

## NEW METHODOLOGY INFORMING SIGMA VALUES – FINAL ADOPTION

The Scientific and Statistical Committee (SSC) has recommended consideration of new methodological approaches for determining sigma ( $\sigma$ ) values used to specify acceptable biological catches (ABCs) for groundfish and coastal pelagic species (CPS). Sigma, coupled with the overfishing probability ( $P^*$ ), is used to determine ABC buffers for these species. The sigma value is intended to address the scientific uncertainty in estimating the overfishing limit (OFL) and is currently determined based on the variance in the estimate of ending biomass in stock assessments or by the use of proxies, which vary by the uncertainty associated with categories of stock assessments. The [SSC recommended in June 2010](#) that, “several sources of uncertainty have been identified that deserve further consideration, and the estimate of overall uncertainty may increase”.

The SSC has begun exploring two analytical approaches that could inform new sigmas. The first approach is an update of the Ralston et al. (2011) meta-analysis of biomass variance of category 1 groundfish and CPS stocks. The revised meta-analysis also evaluates the uncertainty on projected OFLs and more thoroughly evaluates recruitment stochasticity. The second approach explores the increased uncertainty associated with using projected OFLs from older assessments. Since true population dynamics will likely differ from expected or assumed dynamics in an assessment projection, there is increased uncertainty in future spawning output and projected OFLs as the projection period increases. The SSC’s Groundfish and CPS subcommittees met in November 2018 to review these analyses (see Attachments 1 and 3) and they recommended further considerations and analysis before they can endorse these new approaches for estimating sigmas (see Agenda Item G.3.a, SSC Groundfish and CPS Subcommittees Report 1). The new analyses are available (see Attachments 2 and 3) and will be reviewed by the SSC at this meeting. Note that Attachment 3 is a revised version of the analysis reviewed in November and has been updated to address the SSC’s November requests.

The Council task is to adopt any new sigma values endorsed by the SSC for future harvest specifications.

### **Council Action:**

**Adopt New Sigma Values Endorsed by the SSC for Groundfish and Coastal Pelagic Species.**

### **Reference Materials:**

1. Agenda Item G.3.a, SSC Groundfish and CPS Subcommittees Report 1: SSC Groundfish and Coastal Pelagic Species Subcommittees’ Report on the Steepness Prior and Sigma Review Meeting Held on 01 November 2018.
2. Agenda Item G.3, Attachment 1: Estimating among-assessment variation in overfishing limits.
3. Agenda Item G.3, Attachment 2: Addendum – Estimating among-assessment variation in overfishing limits.
4. Agenda Item G.3, Attachment 3: Accounting for increased uncertainty in setting precautionary harvest limits from past assessments.

Agenda Order:

- G.3 New Methodology Informing Sigma Values – Final Adoption John DeVore
- a. Reports and Comments of Management Entities and Advisory Bodies
  - b. Public Comment
  - c. **Council Action:** Adopt New Sigma Values Used to Determine Acceptable Biological Catches for Groundfish and Coastal Pelagic Species

PFMC  
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