fishery and the Greenland trawl survey.

Indices of cod biomass are adjusted by a measure of the overlap between the stocks of cod and shrimp to obtain an index of 'effective' cod biomass, which is entered in the assessment model. Currently the cod stock in West Greenland is at a low level compared to the period before the cod collapse in the beginning of the 1990s. The cod stock biomass has been increasing slightly since 2017 and was estimated to be 69 Kt in 2026 and is composed of several year-classes. The index of its overlap with the shrimp stock is still below the time series average. This resulted in a 2026 'effective' cod biomass index of 17 Kt (Figure 2.7).

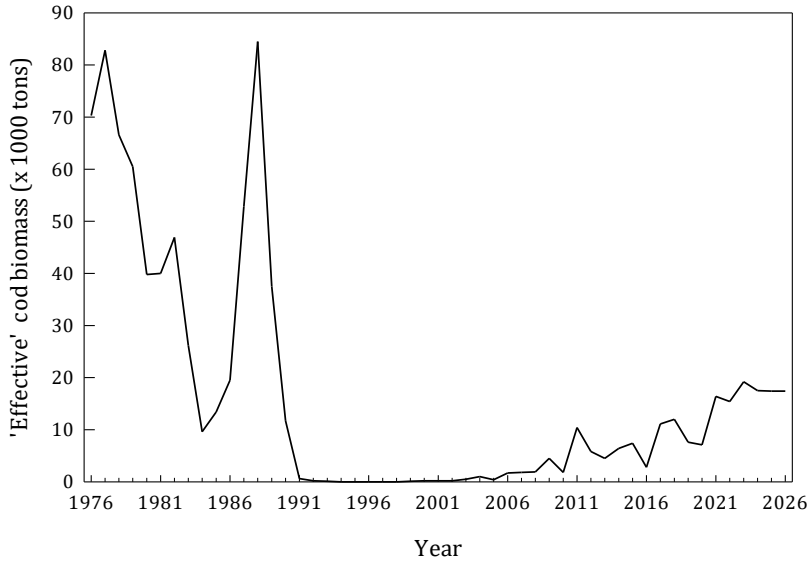


Figure 2.7. Northern shrimp in Subarea 0 and Subarea 1: Indices of the 'effective' cod biomass in Subarea 1 and Division 0A, 1976-2026.

d) Assessment results

A Schaefer surplus-production model of population dynamics was fitted to series of CPUE, catch and survey fishable biomass indices (considered shrimp larger than 17mm CL). The model includes a term for predation by Atlantic cod (Figure 2.7). Total shrimp catches for 2026 are expected to be 80 000 t based on historical fishing patterns.

Estimates of stock-dynamic parameters from fitting a Schaefer stock-production model to 51 years' data are given in Table 2.1. Median values from the 2025 assessment are provided for comparison. The modelled biomass (Figure 2.8) declined steadily from 2004 to 2013, increased slightly until 2017 and has generally declined since then. Biomass at the end of 2026 is projected to be slightly higher than in 2025 and is almost at B_{msy}. The probability of the biomass at the end of 2026 being below B_{msy} is 57% and the probability of being below B_{lim} is very low (<1%). The probability of being below $B_{trigger}$ is 19%. Mortality has generally been close to or below Z_{msy} during the modelled period (Figure 2.9). Estimates of total mortality have increased in the most recent years. Assuming catches of 80 000 t, total mortality in 2026 is estimated to be close to Z_{msy} with probability of $Z_{2026} > Z_{msy} = 42\%$.

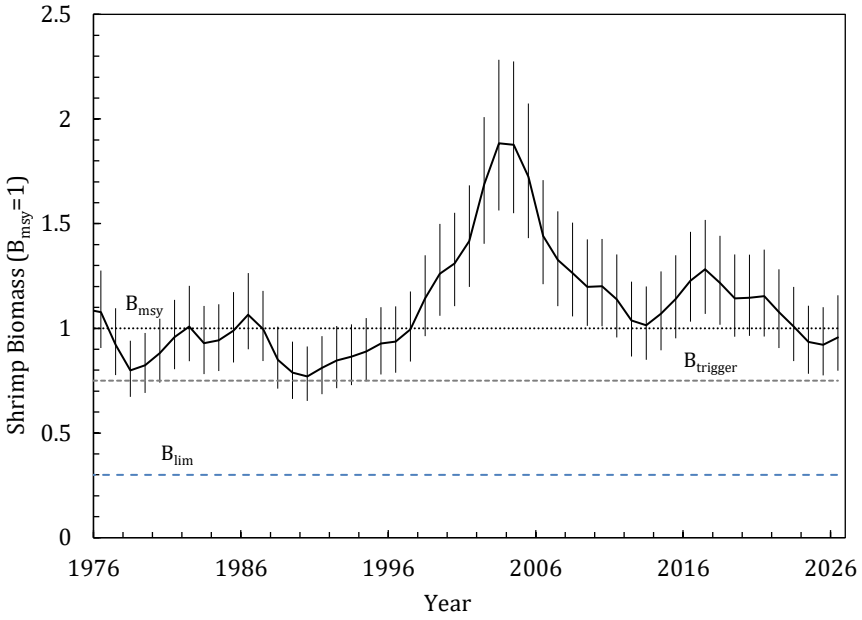


Figure 2.8. Northern shrimp in Subarea 0 and Subarea 1: Relative stock biomass with quartile error bars 1976-2026. Dotted line corresponds to B = B_{msy}. Grey dashed line corresponds to B = $B_{trigger}$. Blue dashed line corresponds to B = B_{lim}.

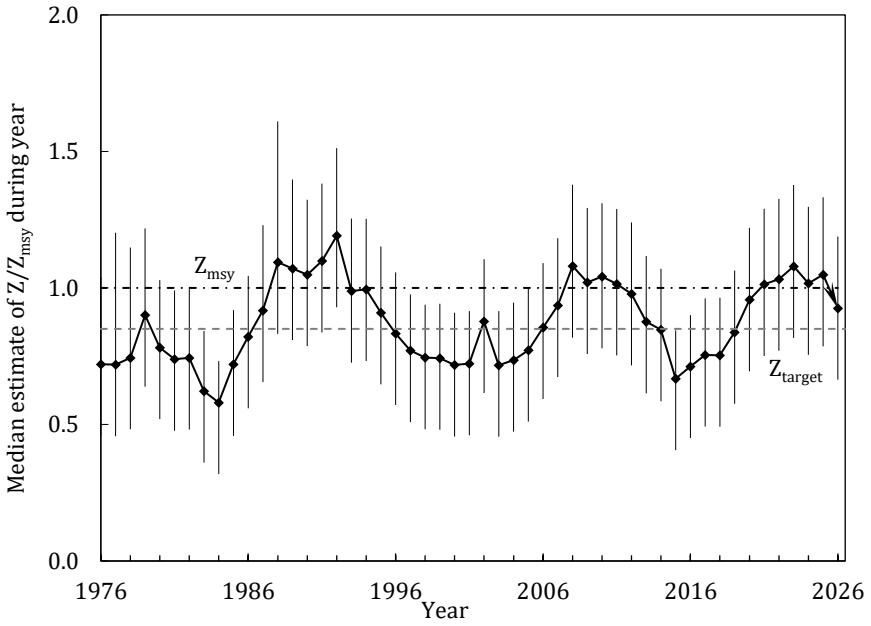


Figure 2.9. Northern shrimp in Subarea 0 and Subarea 1: Trajectory of the median modelled estimate of mortality relative to Z_{msy} (dashed upper line) during the years 1976-2026 with quartile error bars. The dashed lower line is Z_{target}.

Table 2.1. Northern shrimp in Subarea 0 and Subarea 1: Estimates of stock dynamic and parameters from fitting a Schaefer stock-production model to the West Greenland Northern shrimp stock in 2026. The median (2025) column shows results from last year's assessment.

	Mean	S.D.	25%	Median	75%	Est. mode	Median (2025)
Max.sustainable yield	121.3	45.8	97.9	115.1	134.3	102.7	113.6
B/Bmsy, end current year (proj.)(%)	98.8	26.7	79.8	95.7	115.8	89.5	90.78
Biomass risk, end current year(%)	56.6	49.6	–	–	–	–	–
Z/Zmsy, current year (proj.)(%)	–	–	67.6	92.6	118.8	–	95.91
Carrying capacity	3103	1759	1796	2590	3937	1564	2646
Max. sustainable yield ratio (%)	9.9	5.1	6.0	9.2	13.1	7.8	8.959
Survey catchability (%)	20.4	12.3	11.0	17.4	27.0	11.4	16.93
CPUE(1) catchability	1.2	0.7	0.6	1.0	1.6	0.6	0.9755
CPUE(2) catchability	1.8	1.1	1.0	1.5	2.4	1.0	1.497
Effective cod biomass 2026 (Kt)	23.6	38.8	13.2	17.4	22.4	4.9	13.49
$P_{50\%}$ *(prey biomass index with consumption 50% of max.)*	3.9	6.6	0.3	1.4	4.4	-3.7	1.329
V_{max} *(maximum consumption per cod)*	2.1	2.3	0.4	1.1	3.0	-1.0	1.051
CV of process (%)	11.7	2.6	10.0	11.6	13.2	11.4	11.86
CV of survey fit (%)	18.1	2.7	16.2	17.8	19.8	17.3	17.9
CV of CPUE (1) fit (%)	6.9	1.4	5.9	6.7	7.7	6.1	6.722
CV of CPUE (2) fit (%)	6.4	1.3	5.4	6.0	6.9	5.3	6.226

A six-year retrospective analysis was performed (Figure 2.10), and results were found to be relatively stable.

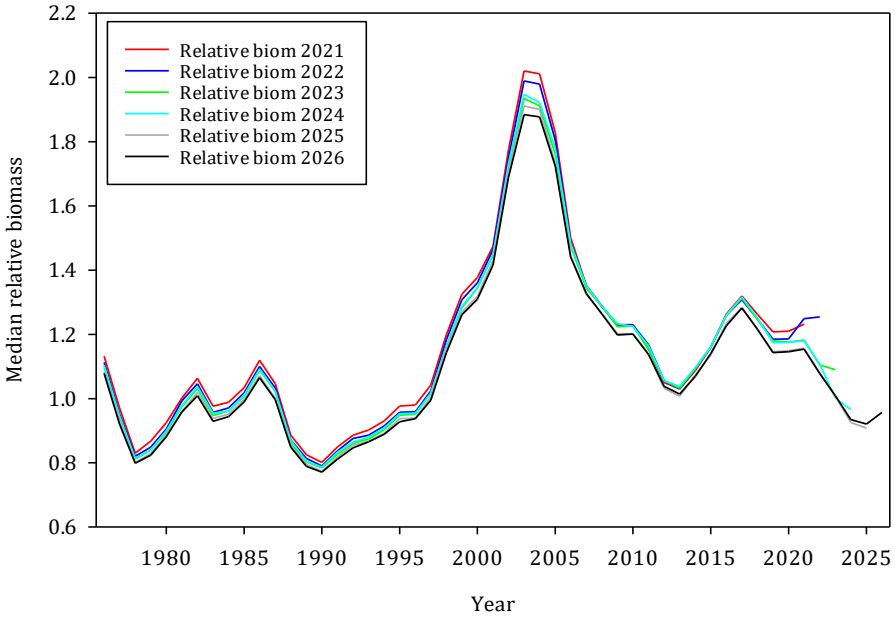


Figure 2.10. Northern shrimp in Subarea 0 and Subarea 1: Retrospective plots of the relative biomass B/B_{msy} from 2021 to 2026. Mohn's rho is estimated to 0.07.

e) State of the stock

Biomass. Biomass in 2026 is below $B_{msy,}$ above $B_{trigger}$ and the probability of being below B_{lim} is very low (<1%).

Mortality. Assuming catches of 80 000 t in 2026 and an effective cod biomass of 17 000 t, the probability of being above Z_{msy} is 42%.

Recruitment. In 2026 numbers of age-2 were below the time-series average. Prospects for future recruitment are expected to be poor.

State of the Stock. At the end of 2026, the stock is expected to be in the Healthy Zone of the NAFO PA Framework. Biomass is below B_{msy} but above $B_{trigger}$. The probability of being below B_{lim} is very low (<1%). The probability of total mortality (*Z*) being above Z_{msy} is 42%. Recruitment (number of age-2 shrimp) in 2026 was below the time-series average.

f) Reference points

B_{lim} has been established as 30% of B_{msy}, $B_{trigger}$ is defined as 75% of B_{msy}, Z_{target} is defined as 85% of Z_{msy} and Z_{msy} has been set as the mortality reference point. B_{msy}, $B_{trigger}$, Z_{msy} and Z_{target} are estimated directly from the assessment model (Figure 2.11). Scientific Council agreed to continue using the established Z-based stock-specific reference points in the assessment and advice (see Section IV.2 of the Scientific Council report).

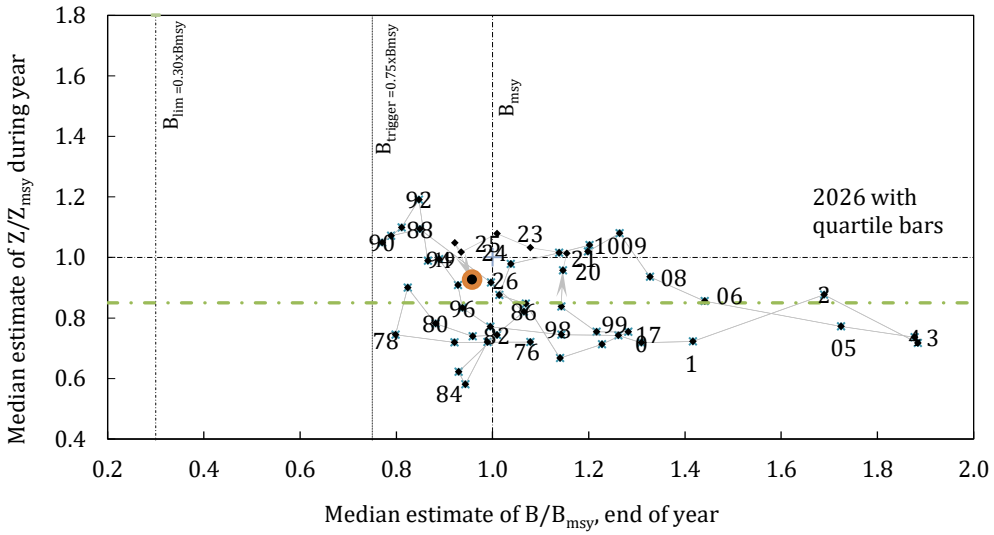


Figure 2.11. Northern shrimp in Subarea 0 and Subarea 1: Trajectory of relative biomass and relative mortality, 1976-2026. The orange dot is the current year. $B_{trigger}$ is defined at $0.75B_{msy}$ (solid line), Z_{msy} is the horizontal dashed line, Z_{target} is the green dashed line and B_{msy} is the vertical dashed line.

g) Projections

Three years projections (2027-2029) under eight constant catch options are presented. Predation by the cod stock was quantitively considered using an 'effective' biomass of 17 Kt (the estimated value for 2026 was 17.4 Kt).

17 000 t cod	Constant catch option ('000 t)							
Risk of:	**65**	**70**	**75**	**80**	**85**	**90**	**95**	**100**
falling below B_{msy} end 2027 (%)	51	52	52	53	54	54	55	56
falling below B_{msy} end 2028 (%)	47	49	49	51	53	53	55	56
falling below B_{msy} end 2029 (%)	44	46	47	49	51	51	54	56
falling below B_{lim} end 2027 (%)	0	0	0	0	0	0	0	0
falling below B_{lim} end 2028 (%)	0	0	0	0	0	0	0	0
falling below B_{lim} end 2029 (%)	0	0	0	0	0	0	0	0
exceeding Z_{msy} in 2027 (%)	17	22	28	34	40	45	50	54
exceeding Z_{msy} in 2028 (%)	17	21	27	32	39	44	49	54
exceeding Z_{msy} in 2029 (%)	16	21	26	32	38	43	48	54
falling below B_{msy} 80% end 2027 (%)	23	24	25	25	27	27	28	28
falling below B_{msy} 80% end 2028 (%)	22	23	24	25	26	27	29	30
falling below B_{msy} 80% end 2029 (%)	21	22	24	25	26	28	31	31
falling below $B_{trigger}$ end 2027 (%)	18	18	19	19	20	21	21	22
falling below $B_{trigger}$ end 2028 (%)	17	18	18	20	20	22	23	24
falling below $B_{trigger}$ end 2029 (%)	16	17	18	20	21	23	25	26
exceeding Z_{target} in 2027 (%)	32	38	45	51	55	61	65	68
exceeding Z_{target} in 2028 (%)	30	36	42	48	54	58	63	67
exceeding Z_{target} in 2029 (%)	27	34	40	46	53	57	62	66

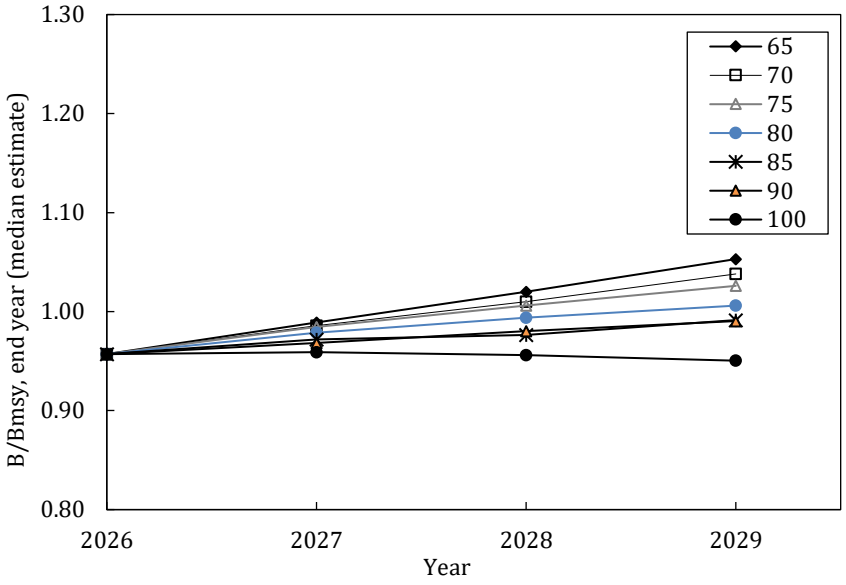


Figure 2.12. Northern shrimp in Subarea 0 and Subarea 1: Median estimates of year-end biomass trajectory for 2027-2029 with annual catches at 65-100 Kt and an 'effective' cod stock assumed at 17 Kt.

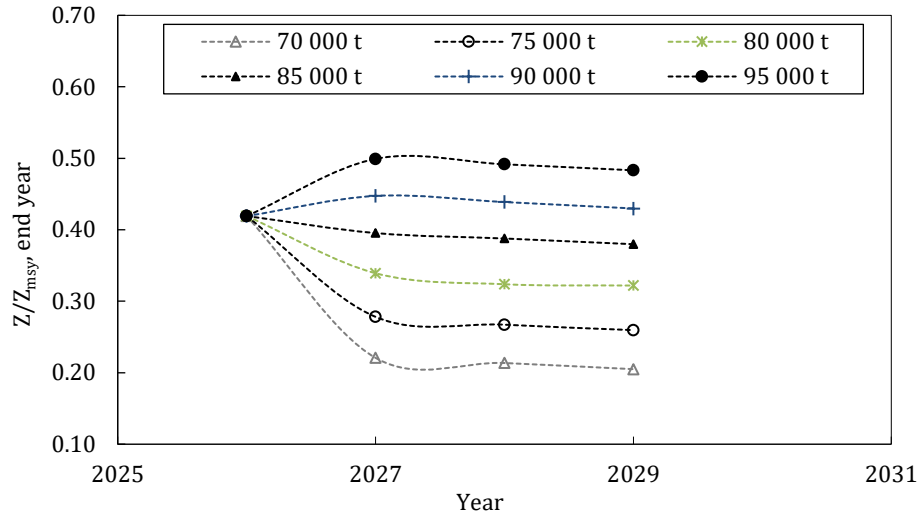


Figure 2.13. Northern shrimp in Subarea 0 and Subarea 1: Risks of exceeding mortality precautionary limits with annual catches at 70-95 Kt projected for 2027-2029 with an 'effective' cod stock assumed at 17 Kt.

h) Research recommendations

STACFIS **recommends** *developing a comparative Canadian and Greenlandic analysis to determine predation pressure from various fish species.*

In progress.

STACFIS **recommended** that *a benchmark be undertaken for this stock in the next few years.*

This recommendation is reiterated.

STACFIS **recommends** the *continued development of reference points consistent with the NAFO PA Framework.*

Completed. See Section IV.2. of the Scientific Council report.

3. Northern Shrimp (*Pandalus borealis*) in the Denmark Strait and off East Greenland (ICES Divisions 14b and 5a)

Full assessment (SCR Docs. 04/012, 26/034, 26/035, 26/036)

a) Introduction

Northern shrimp off East Greenland in ICES Divs. 14b and 5a are assessed as a single stock.

b) Fishery and catches

A multinational fleet exploits the stock. During the most recent ten years, vessels from Greenland, EU, the Faroe Islands and Norway have fished in the Greenlandic EEZ. Only Icelandic vessels are allowed to fish in the Icelandic EEZ. At all times of the year access to these fishing grounds depends strongly on ice conditions in the Greenlandic EEZ.

The fishery is managed by catch quotas allocated to national fleets. In the Icelandic EEZ there are no catch limits; however, there have been no catches by Iceland since 2005. In both EEZs, sorting grids with 22-mm bar spacing to reduce by-catch of fish are mandatory. Discarding shrimp is prohibited in both areas.

The fishery started in 1978 and during the period 1985 to 2003 the total catches fluctuated between 9 000 t and 15 000 t. From 2004 to 2016 the total catch decreased to 49 t. Catches increased to 7 466 t in 2023 and has since decreased to 5 811 t in 2025. Catches in the first half of 2026 were 5 056 t (Figure 3.1). Since 2012, little to no fishery has taken place in the southern area.

Since 2014, the fishing effort has been historically low and concentrated in a relatively small area.

Recent catches and TACs ('000 t) for shrimp in the Denmark Strait and off East Greenland (ICES Divs. 14b and 5a) are as follows:

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026[1]
Recommended TAC, total area	2.0	2.0	2.0	2.0	3.0	3.0	2.0	2.5	1.0	0.5-3.0
Enacted TAC, Greenland	5.3	4.3	3.4	4.8	7.0	6.9	6.9	7.9	7.6	7.0
North of 65°N, Greenland EEZ	0.6	0.5	1.6	3.2	3.1	5.5	7.5	7.3	5.8	5.1
North of 65°N, Iceland EEZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North of 65°N, total catches	0.6	0.5	1.6	3.2	3.1	5.5	7.5	7.3	5.8	5.1
South of 65°N, Greenland EEZ, total catches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL Catch[2]	0.6	0.5	1.6	3.2	3.1	5.5	7.5	7.3	5.8	5.1[3]

[1] Total catches until June 30th
[2] STACFIS estimates
[3] To June 30

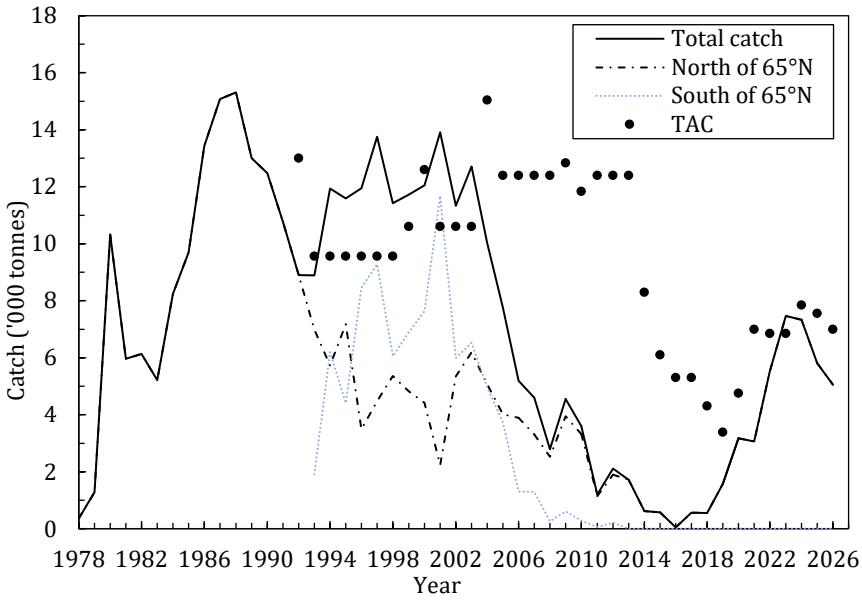


Figure 3.1. Northern shrimp in Denmark Strait and off East Greenland: enacted TAC and estimated total catch and catch north and south of 65°N. 2026 catches until June 30th.

c) Data Overview

i) Commercial fisheries

Fishing effort and CPUE. Data on catch and effort (hours fished) on a haul-by-haul basis from logbooks from Greenland, Iceland, Faroe Islands and EU since 1980 and from Norway since 2000 are used. Catch-Per-Unit-Effort (CPUE) and total annual effort were calculated. Since 2004, more than 60% of all hauls were performed with double trawl; this is not accounted for in the CPUE index used in the assessment and in the effort timeseries.

The CPUE index for the total areas increased from 1993 to 2009, followed by a continuous decline to a low value in 2015 and increased to record high levels in 2022 and since dropped (Figure 3.2). As most of the fishing has been conducted in the northern area, the overall CPUE index is dominated by the CPUE index for this area.

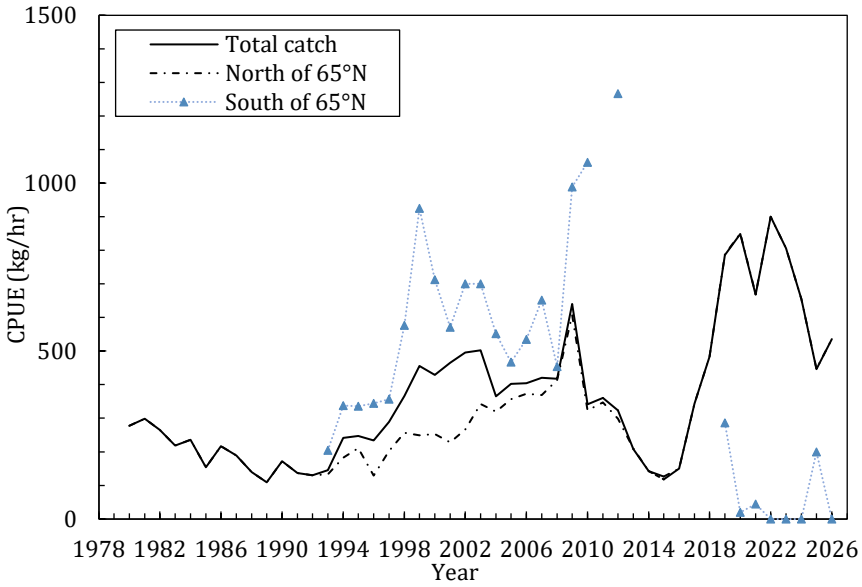


Figure 3.2. Northern shrimp in Denmark Strait and off East Greenland: Annual CPUE index. 2026 includes data until June 30th.

Fishing effort has been relatively low since early 2010s but has been increasing in recent years from 300 fishing hours in 2016 to 13 013 fishing hours in 2025, and the preliminary number for 2026 is 9 445 fishing hours which is concentrated in a relatively small area north of 65°N and west of 30°W (Figure 3.3).

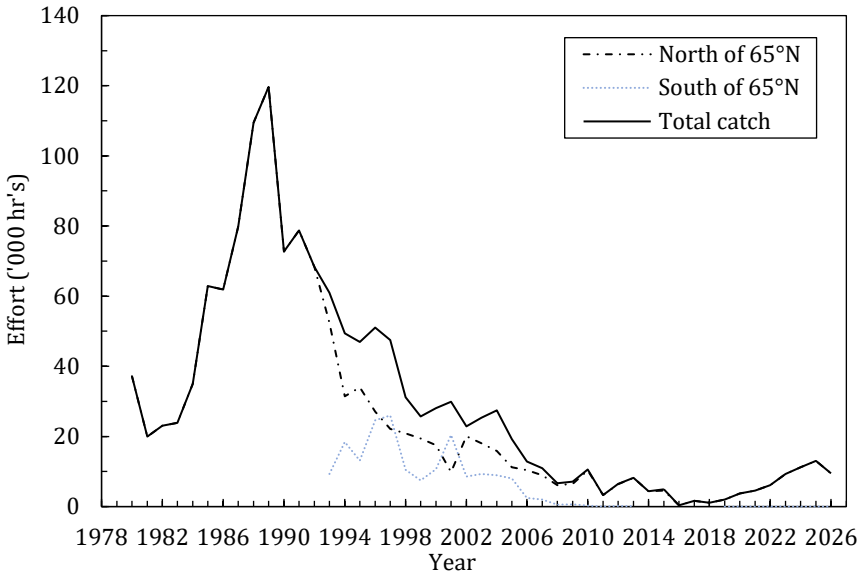


Figure 3.3. Northern shrimp in Denmark Strait and off East Greenland: Annual effort ('000 hrs). 2026 includes data until June 30th.

ii) Research survey data

Trawl surveys have been conducted since 2008 to assess the stock status of Northern shrimp in the East Greenland area. Due to the lack of research vessels, no survey was conducted from 2017-2019 or in 2021. The

survey was conducted with the chartered fishing vessel *Helga Maria* in 2020, and in 2022-2026 with the new research vessel *Tarajoq* using the same gear configuration as in previous years. It is therefore assumed that the 2020 and 2022-2026 results were directly comparable with the previous surveys; however, without comparative fishing (comparing survey vessels), there remains some uncertainty.

Biomass. The survey biomass index decreased from 2009 to 2012 and then remained at a low level until 2016. The 2020 estimate is the highest in the time series (Figure 3.4) but the 2022 biomass index dropped to a level similar to 2010-2011 and has increased since then. The biomass estimate for 2026 is 8 725 t.

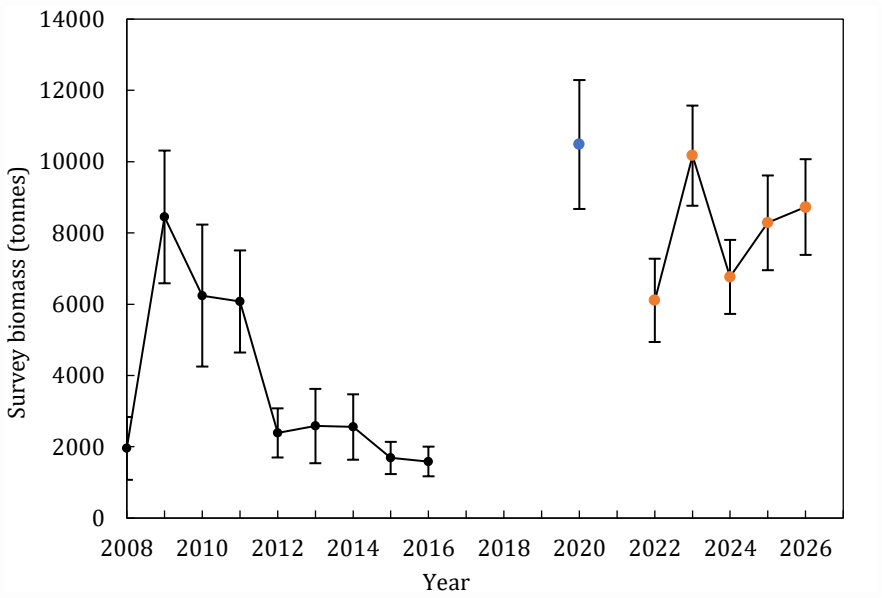


Figure 3.4. Northern shrimp in Denmark Strait and off East Greenland: Survey biomass (t) (± 1 SE). No survey was carried out in the period 2017-2019 or in 2021. Black points represent R/V *Paamiut,* blue *Helga Maria*, and orange R/V *Tarajoq.*

The surveys conducted since 2008 indicate that the shrimp stock is concentrated in the area north of 65°N (Figure 3.5).

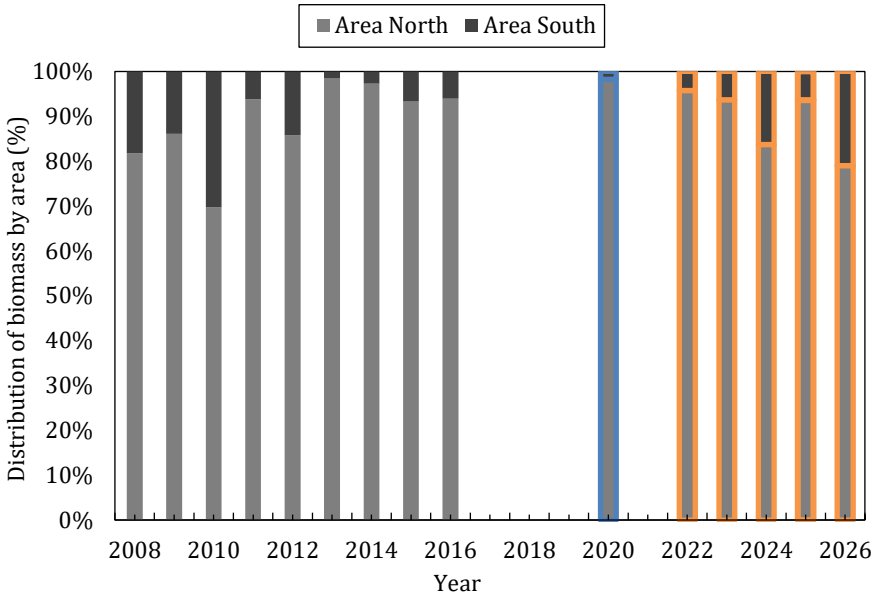


Figure 3.5. Northern shrimp in Denmark Strait and off East Greenland: Distribution of survey biomass north and south of 65°N (in %). No survey was carried out in the period 2017-2019 and in 2021. No outline in figure represents R/V *Paamiut*, a blue outline *Helga Maria*, and an orange outline R/V *Tarajoq*.

Stock composition. The stock in East Greenland consists of roughly equal proportions of males and females in most years. The proportion of females fluctuates between 40-60% of the biomass in all years except 2009 and 2020. In 2009 and 2020, the proportion of females was 34% and 37% of the biomass, respectively. In 2026, 48% of the biomass was composed of females.

Very few males smaller than 20 mm carapace length (CL) are caught in the survey, but in 2022 and in 2025 there were small peaks in male shrimps smaller than 20 mm CL (Figure 3.6). Scarcity of smaller shrimp in the survey area suggests that the total area of distribution and recruitment patterns of the stock are still unknown.

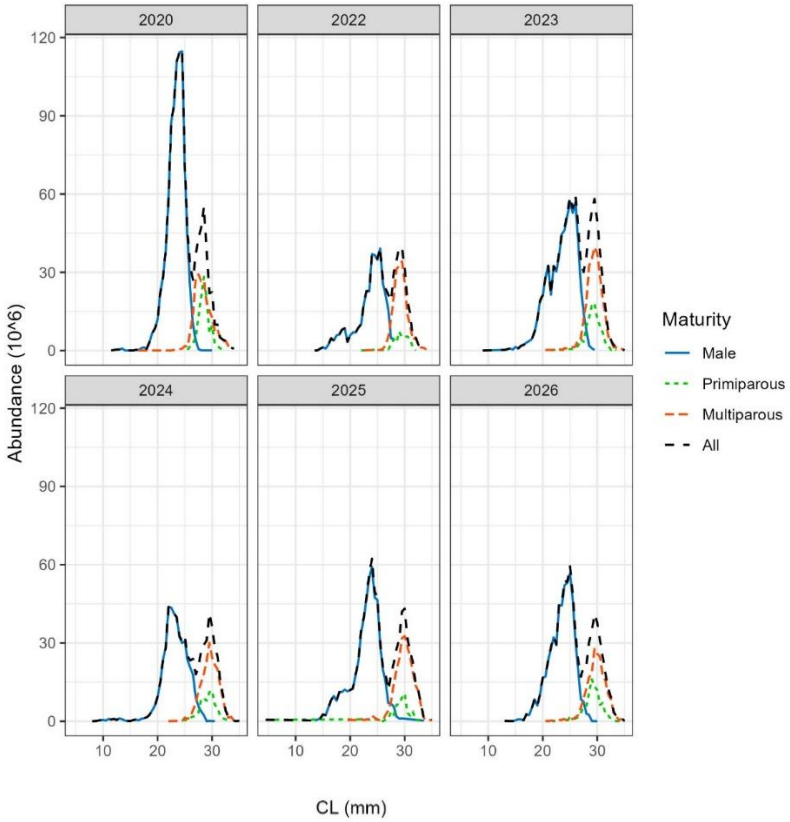


Figure 3.6. Northern shrimp in Denmark Strait and off East Greenland: Numbers of shrimp by length group (CL) in the total survey area . No survey was carried out in 2021.

d) Assessment results

The surplus production model in continuous time (SPiCT) model was fitted to series of CPUE, catch and survey biomass indices. The time-series were truncated to fit with the survey time-series. The model was run with the assumption that the catch in 2026 was equal to the enacted TAC.

The relative B/B_{msy} projected to the end of 2026 (beginning of 2027) is 0.59, and the relative F/F_{msy} in 2026 is 1.62 (Figure 3.7).

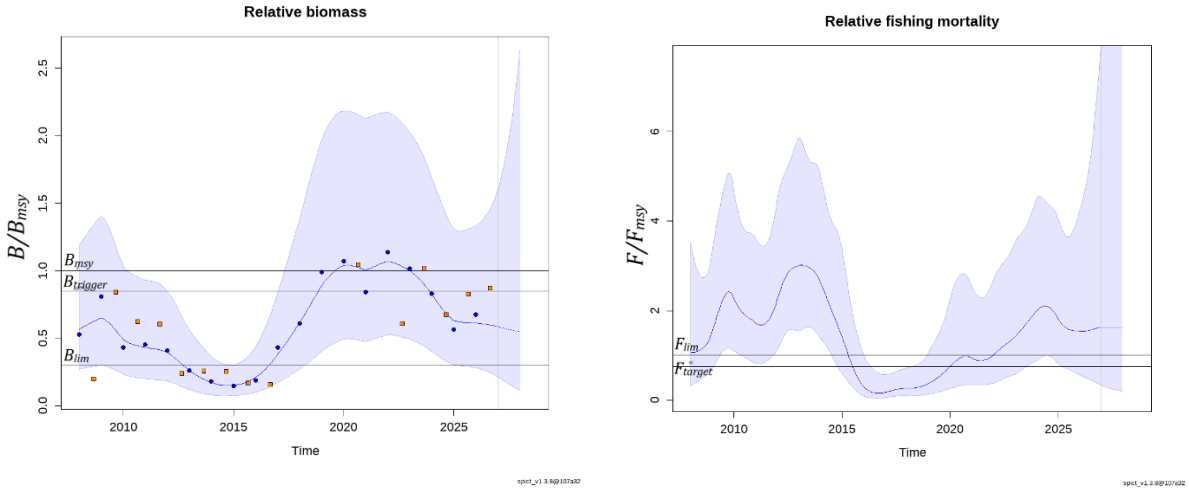


Figure 3.7. Northern shrimp in Denmark Strait and off East Greenland: Relative biomass and fishing mortality. Orange squares are the survey index and the blue circles are the CPUE index (the colour of the symbols denotes the seasonality of the data within the model: orange is July/August and blue the beginning of the year). The horizontal lines on the relative biomass plot are B_{msy}, $B_{trigger}$ and B_{lim}. The horizontal lines on the relative fishing mortality plot are F_{lim} and F_{target}. The grey vertical line corresponds to the time of the last observation. The dotted line is the prediction for the next year given a constant *F*.

Estimates of stock-dynamic parameters from the SPiCT model are given in Table 3.1. These are in line with parameters estimated in 2025.

Table 3.1. Shrimp in Denmark Strait and off East Greenland: Results from the SPiCT model. Estimates from 2025 are included for comparison.

	Estimate	CI lower	CI upper	log.est	2025
alpha1 (noise term for CPUE, $\alpha = SD_{Index}/SD_{Biomass}$)	1.33	0.15	11.45	0.29	1.37
alpha2 (noise term for survey, $\alpha = SD_{Index}/SD_{Biomass}$)	4.57	0.67	31.15	1.52	6.45
beta ($\beta = SD_{Catch}/SD_F$)	0.70	0.29	1.69	-0.36	0.61
r (intrinsic population growth rate)	0.72	0.44	1.17	-0.34	0.71
m (SPiCT parameter)	3411	2074	5612	8.13	3376
K (Carrying capacity (t))	19083	7804	46665	9.86	19052
q1 (Catchability for CPUE)	0.08	0.05	0.14	-2.48	0.09
q2 (Catchability for survey)	1.06	0.60	1.89	0.06	1.05
n (shape of the production curve, set to 2)	2.00	2.00	2.00	0.69	2.00
sdb (Standard deviation, biomass)	0.10	0.02	0.67	-2.28	0.10
sdf (Standard deviation, fishing mortality)	0.74	0.41	1.35	-0.29	0.79
sdi1 (Standard deviation, CPUE)	0.14	0.07	0.26	-1.99	0.13
sdi2 (Standard deviation, Survey)	0.47	0.32	0.69	-0.76	0.62
Sdc (Standard deviation, catch)	0.52	0.32	0.85	-0.65	0.49
B (Biomass end 2026/beg 2027)	5544	2444	12579	8.62	4541
F (Fishing mortality in 2026)	0.58	0.13	2.56	-0.55	
Relative reference points					
*B/B_{msy}, end 2026/beg 2027 * (%)*	0.59	0.22	1.57	-0.53	
F/F_{msy} in 2026 (%)	1.62	0.34	7.62	0.48	

* Total catch for 2026 is assumed to be the enacted TAC for 2026 (7 000 t)

A five-year retrospective analysis was performed (Figure 3.8) and results were found to be consistent for relative biomass and relative fishing mortality with respect to the removal of successive years.

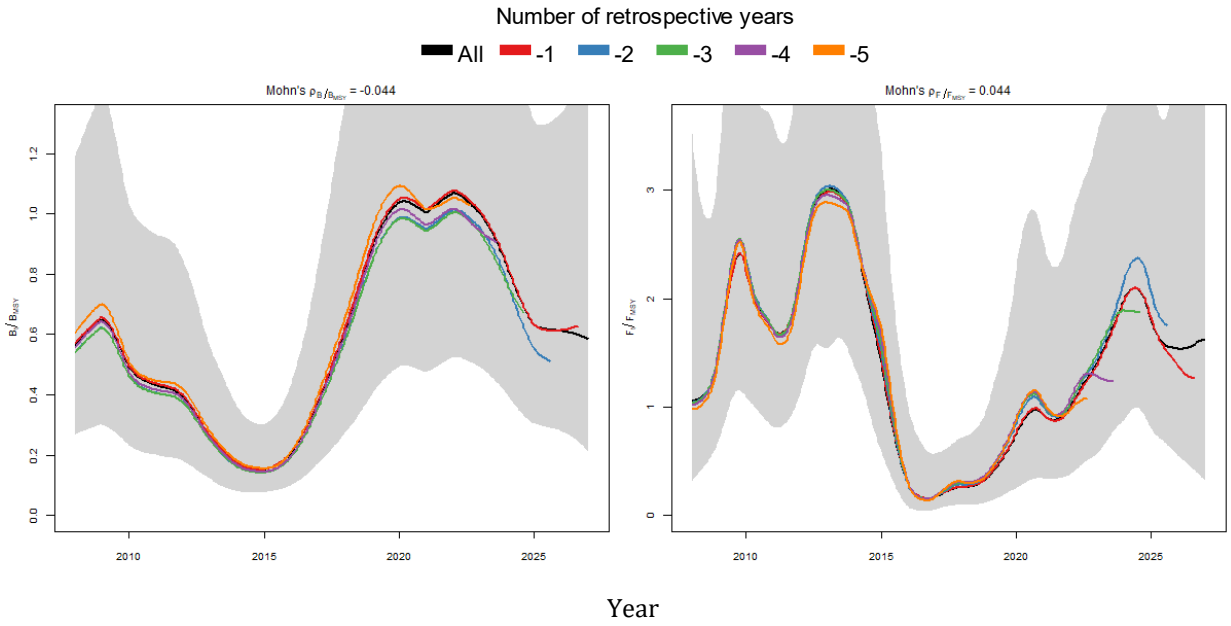


Figure 3.8. Northern shrimp in Denmark Strait and off East Greenland: Five years retrospective plots of relative fishing mortality and relative fishable biomass. Confidence intervals are 95%.

e) State of the stock

Biomass. Median biomass is projected to be below B_{msy} and $B_{trigger}$ (B/B_{msy} = 0.59) at the end of 2026. The probability of being below B_{lim} is 10% and the probability of being below $B_{trigger}$ is 69%.

Fishing mortality. Fishing mortality in 2026 is above F_{target} and F_{lim} (F/F_{msy} = 1.62).

Recruitment. No estimates of recruitment are available.

State of the stock.

At the end of 2026, the stock is in the Cautious Zone of the NAFO PA Framework. The median biomass is below B_{msy} and $B_{trigger}$ (B/B_{msy} = 0.59) and the probability of being below B_{lim} is 10%. Fishing mortality is above F_{target} and F_{lim} (F/F_{msy} = 1.62). No estimates of recruitment are available.

f) Reference points

B_{lim} is defined as 30% of B_{msy}. $B_{trigger}$ is defined as 75% of B_{msy}. F_{lim} is defined as F_{msy}. F_{target} is defined as 85% of F_{msy}. The relative reference points B_{msy} and F_{msy} are estimated within the SPiCT model (Figure 3.9).

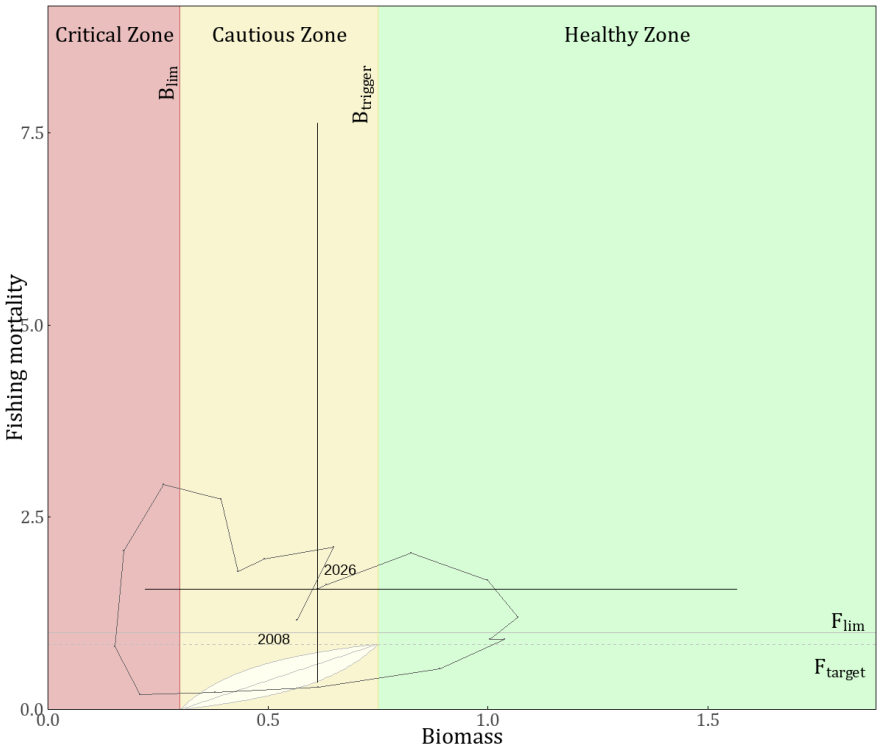


Figure 3.9. Northern shrimp in Denmark Strait and off East Greenland: relative Biomass - relative fishing mortality plot in the NAFO Precautionary Approach Framework. Points plotted are from years 2008-2026 (biomass values refer to the beginning of the year, which is the same as the end of the previous year). The reference points F_{msy} and B_{msy} are estimated in the model.

g) Projections

One-year projections to the end of 2027 (beginning of 2028) for 5 *F* levels (F_{target} and from NAFO Precautionary Framework, Cautious Zone) and six catch options were evaluated.

		Catch 2026 = 7 000 t										
				Cautious Zone			Catch Options (t)					
		F=0	F_{target}	F lower edge leaf	F midrib leaf	F upper edge leaf						
Yield	2027	0	1 822	726	1 213	1 561	500	1 000	2 000	3 000	4 000	5 000
P(F > F_{lim})	2027	0%	44%	14%	29%	38%	8%	23%	48%	66%	78%	87%
P($B_{end2027}$ < B_{lim})	2027	1%	8%	2%	4%	6%	2%	3%	10%	22%	36%	50%
P(F > F_{target})	2027	0%	50%	18%	34%	44%	10%	27%	54%	71%	82%	90%
P($B_{end2027}$ < $B_{trigger}$)	2027	33%	54%	42%	48%	52%	39%	45%	56%	65%	71%	76%
P($B_{end2027}$ < B_{msy})	2027	57%	72%	64%	68%	70%	62%	66%	73%	77%	80%	82%
P($B_{end2027}$> $B_{end2026}$)	2027	100%	79%	100%	96%	88%	100%	98%	72%	45%	32%	25%
($B_{end2027}$- $B_{end2026}$)/$B_{end2026}$		56%	19%	41%	31%	24%	46%	36%	15%	-5%	-27%	-49%

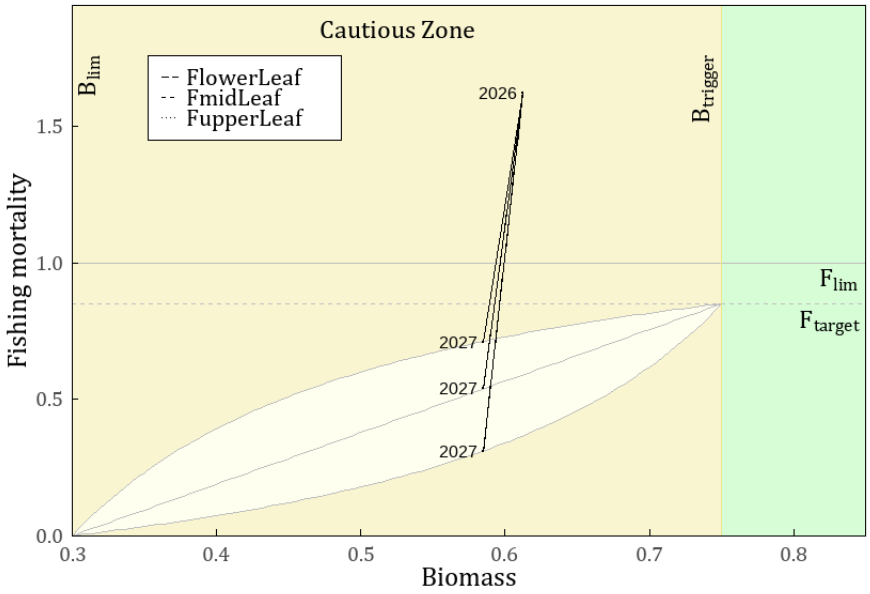


Figure 3.10. Northern shrimp in Denmark Strait and off East Greenland: stochastic projections in the NAFO Precautionary Approach Framework with three levels of F (F lower edge leaf (F=0.31), F midrib leaf (F=0.54), and F upper edge leaf (F=0.71)). Fishing mortality during the year is F/F_{msy} and biomass at the beginning of the year is B/B_{msy}. [Note: begin-year biomass values shown for a given year are identical to end-year values of the preceding year].

h) Research recommendations

STACFIS **recommends** *commercial sampling of catch composition.*

In progress. Sampling has occurred since 2023 from both international and Greenlandic fleets. Results were presented at the meeting.

STACFIS **recommends** *exploration of the use of SPiCT for two and three year projections.*

In progress. Results were presented at the meeting. This recommendation is reiterated.

STACFIS **recommends** *exploration of available historical data from the east Greenland stock.*

In progress. This recommendation is reiterated.

STACFIS **recommends** *development of possible harvest control rules for this fishery.*

This recommendation is reiterated.

IV. OTHER MATTERS

a) Fisheries Resources Monitoring System (FIRMS) Classification for NAFO Stocks

Scientific Council reiterates that the Stock Classification system is not intended as a means to convey the scientific advice to the Commission, and should not be used as such. Its purpose is to respond to a request by FIRMS to provide such a classification for their purposes. The category choices do not fully describe the status of some stocks. Scientific advice to the Commission is to be found in the Scientific Council report in the summary sheet for each stock.

Stock Size (incl. structure)	Fishing Mortality			
	None–Low	**Moderate**	**High**	**Unknown**
Virgin–Large		3LNO Yellowtail Flounder		
Intermediate	3LN Redfish	3M Redfish[1] SA2+3KLMNO Greenland halibut 3M cod SA 0+1 (Offshore) Greenland halibut SA 0+1 Northern shrimp	East Greenland Northern shrimp	
Small	3NOPs White hake 3NO Witch flounder 3M American plaice		1A Greenland halibut inshore in Uummannaq	SA1 Spotted Wolffish
Depleted	3LNO American plaice 3NO Cod 3M Northern shrimp[1] 6G Alfonsino		3O Redfish	SA1 Redfish SA1 Atlantic Wolffish
Unknown	SA2+3 Roughhead grenadier 3NO Capelin			SA 3+4 Northern shortfin squid 3LNOPs Thorny skate 1A Greenland halibut inshore in Disko Bay 1A Greenland halibut inshore in Upernavik

[1] Fishing mortality may not be the main driver of biomass for this stock.
For many stocks, lack of surveys in recent years has impacted assessments.

APPENDIX II. PROVISIONAL AGENDA – SCIENTIFIC COUNCIL SHRIMP ASSESSEMENT MEETING

15–17 September 2026
Vilnius, Lithuania

I. Opening (Chair: Diana González-Troncoso)

1. Appointment of Rapporteur
2. Adoption of Agenda
3. Attendance of Observers
4. Plan of Work

II. Review of Recommendations in 2025

III. Fisheries Science (STACFIS Chair: José De Oliveira)

IV. Reference Points for stocks with full assessment in 2026

V. Formulation of Advice (see Annexes 1–3)

1. Request for Advice on TACs and Other Management Measures (Item 1, Annex I)
   a) Northern shrimp in Div. 3M
2. Requests from Coastal States (Items 5 and 6 of Annex II, item 2 of Annex III)
   a) Northern shrimp off West Greenland (Subareas 0 and 1)
   b) Northern shrimp in Denmark Strait and off East Greenland (ICES Divisions XIVb and Va)

VI. Other Matters

1. Scheduling of Future Meetings
2. Topics for Future Special Sessions
3. Other Business
   a) SSAR shrimp

VI. Adoption of Scientific Council and STACFIS Reports

VII. Adjournment

ANNEX 1. COMMISSION'S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2027 AND BEYOND OF CERTAIN STOCKS IN SUBAREAS 2, 3 AND 4 AND OTHER MATTERS (NAFO SCS DOC. 26/01)

Following a request from the Scientific Council, the Commission agreed that items 1 and 2 should be the priority for the June 2026 Scientific Council meeting subject to resources.

1. The Commission requests that the Scientific Council provide advice for the management of the fish stocks below according to the assessment frequency presented below. In line with the Revised NAFO Precautionary Approach Framework (COM Doc. 25-16) the Commission should be informed by the range of options and associated risks provided by the Scientific Council. The Commission will decide upon the acceptable risk level in the context of the entirety of the Scientific Council advice for each stock guided and as foreseen by the NAFO Precautionary Approach. The Commission acknowledges that full assessment cannot be run when a DE is not nominated for a stock.

Yearly basis	Two-year basis	Three-year basis	Interim Monitoring Only
Cod in Division 3M	Redfish in Division 3M Thorny skate in Divisions 3LNO Witch flounder in Divisions 3NO Redfish in Divisions 3LN Yellowtail flounder in Divisions 3LNO Northern shrimp in Division 3M White hake in Divisions 3NO American plaice in Divisions 3LNO	American plaice in Division 3M Northern shortfin squid in Subareas 3+4 Redfish in Division 3O Cod in Divisions 3NO	Subarea 6 Alfonsino Subareas 2-3 Roughhead Grenadier Capelin in Divisions 3NO

Advice should be provided using the guidance provided in **Annex A**, or using the predetermined Management Procedure in the cases where they exist (currently Greenland halibut 2+3KLMNO). For Division 3M shrimp supplementary advice in terms of fishing-days could also be considered as appropriate. To implement this schedule of assessments, the Scientific Council is requested to conduct a full assessment of these stocks as follows:

- In 2026, advice should be provided for 2027 for: Cod in Division 3M
- In 2026, advice should be provided for 2027 and 2028 for: Redfish in Division 3M, Thorny skate in Divisions 3LNO, Witch flounder in Divisions 3NO, Redfish in Divisions 3LN, Northern shrimp in Division 3M, American plaice in 3LNO.
    - With respect to Northern shrimp in Division 3M, Scientific Council is requested to provide its advice to the Commission prior to the 2026 Annual Meeting based on the survey data up to and including 2026.
- In 2026, advice should be provided for 2027, 2028 and 2029 for: American plaice in Division 3M

The Commission also requests the Scientific Council to continue to monitor the status of all other stocks annually and, should a significant change be observed in stock status (e.g. from surveys) or in bycatch in other fisheries, provide updated advice as appropriate.

2. The Commission requests the Scientific Council to monitor the status of Greenland halibut in Subarea 2 + Divisions 3KLMNO annually to compute the TAC using the agreed Management Procedure and determine whether exceptional circumstances are occurring. If exceptional circumstances are occurring, the exceptional circumstances protocol will provide guidance on what steps should be taken.

3. The Commission requests that Scientific Council, in addition to the 2026 3LN redfish stock assessment, continue to advance work on the 3LN redfish MSE processes during 2025-2026.

4. As practicable and taking into account Scientific Council capacity constraints, develop stock summary sheets for NAFO managed stocks that are evaluated using MSE processes.

5. In relation to the Ecosystem Roadmap as a whole, the Commission requests the Scientific Council, with input from the WG-EAFFM, to continue work on the development of a reference document detailing the ecosystem roadmap, for completion by the 2026 Annual Meeting.

6. In relation to the habitat impact assessment component of the Roadmap (VME and SAI analyses), the Commission requests that Scientific Council to:

    a. Continue to progress work on the centralized data repository using ArcGIS online to host the data and data-products for scientific advice, in conjunction with the NAFO Secretariat.

    b. Work towards the reassessment of VMEs and impact of bottom fisheries on VMEs for 2027; including potential management options in the reassessment of bottom fisheries.

    c. Develop materials on the potential of submitting NAFO coral bottom fishing closed areas as OECMs for discussion at the 2026 WG-EAFFM meeting.

7. The Commission requests the Scientific Council to continue to develop reference points to facilitate the implementation of the Revised NAFO Precautionary Approach Framework, for stocks that currently do not have them.

8. In relation to its workload, the Commission requests the Scientific Council to continue to update the 3-5 year work plan, which reflects requests arising from the 2025 Annual Meeting, other multi-year stock assessments and other scientific inquiries already planned for the near future and, as much as possible, monitor and estimate future workload.

9. The Commission requests the Scientific Council to explore the development of a sampling plan to conduct selectivity trials in the cod fishery in 3M. The objective is to collect data to test the effectiveness and impact of using sorting grids to improve the selectivity of cod and other species.

10. The Commission requests the Scientific Council, as workload allows, in consultation with the NAFO Secretariat, to draft a scoping document for a potential in-person meeting to explore approaches for further integrating information related to climate change throughout Scientific Council operations. This scoping document should identify the scientific expertise needed both within and outside Scientific Council and potential financial and workload implications.

11. Considering a new science and management framework for Northern shrimp in Divisions 2J3KLNO (SSAR) developed and peer-reviewed by Canada, which includes NAFO divisions 3LNO, the Commission tasks the Scientific Council to assess and consider the operational model underlining the MSE developed for the SSAR stock of shrimp by Canada. This assessment will be presented to the Commission at the 2026 Annual Meeting to inform management decisions.

12. The Commission requests the Scientific Council to consider a plan for carrying out benchmark assessments and include this in the 3-5 year work plan.

ANNEX A: Guidance for providing advice on Stocks Assessed

The Commission requests the Scientific Council to consider the following in assessing and projecting future stock levels for those stocks listed above. These evaluations should provide the information necessary for the Commission to consider the balance between risks and yield levels, in determining its management of these stocks:

Stochastic short-term projections (3 years) should be performed with the F levels that are included in the risk table from the Revised PA Framework (Table 1 below), based on the point estimate of biomass. The first year of the projection should assume a catch equal to the agreed TAC for that year. In instances where Scientific Council expects catches to be significantly different from the agreed TAC, an additional projection could be provided based on the best available catch estimation.

In relation to Tier 1 of the Roadmap Scientific Council should provide annually catch information in relation to 2TCI, including recent cumulative catch levels and a scoping of expected cumulative catch levels. Ecosystem summary sheets should be monitored annually and updated on a five-year cycle.

For stocks assessed with a production model, the advice should include updated time series or plots of:

- Catch and TAC of recent years
- Catch to relative biomass
- Relative Biomass
- Relative Fishing mortality
- Stock trajectory against precautionary approach reference points

For stock assessed with an age-structured model, information should be provided on stock size, spawning stock sizes, recruitment prospects, historical fishing mortality. Graphs and/or tables should be provided for all of the following for the longest time-period possible:

- historical yield and fishing mortality;
- spawning stock biomass and recruitment levels;
- Stock trajectory against precautionary approach reference points

For stocks for which only general biological and/or catch data are available, few standard criteria exist on which to base advice. The stock status should be evaluated in the context of management requirements for long-term sustainability and the advice provided should be consistent with the precautionary approach.

The following graphs should be presented for the longest time-period possible:

- catch and TAC of recent years
- length distributions
- time trends of survey abundance estimates
- an age or size range chosen to represent the spawning population
- an age or size-range chosen to represent the exploited population
- recruitment proxy or index for an age or size-range chosen to represent the recruiting population.
- fishing mortality proxy, such as the ratio of reported commercial catches to a measure of the exploited population.
- stock trajectory against precautionary approach reference points

In all cases any additional information the Scientific Council deems appropriate should be provided.

Table 1. The Revised NAFO Precautionary Approach Framework risk table.

y current year (year in which the assessment is made, data until year y-1)

	Yield			$P(F>F_{lim})$			$P(B<B_{lim})$				$P(F>F_{target})$			$P(B<B_{trigger})$				P(By+3 > By)	(By+3-By)/By
F in y+1 and following years	Yield y (50%)	Yield y+1 (50%)	Yield y+2 (50%)	y	y+1	y+2	y	y+1	y+2	y+3	y	y+1	y+2	y	y+1	y+2	y+3		
Critical Zone																			
F=0	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
F=X% current*	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
F current	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Cautious Zone																			
F lower edge leaf	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
F midrib leaf	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
F upper edge leaf	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Healthy Zone																			
$F=0.75F_{msy}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$F_{target}=0.85F_{msy}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
$F_{lim}=F_{msy}$	t	t	t	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%

*X% may vary stock by stock. In the future, this framework may be modified to include F bycatch.
The number of years in the risk projections table will be the same as the years of advice.

ANNEX 2. DENMARK (ON BEHALF OF GREENLAND) COASTAL STATE REQUEST FOR SCIENTIFIC ADVICE- 2027

(from SCS Doc. 26/03)

Denmark (on behalf of Greenland) (hereafter Greenland) hereby request scientific advice on management in 2027 of certain stocks in NAFO Subareas 0 and 1. Greenland requests the Scientific Council for advice on the following species:

1. Golden Redfish and Demersal Deep-Sea Redfish

Advice on Golden redfish (*Sebastes norvegicus*) and demersal deep-sea redfish (*Sebastes mentella*) in Subarea 1 was given in June 2023 for 2024 and beyond. The Scientific Council is requested to provide catch advice for 2027 to 2029.

2. Atlantic Wolffish and Spotted Wolffish

Advice on Atlantic Wolffish (*Anarhichas lupus*) and Spotted Wolffish (*Anarhichas minor*) in Subarea 1 was given in June 2023 for 2024-2026. The Scientific Council is requested to provide catch advice for 2027 to 2029.

3. Greenland Halibut, Offshore

Advice on Greenland Halibut, Offshore in Subareas 0 and 1 was given in 2025 for 2026 and 2027. The Scientific Council is requested to continue its monitoring of the stock and provide updated advice in the event of significant changes in stock levels.

In addition, Greenland specifically requests the catch scenarios for 35.328 tonnes (F_{MSY} 2026) and F_{target} be updated for 2027-2029, with associated probability that biomass in the end of 2027-2029 is lower than 1) $B_{trigger}$ and 2) B_{lim}, i.e. p($B<B_{trigger}$) and p($B<B_{lim}$).

4. Greenland Halibut, Inshore, West Greenland

Advice on the inshore stocks of Greenland Halibut in Subarea 1 was given in 2024 for 2025-2026. The Scientific Council is requested to provide advice on catch levels for Subarea 1 in division 1A, inshore (Disko Bay, Uummannaq and Upernavik) for 2027 and 2028.

5. Northern Shrimp, West Greenland

Greenland requests the Scientific Council to provide, before November 2026, advice on the scientific basis for management of Northern Shrimp (*Pandalus borealis*) in Subareas 0 and 1 in 2027. The advice should be in line with Greenland's stated management objective of maintaining a mortality risk of no more than 35% of exceeding Z_{msy} in the first-year prediction, and to provide a catch option table ranging with 5,000 t increments. Future catch options should be provided for as many years as data allows for. Results should include risk analysis of biomass falling below B_{msy}, $B_{trigger}$ and B_{lim}.

6. Northern Shrimp, East Greenland

Scientific Council is requested to provide advice on the scientific basis for management of Northern Shrimp (*Pandalus borealis*) in Denmark Strait and adjacent waters east of southern Greenland in 2027 for as many years ahead as data allows. Scientific Council is requested to give a catch advice at a level corresponding to $F_{target.}$ Results should include a catch option table ranging with 500 t increments, including risk analysis of fishing mortality falling below F_{msy}, F_{target} and biomass below B_{msy}, $B_{trigger}$ and B_{lim}.

ANNEX 3. CANADA'S COASTAL STATE REQUEST TO NAFO'S SCIENTIFIC COUNCIL FOR SCIENTIFIC ADVICE – 2027

(from SCS Doc. 26/02)

Canada would like to submit its request to NAFO's Scientific Council for advice on the following two species:

1. Greenland halibut (Subarea 0 + 1 (offshore))

Canada requests that the Scientific Council monitor the status of Greenland halibut (Subarea 0 + 1 (offshore), and, should a significant change be observed (e.g., based on results from surveys or commercial catch data), provide updated advice as appropriate, in the same format that was done in 2025 (i.e., updating the risk table in the new NAFO PA framework). A significant change would be considered the realized catch data far exceeding the set TAC level despite normal fishing effort or if the survey index is far below the projected index.

2. Northern shrimp (Subarea 1 and Division 0A)

Canada requests that the Scientific Council consider the following options in assessing and projecting future stock levels for Northern shrimp (*Pandalus borealis*) in Subarea 1 and Division 0A:

The status of the stock should be determined and risk-based advice provided for catch options corresponding to Z_{msy} in 5,000t increments with forecasts for 2027 to 2029 (inclusive). These options should be evaluated in relation to Canada's Harvest Strategy (2022 revised version attached) and NAFO's Revised Precautionary Approach Framework.

Presentation of the results should include graphs and/or tables related to the following:

- Historical and current yield, biomass relative to B_{msy}, total mortality relative to Z_{msy}, and recruitment (or proxy) levels for the longest time period possible;

- Total mortality (Z) and fishable biomass for a range of projected catch options (as noted above) for the years 2027 to 2029. Projections should include both catch options and a range of effective cod predation biomass levels considered appropriate by the Scientific Council. Results should include risk analyses of falling below: B_{msy}, 80% B_{msy} and B_{lim} (30% B_{msy}), and of being above Z_{msy} based on the 3-year projections, consistent with the Harvest Decision Rules in Canada's Harvest Strategy; and

- Total area fished for the longest time period possible.

Please provide the advice relative to Canada's Harvest Strategy as part of the formal advice (i.e., grey box in the advice summary sheet).

APPENDIX III. PROVISIONAL AGENDA – STACFIS

15–17 September 2026

I. Opening (José De Oliveira)

1. Appointment of Rapporteur
2. Adoption of Agenda
3. Plan of Work

II. General Review

1. Review of Recommendations in 2025
2. Review of Catches

III. Stock Assessments

1. Northern shrimp (*Pandalus borealis*) on the Flemish Cap (NAFO Division 3M) (Full assessment)
2. Northern shrimp (*Pandalus borealis*) off West Greenland (NAFO Subarea 0 and Subarea 1) (Full assessment)
3. Northern shrimp (*Pandalus borealis*) in the Denmark Strait and off East Greenland (ICES Divisions XIVb and Va) (Full assessment)

IV. Other Business

1. FIRMS Classification for NAFO Shrimp Stocks

V. Adjournment

APPENDIX IV. DESIGNATED EXPERTS FOR PRELIMINARY ASSESSMENT OF CERTAIN NAFO STOCKS

The following is the list of Designated Experts for 2026 assessments:

From the Instituto Español de Oceanografía, Subida a Radio Faro 50, 36390, Vigo (Pontevedra), Spain

Shrimp in Division 3M	José Miguel Casas Sánchez	mikel.casas@ieo.csic.es

From the Greenland Institute of Natural Resources, P. O. Box 570, DK-3900 Nuuk, Greenland

Northern shrimp in Subarea 0+1	AnnDorte Burmeister	anndorte@natur.gl
Northern shrimp in Denmark Strait	Tanja B. Buch	TaBb@natur.gl

APPENDIX V. LIST OF SCR AND SCS DOCUMENTS

RESEARCH DOCUMENTS (SCR)

Serial No.	SCR Document	Author(s)	Title
N7753	SCR Doc. 26/030	Burmeister and Buch	The West Greenland trawl survey for *Pandalus borealis* 2026 with reference to earlier results
N7754	SCR Doc. 26/031	Burmeister	The Fishery for Northern Shrimp (*Pandalus borealis*) off West Greenland, 1970–2026
N7755	SCR Doc. 26/032	Burmeister	Catch Table Update for the West Greenland Shrimp Fishery
N7756	SCR Doc. 26/033	Burmeister and Buch	A provisional Assessment of the shrimp stock off West Greenland in 2026
N7757	SCR Doc. 26/034	Buch and Burmeister	Results of the Greenland Bottom Trawl Survey for Northern shrimp (*Pandalus borealis*) Off East Greenland (ICES Subarea XIV b), 2008-2026
N7758	SCR Doc. 26/035	Buch and Burmeister	The Fishery for Northern Shrimp (*Pandalus borealis*) in Denmark Strait / off East Greenland 1978 – 2026
N7759	SCR Doc. 26/036	Buch and Burmeister	Applying a stochastic surplus production model (SPiCT) to the East Greenland Stock of Northern Shrimp
N7761	SCR Doc. 26/037	Burmeister and Hvingel	Integrating Fishing-Mortality Outputs into the Precautionary Approach for Northern Shrimp in Subarea 1 and Division 0A - Questions requiring clarification and a pragmatic way forward
N7762	SCR Doc. 26/038	J. M. Casas and R. M. Blanco-Pérez	Northern Shrimp (*Pandalus borealis*) on Flemish Cap Surveys 2026
N7763	SCR Doc. 26/039	J.M. Casas Sánchez	Assessment of NAFO 3M Northern shrimp (*Pandalus borealis*)
N7764	SCR Doc. 26/040	J.M. Casas Sánchez	Applying a stochastic surplus production model (SPiCT) to the 3M Northern Shrimp stock
N7766	SCR Doc. 26/042	J. M. Casas, E. Román-Marcote and J.L. del Rio	Northern Shrimp (*Pandalus borealis*, Krøyer) from EU-Spain Bottom Trawl Survey 2026 in NAFO Div. 3LNO

SUMMARY DOCUMENTS (SCS)

Serial No.	SCS Document	Author(s)	Title
N7783	SCS Doc. 26/14	NAFO	Report of the Scientific Council and STACFIS Shrimp Assessment Meeting, 15-17 September 2026

APPENDIX VI. LIST OF PARTICIPANTS, 15-17 SEPTEMBER 2026

CHAIRS	
González Troncoso, Diana *Scientific Council Chair*	Instituto Español de Oceanografía
De Oliveira, José *STACFIS Chair*	Centre for Environment, Fisheries and Aquaculture Science
CANADA	
Baker, Krista*	Fisheries and Oceans Canada
Krohn, Martha*	Fisheries and Oceans Canada
Le Corre, Nicolas	Fisheries and Oceans Canada
Simpson, Mark *Vice-Chair of Scientific Council and STACREC Chair*	Fisheries and Oceans Canada
Thompson, Susan*	Fisheries and Oceans Canada
Walkusz, Wojciech	Fisheries and Oceans Canada
DENMARK (In respect of FAROE ISLANDS and GREENLAND)	
Buch, Tanja	Greenland Institute of Natural Resources
Burmeister, AnnDorte	Greenland Institute of Natural Resources
Hvingel, Carsten*	DTU Aqua
EUROPEAN UNION	
Casas Sánchez, José Miguel*	Instituto Español de Oceanografía
González Costas, Fernando*	Instituto Español de Oceanografía
Leocadio, Ana*	DG MARE
Näks, Liivika	Estonian Marine Institute
NORWAY	
Hallfredsson, Elvar*	Institute of Marine Research
RUSSIAN FEDERATION	
Bakanev, Sergey*	Polar Research Institute of Marine Fisheries and Oceanography
Fomin, Konstantin*	Polar Research Institute of Marine Fisheries and Oceanography
Tairov, Temur*	Representative of the Federal Agency for Fisheries of the Russian Federation in Canada
UKRAINE	
Paramonov, Valerii*	Institute of Fisheries and Marine Ecology (IFME) of the State Agency of Fisheries of Ukraine
NAFO SECRETARIAT	
Bell MacCallum, Dayna	Senior Scientific Information Administrator
Perreault, Andrea	Senior Science Coordinator

* indicates virtual participation