

Horse Mackerel 2015 updated assessment

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The horse mackerel assessment has been updated with all available updated data. The estimated SR residuals have been extended by two further years (from up to 2011 to now up to 2013).

Table 1: Comparison between 2014 and updated 2015 RC assessment. [Note RC refers to a q_2 of 0.75 and $h = 0.75$].

	2014 assessment	2015 assessment
K	835 314	813 262
q_1	0.76	0.78
MSY	63 052	62 117
$-\ln L$	-221.69	-213.57

Figure 1: Comparison of the estimated CPUE trends between the 2014 and updated 2015 RC assessments.

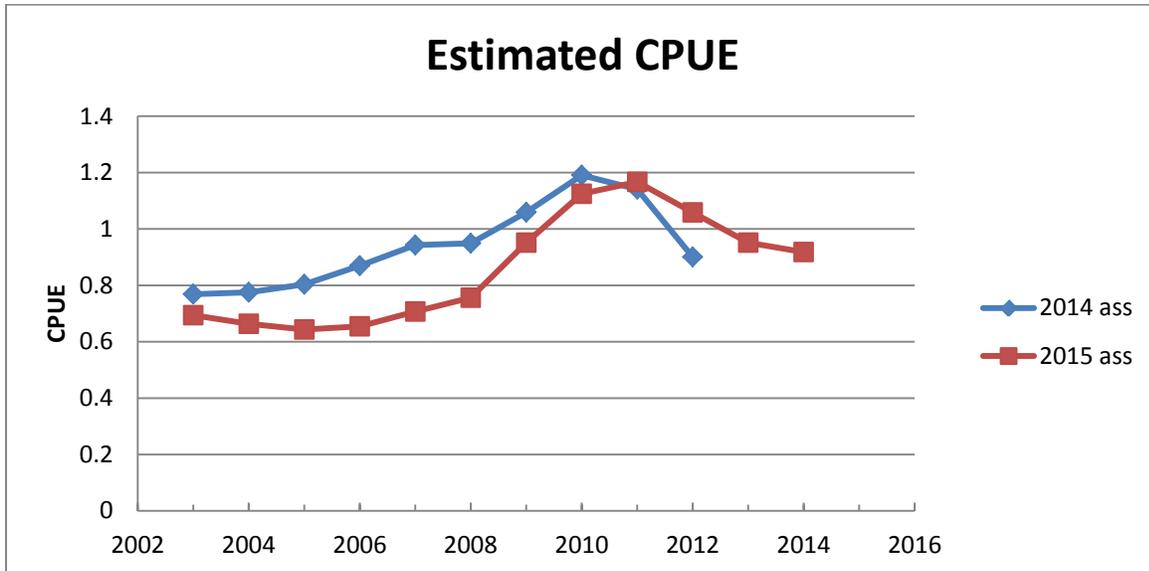
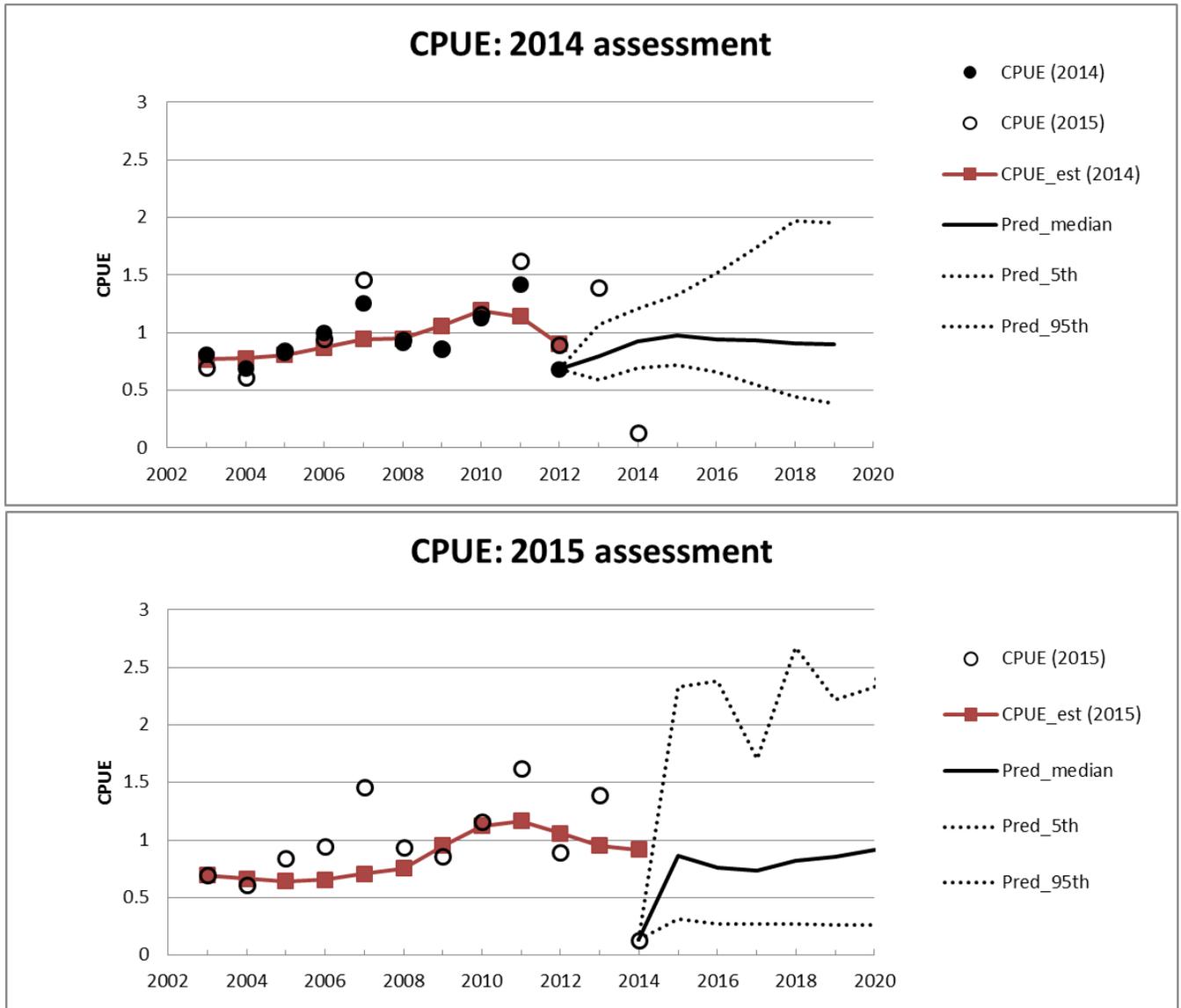


Figure 2: The top plot is what we showed in our last document – it is what Liam produced with the new 2015 CPUE added (open circles) to show exceptional circumstances appear to exist. Bottom plot is the updated assessment projected ahead using current OMP.



Further 2015 assessment options

From the bottom plot of Figure 2 it is clear the RC 2015 assessment does not fit the most recent CPUE value. Two scenarios are considered here to force the model to “fit” the low 2014 observed CPUE value exactly:

- i) Scenario 1: the catchability in 2014 is estimated such that the model fits the 2014 observed CPUE value exactly.
- ii) Scenario 2: The numbers-at-age in 2014 are reduced by “extra mortality” so that the model estimated CPUE fits the observed CPUE exactly.

For scenario 1: $q_{2014} = 0.144$

For scenario 2: $N(2014, \text{age})$ values are multiplied by 0.073 (i.e. extra 92% mortality!).

The current TAC (2015) from the OMP is 38 658.

For Scenario 1, future projections are reported for

- a) $CC = 38\ 658$ (The OMP TAC value for 2015) (The low q_{2014} is a once off event)
- b) $CC = 38\ 658$ (The OMP TAC value for 2015) (The low q_{2014} continues into the future)

Figure 3 illustrates the Scenario 1 projections.

For Scenario 2, future projections are reported for

- a) Extra mortality applies to 2014 only and future $CC = 38\ 658$
- b) Extra mortality applies to 2014 only and future $CC = \mathbf{10\ 000}$

Figure 4 illustrates the Scenario 2 projections.

Figure 3a: CPUE projections for Scenario 1, future CC=38 658 (q₂₀₁₄ once off).

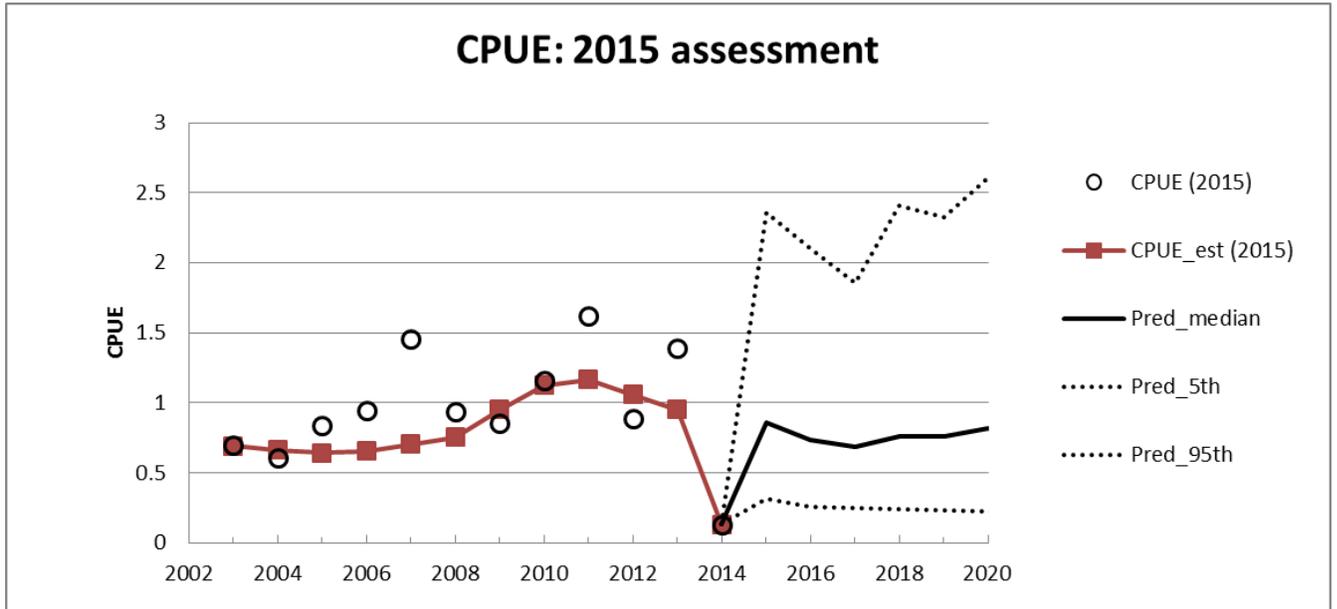


Figure 3b: CPUE projections for Scenario 1, future CC=38 658 (q₂₀₁₄ applies into the future).

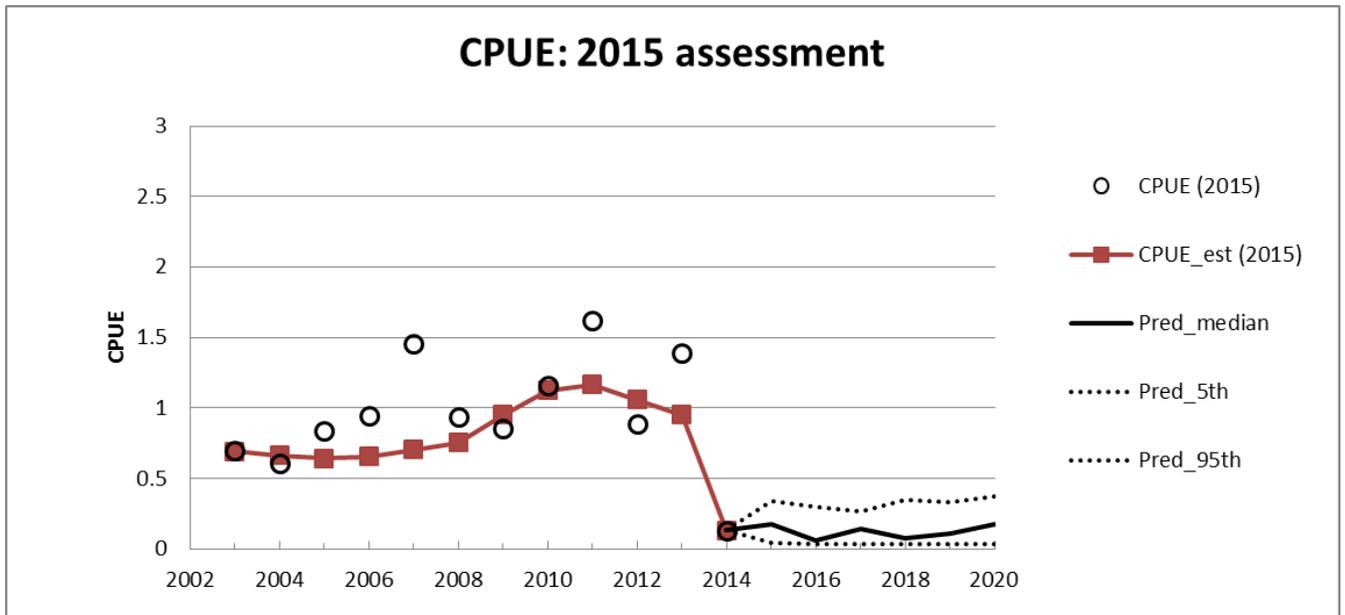


Figure 4a: Scenario 2 CPUE projections, future CC = 38 658.

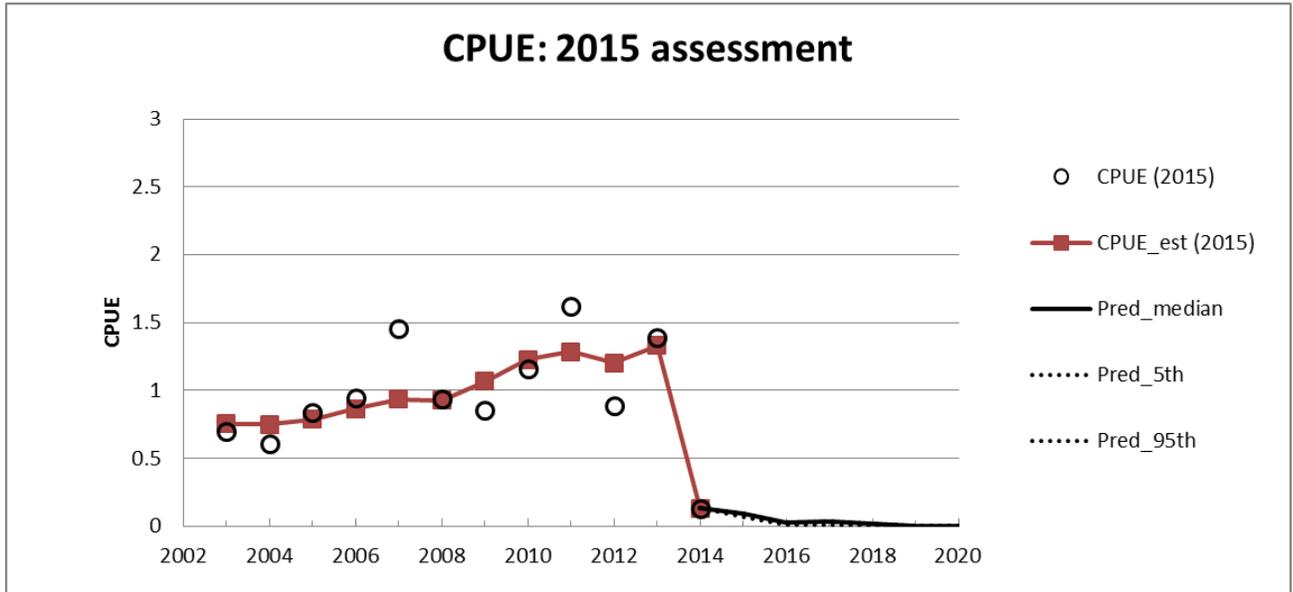


Figure 4b: Scenario 2 CPUE projections, future CC = 10 000.

