

# BSAI Assessment Methods Workshop

BSAI Plan Team Subcommittee

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# Background

- The BSAI Plan Team suggested three topics for a subcommittee meeting (*November Plan Team minutes, EBS Pacific cod section, pages 8-9, 10*)
  - ~~1. Investigation of the effects of different features on the [P cod] model outputs~~
  2. Determining what types of models should make up an ensemble
  3. When and how should the ABC be reduced from its maximum
- The SSC supports the Plan Team's recommendation to conduct a spring workshop to address these and other issues which would not be limited to just Pacific cod (*SSC minutes –December 2017, page 13*)

# Purpose

- To review ensemble modeling and determine how it fits in the NPFMC system
- Discuss considerations for reducing the ABC to account for observations and uncertainties not included in the assessment model or Tier system
- Produce recommendations and a report to be considered by the September Joint Groundfish Plan Team meeting

# Location, Timing, and Attendees

- In Seattle, WA sometime in June
- Co-chairs
  - Stram, Thompson, Haynie, Hicks
- Invited participants
  - All NPFMC SSC members, all Groundfish PT members, and potentially others
- Public welcome

# Agenda topics

<b>TOPIC</b>	<b>TENTATIVE LEAD</b>
<b>1. INTRODUCTIONS</b>	Co-chairs
<b>2. PURPOSE OF WORKSHOP</b>	Co-chairs
<b>3. ENSEMBLE MODELING</b>	
<b>3.1 Brief descriptions of ensemble modeling and model averaging</b>	Co-chairs
<b>3.2 Review the SSC ensemble modeling workshop in 2017</b>	Hicks
<b>3.3 Pros and cons of ensemble modeling</b>	
<b>3.4 Examples of ensemble modeling in fisheries stock assessment</b>	Hicks
<b>3.5 Impediments to implementing ensemble modeling in the NPFMC system</b>	Thompson
<b>3.6 Choosing models in an ensemble</b>	
<b>3.7 Combining models and assigning weights</b>	Thompson
<b>3.8 Workload and logistics for assessment authors</b>	Thompson
<b>3.9 Communicating and using results</b>	
<b>4. DETERMINING ABC</b>	
<b>4.1 Review how maxABC and ABC are determined in NPFMC system</b>	Thompson
<b>4.2 How can ensemble modeling inform maxABC and ABC</b>	
<b>4.3 Other methods of accounting for uncertainty when determining ABC</b>	
<b>5. REPORT</b>	
<b>5.1 Drafting of recommendations to bring to Plan Team</b>	Co-chairs
<b>5.2 Items for the agenda of the September Plan Team and other preparations</b>	Co-chairs

# Ensemble Modeling: setting the stage

## 3.1: Brief descriptions of ensemble modeling and model averaging

- Define ensemble modeling and model averaging

## 3.2: Review the 2017 SSC ensemble modeling workshop

- Perhaps get a national perspective as well from an invited speaker

## 3.3: Pros and cons of ensemble modeling

- Highlight some of these

## 3.4: Examples of ensemble modeling in fisheries stock assessment

- Examples from within the U.S. and beyond

## 3.5: Impediments to implementing ensemble modeling in the NPFMC system

- MSA/FMP/SAFE guidelines, when could this be implemented

# Ensemble Modeling: details

## 3.6: Choosing models in an ensemble

- Structural differences, sensitivities, and maximum number of models

## 3.7: Combining models and assigning weights

- Method to combine and determining weights

## 3.8: Workload and logistics for assessment authors

- Who does all the work? Tools to assist. Outputs to create.

## 3.9: Communicating and using results

- What is reported in the assessment
- What is used for management

# Determining ABC

## 4.1: Review how maxABC and ABC are determined in the NPFMC system

- What is the difference? Reasons for reducing the ABC. Examples

## 4.2: How can ensemble modeling inform maxABC and ABC

- Can ensemble modeling capture the appropriate uncertainties?

## 4.3: Other methods of accounting for uncertainty when determining ABC

- Buffers, tiers, etc. Can they account for all of the uncertainty?



# Report

## 5.1: Drafting of recommendations to bring to Plan Team

- This will be done by co-chairs

## 5.2: Items for the September Plan Team agenda

- Coordinate items that need to be brought up to joint Plan Team

# Questions?

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