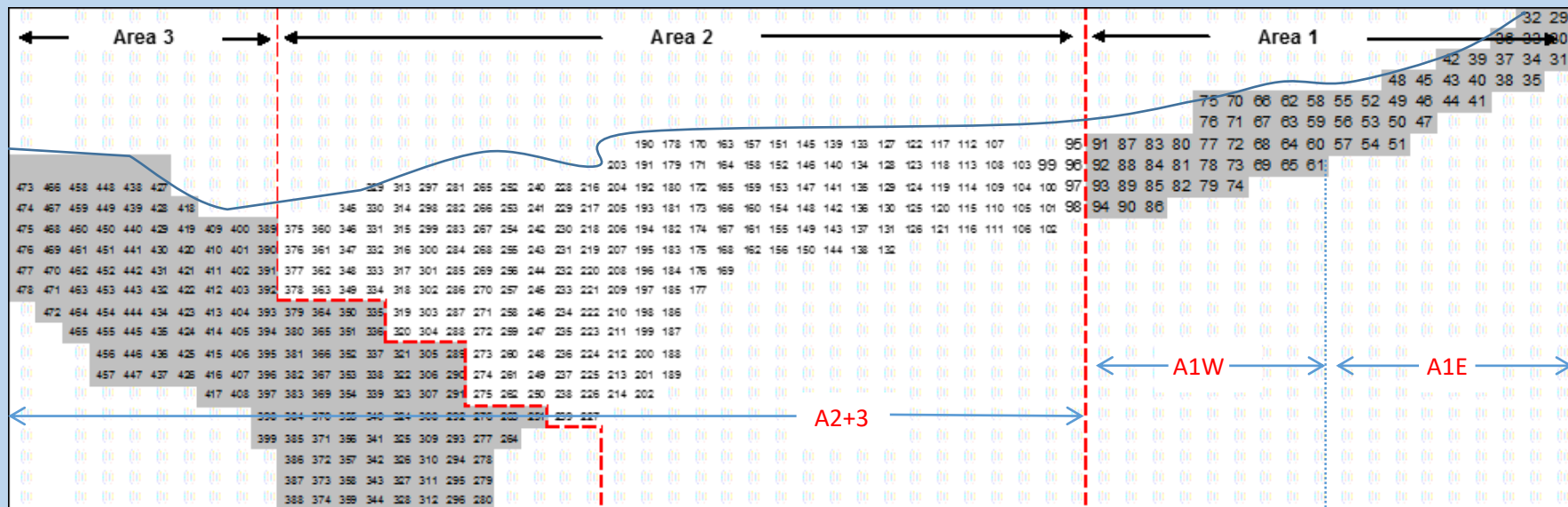
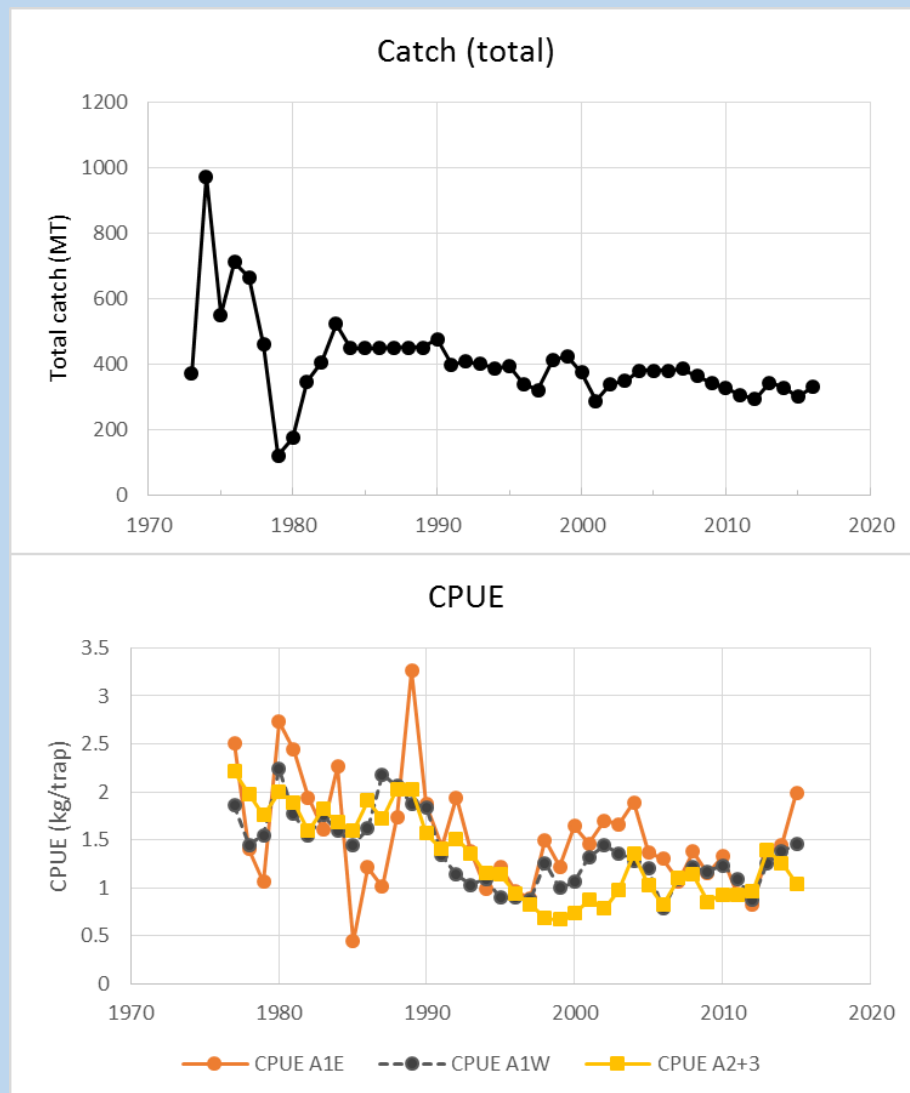


DEVELOPMENT OF A REVISED OMP FOR SOUTH COAST ROCK LOBSTER

INTRODUCTION TO FISHERY (BG1)



- Deep water 50-200m (need large ocean going vessels)
- Slow growing
- Year round fishing
- Gear = lines of traps
- 3 sub-stocks



- Commercial fishing began in 1974
- TAC introduced in 1984
- Effort increases
- First OMP developed in 2008 for recommending TAC

QUESTIONS TO PANEL (P1)

- 1)What possible base case Operating Model changes merit consideration?
- 2)What possible future robustness tests are advised (with prioritisation to the extent that the panel feels able to provide such)?
- 3)What future OMP development issues should take priority?

OPERATING MODEL – KEY FEATURES (BG2)

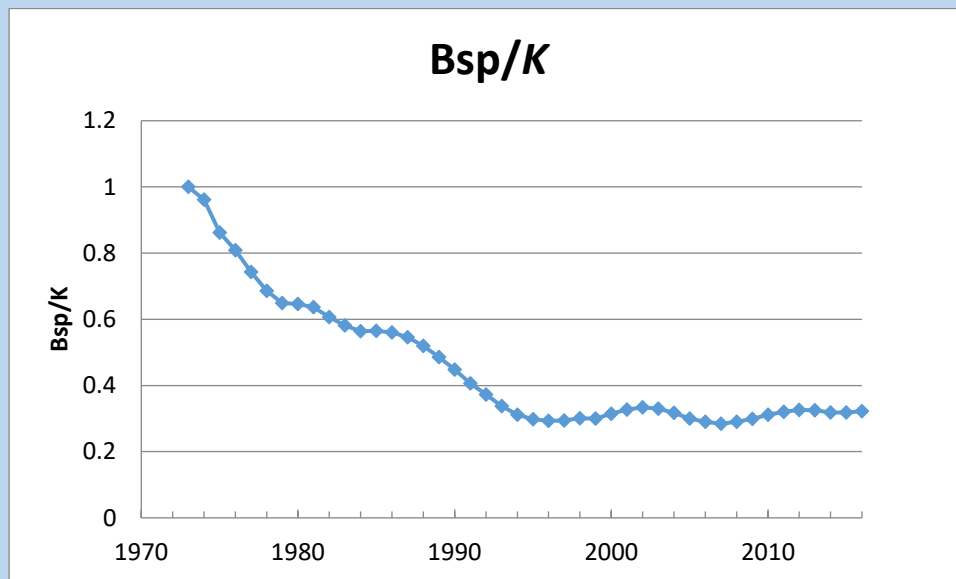
- Age Structured Production Model (**ASPM**) - sex and area disaggregated
- Three **sub-stocks**: A1E, A1W and A2+3
- Data available:
 - 1) Catch data 1974-2015
 - 2) CPUE 1977-2015
 - 3) CAL 1995-2015 (male and female separate)

NOTE: for the OM used for simulation testing the current OMP only data up to 2010 used

- all data split into **sub-stocks**.
- Model allows for **time varying selectivity** (TVS) for A2+3.
- CPUE and CAL data receive **equal weight** in the log-likelihood function

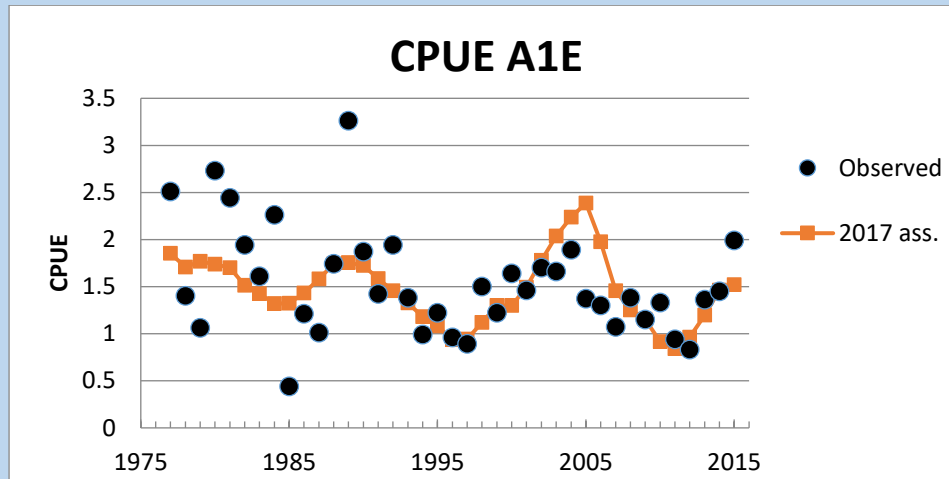
MOST RECENT (2017) ASSESSMENT RESULTS (P2)

- Stock recruit residuals are estimated for the 1974-2008 period
- CPUE and CAL data receive **equal** weighting
 - Three sensitivity models were also examined:
 - Sen1: CAL data downweighted by a factor of 0.75
 - Sen2: CAL data downweighted by a factor of 0.5
 - Sen3: CAL data downweighted by a factor of 0.1



$$\text{Bsp}(2016)/K_{\text{sp}} = 0.32$$

Fits to CPUE data

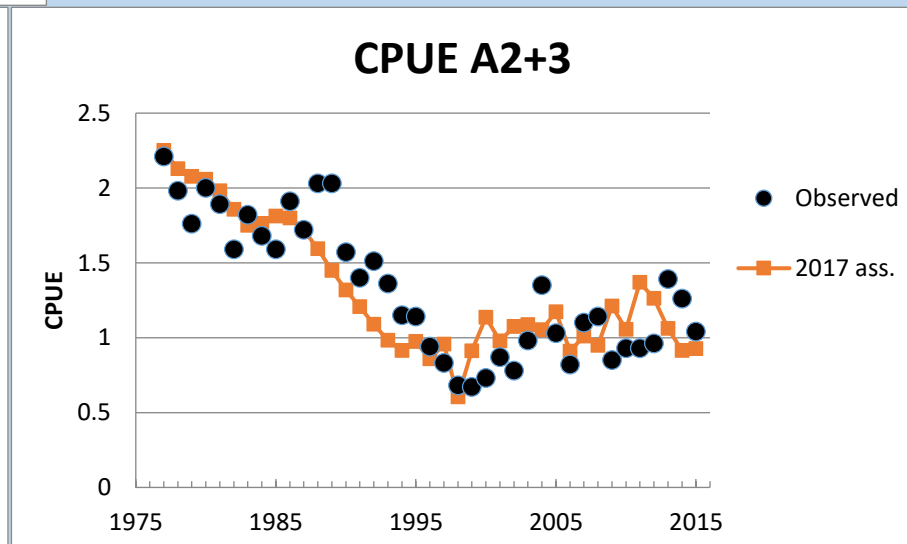
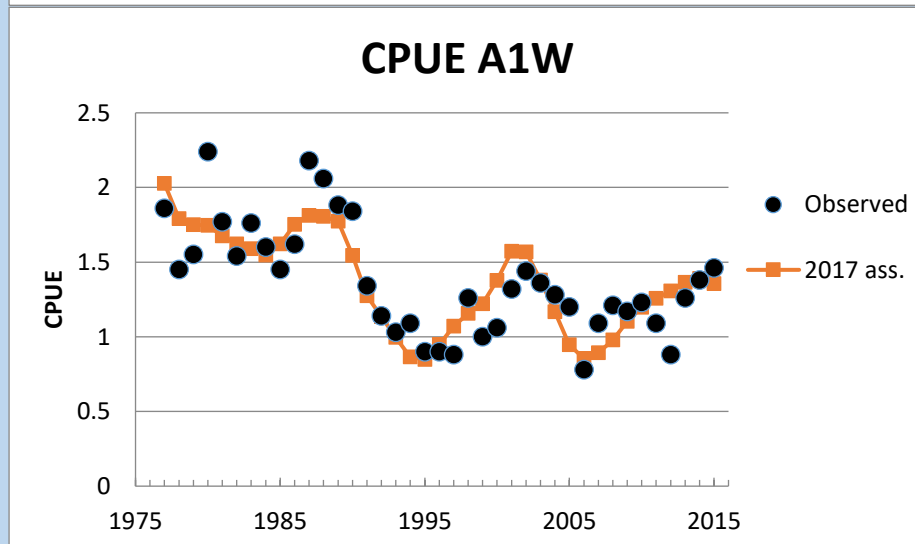


$B_{exp}(2015)/K:$

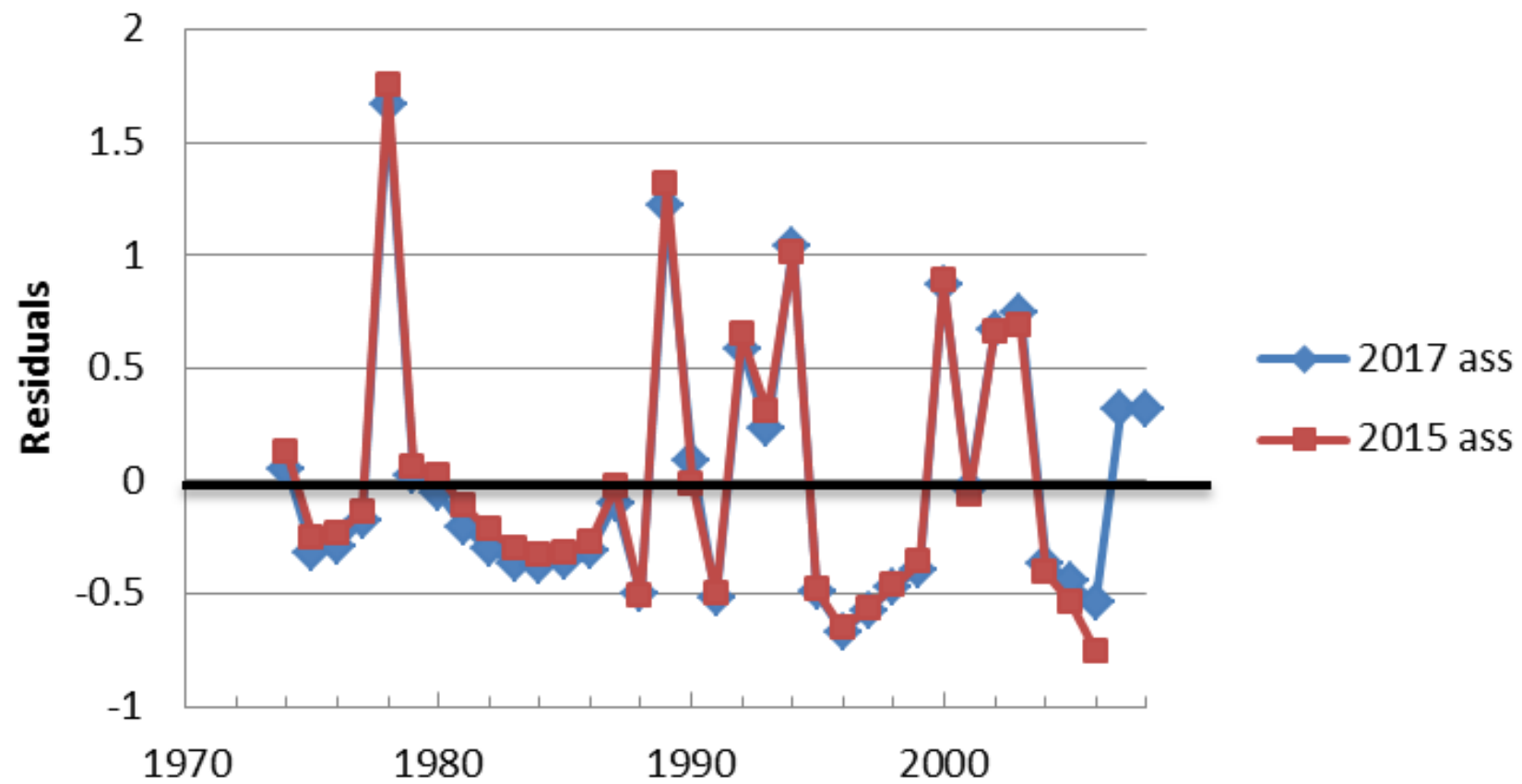
A1E = 0.49

A1W = 0.36

A2+3 = 0.32



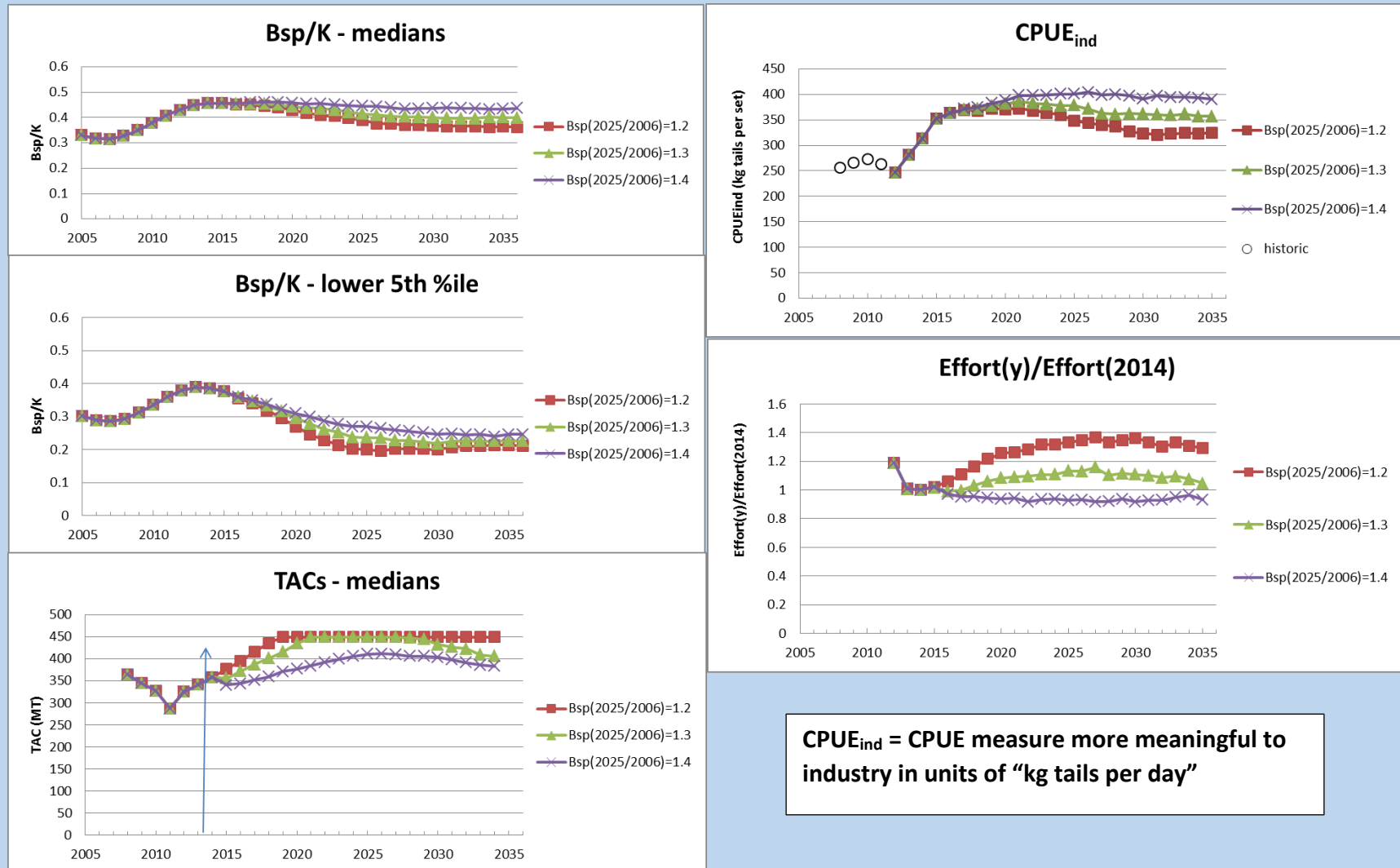
SR residuals



CURRENT OMP (P3)

- OMP-2014 – used for TAC recommendations for 2014-2017
- “**Target based**” OMP: TAC increases or decreases depending on whether recent CPUE is above or below a pre-specified CPUE value.
- Biomass target: median **Bsp increase of 30%** by 2025 relative to 2006.
- 5% inter-annual TAC change constraint
- TAC for first season (2014) was fixed as a 5% increase
- Maximum cap on TAC in any one year of 450 MT.

Results of candidate OMPs at time of OMP development



ISSUES REGARDING DEVELOPMENT OF REVISED OMP THAT NEED TO BE CONSIDERED

Possible base case OM changes

- Uncertainty in the initiation of projections: how might taking **estimation uncertainty** into account best be achieved?
- **Selectivity modelling** – are there better formulations than those utilized at present which might be considered for OM development?

Possible Robustness tests

- A major uncertainty which remains relates to the conflicting signals given by the **CPUE and CAL** data. Currently, as recommended by a previous IWS panel, these two data types receive equal weighting in the log-likelihood. A set of robustness tests that explores **alternate weightings** could be explored.
- Effort saturation – is this something which needs to be reconsidered?
- Different assumptions for M and M -at-age, e.g. **increase of M at larger** ages to offset selectivity doming which is substantial.
- Alternative values for σ_R – currently 0.8 [recruitment residual variability].
- Alternative values for σ_λ – currently 1.0 [time variation in recruitment distributions].
- Alternative values for σ_{sel} – currently 7.5 [time variation in selectivity distributions].

Possible OMP changes

- **Exceptional Circumstances** rule development - start increasing the maximum TAC decrease constraint (currently 5%) if CPUE falls below a critical threshold level.
- **Summary statistics** – are there any statistics used in other fisheries that might be useful?
- More **rapid reaction** in OMP TAC rule - should OMPs that react more rapidly to the most recent data be explored further?
- Use of **a recruitment index** in the OMP – based, for example, on the proportion of younger fish from the catch-at-length data collection.