International Consultations on the Establishment of the
South Pacific Regional Fisheries Management Organisation

Sixth International Meeting
Canberra, Australia
29 September - 3 October 2008
Jack mackerel Sub-Group

Terms of Reference
Workshop on the Stock Assessment Framework for the Jack Mackerel.

1. Rationale

The WS hold in July 2008 in Santiago, Chile, permitted among its main results to define working hypothesis on the jack mackerel stock structure in the South Pacific and to learn about the information that could be available for a stock assessment. However the stock assessment requires a technical framework based on the methods and technical criteria that would permit to establish the size and condition of the harvested jack mackerel stock. The condition of the stock needs to be determined in accordance to criteria previously defined.

The structure of the observational and process models that express the dynamics of the stock is necessary to be identified and defined. The models considered to represent the errors of observation and of processes are essential for the results of the stock assessment. In this sense is a common practice the setting of the weightings level of the (hiper-priors) different terms in the objective function to be minimized. The statistical method approach requires an adequate formulation of the likelihood functions. In the Bayesian case, besides the values of those that correspond to fixed parameters, like the natural mortality, also the “a priori” distribution of key parameters needs to be identified.

Finally, it is necessary to agreed upon the stock assessment platform to be employed and that would permit a fast and easy integration of the available information, parameters and hypothesis on the population dynamics processes and of the fishery, like natural mortality, sexual maturity ogive, selectivity patterns, fleets, etc. That is, on the statistical framework for calibration of a population dynamics model using a diversity of fishery and survey data, like STOCK SYNTHESIS. Transparency of the stock assessment process is an important argument here.

Consequently, previously to the actual stock assessment a workshop is necessary to develop a general framework that would facilitate the stock assessment process to determine the stock condition and to identify the calculation procedure of the catch levels with their associated risk levels.

2. Objectives

- To agree on a stock assessment approach
- To select a statistical platform to conduct the stock assessment
- To identify target biological reference points and limit reference points to facilitate the diagnosis of the stock
- To review life cycle variables that will be integrated in the stock assessment (M, Sexual maturity, etc.)
- To identify the calculation rule to estimate catch levels and associated risk
- To propose an organization for the working group. Representation of the major countries participating in the fishery is desirable.
- To write a working protocol with all the aspects defined before.

3. Organization

- One chair and two rapporteours
- Discusion of papers (published or elaborated by the participants)

4. Work program

- A three days workshop is proposed