Yellowtail flounder in Divisions 3LNO   Advice June 2025 for 2026-2027

Recommendation for 2026-2027

Scientific Council projected the fishing mortality scenarios defined for stocks in the Healthy Zone of the PA Framework. All scenarios are projected to maintain the stock above $B_{trigger}$ with a probability of 96% or higher.

F_{target} corresponds to catches of 24 290 t and 22 000 t in 2026 and 2027, respectively. These catch levels have risks of no more than 25% of exceeding F_{lim}.

Management objectives

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

Convention Principle	Status	Comment
Restore to or maintain at Bmsy	🟢	B > Bmsy
Eliminate Overfishing (Stock)	🟢	F < Flim
Eliminate Overfishing (Ecosystem)	🟢	Total EPU catches < 2TCI
Apply Precautionary Approach	🟢	All PA reference points defined
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

🟢 OK
🟡 Intermediate
🔴 Not accomplished
⚪ Unknown

Management unit

The management unit is NAFO Divisions 3LNO. The stock is mainly concentrated on the southern Grand Bank and is recruited from the Southeast Shoal area nursery ground.

Stock status

The stock is in the Healthy Zone. The stock size remains above B_{msy} with a probability >99%, and has been between 1.3x and 1.5x B_{msy} since 2016. There is a very low risk (<1%) of the stock being below $B_{trigger}$ and a very low risk of F being above $F_{lim}=F_{msy}$ or F_{target} (<1%). Recruitment has been generally above average since the late 2010s.
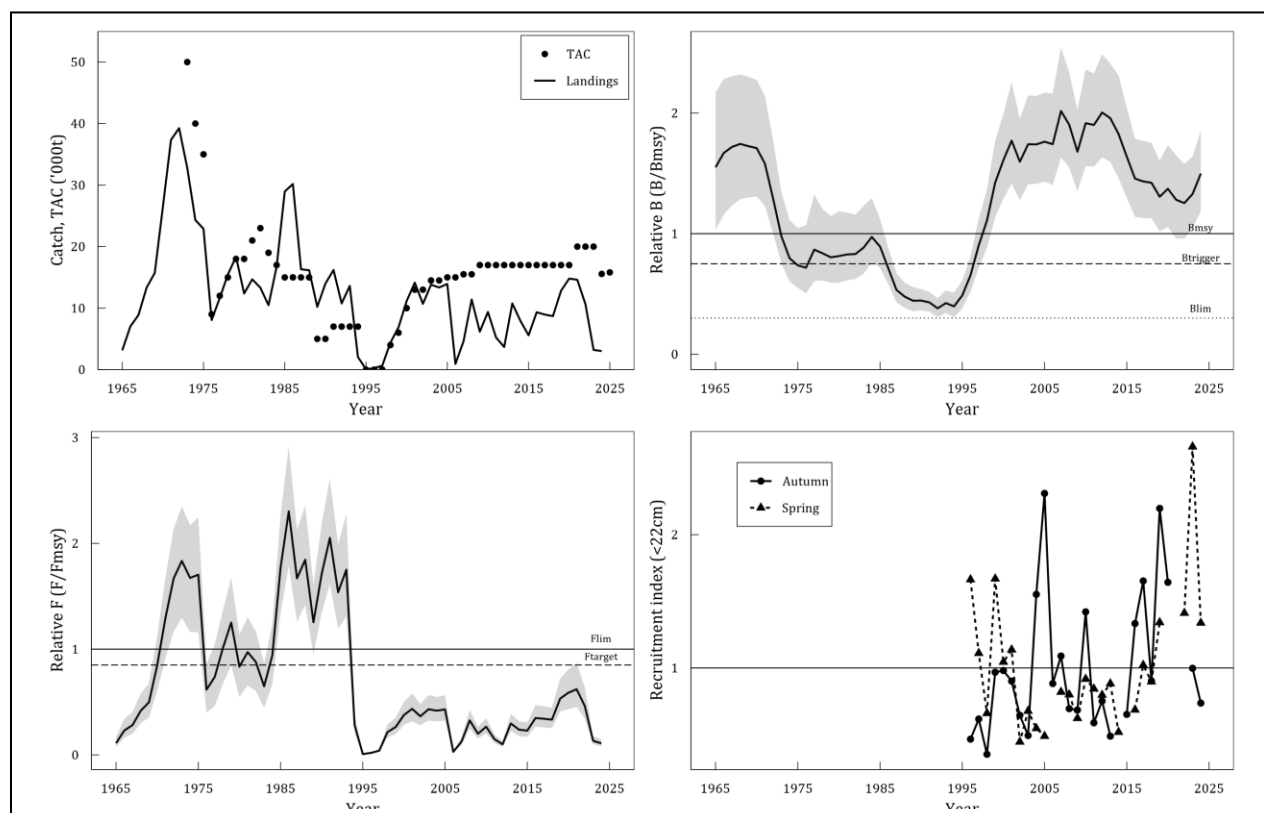
Reference points

B_{lim} is 30% B_{msy}, $B_{trigger}$ is 75% B_{msy}, F_{target} is 85% F_{msy}, and F_{lim} is F_{msy}.

Projections

Stochastic projections were for Catch$_{2025}$ = TAC$_{2025}$ = 15 810 t. Constant fishing mortality was applied from 2026-2027 at four levels of F: F=0, and the three levels defined for stocks in the Healthy zone (75% F_{msy}, 85% F_{msy}, and F_{msy}). At the end of the projection period, the risk of the biomass being below B_{lim} is less than 1% in all cases, and the risk of the biomass being below $B_{trigger}$ is 4% or less in all cases.

At 75% F_{msy}, the probability that F > F_{lim} was between 11% and 12% in the medium term (2026, 2027). Projected at the level of 85% F_{lim}, the probability that F > F_{lim} ranges between 24% and 25% and for F_{msy} projections, this probability increases to 50%.

The probability that biomass in 2028 is greater than B$_{2025}$ is 70%, 21%, 16%, and 11% for projections of F=0, 75% F_{msy}, 85% F_{msy}, and F_{msy} respectively. At 75% F_{msy} to F_{msy} biomass declines towards B_{msy} are expected, with decreases from 2025 to 2028 estimated at 15 to 23%.

Projections with Catch$_{2025}$ = 15 810 t		
Year	Yield ('000t) median	Projected Relative Biomass (B/Bmsy) median (80%CI)
F=0		
2025	15.81	1.62 (1.26, 2.03)
2026	0	1.55 (1.19, 1.96)
2027	0	1.69 (1.31, 2.12)
2028	-	1.79 (1.39, 2.22)
F = 0.75F$_{msy}$		
2025	15.81	1.62 (1.26, 2.03)
2026	21.43	1.55 (1.19, 1.96)
2027	19.88	1.44 (1.09. 1.84)
2028	-	1.37 (1.02, 1.77)
F = 0.85F$_{msy}$		
2025	15.81	1.62 (1.26, 2.03)
2026	24.29	1.55 (1.19, 1.96)
2027	22.00	1.41 (1.80, 1.06)
2028	-	1.32 (0.97, 1.72)
F = F$_{msy}$		
2025	15.81	1.62 (1.26, 2.03)
2026	28.58	1.55 (1.19, 1.96)
2027	24.96	1.36 (1.02, 1.74)
2028	-	1.24 (0.89, 1.64)

		Catch 2025 = 15 810 t			
			Healthy Zone		
		F=0	F = 0.75F$_{msy}$	F = 0.85F$_{msy}$	F = F$_{msy}$
Yield ('000t) (50%)	2025	15.81	15.81	15.81	15.81
	2026	0	21.43	24.29	28.58
	2027	0	19.88	22.00	24.96
P(F>F$_{lim}$)	2025	<1%	<1%	<1%	<1%
	2026	<1%	11%	24%	50%
	2027	<1%	12%	25%	50%
P(B<B$_{lim}$)	2025	<1%	<1%	<1%	<1%
	2026	<1%	<1%	<1%	<1%
	2027	<1%	<1%	<1%	<1%
	2028	<1%	<1%	<1%	<1%
P(F>F$_{target}$)	2025	3%	3%	3%	3%
	2026	<1%	29%	50%	78%
	2027	<1%	30%	50%	76%
P(B<B$_{trigger}$)	2025	<1%	<1%	<1%	<1%
	2026	<1%	<1%	<1%	<1%
	2027	<1%	<1%	<1%	1%
	2028	<1%	1%	2%	4%
P(B$_{2028}$>B$_{2025}$)		70%	21%	16%	11%
(B$_{2028}$-B$_{2025}$)/B$_{2025}$		+10.8%	-15.0%	-18.2%	-22.9%

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 for this stock will be in 2027.

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

Biology and Environmental interactions

Yellowtail flounder diet in the Grand Bank is typically dominated by sandlance and invertebrates like amphipods, polychaetes, and brittle stars.

The Grand Bank (3LNO) Ecosystem Production Unit (EPU) is currently experiencing low productivity conditions, with EPU biomass well below pre-collapse levels (pre-1990s). While some rebuilding was observed since the 1990s, biomass declined across multiple trophic levels and stocks through the late 2010s. Positive signals are evident in the last two years, with biomass approaching the early-mid 2010s level.

Fishery
Yellowtail flounder is caught in a directed trawl fishery and as by-catch in other trawl fisheries. The fishery is regulated by quota and minimum size restrictions. Since 2006 catches have generally been well below the TAC. Recent highs from 2019 to 2022 which ranged from 10 600 t to 14 800 t are followed by two years with catches at 3 250t in 2023 and 3 020 t in 2024, with decreases in catch attributed to industry and economic related factors. American plaice and Atlantic cod are taken as by-catch in the yellowtail fishery. There is a 15% by-catch restriction on American plaice and a 4% limit on cod.

Recent catches and TACs ('000 tons) are as follows:

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
TAC	17	17	17	17	17	17	20	20	15.6	15.8
STATLANT 21	8.3	9.2	8.6	12.3	14.0	14.7	NA	NA	NA	
STACFIS	9.3	9.2	8.7	12.8	14.8	14.6	10.6	3.3	3.0	

NA - In 2022-2024, STATLANT 21 information is incomplete.

Ecosystem sustainability of catches

Fishing intensity on yellowtail flounder has impacts on Divs. 3NO Atlantic cod and Divs. 3LNO American plaice through by-catch. 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.

Yellowtail flounder is included in the benthivore guild of the Grand Bank EPU. Other NAFO managed stocks in this guild within the EPU include Divs. 3LNOPs thorny skate, 3NO witch flounder, 3LNO American plaice, and 3LNO shrimp. The Catch/TCI for 2024 was below the 2TCI ecosystem reference point (3LNO Benthivore $\text{Catch}_{2024}/\text{TCI}=0.74$).

Special comments
Management of yellowtail flounder should take into consideration the fact that the fishery impacts depleted fish stocks on the Grand Bank, and may be impeding recovery of Divs. 3NO cod and Divs. 3LNO American plaice which have both been below B_{lim} for decades.

Data from Canadian directed yellowtail fishing reports indicate that catch of American plaice has not exceeded 5% of yellowtail catch in any year over the last five years (2020-2024). However, even very low levels of F have been shown to meaningfully impact growth of the Divs. 3LNO American plaice stock.

New vessels are being used to conduct the Canadian surveys and information from 2022 onwards. Previous Canadian survey data have been converted to be directly comparable with these new vessels.

Sources of information
SCR 18/039, 25/006, 25/026, 25/028, 25/029, 24/037; SCS 25/05, 25/09, 24/11 NAFO/COM-SC Doc. 24-03