

a) Northern Shrimp in Division 3M

Advice September 2021 for 2022










Recommendation

The stock is now below B_{lim} i.e. it has now entered the collapse zone defined by the NAFO PA framework. The indications of improved recruitment observed in 2020 did not translate into an increase in stock biomass. There are indications of worsening recruitment in the 2021 survey data.

To be consistent with the precautionary approach, Scientific Council advises that no directed fishery should occur in 2022.

Management objectives

No explicit management plan or management objectives defined by the Commission. Convention general principles are applied. Advice is based on qualitative evaluation of biomass indices in relation to historic levels, and provided in the context of the precautionary approach framework (FC Doc. 04/18).

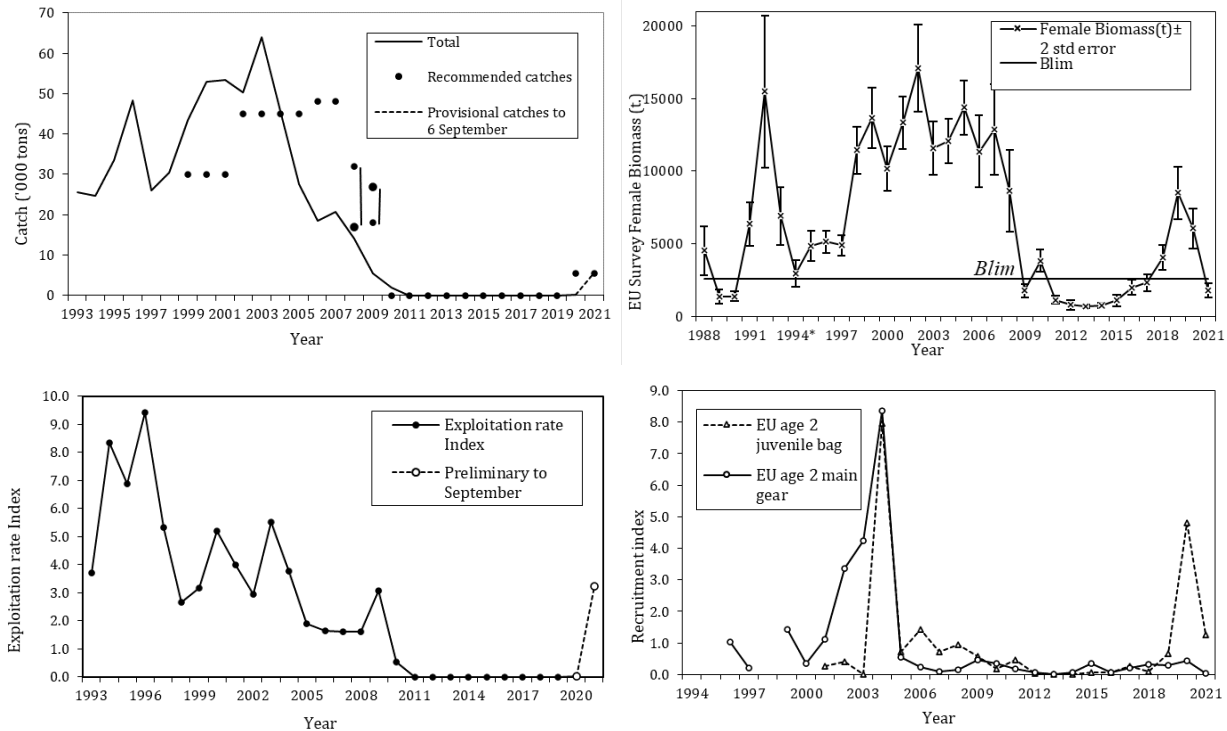
<i>Convention objectives</i>	<i>Status</i>	<i>Comment/consideration</i>	
Restore to or maintain at B_{msy}		Stock below B_{lim} . B_{msy} is unknown.	 OK
Eliminate overfishing		F_{lim} not defined.	 Intermediate
Apply Precautionary Approach		B_{lim} defined. No fishing mortality reference point defined	 Not accomplished
Minimise harmful impacts on living marine resources and ecosystems		VME closures in effect, sorting grids mandatory	 Unknown
Preserve marine biodiversity		Cannot be evaluated	

Management unit

The Northern Shrimp stock on Flemish Cap is considered to be a separate population.

Stock status

After an upward trend that started in 2014, the stock has decreased since 2019, and it is now below B_{lim} . The strong age 2 recruitment observed in 2020 did not translate into the expected high stock biomass in 2021 and recruitment decreased strongly in 2021. The exploitation rate index estimated from the preliminary catch data until the beginning of September 2021 increased markedly due to the resumed fishery and the decline of biomass index.



Reference points

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

Projections

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

Assessment

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

Further exploration of data and assessment possibilities will occur during the next year with participation in a joint benchmark process with ICES in early 2022.

The next assessment will take place prior the NAFO Annual Meeting in September 2022.

Human impact

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

Biological and Environmental Interactions

Multispecies models (Pérez-Rodríguez et al. 2016, Pérez-Rodríguez and D. González-Troncoso 2018), suggest that, predation by cod and redfish, together with fishing were the main factors driving the shrimp stock to the collapse after 2007. In the most recent years, decreasing redfish and cod stocks have likely resulted in reduced predation mortality on shrimp.

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.

Fishery

This fishery is effort-regulated. The effort allocations were reduced by 50% in 2010 and 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. Recent catches and agreed effort by the NAFO Commission were as follows:

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NIPAG	2000	0	0	0	0	0	0	0	0	0	79	5811 ¹
STATLANT 21	1976	0	0	0	0	0	0	0	0	0	0	0
Effort (Agreed Days)	5227	0	0	0	0	0	0	0	0	0	2640	2640
Effort days used	37										21	423 ¹
SC Recommended Catches (tonnes)	ndf	ndf	ndf	ndf	ndf	ndf	ndf	ndf	ndf	ndf	5448	5448

¹ preliminary catch and effort to September 6th 2021

Effects of the fishery on the ecosystem

The fishery was closed to directed fishing from 2011 to 2019.

Special comments

In September 2019, the Commission asked the SC to advise on the possible sustainable management measures for northern shrimp in div 3M, including quota, fishing effort, periods or other technical measures. In its response, SC 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. Full detail of the response is available in SCS Doc. 19/23

SC notes that only about 16% of the allocated effort has been used until September 2021, but catches have already exceeded the advised catch for 2021. If all fishing days were used, the catches advised by SC would be expected to be greatly exceeded.

Source of Information

SCR Doc. 21/038