

Thorny skate in Division 3LNO and subdiv. 3Ps










Advice June 2022 for 2023-2024

Recommendation for 2023-2024

The stock has been stable at recent catch levels in Div. 3LNO (approximately 3 710 t, 2017 - 2021) however, given the low resilience to fishing mortality and higher historic stock levels, Scientific Council advises no increase in catches.

Management objectives

No explicit management plan or management objectives have been defined by the Commission. Convention General Principles are applied (NAFO GC Doc. 07-04). Advice is based on survey indices and catch trends in relation to estimates of recruitment.

<i>Convention General Principles</i>	<i>Status</i>	<i>Comment/consideration</i>		
Restore to or maintain at B_{MSY}		B_{MSY} unknown, stock at low level		OK
Eliminate overfishing		F_{MSY} unknown, fishing mortality is low		Intermediate
Apply Precautionary Approach		B_{lim} defined from survey indices		Not accomplished
Minimise harmful impacts on living marine resources and ecosystems		No specific measures, general VME closures in effect		Unknown
Preserve marine biodiversity		Cannot be evaluated		

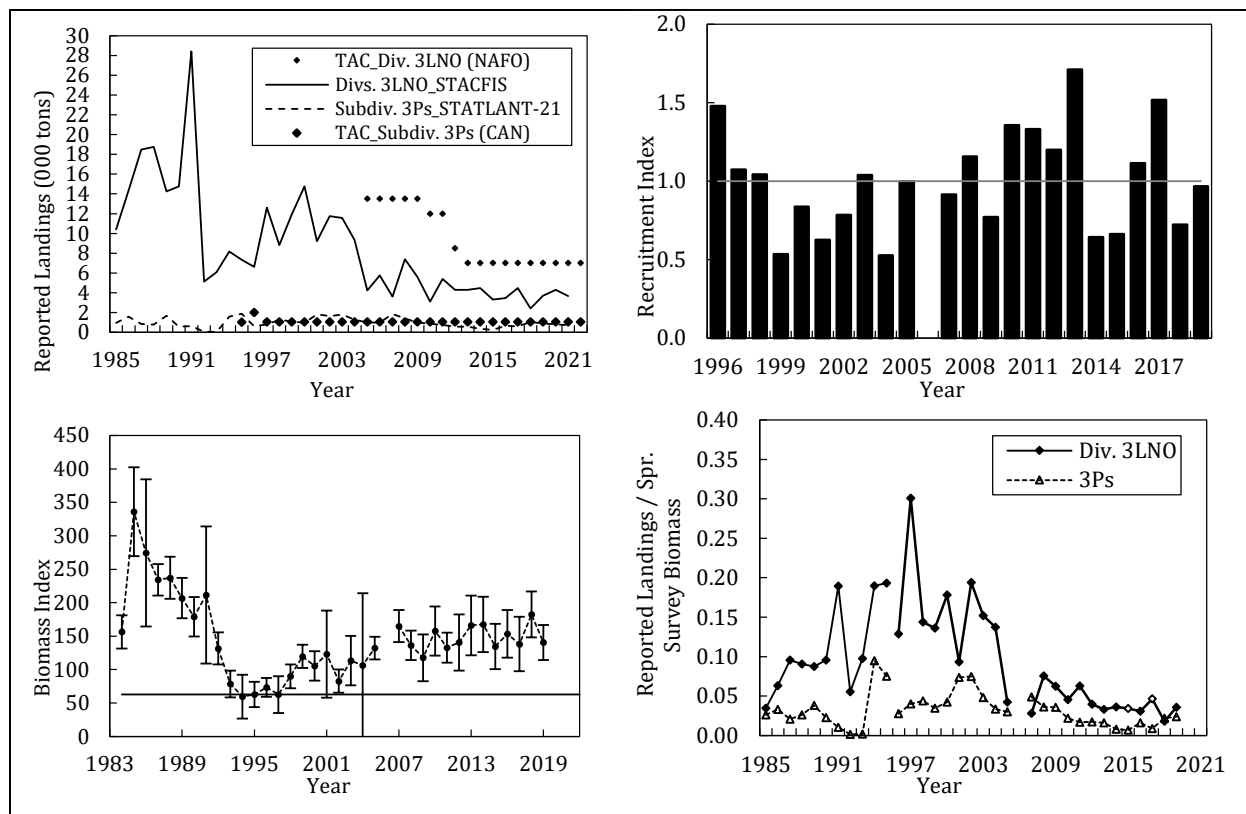
Management unit

The management unit is confined to NAFO Div. 3LNO, which is a portion of the stock that is distributed in NAFO Div. 3LNO and Subdivision 3Ps.

Stock status

The stock was above B_{lim} in 2019. No new survey information is available to determine stock status. However, due to the longevity of the species and the stability of the catch in recent years, it is unlikely that there have been major changes to the state of the stock. Recruitment was average in 2019 and is currently unknown. Fishing mortality is currently unknown but thought to be low.





Reference points

B_{lim} defined from survey indices as B_{loss} ; (SCS Doc 15/12)

Assessment

Based upon a qualitative evaluation of stock biomass trends and recruitment indices, the assessment is considered data limited and as such associated with a relatively high uncertainty. Input data are research survey indices and fishery data. The next full assessment of this stock will be in 2024.

Human impact

Mainly fishery related mortality has been documented. Mortality from other human sources (e.g. pollution, shipping, oil-industry) are undocumented

Biology and Environmental interactions

Thorny skate are found over a broad range of depths (down to 840 m) and bottom temperatures (-1.7 - 11.5°C). Thorny skate feed on a wide variety of prey species, mostly on crustaceans and fish. Recent studies have found that polychaete worms and shrimp dominate the diet of thorny skates in Div. 3LNO, while hyperiids, snow crabs, sand lance, and euphausiids are also important prey items.

The Grand Bank (3LNO) EPU continues to experience low overall productivity conditions, and total biomass remains well below pre-collapse levels. However, recent warming, earlier phytoplankton spring bloom, and an increase in the proportion of energy-rich copepod species may have positive effects on total ecosystem production in the coming years.

Fishery

Thorny skate is caught in directed gillnet, trawl and long-line fisheries. In directed thorny skate fisheries, Atlantic cod, monkfish, American plaice and other species are landed as bycatch. In turn, thorny skate are also

caught as bycatch in gillnet, trawl and long-line fisheries directing for other species. The fishery in NAFO division 3LNO is regulated by quota.

Recent catch estimates and TACs are:

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Div. 3LNO:										
TAC	7	7	7	7	7	7	7	7	7	7
STATLANT 21	4.4	4.5	3.3	3.5	4.2	1.5	3.7	4.0	4.0	
STACFIS	4.4	4.5	3.4	3.5	4.5	2.4	3.7	4.3	3.7	

Effects of the fishery on the ecosystem

The impact of bottom fishing activities on major VMEs in the 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. This assessment of impacts of bottom fishing activities on VMEs does not include waters within coastal states jurisdictions. Within the Grand Bank (3LNO) EPU areas in Div. 3O and 3L have been closed to fishing to protect corals.

Special comments

The life history characteristics of thorny skate result in low rates of population growth and are thought to lead to low resilience to fishing mortality.

Sources of Information

SCR Doc. 14/23.15/40,22/26,05,14,41; SCS Doc. 20/06,09,10,13