Fisheries and Oceans Canada | Pêches et Océans Canada
Ecosystems and Oceans Science | Sciences des écosystèmes et des océans

Canadian Science Advisory Secretariat
Quebec Region | Science Response 2026/009

UNITS 1 AND 2 REDFISH (*SEBASTES MENTELLA* AND *SEBASTES FASCIATUS*) STOCKS STATUS UPDATE IN 2025

CONTEXT

The Fisheries Management Branch of Fisheries and Oceans Canada (DFO) has requested an update of stocks status indicators for Units 1 and 2 Redfish. Units 1 and 2 include two different Redfish stocks: *Sebastes mentella* and *S. fasciatus*. These stocks are distributed in the Gulf of St. Lawrence (GSL), as well as in the Laurentian Channel and the Laurentian Fan. Unit 1 includes Northwest Atlantic Fisheries Organization (NAFO) Divisions 4RST and, from January to May, Subdivisions 3Pn4Vn, while Unit 2 includes Subdivisions 3Ps4Vs, Unit areas 4Wfgj, and, from June to December, Subdivisions 3Pn4Vn. In the absence of a survey in Unit 2 in 2025, the update of the indicators for this Unit was not possible and therefore will not be presented.

This Science Response Report results from the regional peer review of February 2nd, 2026, on Units 1 and 2 Redfish (*Sebastes mentella* and *Sebastes fasciatus*) stocks assessment update in 2025.

SCIENCE ADVICE

Status

- The spawning stock biomass (SSB) of *S. mentella*, estimated in 2025 at 1,439 kilotonnes (kt) (70–2,808 kt, 95% confidence interval (CI)), places the stock in the healthy zone of the precautionary approach (PA). This level corresponds to five times the proposed upper stock reference (USR).
- The SSB of *S. fasciatus*, estimated in 2025 at 229 kt (95–363 kt, 95% CI), would be slightly above the proposed USR and in the healthy zone of the PA. However, the stock status of *S. fasciatus* is uncertain, due to evidence suggesting that the SSB may be overestimated, though the magnitude of the overestimation is not quantified.

Trends

- Based on the Unit 1 survey, after an unprecedented increase from 2015 to 2019, the SSB and biomass of specimens larger than 22 cm (size associated with the small fish protocol used to determine potential removals) of *S. mentella* have declined considerably over the past six years, but remain among the highest values in the series beginning in 1984.
- The SSB and biomass of specimens larger than 22 cm of *S. fasciatus* in the Unit 1 survey were relatively stable and slightly above their respective averages over the past four years.
- No strong cohorts of *S. mentella* or *S. fasciatus* have been observed since 2013.

- In Unit 1, the size structures of *S. mentella* and *S. fasciatus* in 2025 are similar to those of 2024, with modal sizes of 25 cm. Growth in length of both species has been nearly zero since 2021.

Ecosystem and Climate Change Considerations

- Ecosystem and climate change considerations were taken into account in the most recent stock assessment and were not further updated or reviewed during this interim-year update. The previous advice remains valid.

Stocks Advice

- Under different plausible assumptions of natural mortality, for the 2026–2027 fishing season, potential removals median is 202 kt (range 64–231 kt) for *S. mentella* in Unit 1.
- For *S. fasciatus*, given uncertainties in biomass estimates, species identification, and the assumptions underlying the method used, it was not possible to provide a reliable range of potential removals.
- Directing fishing to greater depths may reduce catches of *S. fasciatus* in Unit 1.
- Given the low levels of recruitment and growth in length observed in recent years, Redfish biomass is expected to decline in the coming years due to natural mortality even in the absence of fishing.

BASIS FOR ASSESSMENT

Assessment Details

Year Assessment Approach was Approved

2022 (DFO 2022, Senay et al. 2023)

Assessment Type

Interim-Year Update

Most Recent Assessment Date

1. Last Full Assessment: 2025 (DFO 2025, Senay et al. In preparation)
2. Last Interim-Year Update: 2024 (DFO 2024)

Stock Assessment Approach

1. Broad category: Index-based (trends in empirical indices only)
2. Specific category: Index-based

Stock Structure Assumption

Genomic analyses of samples collected from 2001 to 2015 confirmed a pronounced genetic distinction between *S. mentella* and *S. fasciatus*, despite their morphological similarity (Benestan et al. 2021). One genetic group of *S. mentella* and three genetic groups of *S. fasciatus* were identified in Units 1 and 2.

Reference Points

- Limit Reference Point (LRP): SSB of 47 kt for *S. mentella* and 31 kt for *S. fasciatus.*

- Proposed Upper Stock Reference (USR): SSB of 281 kt for *S. mentella* and 178 kt for *S. fasciatus.*
- Removal Reference (RR): Not available.
- Target Reference Point (TRP): Not available.

Harvest Control rule

No harvest control rule is in place. However, a range of potential removals is suggested for *S. mentella* based on estimates of natural mortality and biomass of specimens larger than 22 cm.

Data

- Ecosystem survey in the Estuary and Northern Gulf of St. Lawrence (hereafter Unit 1 survey): 1984–2025.

Anal fin ray counts are recorded, allowing post-hoc assignment of Redfish catches to *S. mentella* and *S. fasciatus* (Senay et al. 2022).

ASSESSMENT

Stock Status and Trends for *S. mentella*

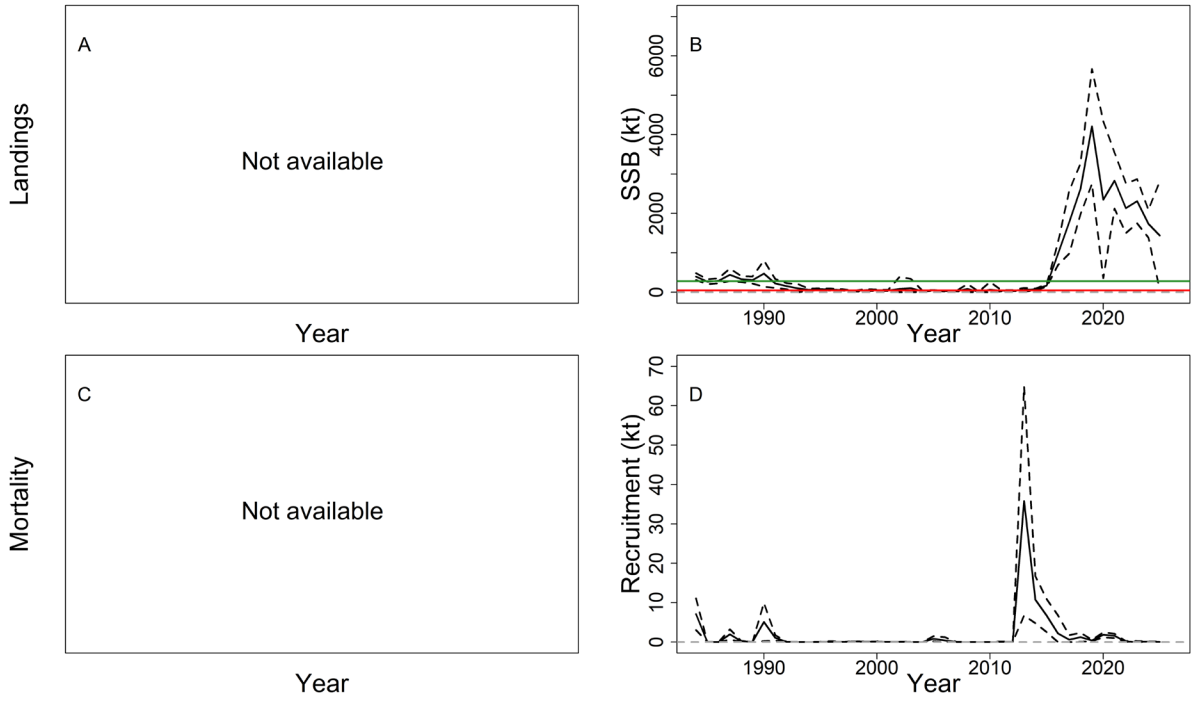

Figure 1. S. mentella (A) landings are not available at the species level, (B) SSB (kt) with 95% confidence intervals relative to the LRP in red and proposed USR in green, (C) fishing mortality is not available at the species level, (D) recruitment corresponds to biomass (kt) of specimens smaller than 11 cm with 95% confidence intervals. The 0 y-axis value are indicated by gray dashed lines.

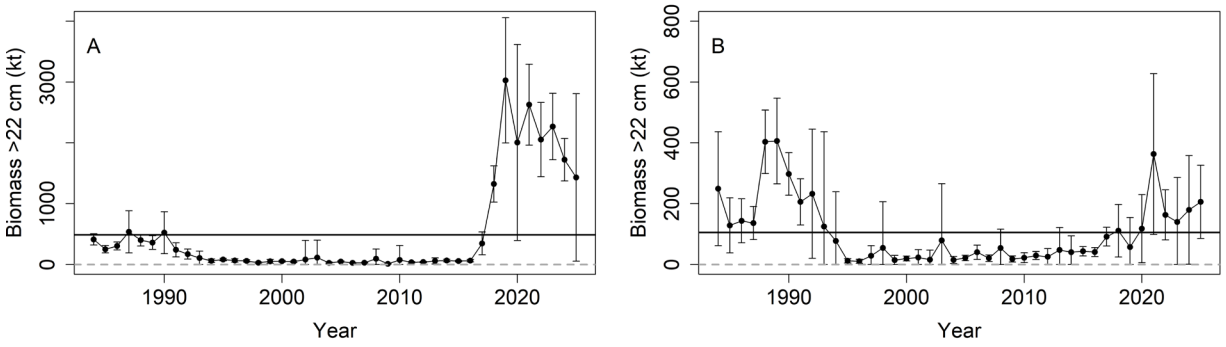

Figure 2. Minimum trawlable biomass (kt) of specimens larger than 22 cm with 95% confidence intervals in the Unit 1 survey for (A) S. mentella and (B) S. fasciatus. Solid horizontal lines represent the mean of each series. The value 0 on the y-axis is indicated by grey dashed lines.

Biomass

Based on the Unit 1 survey, the SSB and biomass of specimens larger than 22 cm of *S. mentella* declined in the early 1990s (Figures 1B and 2A). Subsequently, these indicators remained low until the arrival of the 2011–2013 cohorts, first observed in the survey in 2013. After an unprecedented increase from 2015 to 2019, they declined considerably over the past six years. In 2025, the SSB was estimated at 1,439 kt and the biomass of specimens larger than 22 cm at 1,431 kt. These values are among the highest in the series beginning in 1984.

Recruitment

Recruitment success of *S. mentella* is variable, with large cohorts observed at irregular intervals (Figure 1D). The 2011–2013 cohorts were the largest ever observed in the survey. Since then, recruitment has remained low.

Current Status

The SSB of *S. mentella*, estimated in 2025 at 1,439 kt (70–2,808 kt, 95% CI), places the stock in the healthy zone of the PA (Figure 1B). Although the SSB has declined since 2020, it remains among the highest values in the series and in 2025 corresponded to five times the proposed USR.

Stock Status and Trends for *S. fasciatus*

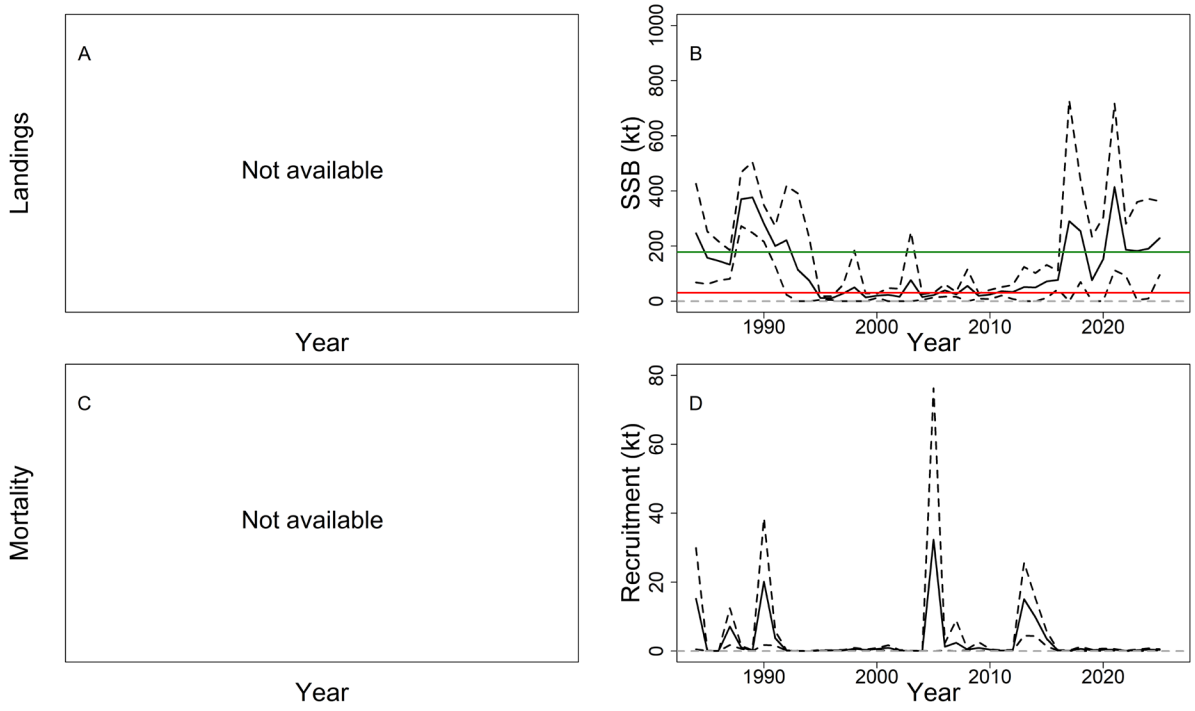

Figure 3. S. fasciatus (A) landings are not available at the species level, (B) SSB (kt) with 95% confidence intervals relative to the LRP in red and proposed USR in green, (C) fishing mortality is not available at the species level, (D) recruitment corresponds to biomass (kt) of specimens smaller than 11 cm with 95% confidence intervals. The 0 y-axis value are indicated by gray dashed lines.

Biomass

Based on the Unit 1 survey, the SSB and biomass of specimens larger than 22 cm of *S. fasciatus* declined in the early 1990s (Figure 2B and 3B). Subsequently, these indicators remained low until the 2011–2013 cohorts began to be observed. The increase that followed was weaker than that observed in *S. mentella*. *S. fasciatus* indicators were relatively stable and slightly above their respective averages over the past four years. In 2025, the SSB was estimated at 229 kt and the biomass of specimens larger than 22 cm at 206 kt, suggesting a slight increase compared to 2024.

Recruitment

Recruitment success of *S. fasciatus* is variable (Figure 3D). After the 2011–2013 cohorts, smaller than those of *S. mentella*, recruitment has remained low.

Current Status

The SSB of *S. fasciatus*, estimated in 2025 at 229 kt (95–363 kt, 95% CI), would be slightly above the proposed USR and in the healthy zone of the PA (Figure 3B). However, the stock status of *S. fasciatus* is uncertain because the method of species identification using anal fin ray counts may overestimate the less abundant species, currently *S. fasciatus*.

Size Structure

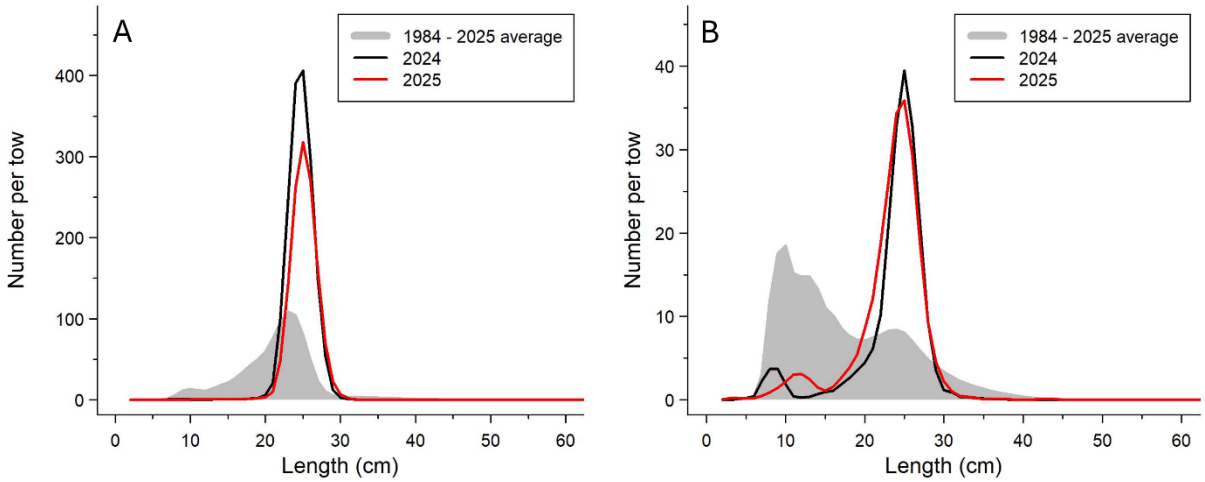

Figure 4. Size structure of (A) S. mentella and (B) S. fasciatus in the Unit 1 survey for 2024, 2025, and based on the average recorded between 1984 and 2025.

In Unit 1, the size structures of *S. mentella* and *S. fasciatus* in 2025 are similar to those of 2024, with modal sizes of 25 cm (Figure 4). Growth in length for both species has been near zero since 2021.

History of Landings

History of landings was taken into account in the most recent stock assessment and was not further updated or reviewed during this interim-year update. The previous advice remains valid.

Stocks Advice

Given the low levels of recruitment and growth in length observed in recent years, even in the absence of fishing, Redfish biomass is expected to decline in the coming years due to natural mortality.

Range of Potential Removals

The range of potential removals for the 2026–2027 Redfish fishing season in Unit 1 was determined based on methods by Froese et al. (2016), adapted to Units 1 and 2 Redfish (Senay and Duplisea 2024). The potential removals median is 202 kt (range 64–231 kt) for *S. mentella* in Unit 1.

For *S. fasciatus*, given uncertainties in biomass estimates, species identification, and the assumptions underlying the method used, it was not possible to provide a reliable range of potential removals.

Directing fishing to greater depths may reduce catches of *S. fasciatus.*

SOURCES OF UNCERTAINTY

The method of species identification using anal fin ray counts may overestimate the less abundant species, currently *S. fasciatus*. However, the magnitude of this overestimation is not quantified. Biases associated with this method could overestimate the SSB, and therefore the stock status and its tolerance to substantial removals.

Uncertainties surrounding natural mortality generate a wide range of potential removals and limit our understanding of the rate at which biomass may decline in the coming years.

The absence of an annual survey in Unit 2 limits our understanding of stock trends and Redfish movements, and prevents an annual update of the range of potential removals.

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