## GOA Flathead Sole Partial Assessment

(Full assessment planned for 2021)

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## Executive summary table

- Projection model uses output from age-structured model
- Used age 3 recruits
- 2018 catch estimated as 2018 current catch up to Oct 6 + 5-yr average Oct 6-Dec 31 catch
- 2019-2020 catch estimated as 2013-2017 average catch

|                                       | As estimated or                |         | As estimated or                |         |
|---------------------------------------|--------------------------------|---------|--------------------------------|---------|
| Quantity                              | specified last year for:       |         | recommended this year for:     |         |
|                                       | 2018                           | 2019    | 2019*                          | 2020*   |
| M (natural mortality rate)            | 0.2                            | 0.2     | 0.2                            | 0.2     |
| Tier                                  | 3a                             | 3a      | 3a                             | 3a      |
| Projected total (3+) biomass (t)      | 281,635                        | 283,107 | 283,285                        | 282,750 |
| Projected Female spawning biomass (t) | 85,765                         | 89,118  | 89,205                         | 92,655  |
| $B_{100\%}$                           | 91,551                         | 91,551  | 91,551                         | 91,551  |
| $B_{40\%}$                            | 36,620                         | 36,620  | 36,620                         | 36,620  |
| $B_{35\%}$                            | 32,043                         | 32,043  | 32,043                         | 32,043  |
| $F_{OFL}$                             | 0.36                           | 0.36    | 0.36                           | 0.36    |
| $maxF_{ABC}$                          | 0.28                           | 0.28    | 0.28                           | 0.28    |
| $F_{ABC}$                             | 0.28                           | 0.28    | 0.28                           | 0.28    |
| OFL (t)                               | 43,011                         | 44,822  | 44,865                         | 46,666  |
| maxABC (t)                            | 35,266                         | 36,746  | 36,782                         | 38,273  |
| ABC (t)                               | 35,266                         | 36,746  | 36,782                         | 38,273  |
|                                       | As determined <i>last</i> year |         | As determined <i>this</i> year |         |
| Status                                | for:                           |         | for:                           |         |
|                                       | 2016                           | 2017    | 2017                           | 2018    |
| Overfishing                           | no                             | n/a     | no                             | n/a     |
| Overfished                            | n/a                            | no      | n/a                            | no      |
| Approaching overfished                | n/a                            | no      | n/a                            | no      |

## Area Apportionment

 Random effects model used to smooth survey biomass by area

| Quantity              | Western | Central | West<br>Yakutat | Southeast | Total   |
|-----------------------|---------|---------|-----------------|-----------|---------|
| Area<br>Apportionment | 35.98%  | 57.39%  | 5.48%           | 1.15%     | 100.00% |
| 2019 ABC (t)          | 13,234  | 21,109  | 2,016           | 423       | 36,782  |
| 2020 ABC (t)          | 13,771  | 21,965  | 2,097           | 440       | 38,273  |

## • Survey biomass in 2017 was 236,589 t, up by ~ 9% from 2015

