



# **SEDAR 68 Gulf of America (formerly Gulf of Mexico) Scamp Grouper (and Yellowmouth Grouper) Operational Assessment - Additional Projections Requested for Draft Amendment 58A**

Gulf Fisheries Branch  
Sustainable Fisheries Division  
NOAA Fisheries - Southeast Fisheries Science Center

April 2025

## **Table of Contents**

|  |    |
|--|----|
| 1. Introduction.....   | 1  |
| 2. Projection methods.....   | 2  |
| 3. 30% SPR Overfishing Limit and Acceptable Biological Catch Projections .....           | 2  |
| 4. 40% SPR Overfishing Limit, Acceptable Biological Catch, and Frebuild Projections..... | 2  |
| 5. References.....   | 2  |
| 6. Tables.....   | 4  |
| 7. Figures.....  | 10 |

## **1. Introduction**

The Gulf of Mexico Fishery Management Council’s Scientific and Statistical Committee (GMFMC SSC) reviewed the SEDAR 68 Operational Assessment (OA) for Gulf of America (formerly Gulf of Mexico) Scamp (and including Yellowmouth Grouper; hereafter the complex is referred to as “Scamp” for the purpose of brevity) at their September 2022 meeting. Additional projections requested by the GMFMC SSC were reviewed at their March 2023 meeting (detailed in SEFSC 2023). The SSC recommended using the stock-recruitment relationship for determining the benchmarks but using the recent mean recruitment (last 10 years of estimated recruitment) for projections of the Overfishing Limit (OFL). Specifically, the last 10 years of estimated recruitment (i.e., 2008-2017) were chosen because the model-derived recruitment estimates from the spawner-recruit curve between 2018 and 2020 were overly optimistic. Ultimately, the SSC supported the use of a Maximum Sustainable Yield (MSY) proxy of 40% spawning potential ratio (SPR) because the SSC thought this value was more appropriate based on the life history of Scamp. Additional support for an SPR higher than 30% is also provided by simulations conducted by Harford et al. (2019), which suggest that SPR ratios of 40% or 50% led

to the highest probabilities of achieving long-term MSY for hermaphroditic stocks. They found that more conservative fishing mortality proxies were required to achieve MSY-based fishery objectives when steepness was “least certain” (i.e., uniform prior). Steepness for Gulf of America Scamp was fixed at a biologically plausible value because it was not estimable within the model and was highly uncertain (see SEDAR (2021) and SEDAR (2022) for details).

Following the November 2024 GMFMC meeting, the GMFMC requested that the Southeast Fisheries Science Center update projections for Scamp (and Yellowmouth Grouper) and provide yield stream projections under both F30%SPR and F40%SPR using the most recent finalized landings data available. These projections will be presented and reviewed by the SSC at their May 2025 meeting, ultimately for consideration in providing management advice for Draft Amendment 58A.

## 2. Projection methods

**Table 1** provides a summary of projection settings. The only differences from the previous projection runs (SEFSC 2023) are that landings were updated through 2023 and projected yields start in 2027. Projections were run assuming that relative F, selectivity, and retention associated with the last three years (2018-2020) would remain the same into the future. The terminal year of the SEDAR 68 OA was 2020 and the first year of management advice was 2027. Retained catch for the interim years (2021-2026) used finalized commercial and recreational landings estimates for 2021-2023. The landings for 2024-2025 were based on the average of the most recent three years (2021-2023), whereas the landings for 2026 were the 2021-2023 average landings reduced by 54% following the Shallow Water Grouper Framework under development (GMFMC 2025).

Additional specifications on projection methodology are detailed in SEFSC (2023).

## 3. 30%SPR Overfishing Limit and Acceptable Biological Catch Projections

OFL and ABC projection results assuming recent mean recruitment (2008-2017) are provided in **Tables 2-3** and **Figure 1**. Overfishing has occurred in three of the six interim years.

## 4. 40%SPR Overfishing Limit, Acceptable Biological Catch, and Frebuild Projections

OFL and ABC projection results assuming recent mean recruitment (2008-2017) are provided in **Tables 4-5** and **Figure 2**. Overfishing has occurred in five of the six interim years. The ABC projections resulted in the spawning stock biomass to minimum stock size threshold (SSB/MSST) ratio dropping below 1 and therefore into an overfished state starting in 2025. As a result, projections were also run assuming the stock would rebuild in 10 years by 2035. Projection results under this assumption along with assuming recent mean recruitment (2008-2017) are provided in **Table 6** and **Figure 3**.

## 5. References

Gulf of Mexico Fishery Management Council (GMFMC). 2025. Modifications to Other Shallow Water Grouper Complex Management Measures. Draft Framework Action under the Fishery

Management Plan for Reef Resources in the Gulf of Mexico. 31 pp. Available at:  
<https://gulfcouncil.org/wp-content/uploads/B-9-SWG-Draft-Framework-Action03262025.pdf>

Harford WJ, SR Sagarese and M Karnauskas. 2019. Coping with information gaps in stock productivity for rebuilding and achieving maximum sustainable yield for grouper–snapper fisheries. *Fish and Fisheries* 20(2):303-321.

Southeast Data Assessment and Review (SEDAR). 2021. SEDAR68: Gulf of Mexico Scamp Grouper Research Track Stock Assessment Report. SEDAR, North Charleston, SC. 601 pp. Available at: <https://sedarweb.org/assessments/sedar-68/>.

Southeast Data Assessment and Review (SEDAR). 2022. SEDAR68: Gulf of Mexico Scamp Grouper Operational Stock Assessment Report. SEDAR, North Charleston, SC. 231 pp. Available at: <https://sedarweb.org/assessments/sedar-68/>.

Southeast Fisheries Science Center (SEFSC). 2023. SEDAR 68 Gulf of Mexico Scamp Grouper Operational Assessment - Additional Projections. 22 pp. Available at:  
<https://sedarweb.org/assessments/sedar-68/>.

## 6. Tables

**Table 1.** Settings used for Gulf of America Scamp projections updated for the 2024 GMFMC Request in preparation for Draft Amendment 58A.

| Parameter                    | Value  | Comment   |
|------------------------------|--|---|
| Relative F                   | Average from 2018-2020   | Average relative fishing mortality (apical F) over terminal three years of model  |
| Selectivity                  | Average from 2018-2020   | Fleet specific selectivity estimated over terminal three years of model   |
| Retention                    | Average from 2018-2020   | Fleet specific retention estimated over terminal three years of model   |
| Recruitment (benchmarks)     | Beverton-Holt stock-recruitment relationship   | Derived from the model estimated Beverton-Holt stock-recruitment relationship   |
| Recruitment (catch advice)   | Average from 2008-2017   | Average recruitment over the last ten years where estimated   |
| Interim Landings (2021-2026) | 63,666/70,318/60,633/64,872/29,841 lb gw (Commercial Vertical Line);<br>66,316/52,434/48,504/55,751/25,646 lb gw (Commercial Longline);<br>83,596/95,006/52,535/77,046/35,441 fish (Recreational Charter Private);<br>3,133/2,836/2,379/2,783/1,280 fish (Recreational Headboat) | Landings provided for 2021-2023; For 2024-2026 used 3-year average (2021-2023) but reduced 2026 by 54% following GMFMC (2025) |
| Allocation Ratio             | None   |   |

**Table 2.** Results of the OFL projection (fishing set at  $F_{30\%SPR}$ ) for Gulf of America Scamp **assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023)**. Recruitment (Recr) is in 1,000s of age-0 fish, F is a harvest rate (total biomass killed all ages / total biomass age 3+), SSB is in metric tons (male and female combined SSB), and OFL is the overfishing limit in millions of pounds gutted weight. OY was calculated as  $0.9 * MSY_{proxy}$  with a proxy of 30% SPR. Metrics are also provided for the interim period of 2021 to 2026 where landings were fixed (**Table 1**).

| Year | Recr | F     | F/ $F_{30\%SPR}$ | SSB   | SSB/ $SSB_{30\%SPR}$ | SSB/MSST | SSB ratio | OFL   | OY    |
|------|------|-------|------------------|-------|----------------------|----------|-----------|-------|-------|
| 2021 | 900  | 0.149 | 0.874            | 1,321 | 1.645                | 2.193    | 0.350     |       |       |
| 2022 | 900  | 0.178 | 1.044            | 1,200 | 1.494                | 1.992    | 0.318     |       |       |
| 2023 | 900  | 0.128 | 0.748            | 1,063 | 1.323                | 1.764    | 0.282     |       |       |
| 2024 | 900  | 0.177 | 1.036            | 1,004 | 1.250                | 1.667    | 0.266     |       |       |
| 2025 | 900  | 0.190 | 1.110            | 913   | 1.137                | 1.516    | 0.242     |       |       |
| 2026 | 900  | 0.093 | 0.545            | 835   | 1.039                | 1.386    | 0.221     |       |       |
| 2027 | 900  | 0.171 | 1.000            | 854   | 1.063                | 1.417    | 0.227     | 0.338 | 0.304 |
| 2028 | 900  | 0.171 | 1.000            | 811   | 1.010                | 1.347    | 0.215     | 0.321 | 0.289 |
| 2029 | 900  | 0.171 | 1.000            | 778   | 0.969                | 1.292    | 0.206     | 0.308 | 0.277 |
| 2030 | 900  | 0.171 | 1.000            | 753   | 0.937                | 1.250    | 0.200     | 0.298 | 0.268 |
| 2031 | 900  | 0.171 | 1.000            | 733   | 0.913                | 1.217    | 0.194     | 0.291 | 0.261 |

**Table 3.** Results of the ABC projection (fishing set at 75% of  $F_{30\%SPR}$ ) for Gulf of America Scamp **assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023)**. Recruitment (Recr) is in 1,000s of age-0 fish, F is a harvest rate (total biomass killed all ages / total biomass age 3+), SSB is in metric tons (male and female combined SSB), and the yield is in millions of pounds gutted weight. Metrics are also provided for the interim period of 2021 to 2026 where landings were fixed (**Table 1**).

| Year | Recr | F     | F/ $F_{30\%SPR}$ | SSB   | SSB/ $SSB_{30\%SPR}$ | SSB/MSST | SSB ratio | Yield |
|------|------|-------|------------------|-------|----------------------|----------|-----------|-------|
| 2021 | 900  | 0.149 | 0.874            | 1,321 | 1.645                | 2.193    | 0.350     |       |
| 2022 | 900  | 0.178 | 1.044            | 1,200 | 1.494                | 1.992    | 0.318     |       |
| 2023 | 900  | 0.128 | 0.748            | 1,063 | 1.323                | 1.764    | 0.282     |       |
| 2024 | 900  | 0.177 | 1.036            | 1,004 | 1.250                | 1.667    | 0.266     |       |
| 2025 | 900  | 0.190 | 1.110            | 913   | 1.137                | 1.516    | 0.242     |       |
| 2026 | 900  | 0.093 | 0.545            | 835   | 1.039                | 1.386    | 0.221     |       |
| 2027 | 900  | 0.128 | 0.750            | 854   | 1.063                | 1.417    | 0.227     | 0.254 |
| 2028 | 900  | 0.128 | 0.750            | 846   | 1.053                | 1.404    | 0.224     | 0.251 |
| 2029 | 900  | 0.128 | 0.750            | 841   | 1.047                | 1.397    | 0.223     | 0.25  |
| 2030 | 900  | 0.128 | 0.750            | 838   | 1.044                | 1.392    | 0.222     | 0.249 |
| 2031 | 900  | 0.128 | 0.750            | 837   | 1.042                | 1.389    | 0.222     | 0.248 |

**Table 4.** Results of the OFL projection (fishing set at  $F_{40\%SPR}$ ) for Gulf of America Scamp assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023). Recruitment (Recr) is in 1,000s of age-0 fish, F is a harvest rate (total biomass killed all ages / total biomass age 3+), SSB is in metric tons (male and female combined SSB), and OFL is the overfishing limit in millions of pounds gutted weight. OY was calculated as  $0.9 * MSY_{proxy}$  with a proxy of 40% SPR. Metrics are also provided for the interim period of 2021 to 2026 where landings were fixed (**Table 1**).

| Year | Recr | F     | F/ $F_{40\%SPR}$ | SSB   | SSB/ $SSB_{40\%SPR}$ | SSB/MSST | SSB ratio | OFL   | OY    |
|------|------|-------|------------------|-------|----------------------|----------|-----------|-------|-------|
| 2021 | 900  | 0.149 | 1.277            | 1,321 | 1.077                | 1.436    | 0.350     |       |       |
| 2022 | 900  | 0.178 | 1.525            | 1,200 | 0.978                | 1.304    | 0.318     |       |       |
| 2023 | 900  | 0.128 | 1.093            | 1,063 | 0.866                | 1.155    | 0.282     |       |       |
| 2024 | 900  | 0.177 | 1.513            | 1,004 | 0.818                | 1.091    | 0.266     |       |       |
| 2025 | 900  | 0.190 | 1.622            | 913   | 0.744                | 0.992    | 0.242     |       |       |
| 2026 | 900  | 0.093 | 0.796            | 835   | 0.680                | 0.907    | 0.221     |       |       |
| 2027 | 900  | 0.117 | 1.000            | 854   | 0.696                | 0.928    | 0.227     | 0.232 | 0.208 |
| 2028 | 900  | 0.117 | 1.000            | 855   | 0.697                | 0.929    | 0.227     | 0.232 | 0.209 |
| 2029 | 900  | 0.117 | 1.000            | 858   | 0.699                | 0.933    | 0.228     | 0.233 | 0.209 |
| 2030 | 900  | 0.117 | 1.000            | 862   | 0.703                | 0.937    | 0.229     | 0.233 | 0.21  |
| 2031 | 900  | 0.117 | 1.000            | 866   | 0.706                | 0.941    | 0.230     | 0.234 | 0.211 |

**Table 5.** Results of the ABC projection (fishing set at 75% of  $F_{40\%SPR}$ ) for Gulf of America Scamp **assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023)**. Recruitment (Recr) is in 1,000s of age-0 fish, F is a harvest rate (total biomass killed all ages / total biomass age 3+), SSB is in metric tons (male and female combined SSB), and the yield is in millions of pounds gutted weight. Metrics are also provided for the interim period of 2021 to 2026 where landings were fixed (**Table 1**).

| Year | Recr | F     | F/ $F_{40\%SPR}$ | SSB   | SSB/ $SSB_{40\%SPR}$ | SSB/MSST | SSB ratio | Yield |
|------|------|-------|------------------|-------|----------------------|----------|-----------|-------|
| 2021 | 900  | 0.149 | 1.277            | 1,321 | 1.077                | 1.436    | 0.350     |       |
| 2022 | 900  | 0.178 | 1.525            | 1,200 | 0.978                | 1.304    | 0.318     |       |
| 2023 | 900  | 0.128 | 1.093            | 1,063 | 0.866                | 1.155    | 0.282     |       |
| 2024 | 900  | 0.177 | 1.513            | 1,004 | 0.818                | 1.091    | 0.266     |       |
| 2025 | 900  | 0.190 | 1.622            | 913   | 0.744                | 0.992    | 0.242     |       |
| 2026 | 900  | 0.093 | 0.796            | 835   | 0.680                | 0.907    | 0.221     |       |
| 2027 | 900  | 0.088 | 0.750            | 854   | 0.696                | 0.928    | 0.227     | 0.174 |
| 2028 | 900  | 0.088 | 0.750            | 879   | 0.716                | 0.955    | 0.233     | 0.179 |
| 2029 | 900  | 0.088 | 0.750            | 904   | 0.737                | 0.982    | 0.240     | 0.184 |
| 2030 | 900  | 0.088 | 0.750            | 927   | 0.755                | 1.007    | 0.246     | 0.188 |
| 2031 | 900  | 0.088 | 0.750            | 947   | 0.772                | 1.029    | 0.251     | 0.192 |

**Table 6.** Results of rebuilding projections to the SSB target by 2035 for Gulf of America Scamp **assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023)**. Recruitment (Recr) is in 1,000s of age-0 fish, F is a harvest rate (total biomass killed all ages / total biomass age 3+), SSB is in metric tons (male and female combined SSB), and the yield is in millions of pounds gutted weight. Metrics are also provided for the interim period of 2021 to 2026 where landings were fixed (**Table 1**).

| Year | Recr | F     | F/F40%SPR | SSB   | SSB/SSB40%SPR | SSB/MSST | SSB ratio | Yield |
|------|------|-------|-----------|-------|---------------|----------|-----------|-------|
| 2021 | 900  | 0.149 | 1.277     | 1,321 | 1.077         | 1.436    | 0.350     |       |
| 2022 | 900  | 0.178 | 1.525     | 1,200 | 0.978         | 1.304    | 0.318     |       |
| 2023 | 900  | 0.128 | 1.093     | 1,063 | 0.866         | 1.155    | 0.282     |       |
| 2024 | 900  | 0.177 | 1.513     | 1,004 | 0.818         | 1.091    | 0.266     |       |
| 2025 | 900  | 0.190 | 1.622     | 913   | 0.744         | 0.992    | 0.242     |       |
| 2026 | 900  | 0.093 | 0.796     | 835   | 0.680         | 0.907    | 0.221     |       |
| 2027 | 900  | 0.046 | 0.396     | 854   | 0.696         | 0.928    | 0.227     | 0.092 |
| 2028 | 900  | 0.046 | 0.396     | 913   | 0.744         | 0.992    | 0.242     | 0.098 |
| 2029 | 900  | 0.046 | 0.396     | 971   | 0.791         | 1.055    | 0.257     | 0.104 |
| 2030 | 900  | 0.046 | 0.396     | 1,024 | 0.835         | 1.113    | 0.272     | 0.11  |
| 2031 | 900  | 0.046 | 0.396     | 1,074 | 0.875         | 1.167    | 0.285     | 0.115 |
| 2032 | 900  | 0.046 | 0.396     | 1,119 | 0.912         | 1.215    | 0.297     | 0.119 |
| 2033 | 900  | 0.046 | 0.396     | 1,159 | 0.944         | 1.259    | 0.307     | 0.123 |
| 2034 | 900  | 0.046 | 0.396     | 1,195 | 0.974         | 1.298    | 0.317     | 0.127 |
| 2035 | 900  | 0.046 | 0.396     | 1,227 | 1.000         | 1.333    | 0.325     | 0.13  |
| 2036 | 900  | 0.117 | 1.000     | 1,255 | 1.023         | 1.364    | 0.333     | 0.336 |

### 7. Figures

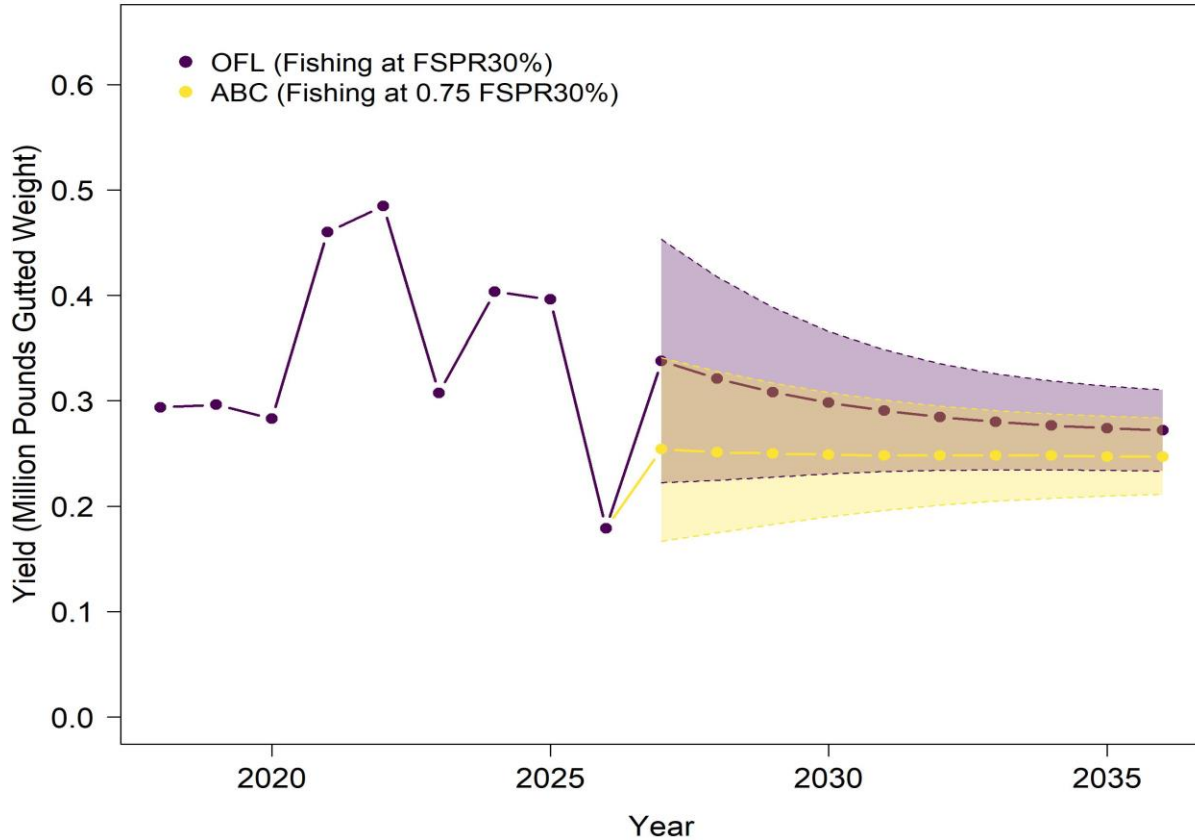


Figure 1. Historic (2018-2020), interim (2021-2026) and forecasted yields (2027+) for the OFL and ABC projections for Gulf of America Scamp assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023). Results are shown for an  $MSY_{proxy}$  of 30% SPR, with the ABC defined as 75% of  $F_{30\%SPR}$ .

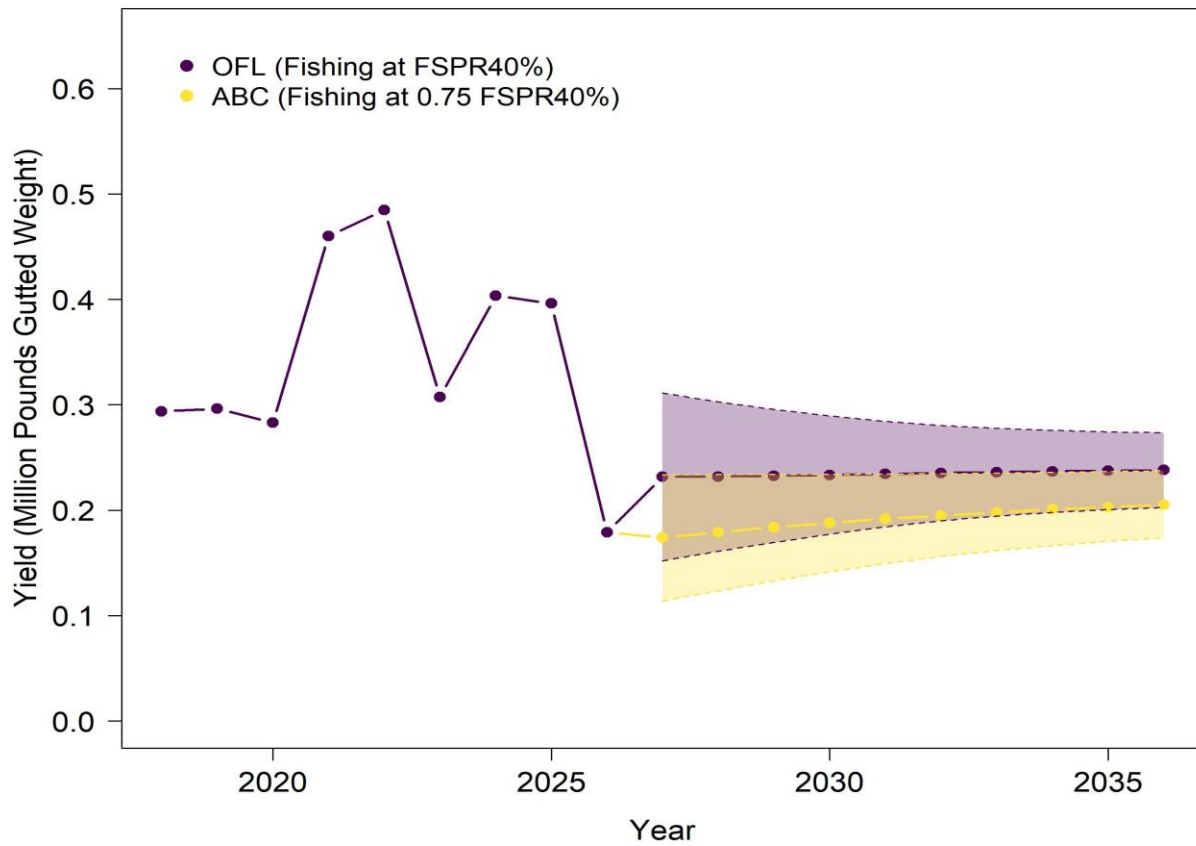


Figure 2. Historic (2018-2020), interim (2021-2026) and forecasted yields (2027+) for the OFL and ABC projections for Gulf of America Scamp assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023). Results are shown for an  $MSY_{proxy}$  of 40% SPR, with the ABC defined as 75% of  $F_{40\%SPR}$ .

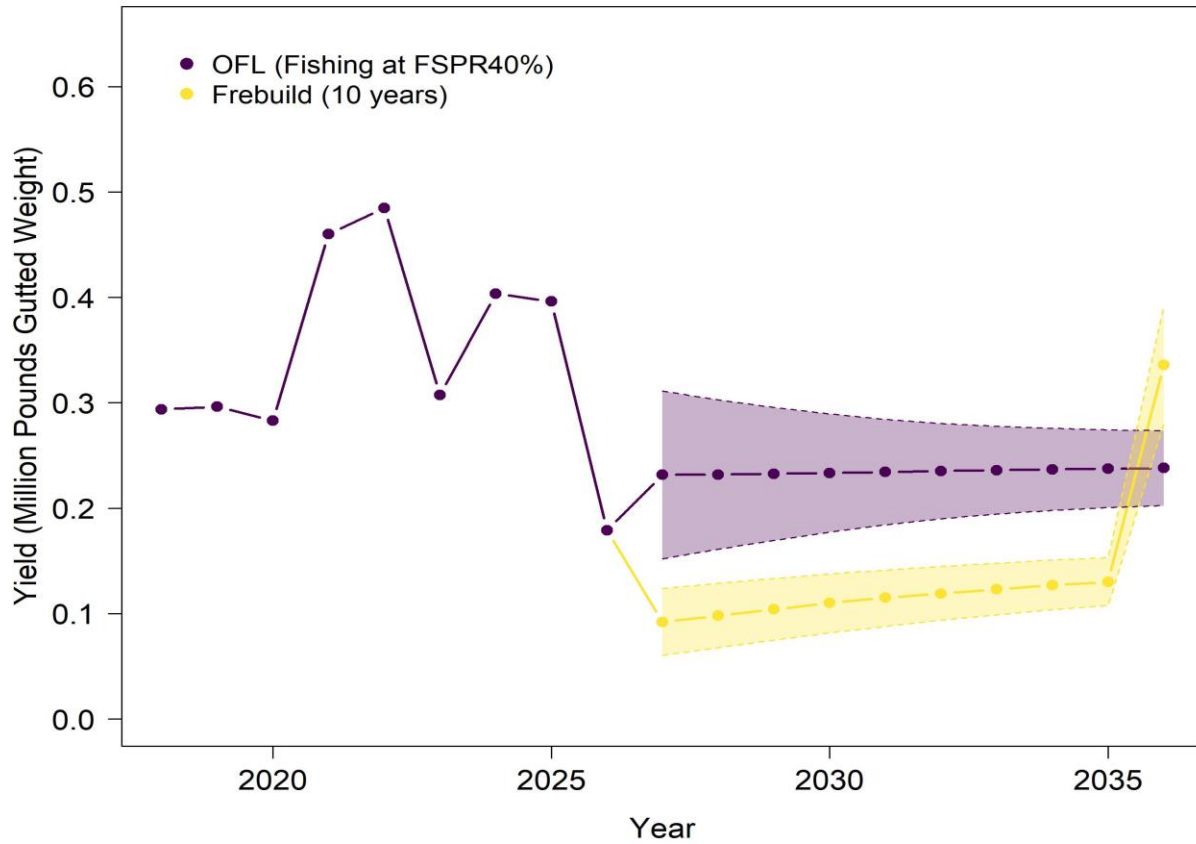


Figure 3. Historic (2018-2020), interim (2021-2026) and forecasted yields (2027+) for the Frebuild projections for Gulf of America Scamp assuming recent mean recruitment (2008-2017), starting projections in 2027, and using finalized landings estimates (2021-2023). Results are shown for an  $MSY_{proxy}$  of 40% SPR.