

PMG meeting – 2 pm (Stanley, Falkland Islands) - 12/09/2023

Attending: Jesse van der Grient, Al Baylis, Michael Harte, Will White, Simon Morley, Andreas Winter, Paul Brickle, James Bates

1. Zooplankton and squid survey update
2. Physiology update
3. Ecosystem model update
4. Literature review on CCA and EAF update
5. Next steps
6. AOB

Agenda

A general update was given on the progress the project has made against the 5 working packages. Generally, working package 1 (project management) has been done apart from ongoing objectives including reporting and PMG meetings. Work package 2 (baseline data) has seen a lot of progress with all desk-based tasks done. The zooplankton surveys are continuing to support a PhD thesis, and the Loligo survey has been conducted. Work package 3 (physiology) is ongoing as the squid respiration experiments will be rerun. The ASC experiment is completed and the SSC experiment will be conducted in Oct-Dec. Work package 4 (modelling) has seen progress with modification to the Ecopath model, and some progress regarding the Ecosim part, but had some difficulties. Work package 5 (Policy) has started.

1. Zooplankton and squid survey update

9 surveys so far have been conducted, totalling 162 samples. These samples are further split in ethanol and formalin for genetic analyses and morphological identification. PhD student Rhian Taylor is currently in Aberdeen (University of Aberdeen), Scotland to obtain training in barcoding. Jesse has managed to collect many fish larvae for her and photographed them. Jesse has obtained two small grants to support isotope work (Shackleton Fund) and genetic analyses of gelatinous zooplankton (John Cheek Fund).

The squid egg mass survey in deeper waters in Berkeley Sound has been conducted on the 11th June 2023. A stratified sampling design has been used to maximise spatial coverage. There was no opportunity to steer the boat at a sufficiently low speed for the camera to stay down, so we let the boat drift and thereby decide the direction of travel. 15 transects were conducted, and the video imagery data have been analysed for the presence of morphospecies, presence of squid egg masses and habitat structure. Many species were identified, including a special frame-building bryozoan (*Microporella* sp.). Two egg masses were observed, indicating that squid have the potential to lay deeper. Transect had a significant effect on the community composition (but not habitat).

Two reports have been written, one on the zooplankton surveys thus far, and one on the squid egg survey, as required under the Darwin funding agreement. Al is currently looking at this, and once ticked off, that would tick off the whole of work package 2 as complete.

2. Physiology update

The respiration rate experiment for the autumn spawning cohort of *Doryteuthis gahi* is pretty much completed. The warming component is finished, and strong responses to temperature change have been measured. There were far fewer hatchlings in the tank compared to last year, and while Jesse has measured their respiration rate, these need to be discussed with Si first. Mantle length and presence of yolk sac have been measured for the hatchlings. Currently Jesse is waiting for the control eggs to hatch to take their respiration rates, mantle length and yolk sac measurements and that would be that experiment complete.

3. Ecosystem model update

The Ecopath model structure has been updated by reconstructing the fisheries fleets. This was in response to the time series data collected on fisheries catches. Time series data for biomasses and environmental variables have been collected, but there are some technological issues that have prevented Jesse from uploading these time series in the model, and thereby preventing the start of the calibration process.

4. Literature review on CCA and EAF

A literature search has started to evaluate the potential and opportunities for climate change adaptation and ecosystem-based approach to fisheries management for the Falkland Islands (and other UK overseas territories in the South Atlantic). The island plans and biodiversity action plans have been reviewed, and many useful papers have been found. This is still in the reading and note-taking stage. It will form the basis of the workshop in February.

5. Next steps

More zooplankton surveys are planned, and the reports will be circulated once checked by AI.

It is waiting for the ASC control eggs to hatch and then that will be finished. The SSC experiment will be conducted in Oct-Dec.

The EwE model calibration will be a priority.

The ecosystem-based approach to fisheries management and climate change adaptation for small island nations (particularly overseas territories) will continue, with an angle towards workshop planning.

6. AOB