

Witch flounder in Divisions 3NO











Advice June 2024 for 2025–2026

Recommendation for 2025 and 2026

In the projection period the probability of being below B_{lim} is very low ($\leq 10\%$), however the probability of exceeding F_{lim} is projected to be above 30% for F greater than 75% F_{msy} . Scientific Council therefore recommends that F should be no higher than 75% F_{msy} .

Management objectives

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

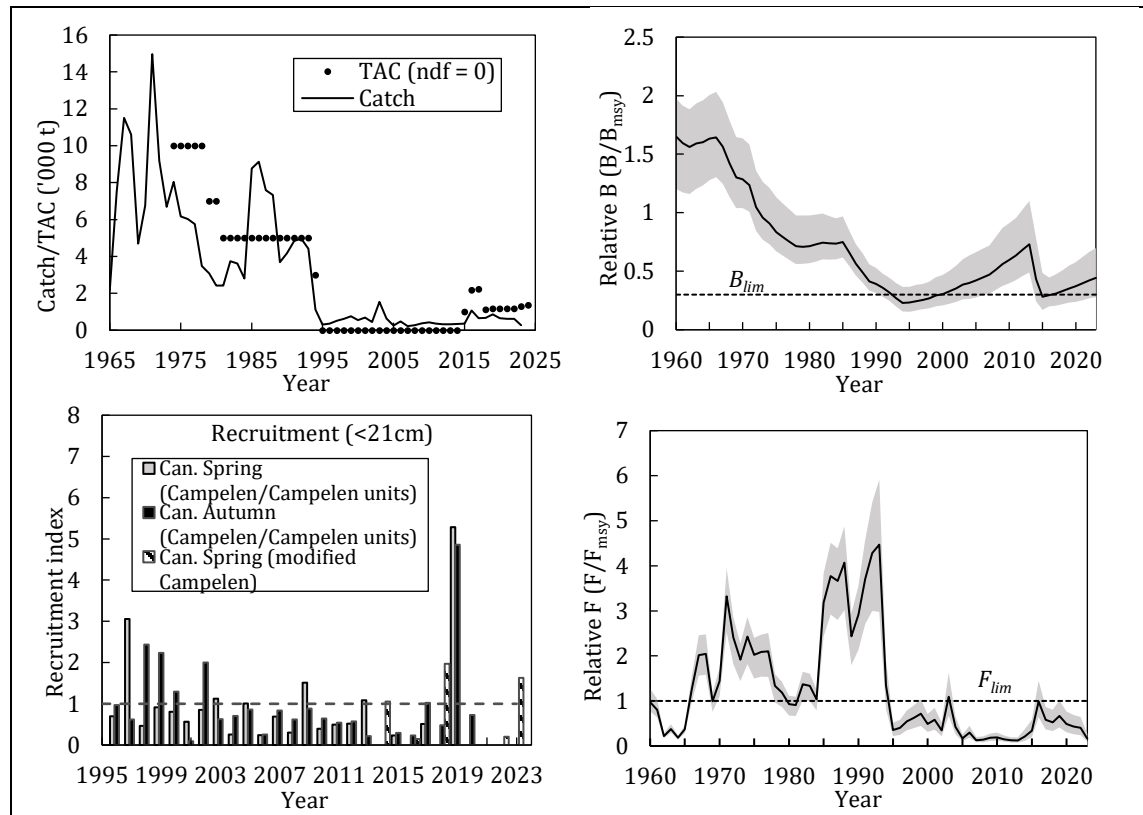
Convention Principle	Status	Comment	
Restore to or maintain at B_{msy}		$B_{lim} < B < B_{msy}$	 OK
Eliminate Overfishing (Stock)		$F < F_{lim}$	 Intermediate
Eliminate Overfishing (Ecosystem)		Total EPU catches $< 2TCI$	 Not accomplished
Apply Precautionary Approach		B_{lim} and F_{lim} defined	 Unknown
Minimize harmful impacts on living marine resources and ecosystems		Directed fishery, VME closures in effect, Effectiveness of bycatch regulations uncertain	
Preserve marine biodiversity		Cannot be evaluated	

Management unit

The management unit is NAFO Divisions 3NO. The stock mainly occurs in Division 30 along the southwestern slopes of the Grand Bank. In most years the distribution is concentrated toward the slopes but in certain years a higher percentage may be distributed in shallower water.

Stock status

The stock has increased slightly since 2015 and is estimated at 44% B_{msy} . At the beginning of 2024, there is an 11% risk of the stock being below B_{lim} and less than 1% risk of F being above F_{lim} . Recent recruitment is about average.



Reference points

B_{lim} is 30% B_{msy} and F_{lim} is F_{msy} (STACFIS 2004 p 133).

Projections

The probability of F being above F_{lim} ranged from <1% to 51% for the catch scenarios tested. The population is projected to grow under all scenarios and the probability that the biomass in 2027 is greater than the biomass in 2024 is greater than 61% in all scenarios. The population is projected to remain below B_{msy} through to the beginning of 2027 for all levels of F examined with a probability of 91% or greater. The probability of projected biomass being below B_{lim} by 2027 was 5% to 10% in all catch scenarios examined and was 5% by 2027 in the $F=0$ scenario.

Projections with Catch in 2024= 1367 t (TAC)		
Year	Yield (t) median	Projected relative B (B/B _{msy}) median (80% CL)
F0		
2025	0	0.50 (0.30, 0.82)
2026	0	0.55 (0.33, 0.90)
2027		0.59 (0.36, 0.98)
F Status quo (0.010)		
2025	301	0.50 (0.30, 0.82)
2026	324	0.54 (0.32, 0.89)
2027		0.58 (0.35, 0.97)
2/3 Fmsy (0.0407)		
2025	1240	0.50 (0.30, 0.82)
2026	1305	0.53 (0.31, 0.87)
2027		0.55 (0.32, 0.93)
75% Fmsy (0.0458)		
2025	1395	0.50 (0.30, 0.82)
2026	1461	0.52 (0.31, 0.87)
2027		0.55 (0.31, 0.92)
85% Fmsy (0.0519)		
2025	1581	0.50 (0.30, 0.82)
2026	1646	0.52 (0.30, 0.87)
2027		0.54 (0.31, 0.91)
Fmsy (0.0611)		
2025	1860	0.50 (0.30, 0.82)
2026	1920	0.51 (0.30, 0.86)
2027		0.53 (0.30, 0.90)

C2024=TAC (1367 t)	Yield			P(F>F _{lim})			P(B<B _{lim})				P(B<B _{msy})			
	2024	2025	2026	2024	2025	2026	2024	2025	2026	2027	2024	2025	2026	2027
F0	1367	0	0	26%	<1%	<1%	11%	10%	7%	5%	97%	96%	93%	91%
F2023=0.0100	1367	301	324	26%	<1%	<1%	11%	10%	7%	5%	97%	96%	94%	91%
2/3 Fmsy = 0.0407	1367	1240	1305	26%	17%	18%	11%	10%	9%	8%	97%	96%	94%	92%
75% Fmsy = 0.0458	1367	1395	1461	26%	25%	26%	11%	10%	9%	9%	97%	96%	94%	93%
85% Fmsy = 0.0519	1367	1581	1646	26%	35%	36%	11%	10%	10%	9%	97%	96%	94%	93%
Fmsy= 0.0611	1367	1860	1920	26%	51%	51%	11%	10%	10%	10%	97%	96%	94%	93%

Assessment

A Schaefer surplus production model in a Bayesian framework was used for the assessment of this stock. The results were comparable to the previous assessment. Input data comes from research surveys and the fishery.

The next full assessment of this stock will be in 2026.

Human impact

Mainly fishery related mortality. Other potential sources (e.g. pollution, shipping, and oil-industry) are undocumented.

Biological and environmental interactions

Witch flounder in NAFO Divisions 3NO are distributed mainly along the tail and southwestern slopes of the Grand Bank. 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

General impacts of fishing gears on the ecosystem should be considered. Areas within Divisions 3NO have been closed to bottom fishing to protect sponge and coral species.

Witch flounder is included in the benthivore guild of the Grand Bank (3LNO) Ecosystem Production Unit (EPU). Other NAFO managed stocks in this guild within the EPU include 3LNOPs thorny skate, 3LNO yellowtail flounder, 3LNO American plaice and 3LNO shrimp. The Catch/TCI is below the 2TCI ecosystem reference point in 2023 (3LNO Benthivore Catch₂₀₂₃/TCI=0.65).

Fishery

The fishery was reopened to directed fishing in 2015 and is exploited by otter trawl. Prior to the reopening, witch flounder were caught primarily as bycatch in bottom otter trawl fisheries for yellowtail flounder, redfish, skate and Greenland halibut.

Recent catch estimates and TACs ('000t) are:

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
TAC	1.0	2.2	2.2	1.1	1.2	1.2	1.2	1.2	1.3	1.4
STATLANT 21	0.4	0.6	0.6	0.7	0.9	0.6	0.6	NA ¹	NA ¹	
STACFIS	0.4	1.1	0.7	0.7	0.9	0.7	0.6	0.6	0.3	

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

Special comments

It is unclear if the recruitment index (survey number of fish <21 cm.) is representative. Nevertheless, recent recruitment appears to be average.

Sources of Information

SCR 24/007, 014, 018, 037; SCS 24/06, 08, 09, 11.