**Documents for the MARAM/DAFF International Fisheries Stock Assessment Review Workshop, 2019**

**General:**

**General 1**: Announcement.

**General 2**: Schedule.

**General 3**: Document list.

**General 4**: Presentation of the Panel Report.

**General 5**: IWS 2019 Final Panel Report.

**Hake**

***Primary papers***

**P1**: Dunn, A., Link, J. S., Punt, A. E., Stefansson, G. and Waples, R. S. 2014. Excerpts from the 2014 International Review Panel Report for the 2014 International Stock Assessment Workshop.

**P2**: MARAM/IWS/2019/Hake/P2. Copyright precludes posting. The link is not available.

**P3**: MARAM/IWS/2019/Hake/P3. This preliminary document awaits finalisation before it can be made public.

**P4:** Butterworth, D.S. and Rademeyer,R A. 2014. First cut at broad model specifications for the development of transboundary hake stock assessments. International Stock Assessment Workshop document MARAM/IWS/DEC14/Hake/P10. 4pp.

**P5**: Questions to IWS 2019 Panel with respect to hake, together with brief summaries of the documents provided

**P6**: Japp, D. and Durholtz, D. 2019. Spatial aspects of hakes (Merluccius capensis and M. paradoxus) in the BCLME – a review of available information.

**P7**: Bergh, M. 2019. Use of a no-adult migration model with one-way egg and larval migration in MSE’s.

***Background documents***

**BG1**: Ross-Gillespie, A. and Butterworth, D.S. 2019. Response to the review panel report for the 2018 International Stock Assessment Workshop: Hake.

**BG2**: Durholtz, M.D. 2018. An overview of the SA hake fishery. 8pp.

**BG3**: Waples, R. S. 1998. Separating the Wheat from the Chaff: Patterns of Genetic Differentiation in High Gene Flow Species. 13pp.

**BG4**: Waples, R.S., Punt, A. and Cope, J. 2008. Integrating genetic data into management of marine resources: how can we do it better? Fish and Fisheries, 2008, 9, 423-449. 27pp. DAFF Fisheries Branch document FISHERIES/2018/OCT/SWG-DEM/73.

**BG5**: Waples, R. 2015. Testing for Hardy-Weinberg Proportions: Have We Lost the Plot? Journal of Heredity, 2015:106(1):1-19. 19pp.

**BG6**: Waples, R., Hoelzel, A., Gaggiotti, O., Tiedemann, R., Palsboll, P. J., Cipriano, F., Jackson, J., Bickham, J. and Lang, A. 2018. Guidelines for genetic data analysis. J. Cetacean Res. Manage. 18: 33-80, 2018. 48pp.

**BG7:** Some inferences from an overview of genetic and other information regarding some key aspects of M. paradoxus stock structure off South Africa and Namibia. Fisheries document FISHERIES/2019/AUG/SWG-DEM/11. 7pp.

**BG8:** Jansen, T., Kainge, P., Singh, L., Wilhelm, M., Durholtz, D., Stromme, T., Kethena, J, and Erasmus, V. 2015. Spawning patterns of shallow-water hake (Merluccius capensis) and deep-water hake (M. paradoxus) in the Benguela Current Large Marine Ecosystem inferred from gonadosomatic indices. Fisheries Research 172 (2015) 168-180. 13pp.

**BG9**: Kainge, P., Kjesbu, O. S., Thorsen, A. and Salvanes, A. G. 2007. Merluccius capensis spawn in Namibian waters, but do M. paradoxus? African Journal of Marine Science 2007, 29(3): 379-392.

**BG10**: Ross-Gillespie, A. and Butterworth, D.S. 2019. Updated specifications, conditioning results and projections for the Hake OMP2018 Reference Set models. Fisheries document FISHERIES/2019/MAR/SWG-DEM/03.

**BG11**: Ross-Gillespie, A. and Butterworth, D.S. 2019. Update to the hake Reference Case model incorporating the 2018 commercial and 2019 survey data. Fisheries document FISHERIES/2019/OCT/SWG-DEM/22rev.

**BG12**: MARAM/IWS/2019/Hake/BG12. Copyright precludes posting. The link is not available.

**BG13**: Kathena, J. N., Nielsen, A., Thygesen, U. H. and Berg, C. W. 2016. Hake species (Merluccius capensis and M. paradoxus) assessment in the Benguela Current Large Marine Ecosystem. Environmental Development 17 (2016) 193-201.

**BG14**: Jansen, T., Kristensen, K., Kainge, P., Durholtz, D., Stromme, T., Thygesen, U. H., Wilhelm, M., Kathena, J., Fairweather, T., Paulus, S., Degel, H., Lipinski, M. and Beyer, J. 2016. Migration, distribution and population (stock) structure of shallow-water hake (Merluccius capensis) in the Benguela Current Large Marine Ecosystem inferred using a geostatistical population model. Fisheries Research, 179 (2016) 156-167.

**BG15**: Jansen, T., Kristensen, K., Fairweather, T. P., Kainge, P., Kathena, J. N., Durholtz, M. D., Beyer, J. E. and Thygesen, U. H. 2017. Geostatistical modelling of the spatial life history of post-larval deepwater hake Merluccius paradoxus in the Benguela Current Large Marine Ecosystem. African Journal of Marine Science, 39:3, 349-361. 14pp.

**BG16:** Lah, L. Trense, D., Benke, H., Berggren, P., Gunnlaugsson, P., Lockyer, C., Ӧztürk, A., Pawliczka, I., Roos, A., Siebert, U., Skόra, K., Víkingsson, G. and Tiedemann, R. Spatially Explicit Analysis of Genome-Wide SNPs Detects Subtle Population Structure in a Mobile Marine Mammal, the Harbor Porpoise.

***Slides and presentations***

Hake opening presentation.

Waples, R. Analysis of population genetic data: Identifying populations or stocks.

Tiedemann, R. Molecular DNA markers suitable for population/stock delimitation and assignment.

**Kingklip**

***Primary papers***

**P1**: Henriques, R., Nielsen, E., Durholtz, D., Japp, D. and von der Heyden, S. 2017. Genetic population sub-structuring of kingklip (Genypterus capensis – Ophidiidiae), a commercially exploited demersal fish off South Africa.

**P2**: Questions to IWS 2019 Panel with respect to kingklip, together with brief summaries of the documents provided.

## *Background Documents*

**BG1**: Singh, L., Japp, D. and Durholtz, D. Kingklip Stock Structure: Information Document prepared for the annual IWS in December 2019.

**Sardine**

***Primary papers***

**P1**: List of key questions for the panel regarding sardine, together with brief summaries of the documents provided.

**P2**: de Moor, C.L. and Coetzee, J.C. A summary of the method used to provide 2019 catch limit advice for South African sardine.

**P3**: de Moor CL, Butterworth DS and Coetzee JC. 2019. Uncertainties and associated concerns relating to using short‐term projections to advise on the 2020 sardine TAC and TABs.

## *Background Documents*

**BG1**: Coetzee, J.C., de Moor, C.L. and Butterworth, D.S. A summary of the South African sardine (and anchovy) fishery.

**BG2**: de Moor, C.L. and Butterworth, D.S. Progress on recommendations from the 2018 review panel report.

***Slides and presentations***

South African Sardine:Setting TAC/Bsduring Exceptional Circumstances (and beyond).

A summary of the South African sardine resource and fishery.

***Working papers***

**WP1:** Additional information regarding trawl samples taken during the November 2018 pelagic biomass survey.

**West Coast Rock Lobster**

***Primary papers***

**P1:** Brandão, A. and Butterworth, D.S. Trends in poaching for West Coast rock lobster from modelling the “old” and the “new” databases simultaneously updated to 2018.

**P2:** Johnston, S.J. and Butterworth, D.S. Updates to West Coast Rock Lobster assessments and projections following recommendations made by IWS 2018 panel.

**P3**: Johnston, S.J. and Butterworth, D.S. Recent work pursued for West Coast rock lobster.

**P4**: Johnston, S.J. and Butterworth, D.S. Including stock-recruitment relationships in West Coast rock lobster projections.

**P5**: Johnston, S.J. and Butterworth, D.S. Questions to IWS 2019 Panel with respect to West Coast rock lobster, together with brief summaries of the documents provided.

***Background documents***

**BG1**: Johnston, S.J. and Butterworth, D.S. A summary of the west coast rock lobster fishery.

**BG2**: Johnston, S.J. and Butterworth, D.S. Final poaching trends for the west coast rock lobster fishery.

**BG3:** Johnston, S.J. and Butterworth, D.S. Follow up on IWS 2018 workshop recommendations made with respect to West Coast rock lobster.

***Slides and presentations***

WCRL introductory presentation.

***Working papers***

**WP1:** Johnston, S.J. Responses to various panel requests.

**WP2:** Johnston, S.J. and Butterworth, D.S. The size-structured (length-based) stock assessment methodology applied to west coast rock lobster.

**WP3:** Brandão, A. and Butterworth, D.S. Trends in poaching for West Coast rock lobster from modelling the “old” and the “new” databases simultaneously.

**WP4:** Waples, R. Comments on the rock lobster growth rate decline.

**Penguins**

***Primary papers***

**P1**:  Questions to IWS 2019 Panel with respect to penguins, together with brief summaries of the documents provided

**P2**: Ross-Gillespie A. and Butterworth D.S. 2019. Updated GLMM results for the South Coast penguin colony foraging data (Fisheries document FISHERIES/2019/NOV/SWG-PEL/27rev)

**P3**: Ross-Gillespie A. and Butterworth D.S. 2019. Results for GLMM analyses of the South Coast penguin colony chick condition data (Fisheries document FISHERIES/2019/NOV/SWG-PEL/33)

**P5**: Ross-Gillespie A. and Butterworth D.S. 2019. Is pseudo-replication biasing results from analyses from the island closure experiment which model individual penguin responses directly? (Fisheries document FISHERIES/2019/NOV/SWG-PEL/34rev)

**P6**: Winker H. and Sherley R.B. 2019. Brief reply to Butterworth and Ross-Gillespie: “Is pseudo-replication biasing results from analyses from the island closure experiment which model individual penguin responses directly?” (Fisheries document FISHERIES/2019/NOV/SWG-PEL/37rev.)

**P7:** Butterworth D.S. and Ross-Gillespie A. 2019. Response to MARAM/IWS/2019/PENG/P6

**P8**: Winker H. and Sherley R.B. 2019. Response to MARAM/IWS/2019/PENG/P7

***Background documents***

**BG1**: Coetzee J.C. 2019. The experimental closure to purse-seine fishing around some African Penguin breeding colonies.

**BG2**: Penguin Island Closure Task Team. Consolidated analyses produced in implementation of the approaches described in document MARAM/IWS/DEC15/PengD/P1.

***Slides and presentations***

Penguin introductory presentation.

Use of individual vs. annual aggregate data in modelling marine resource dynamics.

***Working papers***

**WP1:** Update of Table 1 from PENG/P7 including the effective specifications for run 5 and 10 of PENG/P5

**WP2:** Ross-Gillespie, A. and Butterworth, D.S. Relationship of equation (1) of PENG/P4 to equation (4) of PENG/P7

**WP3:** Sherley, R.B, and Winker, H. Some observations on comparisons of fitting to the annual means and the observation-level data for the cases in MARAM/IWS/DEC19/Peng/P4 that support a positive effect of the island closures experiment on African penguins.

**WP4:** Ross-Gillespie, A. and Butterworth, D.S. Introducing an imbalance in the sampling from the unknown covariate from OM3.

**WP5:** Winker, H. Initial comments on the remaining limitations of MARAM/IWS/2019/Peng/WP4: “Introducing an imbalance in the sampling from the unknown covariate from OM3.”