

a) Northern shrimp in Divisions 3LNO

Advice October 2017 for 2018-2019

Recommendation

No directed fishery in 2018 and 2019 as the stock is below B_{lim} with no indication of short-term recovery.

Management objectives

No explicit management plan or objectives defined by Fisheries Commission. General convention objectives (GC Doc. 08/3) 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).

Convention objectives	Status	Comment/consideration
Restore to or maintain at B_{msy}	●	Stock below B_{lim}
Eliminate overfishing	●	No directed fishery
Apply Precautionary Approach	●	B_{lim} is defined. No fishing mortality reference point defined
Minimise harmful impacts on living marine resources and ecosystems	●	No directed fishery
Preserve marine biodiversity	○	Cannot be evaluated

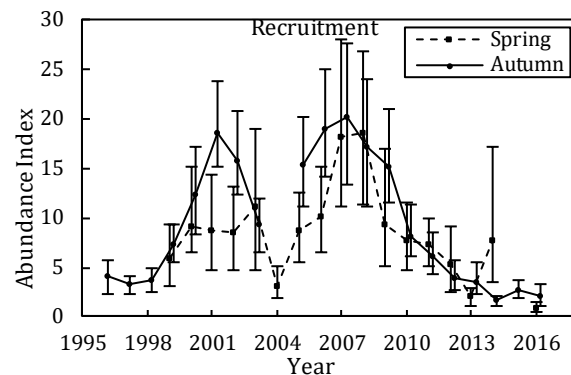
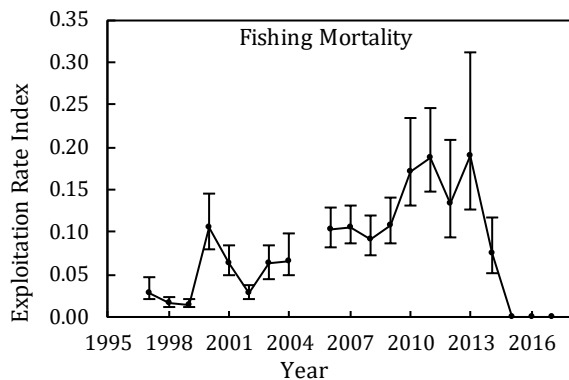
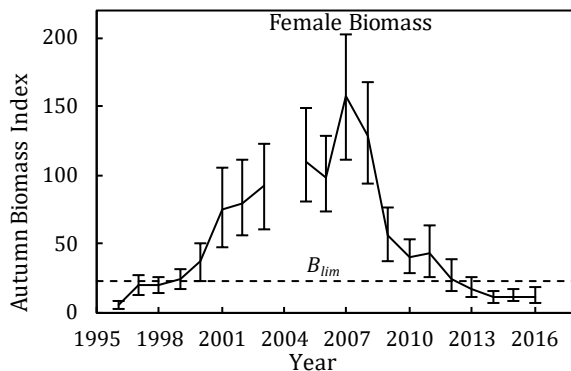
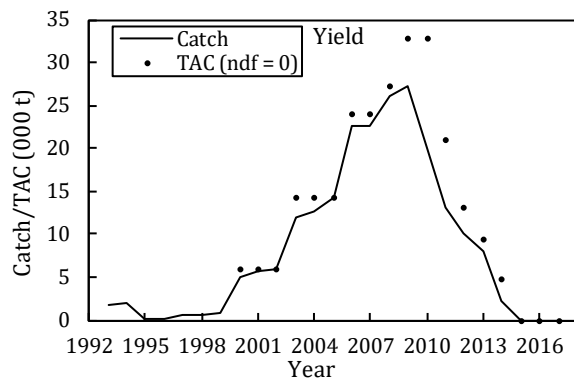
- OK
- Intermediate
- Not accomplished
- Unknown

Management Unit

The stock in Div. 3LNO is assessed and managed as a discrete population (see special comment).

Stock Status

The stock has declined since 2007, and in 2016 the risk of being below B_{lim} is greater than 95%. Given expectations of poor recruitment, the stock is not expected to increase in the near future.



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

Based upon a qualitative evaluation of trends in stock biomass, fishing mortality proxy and recruitment. Input data are research survey indices and fishery catches (NIPAG 2017).

Next full assessment is planned for 2019.

Human impact

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

Biological and Environmental Interactions

Temperature in the stock area had been warming up to 2011 but was lower than average in 2014-2016. Direct effects of temperature on shrimp distribution, recruitment, growth and survival are poorly understood.

Predation (by cod, Greenland halibut and redfish), low abundance of high energy prey (such as capelin) and environmental factors (including phytoplankton bloom dynamics) appear to be important drivers of the decline of northern shrimp in Divs. 2J3KL.

Fishery

The fishery, until 2014, was a directed bottom trawl fishery and there is little or no bycatch of shrimp in other trawl fisheries. The fishery in Div. 3LNO is regulated by quota.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Enacted TAC ¹	27306	32767	32767	20971	13108	9393	4697	ndf	ndf	ndf
STATLANT 21	26097	27236	19745	13013	10099	7919	2282	0	0	
NIPAG ²	25407	25900	20536	12900	10108	8647	2289	0	0	

¹ Includes autonomous TAC as set by Denmark (in respect of Faroes and Greenland).

² NIPAG catch estimates have been updated using various data sources (see p. 13, SCR Doc 14/048).

Effects of the fishery on the ecosystem

The fishery was closed to directed fishing beginning in 2015.

Special Comments

Shrimp in Div. 3LNO are genetically distinct from those in Div. 3M and the Gulf of Maine, but not from those further north. Work is ongoing to investigate the contribution of stocks north of Div. 3L to the production of Div. 3LNO shrimp.

Larval drift/dispersal studies using biophysical models were presented at the meeting and demonstrated that most larvae that settle in Div. 3L originate further north while **most** larvae that originate in Div. 3L settle outside the Division.

Research into assessment model(s) that might inform on stock dynamics, reference points and projections is ongoing with expected results in 2-3 years.

Sources of information

SCR Doc. 17/070; <http://www.dfo-mpo.gc.ca/Library/352955.pdf>