Management Track Assessment of Gulf of Maine Haddock (Melanogrammus aeglefinus) Fall 2026

Northeast Fisheries Science Center[1]

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1 Executive Summary

This 2026 Management Track (MT) assessment of Gulf of Maine Haddock (Melanogrammus aeglefinus) builds upon the prior 2024 MT assessment (NEFSC 2024). In 2024 the stock was not overfished and overfishing was not occurring (NEFSC 2024). This assessment updates commercial fishery catch data, indices of abundance, the analytical WHAM assessment model, and reference points through 2025. Additionally, short-term projections were updated through 2031.

State of stock

Based on this MT assessment, the Gulf of Maine Haddock (Melanogrammus aeglefinus) stock is not overfished and overfishing is not occurring (Figures 1 - 2). Retrospective adjustments were not made to the model results because the retrospective pattern was minor. Spawning stock biomass (SSB) in 2025 was estimated to be 11,339 (mt) which is 145% of the biomass target ($SSB_{MSYproxy}$ = 7,809; Figure 1). The 2025 fully selected fishing mortality was estimated to be 0.223 which is 63% of the overfishing threshold proxy ($F_{MSYproxy}$ = 0.352; Figure 2).

Projections

Short term projections of biomass and catch were conducted in WHAM (Stock and Miller 2021) using the standard projection approach. The terminal selectivity estimate, time-invariant maturity ogive, and projected weights-at-age were used in the projections. The NEFMC Groundfish Plan Development Team provided an interim catch estimate for 2026, and fishing was projected at $F_{MSYproxy}$ for 2027-2031. Retrospective adjustments were not applied in projections because the retrospective pattern was minor.

Special comments

1. What are the most important sources of uncertainty in this stock assessment? Explain, and describe qualitatively how they affect the assessment results (such as estimates of biomass, F, recruitment, and population projections).

Future recruitment represents a primary source of uncertainty. The fishery is heavily reliant on the 2020 and 2021 cohorts given the below-average recruitment since 2021. Somatic growth in both cohorts has slowed recently, and without improved recruitment the population will continue to decline.

2. Does this assessment model have a retrospective pattern? If so, is the pattern minor, or major? (A major retrospective pattern occurs when the adjusted SSB or F_Full lies outside of the approximate joint confidence region for SSB and F_Full).

The 7-year Mohn's relative to SSB, was 0.221 in the 2024 MT assessment and was 0.393 in 2025.The 7-year Mohn's relative to F, was -0.17 in the 2024 MT assessment and was -0.257 in 2025. The retrospective pattern was considered minor in this assessment because the 2025 -adjusted estimates of SSB (SSB = 8143) and F (F = 0.3) were within the approximate 90% confidence intervals around SSB (7371 - 17443) and F (0.134 - 0.371) respectively. Therefore, no retrospective adjustment of spawning stock biomass or fishing mortality in 2025 was required.

3. Based on this stock assessment, are population projections well determined or uncertain? If this stock is in a rebuilding plan, how do the projections compare to the rebuilding schedule?

Recent projections of SSB from this model have been well specified, as the previous management track model projected SSB is within the 90% confidence interval of the current model's estimated SSB (Figure 6). However a retrospecitve forecasting analysis indicated that longer-term projections are associated with higher error, particularly years 5 & 6 (2030 & 2031 in this assessment). In part, this is due to an increased reliance on projected recruits in those years (Figure 7). This stock is not in a rebuilding plan.

4. Describe any changes that were made to the current stock assessment, beyond incorporating additional years of data and the effect these changes had on the assessment and stock status.

No changes were made to the assessment model other than incorporating additional years of data.

5. If the stock status has changed a lot since the previous assessment, explain why this occurred.

Stock status did not change.

6. Provide qualitative statements describing the condition of the stock that relate to stock status.

Although the stock is not overfished, biomass has declined in recent years as the 2013 year class has aged out. Over half of the population consists of the 2020 and 2021 year classes. Recent recruitment has been below average.

7. Indicate what data or studies are currently lacking and which would be needed most to improve this stock assessment in the future.

A better understanding of the drivers of recruitment and growth would be useful.

8. Are there other important issues?

None

2 References

NEFSC. 2024. Gulf of maine haddock in NEFSC management track assessment fall 2024. NOAA Fisheries Northeast Fisheries Science Center, Woods Hole, MA.

Stock, B.C., and Miller, T.J. 2021. The Woods Hole Assessment Model (WHAM): A general state-space assessment framework that incorporates time- and age-varying processes via random effects and links to environmental covariates. Fisheries Research 240: 105967. doi:10.1016/j.fishres.2021.105967.

3 Tables

Table 1: Recent catch (mt) for Gulf of Maine Haddock.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Recreational discards	526	966	743	312	234	271	137	80	141	305	150
Recreational landings	295	1,026	1,787	801	778	909	722	605	317	574	267
Commercial discards	42	72	91	54	66	76	46	57	74	56	33
Commercial landings	650	1,342	2,273	2,542	3,464	3,554	3,713	2,612	2,202	1,353	1,290
Foreign landings	0	0	0	0	0	0	0	0	0	0	0
total	1,512	3,406	4,894	3,710	4,542	4,810	4,618	3,353	2,734	2,288	1,741

Table 2: Model results for the 2026 Management Track assessment. Spawning stock biomass reported in (mt), recruitment is in (000s), and F_{full} reflects the fishing mortality on fully selected ages (6-9).

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Spawning Stock Biomass	52,538	73,129	71,833	89,867	69,187	42,659	19,673	22,117	14,586	16,701	11,339
F_{Full}	0.046	0.070	0.095	0.052	0.072	0.130	0.280	0.190	0.274	0.213	0.223
Recruits	9,613	10,899	11,922	7,369	4,972	6,153	23,209	22,106	2,537	1,022	1,704

Table 3: Comparison of analytical reference points estimated in the previous (2024) and current (2026) Management Track assessments. An $F_{40\%}$ proxy was used for the overfishing threshold. Mean recruitment was calculated over (1977-2025) and estimates are reported with 90% confidence bounds.

	2024	2026
$F_{MSYproxy}$	0.32	0.35 (0.31 - 0.4)
$SSB_{MSYproxy}$ (mt)	9185	7809 (4489 - 13583)
MSY_{proxy} (mt)	2045	1924 (1101 - 3360)
Ovefishing	overfishing is not occurring	overfishing is not occurring
Overfished	not overfished	not overfished
Mean recruits (age 1) (000s)	6,614	5,649

Table 4: Short term projections of total fishery catch and spawning stock biomass (and 90% confidence intervals) for Gulf of Maine Haddock based on a harvest scenario of fishing at $F_{MSYproxy}$ between 2027 and 2031. Catch in 2026 was assumed to be 1,944 (mt).

Year	Catch (mt)	SSB (mt)	F_{full}
2026	1944	9335 (4186 - 20816)	0.268
2027	2099	7293 (2463 - 21593)	0.352
2028	1618	6229 (1944 - 19962)	0.352
2029	1481	6208 (1534 - 25117)	0.352
2030	1524	6535 (1238 - 34494)	0.352
2031	1599	6799 (1047 - 44158)	0.352

4 Figures

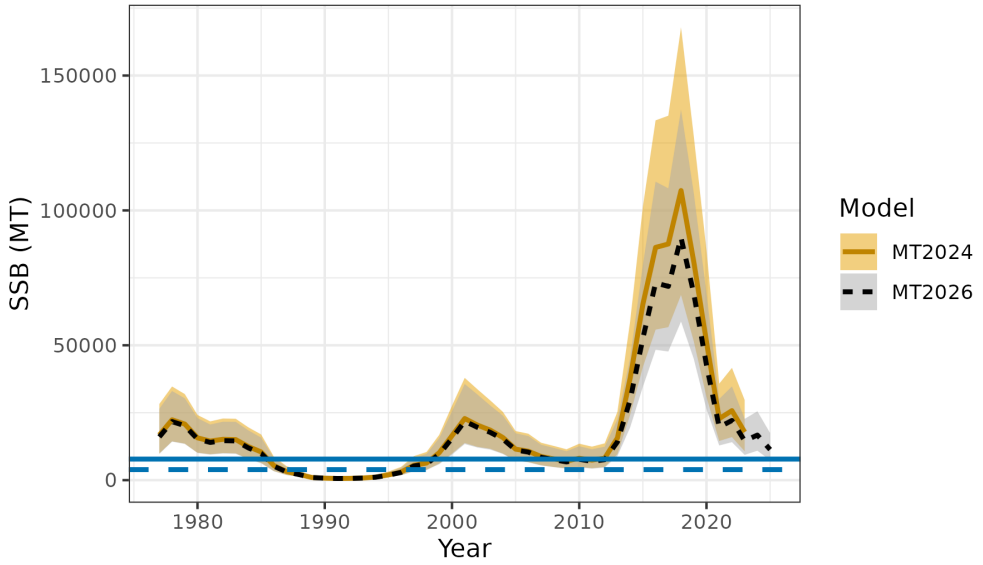

Figure 1: Trends in spawning stock biomass of Gulf of Maine Haddock between 1977 and 2025 for the current (MT2026) and prior (MT2024) Management Track assessments with 90% confidence intervals. The corresponding 2026 Management Track SSB_{target} ($SSB_{MSYproxy}$; solid horizontal blue line) and $SSB_{threshold}$ (1/2 $SSB_{MSYproxy}$; solid horizontal blue line) are shown.

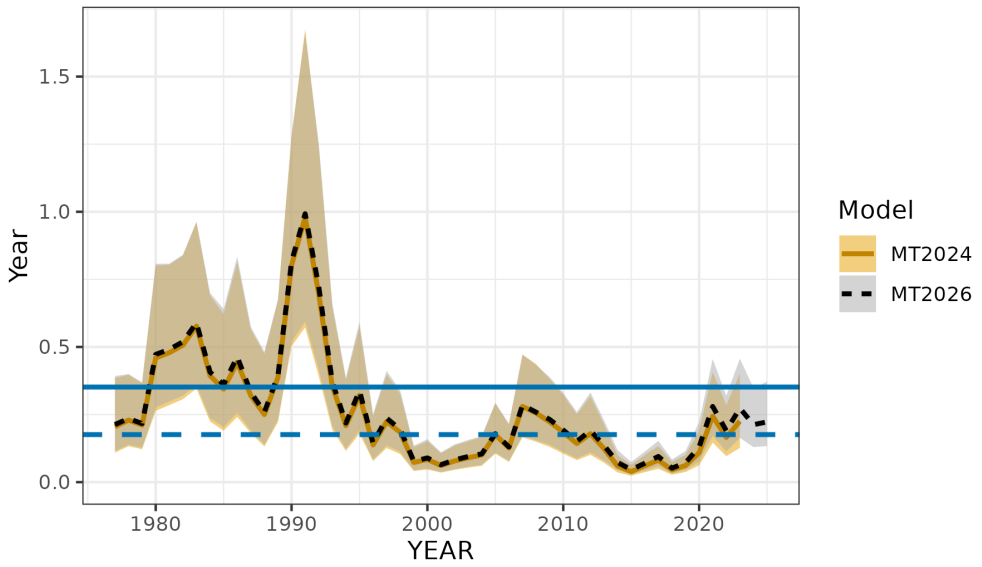

Figure 2: Trends in fully selected fishing mortality (F_{full}) of Gulf of Maine Haddock between 1977 and 2025 for the current (MT2026) and prior (MT2024) Management Track assessments with 90% confidence intervals. The corresponding 2026 Management Track $F_{threshold}$ ($F_{MSYproxy}$; solid horizontal blue line) is shown.

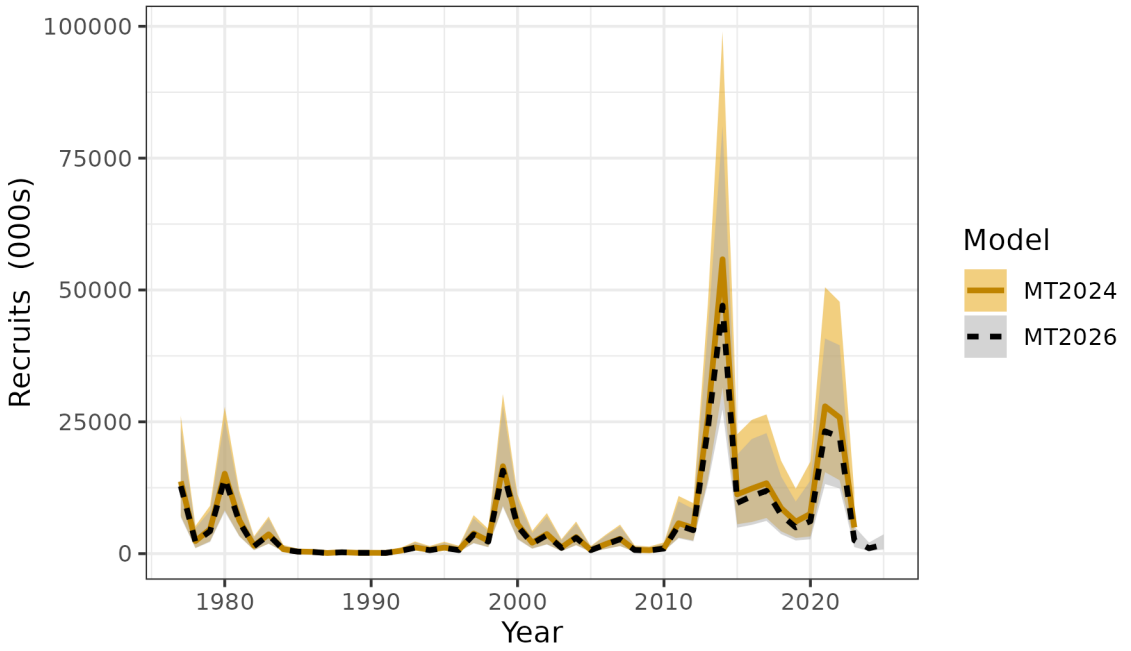

Figure 3: Trends in Recruits (000s) of Gulf of Maine Haddock between 1977 and 2025 for the current (MT2026) and prior (MT2024) Management Track assessments with 90% confidence intervals.

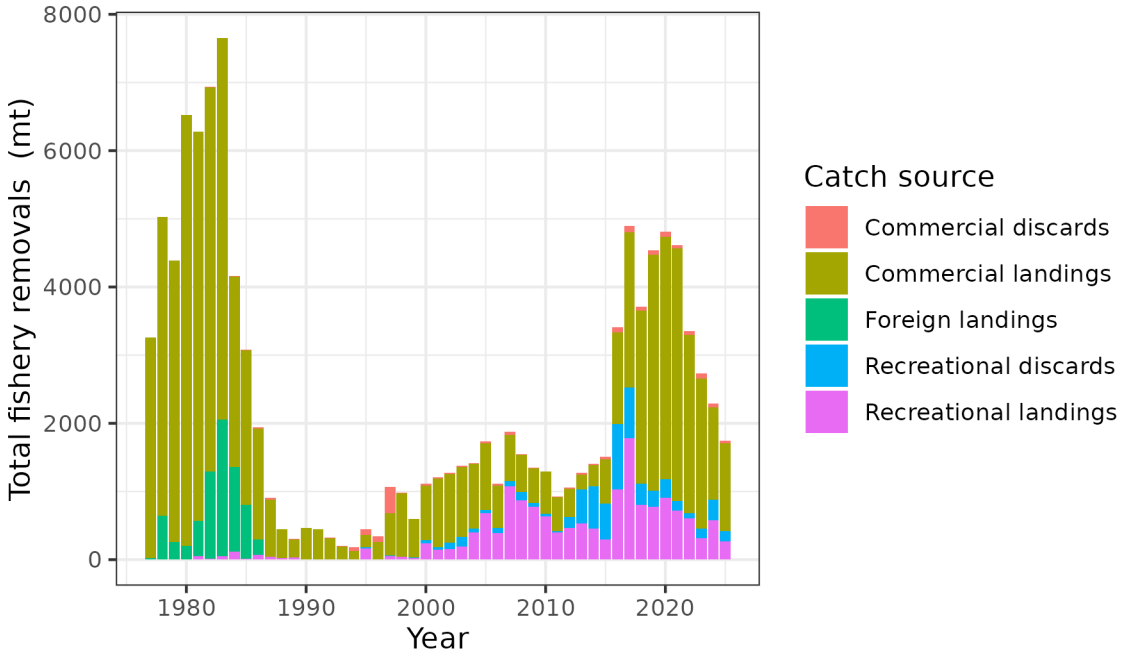

Figure 4: Total catch of Gulf of Maine Haddock between 1977 and 2025 by catch source.

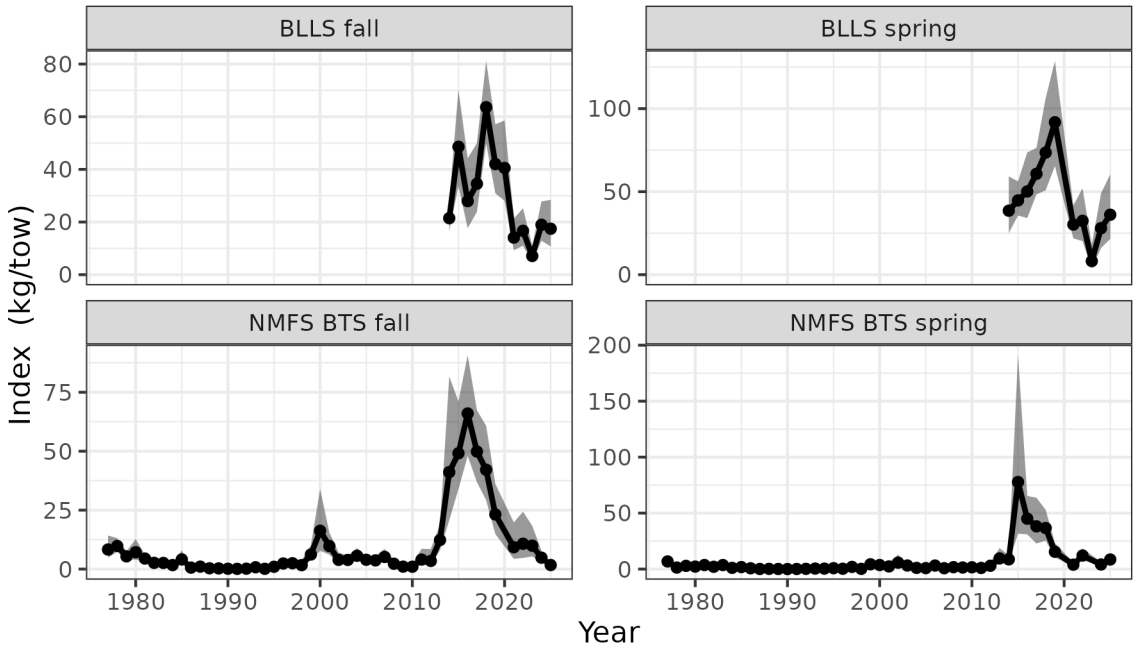

Figure 5: Indices for Gulf of Maine Haddock between 1977 and 2025 with 90% confidence intervals.

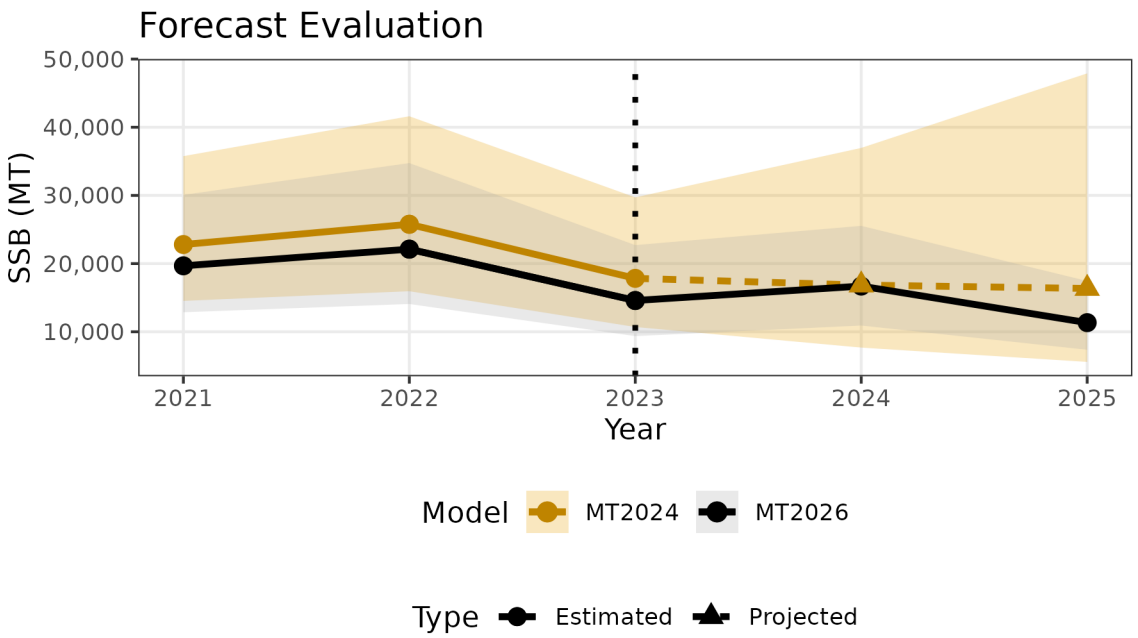

Figure 6: Forecast evaluation comparing projections from the prior assessment (2024) to estimates from the current assessment (2026). The dashed line denotes the projected years from the prior assessment and the vertical dotted line (black) represents the terminal year of the prior assessment (2023).

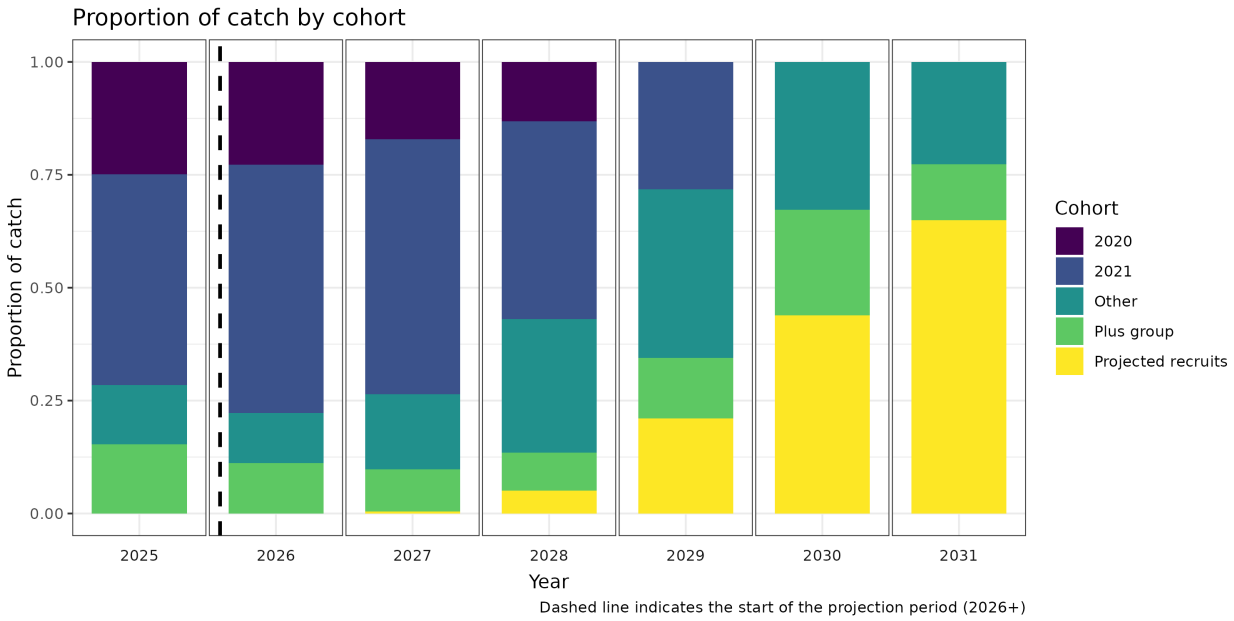

Figure 7: Proportion of catch by cohort for terminal year of the assessment (2025) and projection period (bridge year catch estimate for one year and 5 years projected at $F_{MSYproxy} = F_{40\%}$).