

Cod in Division 3M

Advice June 2025 for 2026











Recommendation for 2026

Scientific Council projected the fishing mortality scenarios defined for stocks in the Healthy Zone of the PA Framework. None of those scenarios are projected to maintain the stock above $B_{trigger}$ with a probability higher than 50%.

To maintain the stock in the Healthy Zone with a probability higher than 50%, SC advises that catch not exceed $F_{50\%HZ}$, corresponding the catches of 15 360 t in 2026. This catch level has a risk of 1% of exceeding F_{lim} .

Management objectives

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

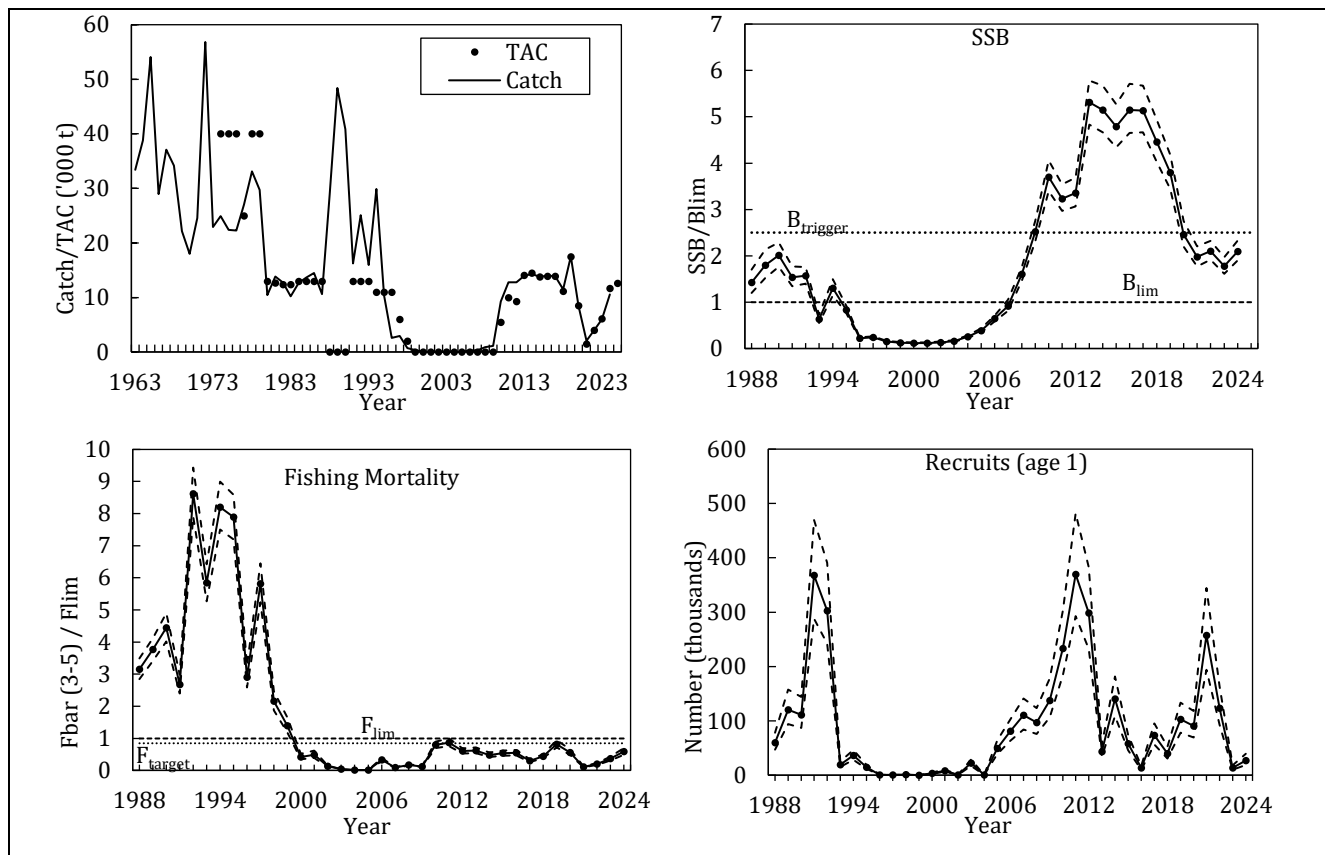
Convention Principle	Status	Comment	
Restore to or maintain at Bmsy		$B_{lim} < B < B_{trigger}$	 OK
Eliminate Overfishing (Stock)		$F < F_{lim}$	 Intermediate
Eliminate Overfishing (Ecosystem)		Total EPU catches < 2TCI	 Not accomplished
Apply Precautionary Approach		All PA reference points defined	 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 in Flemish Cap (NAFO Div. 3M) is considered to be a separate population.

Stock status

SSB declined rapidly since 2017 but has remained stable during the last 4 years and is estimated to be above B_{lim} and below $B_{trigger}$ (Cautious Zone) in 2024. Since 2013, recruitment has varied at intermediate levels but much lower than those observed in 2011-2012. In 2021, a good recruitment was observed, while in 2023 and 2024 is at a very low level. Fishing mortality has remained below F_{lim} since the fishery reopened in 2010. The F 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 2024, 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 the 85% of F_{lim} ($F_{target} = 0.145$) (NAFO/COM-SC Doc. 24-03).

Projections

Stochastic projections of the stock dynamics from 2025 to the start of 2027 were conducted. All scenarios assumed that the yield for 2025 is the established TAC (12 613 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 Healthy Zone starting in 2025. Five scenarios were considered for the year 2026: $F_{bar} = 0$, the three levels defined for stocks in the Healthy Zone ($F_{bar} = 75\% F_{lim}$, $F_{bar} = 85\% F_{lim}$ and $F_{bar} = F_{lim}$) and an additional scenario that identified F that gave 50% probability of being in the Healthy Zone at the end of the projection period ($F_{50\%HZ}$).

Table 1.

	B		SSB		Yield
F _{bar} =0					
2025	72781	(64190 - 84672)	42110	(37010 - 47199)	12613
2026	70715	(59492 - 86463)	49894	(42995 - 57342)	0
2027	74739	(60797 - 93900)	54593	(47562 - 61647)	
F _{bar} =F _{50%HZ} (median=0.114)					
2025	72781	(64190 - 84672)	42110	(37010 - 47199)	12613
2026	70715	(59492 - 86463)	49894	(42995 - 57342)	15360
2027	59027	(45109 - 78281)	39297	(32323 - 46311)	
F _{bar} =0.75F _{lim} (median=0.128)					
2025	72781	(64190 - 84672)	42110	(37010 - 47199)	12613
2026	70715	(59492 - 86463)	49894	(42995 - 57342)	16948
2027	57413	(43514 - 76682)	37782	(30770 - 44755)	
F _{bar} =0.85F _{lim} (median=0.145)					
2025	72781	(64190 - 84672)	42110	(37010 - 47199)	12613
2026	70715	(59492 - 86463)	49894	(42995 - 57342)	18774
2027	55556	(41684 - 74838)	35939	(28998 - 42910)	
F _{bar} =F _{lim} (median=0.171)					
2025	72781	(64190 - 84672)	42110	(37010 - 47199)	12613
2026	70715	(59492 - 86463)	49894	(42995 - 57342)	21362
2027	52942	(39067 - 72241)	33433	(26520 - 40388)	

Table 2.

		Healthy zone				
		F=0	F = F _{50%HZ}	F = 0.75F _{msy}	F = 0.85F _{msy}	F _{lim} = F _{msy}
Yield (50%)	2025	12613	12613	12613	12613	12613
	2026	0	15360	16948	18774	21362
P(F>F _{lim})	2025	<1%	<1%	<1%	<1%	<1%
	2026	<1%	1%	5%	16%	50%
P(B<B _{lim})	2025	<1%	<1%	<1%	<1%	<1%
	2026	<1%	<1%	<1%	<1%	<1%
	2027	<1%	<1%	<1%	<1%	<1%
P(F>F _{target})	2025	<1%	<1%	<1%	<1%	<1%
	2026	<1%	7%	21%	50%	83%
P(B<B _{trigger})	2025	27%	27%	27%	27%	27%
	2026	3%	3%	3%	3%	3%
	2027	<1%	50%	61%	73%	85%
P(B ₂₀₂₇ >B ₂₀₂₅)		100%	20%	10%	4%	1%
(B ₂₀₂₇ -B ₂₀₂₅) /B ₂₀₂₅		29.5%	-7.3%	-11%	-15.2%	-21.1%

Under the scenarios with $F_{bar} \leq F_{50\%HZ}$, SSB during the projected years will remain in the Healthy Zone (above $B_{trigger}$) with a probability higher than 50%. Under all scenarios, the probability of F_{bar} exceeding F_{lim} is less than or equal to 16% in 2026 (Tables 1 and 2).

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 2024.

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

Human impact

Mainly fishery related mortality has been documented. 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 in 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+3KLMNOPs Greenland halibut. The Catch/TCI for 2024 was below the 2TCI ecosystem reference point (3M Piscivore Catch₂₀₂₄/TCI=1.43).

Fishery

Cod is caught in directed trawl and longline fisheries and as bycatch in the directed redfish fishery by trawlers. 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 (see request 9).

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

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
TAC	13.9	13.9	11.1	17.5	8.5	1.5	4.0	6.1	11.7	12.6
STATLANT 21	13.8	13.9	10.5	13.0	8.5	2.6	NA	NA	NA	
STACFIS	14.0	13.9	11.5	17.5	8.5	2.1	4.0	6.2	10.6	

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

Special comments

Scientific Council reiterates the **proposal** to conduct a full assessment of cod in Div. 3M every two years, since biological parameters have remained reasonably stable in recent years and projections proved to be robust over two years. SC proposes that this new two-year cycle begins with the June 2027 assessment based on assessment schedules of other stocks.

Scientific Council notes the increased uncertainty in the assessment and projections due to the lack of data (age length keys and maturity ogives) in the years 2023 and 2024.

Sources of information

SCS Doc. 25/05REV, 25/07, 25/08, 25/09 and SCR Doc. SCR 25/04, SCR 25/032.