

Witch flounder in Divisions 3NO

Advice June 2026 for 2027-2028

Recommendation for 2027 and 2028

Scientific Council projected the fishing mortality scenarios for 2027 to 2028 as defined for stocks in the Cautious Zone of the NAFO PA Framework. It is projected that the stock will remain below $B_{trigger}$ with an annual probability of 94 to 97% and there remains an annual risk of 14 to 20% that the stock will be below B_{lim} .

Catches between 131 t and 647 t in 2027 and between 205 t and 801 t in 2028 are consistent with the HCR from the NAFO PA.

Management objectives

No explicit management plan or management objectives have been defined by the Commission. Convention General Principles are applied.

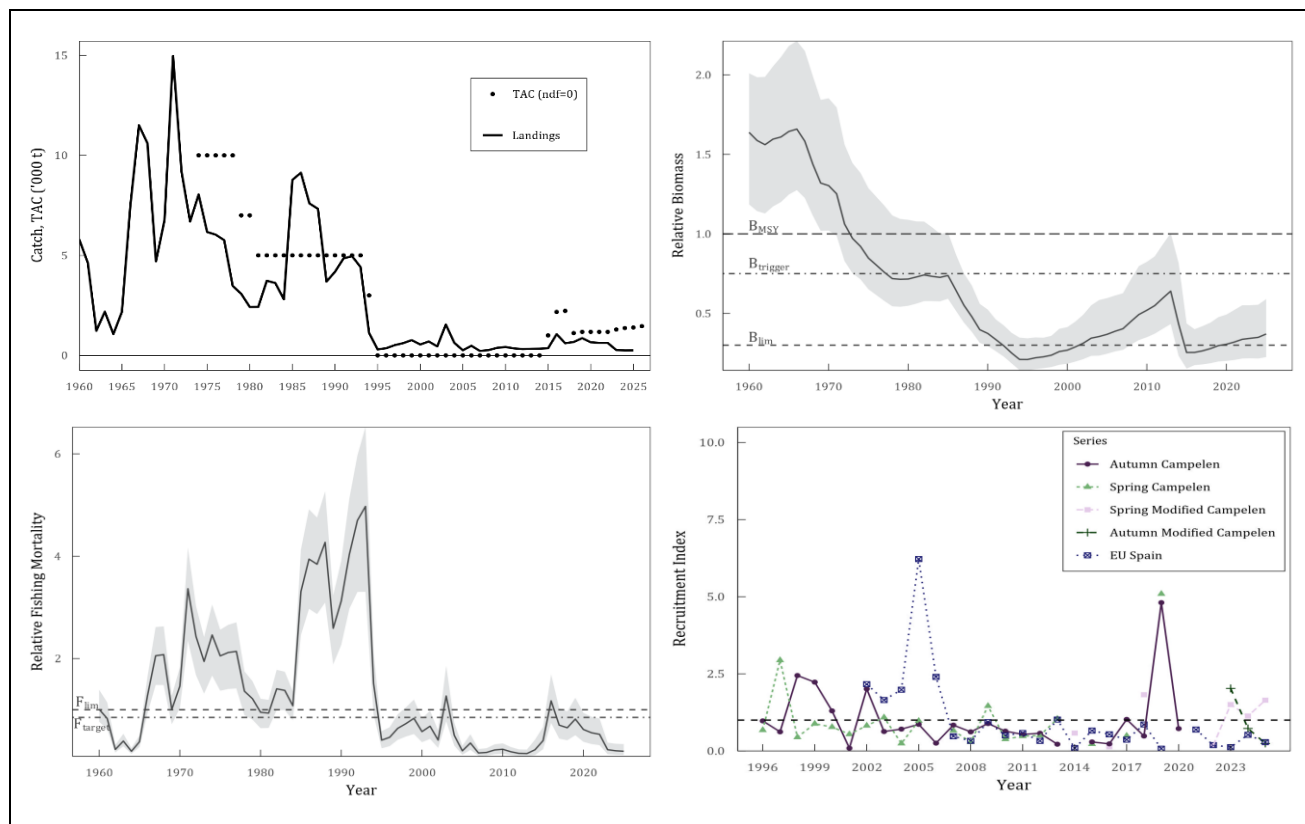
Convention Principle	Status	Comment	
Restore to or maintain at B_{msy}		$B_{lim} \leq B < B_{trigger}$ (Cautious Zone)	 OK
Eliminate Overfishing (Stock)		$F \leq$ Upper F range indicated by the PA	 Intermediate
Eliminate Overfishing (Ecosystem)		Total EPU catches < 2TCI	 Not accomplished
Apply Precautionary Approach		All PA reference points 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 Div. 3O along the southwestern slopes of the Grand Bank.

Stock status

The stock is in the Cautious Zone. The stock has increased slightly since 2015 and is estimated at 37% B_{msy} . There is a very high risk (>99%) of the stock being below $B_{trigger}$ and a very low risk (<1%) of F being above $F_{lim}=F_{msy}$ or $F_{trigger}$. There is a 28% risk of the stock being below B_{lim} . Recent recruitment appears to be average.



Reference points

B_{lim} is 30% B_{msy} , $B_{trigger}$ is 75% B_{MSY} , F_{lim} is F_{msy} , and F_{target} is 85% F_{msy} (COM-SC Doc. 24-03).

Projections

Stochastic projections were conducted for $Catch_{2026} = TAC_{2026}$ (1 461 t). As per the NAFO PA Framework for stocks in the Cautious Zone, fishing mortality was applied along the leaf lower edge, midrib and upper edge. Projections were also conducted for $F=0$.

There is a high annual probability (94–97%) of the stock remaining in the Cautious Zone from 2027 to 2028 under the PA leaf. There remains an annual probability of 14–20% of being in the Critical Zone from 2027 to 2028 under the PA leaf. With the exception of 2026 (52% risk of F exceeding F_{msy} in 2026), fishing mortality is projected to remain low if the F values along the PA leaf are adhered to. Projections show a high probability (>99%) that the stock will grow from 2026 to 2029.

Catch 2026 = 1 461 t (TAC)			
Year	F	Yield ('000t) Median	Start of year relative Biomass (B/B_{msy}) Median (80% CI)
$F = 0$			
2026	0.060	1.461	0.40 (0.24, 0.60)
2027	0	0	0.42 (0.25, 0.63)
2028	0	0	0.46 (0.27, 0.69)
2029	-	-	0.50 (0.30, 0.74)
Lower Edge Leaf			
2026	0.060	1.461	0.40 (0.24, 0.60)
2027	0.005	0.131	0.42 (0.25, 0.63)
2028	0.007	0.205	0.45 (0.27, 0.67)
2029	-	-	0.49 (0.30, 0.71)
Midrib Leaf			
2026	0.060	1.461	0.40 (0.24, 0.60)
2027	0.013	0.326	0.42 (0.25, 0.63)
2028	0.017	0.461	0.45 (0.27, 0.66)
2029	-	-	0.49 (0.30, 0.69)
Upper Edge Leaf			
2026	0.060	1.461	0.40 (0.24, 0.60)
2027	0.026	0.647	0.42 (0.25, 0.63)
2028	0.030	0.801	0.45 (0.27, 0.66)
2029	-	-	0.47 (0.30, 0.68)

Catch 2026 = 1 461 t (TAC)					
Cautious Zone		$F = 0$	F lower edge leaf	F mid rib leaf	F upper edge leaf
Yield ('000 t) (50%)	2026	1 461 t	1 461 t	1 461 t	1 461 t
	2027	0 t	131 t	326 t	647 t
	2028	0 t	205 t	461 t	801 t
$P(F > F_{lim})$	2026	52%	52%	52%	52%
	2027	<1%	<1%	<1%	<1%
	2028	<1%	<1%	<1%	<1%
$P(B < B_{lim})$	2026	22%	22%	22%	22%
	2027	20%	20%	20%	20%
	2028	14%	14%	14%	14%
	2029	10%	10%	10%	10%
$P(F > F_{target})$	2026	70%	70%	70%	70%
	2027	<1%	<1%	<1%	<1%
	2028	<1%	<1%	<1%	<1%
$P(B < B_{trigger})$	2026	98%	98%	98%	98%
	2027	97%	97%	97%	97%
	2028	94%	96%	96%	96%
	2029	90%	94%	94%	95%
$P(B_{2029} > B_{2026})$		>99%	>99%	>99%	>99%
$(B_{2029} - B_{2026}) / B_{2026}$		23%	20%	19%	17%

Assessment

A Schaefer surplus production model in a Bayesian framework was used for the assessment of this stock. The results indicated the same trend as previous assessments. Input data comes from research surveys and the fishery.

The next full assessment of this stock will be in 2028.

Human impacts

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

Biological and environmental interactions

Witch flounder in NAFO Divs. 3NO are distributed mainly along the tail and southwestern slopes of the Grand Bank. Witch flounder diet in the Grand Bank (3LNO) EPU is dominated by polychaetes and amphipods.

The Grand Bank (3LNO) Ecosystem Production Unit (EPU) continues to experience low productivity conditions, with EPU biomass below pre-collapse levels (pre-1990s). Rebuilding was observed since the 1990s, but declines across multiple trophic levels and stocks occurred in the mid 2010s. Positive signals have been observed since these declines, with EPU biomass near the post-collapse highs of the early-mid 2010s.

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. Some areas in the Grand Bank (3LNO) EPU have been closed to bottom fishing to protect sponge and coral species.

3NO 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 SSAR shrimp. The Catch/TCI for 2025 was below the 2TCI ecosystem reference point (3LNO Benthivore Catch₂₀₂₅/TCI=0.92).

Fishery

While the fishery was reopened to directed fishing in 2015 and is exploited by otter trawl, witch flounder are caught primarily as bycatch in bottom otter trawl fisheries for yellowtail flounder, redfish, skate, silver hake, Atlantic cod and Greenland halibut.

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

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TAC	2.2	1.1	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.5
Catch ¹	0.7	0.7	0.9	0.7	0.6	0.6	0.3	0.2	0.3	

¹ CESAG estimates

Special comments

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

Sources of Information

SCR Docs 26/XXX, 002, 001; SCS 26/05, 06, 07, 10.