

Developing an OMP for Nightingale

S. J. Johnston

MARAM

Department of Maths and Applied Mathematics

University of Cape Town

Step1: Update the Nightingale assessment with all the most recent data which should include:

- Standardised GLM CPUE data up to and including 2016¹. Of particular interest will be to see if the high CPUE values observed since 2013 continue (see Figure 1).
- Commercial CAL data up to and including 2016.
- Biomass survey data from start of 2016 season (Leg1: ~AUG/SEP) – both biomass survey index data and CAL data. Recent biomass CPUE indices (see Figure 1) have been high – does this trend continue?
- Biomass survey data from end of 2016 season (Leg2: ~ FEB) – both biomass survey index data and CAL data – NOTE: note sure is this survey is planned to go ahead?

Step 2: Update the assessment and determine:

- Where the Nightingale resource abundance is now (relative to its pristine level) and to the pre-OLIVA level in 2011.
- How well does the model fit the data – particularly recent CPUE and CAL data? May need to work on improving model fit to these data.
- What would a suitable CPUE target be for this resource? Examine the updated GLM standardised CPUE series. This will be open to input from all parties. Most likely start with a range of targets, and after simulation studies be better placed to make a final decision?
- Develop a set of robustness tests that incorporate the main sources of uncertainty in the resource assessment. The idea is that the OMP should be able to adjust the TAC suitably (up or down) if our reference case set of assumptions are wrong.

Step 3: Develop an OMP

- The OMP will be target-based as for the OMPs for the other three islands.
- There will be annual TAC increase/decrease limits.
- The OMP will also contain an Ilim CPUE value, below which the OMP can decrease the TAC at a faster rate, due to unforeseeable negative circumstances.
- A set of summary statistics will be developed (again with input from all parties) that will be used to assess the performance of each OMP candidate, e.g. average catch, annual catch variability, biomass level at the end of the simulation period.)
- A simulation period will be selected, probably 10 years or 20 years?

¹ The split season is denoted here by the first year only, i.e. 2016 refers to the 2016/2017 season.

- Stochastic simulations will be run for each OMP candidate, where the main sources of uncertainty eg. recruitment variability, will be included.

Figure 1: Most recent Nightingale standardised longline CPUE (top) and biomass survey CPUE (bottom). The vertical arrows indicate the timing of the OLIVA event.

