

# Sablefish apportionment part 2

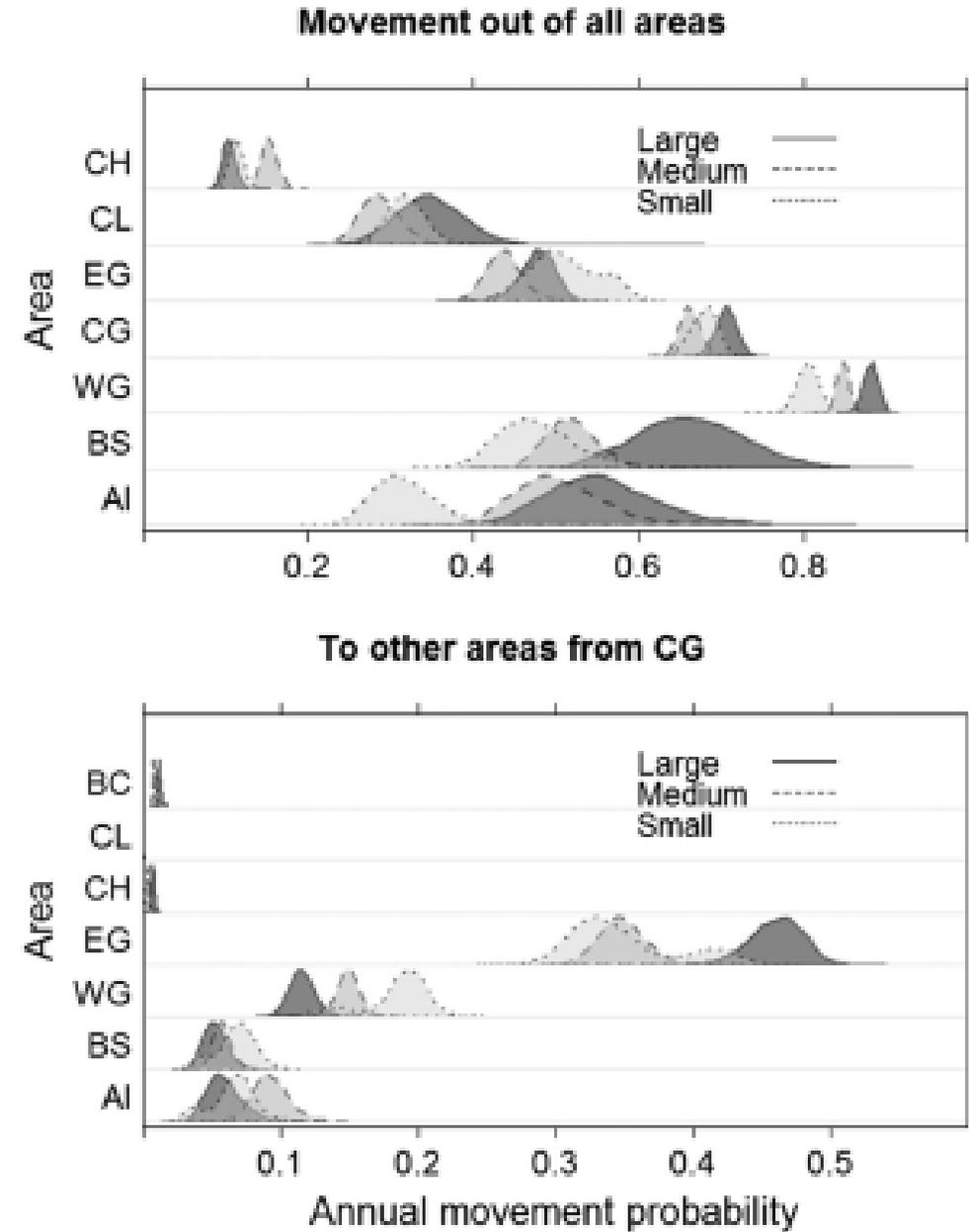
# Some thoughts

- I think we generally have a good OM that addresses the biggest axes of uncertainty that I've identified so far (movement but not by age, OM areas ('1' vs 6), age comp lag, obs error), and aligns well with our assumptions about the sablefish stock without covering every potentially unknown future scenario or making big(ger) assumptions.
- On Stock-Recruitment: some of our largest recruitments have come from our smallest SSBs.
- Movement
  - There is a lot of data in the movement model behind the OM movement that we use
  - Have run other movement scenarios (no movement, 'well-mixed' movement; all assuming constant across ages).

# Movement

Excerpt from the “Move it or lose it” 2015 paper

- Movement by size groups
- Differences in movement among size groups,
  - but not that consistent across areas
  - Area specific differences frequently swamp size-specific differences



# Bonus info for clarification

- I assume  $N=200$  for OM observation error for age comps (fishery and survey)
- Effective  $N$  for fishery in management EM is
  - 156 for fishery age comps
  - 159 for survey age comps



# Current performance metrics

## **'Sustainability'-ish things**

- SSB/B40 for areas combined, by year and apportionment type
- $SSB_{2038}/SSB_{1977}$  'Depletion' metric for all areas combined
- How well the ABC apportionment proportions 'match' OM true abundance distribution (aka, Mean absolute percent difference between 'true' total biomass proportions and proportion of ABC for each apportionment method)

## **'Stability'-ish things**

- % change in ABC by year (and by area or across areas)
- Percent of years and replicates where ABC is less than some threshold (by area or for areas combined) INPUT ON THRESHOLD TO USE?



# Current performance metrics

## **'Other/Social/Economic'-ish things**

- ABC by area, Total ABC (over time)
- Mean 'value' of catch, using some back of envelope calcs about fish value by market category.
- Mean age of fish in population and distribution of ages in population, by area, from OM.
- Mean age of fish in catch and distribution of ages in catch, by area, from OM.



# Things I can pull out from the EM or OM that might be useful to show in fall

- EM exploitation rate (for one area, since single area EM)
- OM Catch/OM Abundance (in numbers), by age and area, and apportionment type (sort of a pseudo exploitation rate)
- Proportion of the OM population at each age by area
- OM recruitment by area vs OM survey index @ age 2
- Estimated effort by area necessary to catch the estimated ABC (Ian's comment from yesterday)



# Questions for SSC

- What changes to OM (or EM) configuration would you like to see, either for potential base run or sensitivity run(s)?
- What additional performance metrics (or output or figures/tables) would be helpful to produce? - can give me ideas later by email also



# Considerations for SSC and Council in the Fall Specifications Process:

- Area-specific ABCs fixed as an interim measure:
  - objective to reduce variability in apportionment was not being achieved - the mean change in apportionment by areas increased annually.
- Considerations for modifying fixed ABC:
  - Is current information (requested for Fall 2020) sufficient to modify ABCs to better reflect current relative abundance and fishing effort?
  - If current information is not deemed sufficient, what additional information is necessary and is it to inform scientific decision-making or for policy decisions?
  - If an analysis of socio-economic impacts of modified sub-area ABCs is desirable what form of analysis would this be and what staff (i.e. not assessment authors) is most appropriate and on what time frame?
    - modifying subarea ABC apportionments is currently possible within the annual specifications process without additional required analysis
    - Exceeding a sub-area ABC is NOT an ACL issue. The ACL overage is assessed at the stock level (e.g the spatial level of the stock at which the OFL and (overall) ABC is set). For sablefish this is currently at the Statewide (BSAI and GOA-wide combined) ABC level.



# Considerations for SSC and Council in the Fall Specifications Process:

- Some options for the 2020 specs process:
  - The SSC could recommend a range of ABCs following analysis of likely biological and fishery impacts in the fall and the Council could select amongst them for final ABCs.
    - Some range of acceptable guidelines by area?
  - The SSC could also recommend a single overall statewide ABC and the Council could select TAC levels by area.
  - The SSC could recommend the 2021 area specific ABC proportions remain fixed and request an analysis that would provide information to inform a determination in the future:
    - Analysts need guidance on what specific information would inform scientific decision on sub-area apportionment?
    - Neither regulatory nor environmental analysis required for sub-area ABC allocations during specs process
- Other ideas?