

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

Questions are separated into those pertaining to the proposed short-term projection methodology expected to be used to set the 2020 sardine TAC and TABs and those which would apply to general best practice, in particular what to use when next developing an OMP for South African sardine.

Short term projections, particularly to November 2020

- 1) What is the best way to account for the under-representation of large sardine in the November 2018 survey length frequency? What is the best way to determine if a commercial or survey length frequency should be down weighted (in particular, for example, the 2019 length frequencies)? If a survey length frequency is biased or unrepresentative, what is the best length frequency (e.g. weighted survey and commercial) i) to apply to the interval-specific densities used in calculating the survey estimate of biomass and ii) to use as data to condition the assessment model. If a commercial length frequency is biased or unrepresentative, what is the best length frequency for conditioning the assessment model?
- 2) What is the best way to model recruitment in the *immediate future*¹ for both the west and south components of South African sardine?
- 3) For the highly depleted sardine resource under Exceptional Circumstances provisions, the decision on TAC and TAB recommendations amounts to the choice of what fraction of any projected population growth should remain in the resource to improve future recovery prospects, and what should be taken as a harvest, noting the high dependency of 1-year ahead projections for this short-lived species on the assumed incoming recruitment. What are typical splits used in these circumstances for similar fisheries elsewhere?

Long-term analyses / General Best Practice

- 1) As 1) above, but with a longer-term focus.

¹ i.e. November 2019, and if projections are considered over a few years, then for subsequent years too.

- 2) How might one best model future recruitment to both the west and south components of South African sardine?
- 3) What is the best way to account for the apparent conflict in assumptions about the shape of the growth curve and range of t_0 between the fit to the data (particularly the parasite prevalence-at-length) and 'conventional understanding' that peak spawning/recruitment occurs between September and January for the west component.

A brief description of each document is provided in red italics.

Primary papers

MARAM/IWS/2019/Sardine/P1: List of key questions for the panel regarding sardine, together with brief summaries of the documents provided.

MARAM/IWS/2019/Sardine/P2: de Moor CL and Coetzee JC. 2019. A summary of the method used to provide 2019 catch limit advice for South African sardine.

Because of the very low sardine abundance surveyed in November 2018, Exceptional Circumstances were declared and any TAC/Bs arising from the OMP were set aside. Instead, short term (1-year) projections based on an initial updated assessment were used to provide a scientific recommendation for sardine catch limits for 2019. This document provides some necessary background to P3 and the key questions.

MARAM/IWS/2019/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.

Provides details pertaining to some uncertainties and associated concerns related to using short-term projections to set sardine TAC and TABs during Exceptional Circumstances. Some key uncertainties considered during the analyses used to set the 2019 catch limits are no longer a high concern given further information now available and/or changes in the model assumptions. Uncertainties that remain are described herein and link to all of the key questions above.

Background documents

MARAM/IWS/2019/Sardine/BG1: Coetzee JC, de Moor CL and Butterworth DS. 2019. A summary of the sardine (and anchovy) fishery.

A summary document providing an overview of the sardine resource and fishery, and a brief description of the data available, assessments and management of the fishery.

MARAM/IWS/2019/Sardine/BG2: de Moor CL and Butterworth DS. 2019. Progress on recommendations from the 2018 review panel report.