

2. Requests from Coastal States

a) Northern shrimp in Subarea 1 and Div. 0A

Advice October 2018 for 2019

Recommendation

In line with the stated management objective of maintaining a mortality risk of no more than 35% (subject to a risk of biomass being below B_{lim} of less than 5%), Scientific Council advises that catches in 2019 should not exceed 105 000 t.

Management Objectives

A management plan and management objectives have been defined by the Government of Greenland in 2018. The objective is to maintain a mortality risk of no more than 35% (subject to a risk of biomass being below B_{lim} of less than 5%). Advice was also drafted to be consistent with the NAFO precautionary approach (FC Doc. 04-12).

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

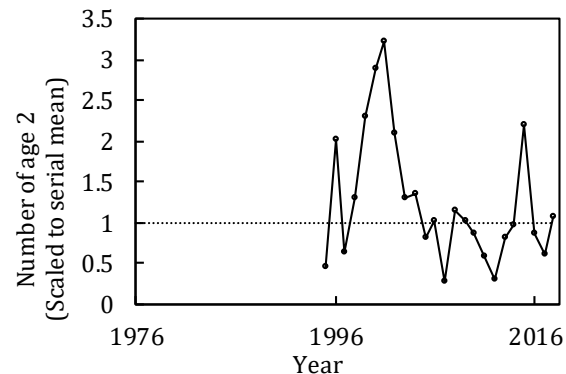
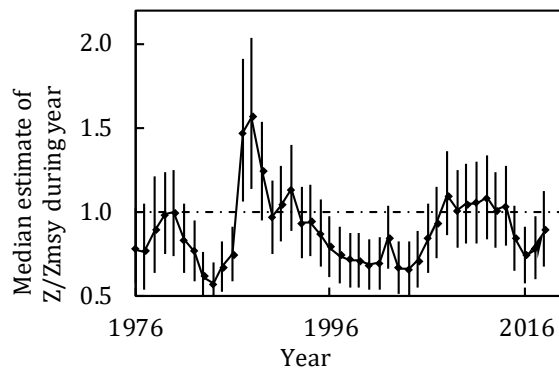
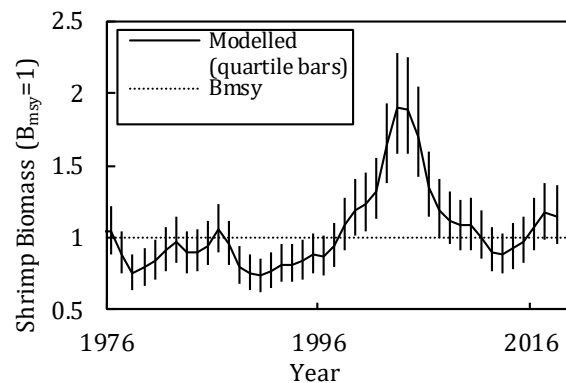
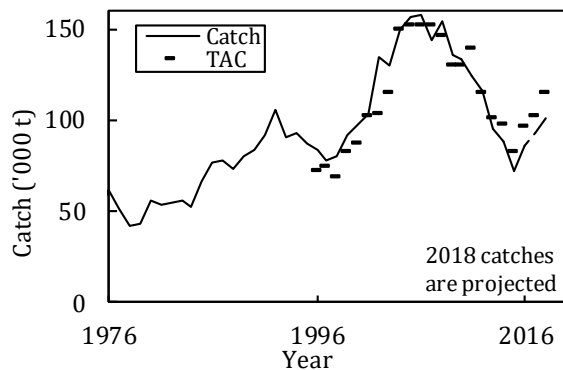
● OK

Management unit

The stock, considered distinct from all others, is distributed throughout Subarea 1, extends into Div. 0A east of 60°30'W, and is assessed as a single stock.

Stock status

Biomass at the end of 2018 is close to B_{msy} and the probability of being below B_{lim} is very low (<1%). The probability of mortality in 2018 being above Z_{msy} is 36%. Recruitment is close to average.



Reference points

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

Projections

Predicted probabilities of transgressing precautionary reference points in 2019 – 2021 under eight catch options and subject to predation by a cod stock with an effective biomass of 34 Kt.

34 000 t cod Risk of:	Catch option ('000 tons)							
	80	85	90	95	100	105	110	115
falling below B_{msy} end 2019 (%)	30	30	31	32	33	33	33	34
falling below B_{msy} end 2020 (%)	30	30	30	33	34	35	35	37
falling below B_{msy} end 2021 (%)	29	29	31	34	34	36	37	38
falling below B_{lim} end 2019 (%)	0	0	0	0	0	0	0	0
falling below B_{lim} end 2020 (%)	0	0	0	0	0	0	0	0
falling below B_{lim} end 2021 (%)	0	0	0	0	0	0	0	0
exceeding Z_{msy} in 2019 (%)	13	17	21	26	30	35	40	44
exceeding Z_{msy} in 2020 (%)	13	17	22	26	31	36	41	46
exceeding Z_{msy} in 2021 (%)	14	17	23	27	32	38	42	47

Assessment

Advice is based on risk analysis coming from a quantitative model. The analytical assessment was run in 2018 with revised treatment of the input data (SCR Doc.18-56, 18-60) and with updated data series.

The next assessment is scheduled for 2019.

Human impact

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

Biological and Environmental Interactions

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

Fishery

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

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

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Enacted TAC ¹	130 153	130 153	139 583	114 425	100 596 ¹	97 649 ¹	82 561 ¹	96 426 ¹	101 706 ¹	114 876 ¹
STATLANT 21	133 990	129 179	123 195	114 970	91 802	88 834	71 777	82 922	89 069	-
NIPAG	135 458	133 991	123 989	115 977	95 381	88 765	72 256	85 527	89 396	101 250 ²

¹ Sum of TACs autonomously set by Canada and Greenland.

² Expected to year end

Effects of the fishery on the ecosystem

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

Source of Information SCS Doc 13/04, FC Docs 04-18, SCR Docs 18-55, 56, 57, 58, 60.