Recommendation for 2025 and 2026

The stock has decreased since 2015 and there is a 42% risk of the stock being below B_{lim} in 2023. Recruitment has been at or below the long-term average since the mid-2010s.

To be consistent with the NAFO Precautionary Approach, Scientific Council advises that no directed fishery should occur in 2025 and 2026. Bycatch should be kept at the lowest possible level.

Management objectives

No explicit management plan or management objectives have been defined by the Commission. General principles from *the Convention on Cooperation in the Northwest Atlantic Fisheries* are applied.

Convention Principle	Status	Comment
Restore to or maintain at Bmsy	Intermediate	Bmsy undefined, B > Blim
Eliminate Overfishing (Stock)	Intermediate	Flim undefined, F is low but increasing
Eliminate Overfishing (Ecosystem)	OK	Total EPU catches < 2TCI
Apply Precautionary Approach	Intermediate	Blim defined, Flim undefined
Minimize harmful impacts on living marine resources and ecosystems	Intermediate	Directed fishery, VME closures in effect, Effectiveness of bycatch regulations uncertain
Preserve marine biodiversity	Unknown	Cannot be evaluated

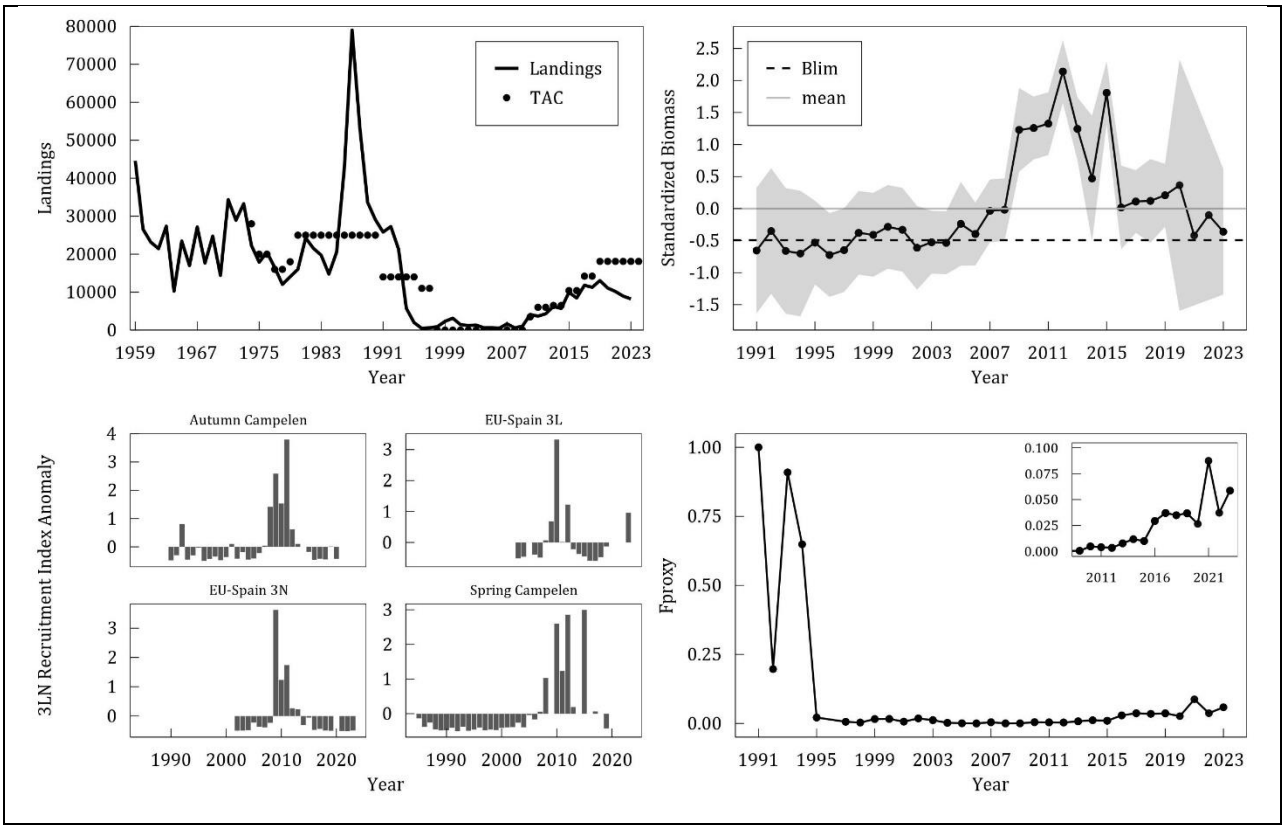
OK
Intermediate
Not accomplished
Unknown

Management unit

The management unit is defined as NAFO Divisions 3LN.

Stock status

The stock has decreased since 2015 and B_{2023}/B_{lim} is estimated at 1.38. There is a 42% risk of the stock being below B_{lim} in 2023. Recruitment (abundance 15-20 cm) has been below the long-term average since the mid-2010s in all surveys, with the exception of the 2023 EU-Spain survey in 3L. Relative fishing mortality has been increasing in recent years, but remains well below the time series high seen in the early 1990's.



Reference points

A biomass reference point is derived from the combined standardized biomass index 3N EU-Spain, Canadian Fall Campelen and Spring Teleost (B_{lim}=B_{rec}) from the period 1991-2005. This period was chosen as it represented a time when stock biomass recovered from a prolonged low level.

Assessment

This assessment is based on a combined 3L and 3N EU-Spain, Canadian Fall Campelen and Spring Teleost mean standardized index. The next assessment is scheduled for 2026.

Work is ongoing to develop an MSE for this stock.

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

There are two species of the genus *Sebastes* with distribution overlapping in several areas of Northwest Atlantic, namely on the Gulf of St. Lawrence, Laurentian Channel, off Newfoundland and south of Labrador Sea: the deep sea redfish (*Sebastes mentella*), with a maximum abundance at depths greater than 350m, and Acadian redfish (*Sebastes fasciatus*), preferring shallower waters of less than 300m.

The Grand Bank (3LNO) Ecosystem Production Unit (EPU) is currently experiencing low productivity conditions, with EPU biomass well below pre-collapse levels (pre-1990s). Rebuilding was observed since the 1990s, but declines across multiple trophic levels and stocks occurred after 2014. While positive signals have been observed since these declines, biomass has yet to return to the early-mid 2010s level.

Ecosystem sustainability of catches

The impact of bottom fishing activities on 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. Areas within Divisions 3LN have been closed to bottom fishing to protect VMEs.

3LN redfish is included in the piscivores guild of the Grand Bank (3LNO) Ecosystem Production Unit (EPU). Other NAFO managed stocks in this guild within the EPU include 3O redfish, 3NO cod, 3NOPs white hake and 2+3KLMNOPs Greenland halibut. The Catch/TCI for 2023 was below the 2TCI ecosystem reference point (3LNO Piscivore $Catch_{2023}$/TCI=1.34).

Fishery

Landings of this stock are primarily from directed fisheries. Following evaluation in the previous MSE, a stepwise harvest control rule (HCR) was adopted for this stock in 2014. Since then, the TAC has increased in steps from 6 500 tonnes to 18 100 tonnes, the maximum level evaluated for the HCR at the MSE. Catches have been decreasing since 2019 and have remained below the TAC.

Recent catch estimates and TACs ('000 tonnes) are:

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
TAC	10.4	10.4	14.2	14.2	18.1	18.1	18.1	18.1	18.1	18.1
STATLANT 21	10.2	8.5	11.8	11.3	13.1	11.7	11.8	NA[1]	NA[1]	
STACFIS catch	9.9	8.5	11.8	11.3	13.1	11.1	10.2	9.0	8.2	

[1]In 2022-2023, STATLANT 21 information is incomplete.

Special comments

Redfish are known to have variable and episodic recruitment, with potentially large periods of time between recruitment pulses and poorly understood relationships between stock size and recruitment. Impacts of delineations of stock boundaries and synchronicity between adjacent stocks are unknown. Work is ongoing to develop an MSE for this stock.

Sources of information

SCR Docs. 24/007, 008, 036, 048; SCS Doc. 24/06, 08, 09, 10, 11.