

Groundfish Plan Development Team Report:

Rebuilding Strategies for Several Groundfish Stocks

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Scientific and Statistical Committee
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Inadequate Rebuilding Progress for Several Stocks

NMFS letter, August 31, 2017

- Ocean Pout
- Georges Bank winter flounder
- Witch flounder
- Northern windowpane flounder
- Southern New England/Mid-Atlantic yellowtail flounder

Stocks with Projections

- Georges Bank winter flounder
- Southern New England/Mid-Atlantic yellowtail flounder
- Overview of approach
 - T_{\min} is 3 years at $F=0$ with a 50% probability of achieving B_{MSY}
 - T_{\max} is 10 years.
 - T_{target} options developed across a range of fishing mortality rates. Also, options were developed considering the factors in the NS1 guidelines.

GB Winter Flounder

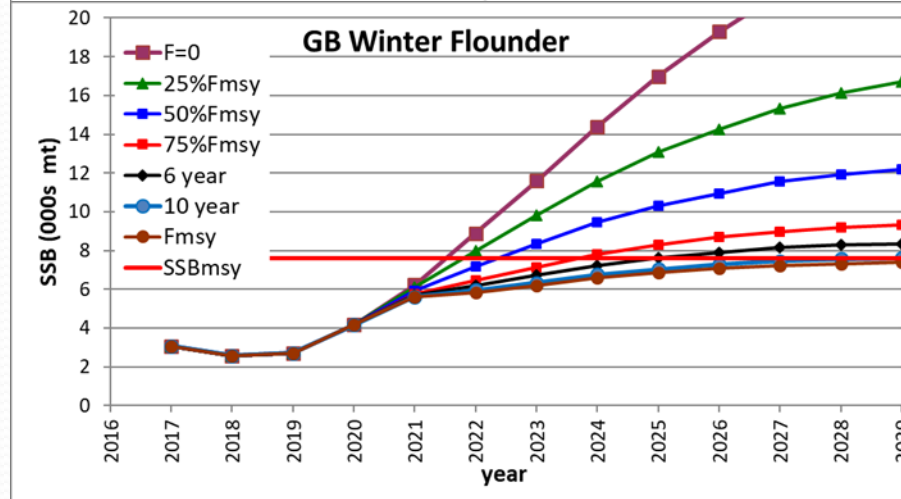
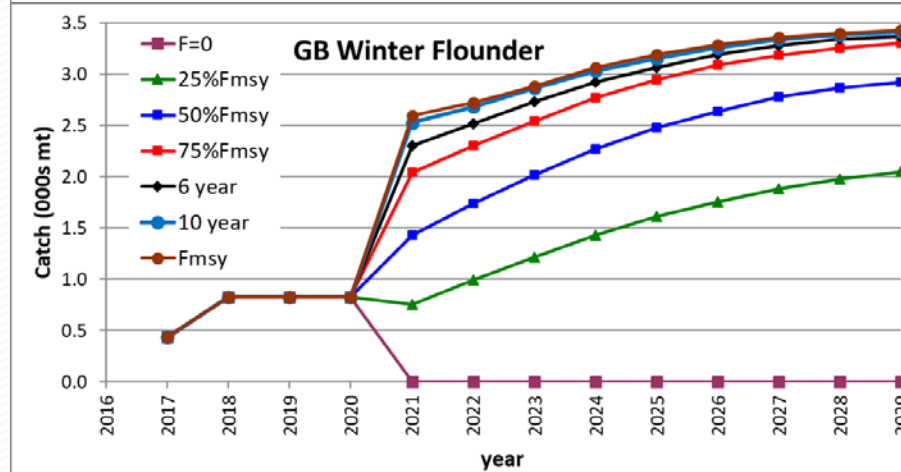
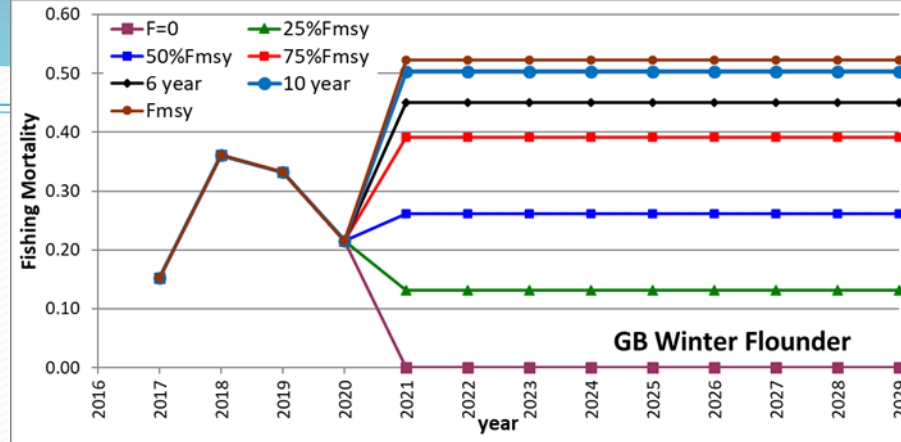
Option 1/No Action- previously thought to rebuild by 2017 - Fishing mortality will target rebuilding of the stock with a 75 percent probability of success by 2017, according to Amendment 16 calculations. Amendment 16 implemented the rebuilding plan.

Option 2- T_{target} is less than 10 years (prior to 2029)- GB winter flounder could rebuild in less than 10 years.

- Option 2a: T_{target} of 3 years, rebuilding by 2022, at F_{rebuild} of $25\%F_{\text{MSY}} = 0.131$, with a 55 percent probability of achieving B_{MSY} .
- Option 2b: T_{target} of 4 years, rebuilding by 2023, at F_{rebuild} of $50\%F_{\text{MSY}} = 0.261$, with a 59 percent probability of achieving B_{MSY} .
- Option 2c: T_{target} of 5 years, rebuilding by 2024, at F_{rebuild} of $75\%F_{\text{MSY}} = 0.392$, with a 53 percent probability of achieving B_{MSY} .
- Option 2d: T_{target} of 6 years, rebuilding by 2025, at F_{rebuild} of 0.45, with a 50 percent probability of achieving B_{MSY} .

Option 3 - $T_{\text{target}} = T_{\text{max}}$, which is 10 years (2029)- F_{rebuild} (0.5) was estimated to be below F_{MSY} (0.52), but above $F_{75\% \text{MSY}}$ (0.392), with the maximum 10-year rebuilding plan.

Georges Bank Winter Flounder



SNE/MA Yellowtail Flounder

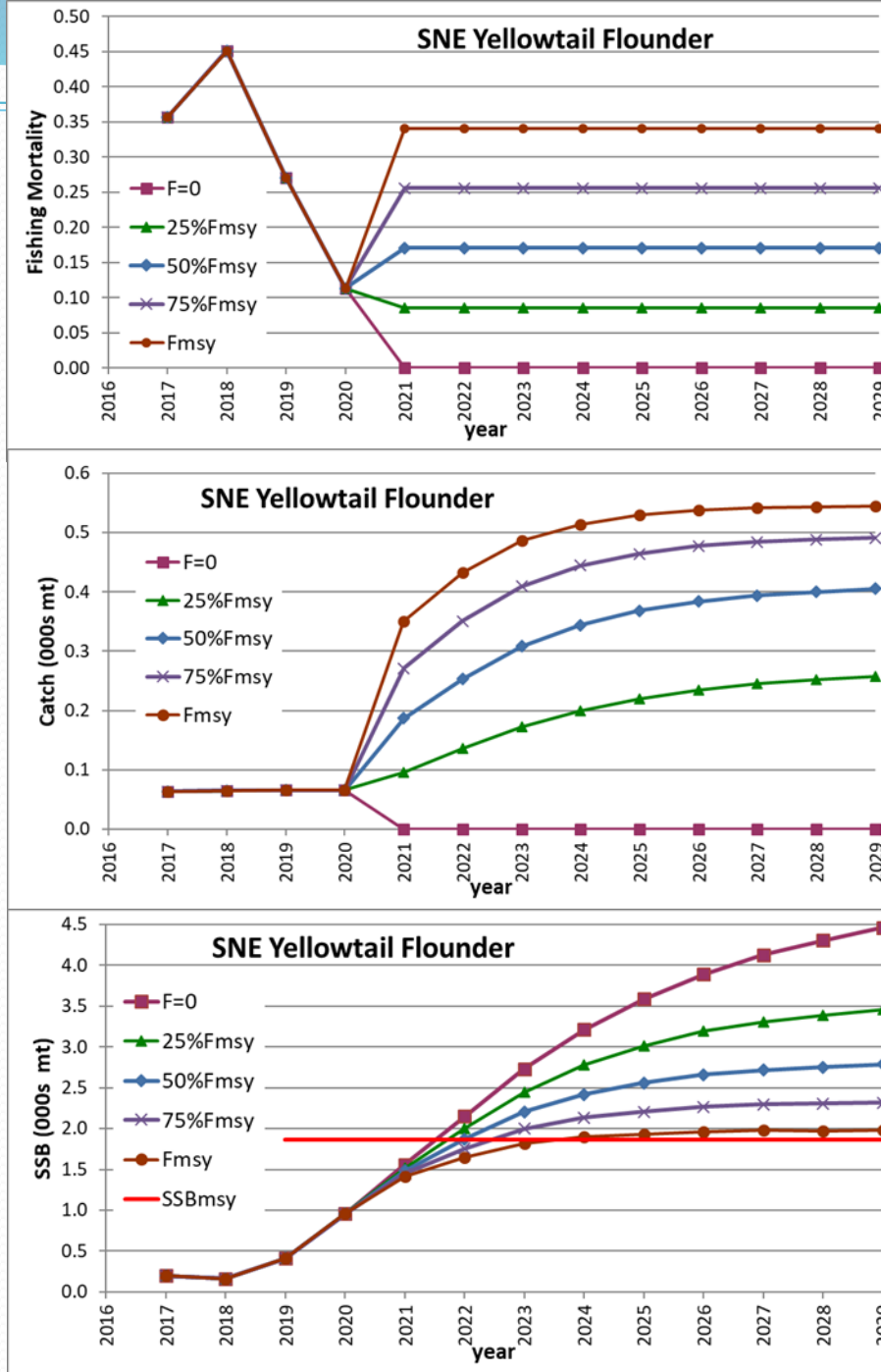
Option 1/No Action- previously thought to rebuild by 2014 and rebuilt as of 2011 – The rebuilding program was developed to rebuild the stock with a median (50 percent) probability by 2014. Amendment 13 implemented the rebuilding plan.

Option 2- T_{target} is less than 10 years (prior to 2029)- SNE/MA yellowtail flounder could rebuild in less than 10 years.

- Option 2a: T_{target} of 3 years, rebuilding by 2022, at F_{rebuild} of $25\%F_{\text{MSY}} = 0.085$, with a 58 percent probability of achieving B_{MSY} .
- Option 2b: T_{target} of 3 years, rebuilding by 2022, at F_{rebuild} of $50\%F_{\text{MSY}} = 0.171$, with a 51 percent probability of achieving B_{MSY} .
- Option 2c: T_{target} of 4 years, rebuilding by 2023, at F_{rebuild} of $75\%F_{\text{MSY}} = 0.256$, with a 59 percent probability of achieving B_{MSY} .
- Option 2d: T_{target} of 6 years, rebuilding by 2025, at F_{rebuild} above F_{MSY} (therefore this was not shown here).

Option 3 – $T_{\text{target}} = T_{\text{max}}$, which is 10 years (2029)- Projections suggest that the stock can rebuild in five years (2024) at F_{MSY} . The 10-year option might still be justified based on concerns that recruitment may not increase quickly to the average as assumed in the rebuilding projections.

SNE/MA Yellowtail Flounder



Stocks with Projections

The PDT would like feedback from the SSC on if F_{rebuild} established with the rebuilding plan should be considered as an approach or a specific value (e.g., $50\%F_{\text{MSY}}$ or 0.261).

Stocks without Projections

- Witch flounder
- Northern windowpane flounder
- Ocean Pout
- Overview of approach
 - T_{\min} is undefined, could be less than or greater than 10 years
 - T_{\max} is assumed to be 10 years.
 - Factors in the NS1 Guidelines were considered.

Witch Flounder

Option 1/No Action- previously thought to rebuild by 2017 - Fishing mortality targeted rebuilding of the stock with a 75 percent probability of success by 2017, based on Amendment 16 calculations. Amendment 16 implemented the rebuilding plan.

Option 2 - T_{target} is 10 years (2029)- No projections are available for this stock. Therefore, the maximum 10-year rebuilding plan was developed.

Northern Windowpane Flounder

Option 1/No Action - previously expected to rebuild by 2017 - The goal was to rebuild this stock by 2017. No probability was associated with this goal since it was an index-based stock and the projection methodology was deterministic. In addition, the Council did not identify a specific rebuilding mortality target because the GARM III panel concluded that given the high uncertainty of index-based assessments, it was not appropriate to calculate F_{rebuild} for this stock. Amendment 16 implemented the rebuilding plan.

Option 2 - T_{target} is 10 years (2029). No projections are available for this stock. Therefore, the maximum 10-year rebuilding plan was developed.

Ocean Pout

Option 1/No Action- rebuild by 2014 – The rebuilding program was developed to rebuild the stock with a median (50 percent) probability by 2014. Amendment 13 implemented the rebuilding plan.

Option 2 - T_{target} is 10 years (2029)- No projections are available for this stock. Therefore, the maximum 10-year rebuilding plan was developed.

Stocks without Projections

The PDT would like feedback from the SSC on possible approaches and basis to extend the T_{target} beyond 10 years for these stocks or whether it is more appropriate to have an undefined rebuilding date (e.g., like the wolffish stock).