

Cod in Division 3M

Advice June 2026 for 2027

Recommendation for 2027

Scientific Council projected the fishing mortality scenarios defined for stocks in the Cautious Zone of the PA Framework. Under all scenarios during the projected years, the stock will remain in the Cautious Zone (below $B_{trigger}$) with a probability of at least 60%; furthermore, the median biomass at the beginning of 2028 is projected to be lower relative to 2026.

Catches for 2027 between 10 086 t and 12 452 t are consistent with the HCR from the NAFO PA. Scientific Council notes the increased uncertainty in the assessment and projections due to the lack of age and maturity data since 2023. The increased uncertainty is unquantified and not reflected in the risk table.

Management objectives

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

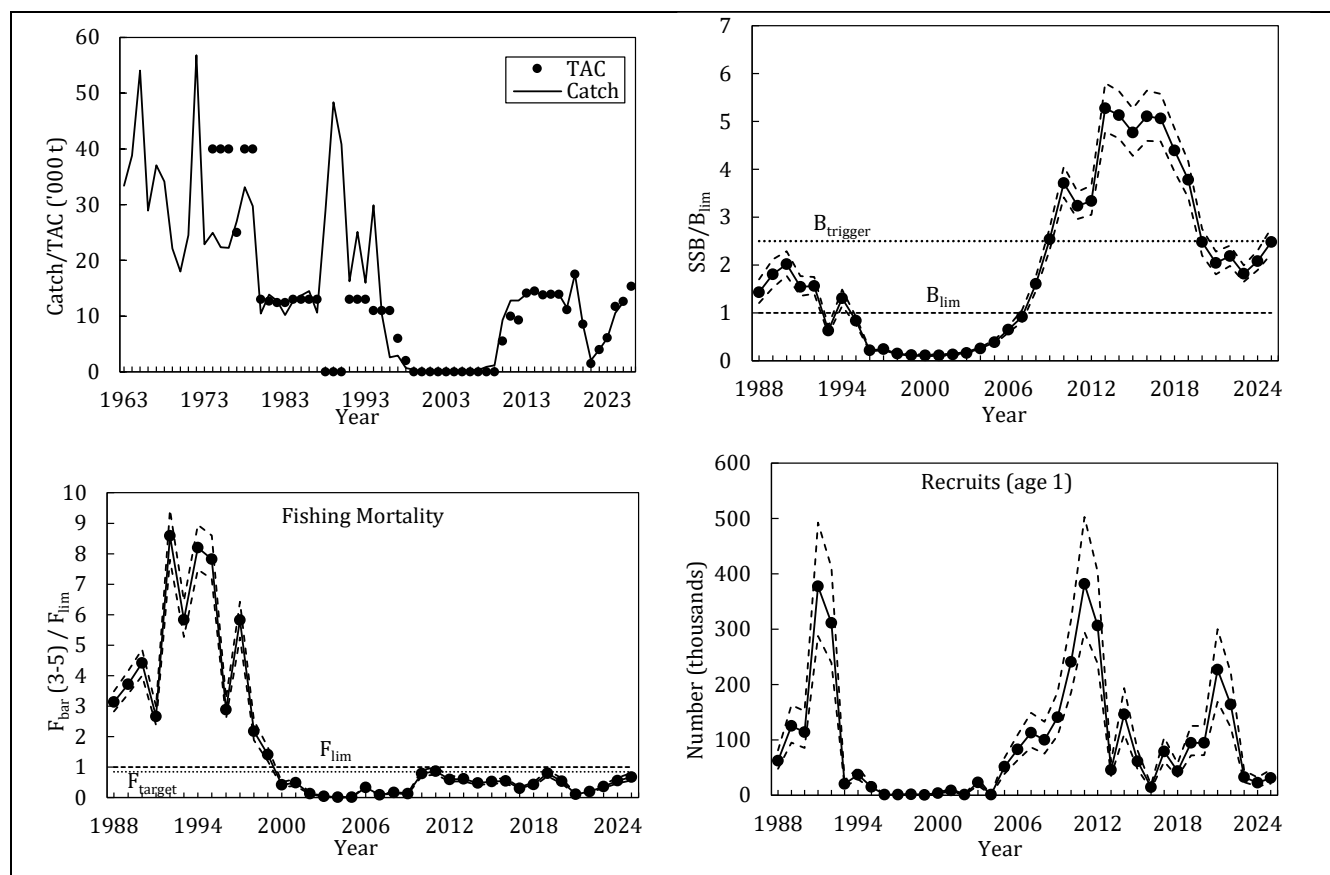
Convention Principle	Status	Comment	
Restore to or maintain at B_{msy}		$B_{lim} \leq B < B_{trigger}$ (Cautious Zone)	 OK
Eliminate Overfishing (Stock)		$F \leq$ Upper F range indicated by the PA	 Intermediate
Eliminate Overfishing (Ecosystem)		Total EPU catches < 2TCI	 Not accomplished
Apply Precautionary 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 cod stock on the Flemish Cap (NAFO Div. 3M) is considered to be a separate population.

Stock status

The median SSB declined rapidly since 2017 but has remained stable during the last 5 years and is estimated to be above B_{lim} and below $B_{trigger}$ (Cautious Zone) in 2025. Since 2013, recruitment has varied at intermediate levels but much lower than those observed in 2011-2012. In 2021 and 2022, good recruitments were observed, while since 2023 recruitment has been at a very low level. Fishing mortality has remained below F_{lim} since the fishery reopened in 2010. Fishing mortality has been below F_{target} during that period except in 2011. In 2021, the minimum level of F since the re-opening was reached, increasing since then. In 2025, F is below F_{lim} and F_{target} with high probability.



Reference points

B_{msy} is defined for this stock as the equilibrium SSB that corresponds to the $F_{35\%SPR}$. B_{lim} is 30% B_{msy} ($B_{lim} = 15\,724$ t). $B_{trigger}$ is approved to be 75% B_{msy} ($B_{trigger} = 39\,310$ t). F_{lim} corresponds to $F_{35\%SPR}$ ($F_{lim} = 0.171$) and F_{target} is 85% of F_{lim} ($F_{target} = 0.145$).

Projections

Stochastic projections of the stock dynamics from 2026 to the start of 2028 were conducted. All scenarios assumed that the Yield for 2026 is the established TAC (15 360 t). F_{bar} is the mean of the F at ages 3-5 and is used as the indicator of overall fishing mortality.

The stock is projected to be in the Cautious Zone starting in 2027. Four scenarios were considered for the year 2027: $F_{bar} = 0$ and the three levels defined for stocks in the Cautious Zone (fishing mortality along the leaf lower edge, midrib and upper edge).

	Total Biomass			SSB		Yield
F _{bar} =0						
2026	63228	(56629 - 70987)		44861	(39607 - 51065)	15360
2027	49128	(42537 - 56774)		36982	(31283 - 43310)	0
2028	50035	(43290 - 57882)		38095	(32621 - 44667)	-
F lower edge leaf (median=0.109)						
2026	63228	(56629 - 70987)		44861	(39607 - 51065)	15360
2027	49128	(42537 - 56774)		36982	(31283 - 43310)	10086
2028	39829	(33191 - 47629)		28119	(22761 - 34600)	-
F midrib leaf (median=0.131)						
2026	63228	(56629 - 70987)		44861	(39607 - 51065)	15360
2027	49128	(42537 - 56774)		36982	(31283 - 43310)	11756
2028	38119	(31525 - 45943)		26489	(21186 - 32970)	-
F upper edge leaf (median=0.140)						
2026	63228	(56629 - 70987)		44861	(39607 - 51065)	15360
2027	49128	(42537 - 56774)		36982	(31283 - 43310)	12452
2028	37423	(30828 - 45239)		25809	(20489 - 32230)	-

		Cautious Zone			
		F=0	F lower edge leaf (median=0.109)	F midrib leaf (median=0.131)	F upper edge leaf (median=0.140)
Yield (50%)	2026	15360	15360	15360	15360
	2027	0	10086	11756	12452
P(F>F _{lim})	2026	6%	6%	6%	6%
	2027	<1%	1%	8%	15%
P(SSB<B _{lim})	2026	<1%	<1%	<1%	<1%
	2027	<1%	<1%	<1%	<1%
	2028	<1%	<1%	<1%	<1%
P(F>F _{target})	2026	30%	30%	30%	30%
	2027	<1%	7%	28%	42%
P(SSB<B _{trigger})	2026	9%	9%	9%	9%
	2027	70%	70%	70%	70%
	2028	60%	99%	>99%	>99%
P(SSB ₂₀₂₈ >SSB ₂₀₂₆)		<1%	<1%	<1%	<1%
(SSB ₂₀₂₈ - SSB ₂₀₂₆) / SSB ₂₀₂₆		-16%	-38%	-41%	-43%

Under all the scenarios during the projected years (including F=0), the stock will remain in the Cautious Zone (below B_{trigger}) with a probability of at least 60%; furthermore, the median biomass at the beginning of 2028 is projected to be lower relative to 2026.

Under all scenarios, the probability of F_{bar} exceeding F_{lim} is less than or equal to 15% in 2027.

Assessment

A Bayesian SCAA model, introduced at the 2018 benchmark, was used as the basis for the assessment of this stock with data from 1988 to 2025.

The next full assessment for this stock will be in 2027.

Human impacts

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

Biological and environmental interactions

Redfish, shrimp and small cod are important prey items for cod. There are strong trophic interactions between these species on the Flemish Cap.

The Flemish Cap (3M) Ecosystem Production Unit (EPU), with the exception of a short-lived increase in 2005-2009, has shown a fairly stable total biomass over time despite the changes in individual stocks. This indicates no major changes in overall ecosystem productivity.

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. A number of areas in the Flemish Cap (3M) EPU have been closed to bottom fishing to protect VMEs.

3M cod is included in the piscivores guild of the Flemish Cap (3M) Ecosystem Production Unit (EPU). Other NAFO managed stocks in this guild and EPU are 3M redfish and 2+3KLMNO Greenland halibut. The Catch/TCI for 2025 was below the 2TCI ecosystem reference point (3M Piscivore Catch₂₀₂₅/TCI=1.62).

Fishery

Cod is caught in directed trawl and longline fisheries and as bycatch in the directed redfish trawl fishery. The fishery is regulated by quota. New technical regulations were introduced in 2021, in particular a closure of the directed fishery in the first quarter as well as sorting grids to protect juveniles.

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

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TAC	13.9	11.1	17.5	8.5	1.5	4.0	6.1	11.7	12.6	15.4
Catch ¹	13.9	11.5	17.5	8.5	2.1	4.0	6.2	10.6	12.5	

¹CESAG estimates

Special comments

Scientific Council notes the increased uncertainty in the assessment and projections due to the lack of data (Age Length Keys and Maturity Ogives) since 2023. The increased uncertainty is unquantified and not reflected in the risk table.

Sources of information

SCS Doc. 26/05, 26/06, 26/09 and SCR 26/03, 26/023.