



Hake ABC and reference point options

Potential methods for setting ABCs



Background and context

- ACLs & AMs required component of FMPs
- Amendment 19 (small mesh multispecies) postponed until Dec 2010 benchmark assessment
- SAW 51 approved indexed based assessments for red and silver hake
- MSY proxy reference points proposed for overfishing definition
- Offshore hake catch and survey data are unreliable for management



Process

- Discussion of potential methods and SSC guidance
- Develop Amendment 19 measures
- Approval of ABC specifications for 2012-2014 in August
 - 2011 spring survey data for red hake
 - 2010 discards and state landings
 - 2010 exploitation (catch/biomass) update



Presentations – Methods for setting ABCs

- Brief summary of benchmark assessment, biological reference points (Alade)
- Summary of hake consumption and implications (Applegate, Alade)
- Sources of uncertainty summary (Applegate)
 - Scientific
 - Management



Presentations – Methods for setting ABCs

- Statistical framework for evaluating scientific uncertainty in OFL (Alade)
 - Three methods
- Estimated ABCs and sensitivity analysis (Applegate)



Hake consumption

Implications for setting ABC



Consumption

- MSY and B_{msy} estimates based on fishery catch only; does not include consumption
- Silver and red hake are a major food source for many piscivorous predators (Table 9, page 30)
- Large hake cannibalistic on small hake (Figure 8, page 34)
- Consumption is several times higher than fishery catch and is variable (Figure 7 and 9; pages 33-34)



Consumption

- May be an unquantified source of uncertainty; additional risk
- Could have implications for rebuilding if stocks become overfished
- Decline in Age 3+ silver hake (Figure 1, page 15), despite low exploitation (Figure 2, page 16)



Sources of uncertainty

Scientific & Management
Section 6, pages 35-38



Scientific uncertainty

- Usual suspects
- Index based assessment
- Stock structure
- Consumption
- Mixing with offshore hake



Management uncertainty

- Table 11 qualifies magnitude and risk of problem, outlines source of problem and potential solutions to reduce uncertainty
 - State landings
 - Open access fishing
 - Species identification (red/white; silver/offshore)



Potential ABCs

- OFL and ABCs using all three methods given for silver hake (Table 19, page 69) and red hake (Table 20, page 70)
- Candidate silver hake ABCs are much higher than 2009 catch (federal and state landings + discards)
- Candidate red hake ABCs are ~50% higher than 2009 catch



Summary

- Estimated catch of offshore hake (historic proportion of offshore and silver hake catch) should be added to the southern stock silver hake ABC
- Table 21 (pages 73-75) summarizes methods, rationale, advantages, and disadvantages



Summary

- Method 1 accounts for varying degrees of uncertainty
- Method 2 is most complex
 - Accounting for constant level of uncertainty will mean that ABC/OFL fraction will vary over time
 - Difficult for the public to understand/accept
- Method 3 would be easier to calculate than Method 2
 - Accounts for similar amount of uncertainty among stocks based on F_{msy} distribution
 - ABC/OFL fraction will stay constant through time (until new assessment changes MSY proxy)

