Report of the expert consultation workshop on management strategy evaluation

SC12-MI-WP-05

WCPFC12
Bali, Indonesia
August 2016

Background

- WCPFC12 agreed that there will be no MOW/HSW in 2016
- SC12 directed to include, under the Management Issues agenda item, the necessary discussions to progress the harvest strategy approach.

- The Commission adopted the workplan for the adoption of harvest strategies under CMM2014-06.
  - SKJ and ALB (2016-17)

- WCPFC funded an MSE expert consultation workshop
  - Discuss technical issues associated with developing an MSE framework
  - Get advice from experience in other tRFMOs (IOTC, SBT)
  - Develop a road-map for future work

Meeting Participants

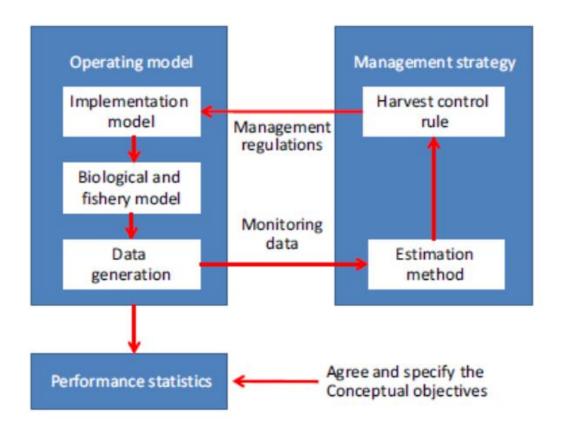|		
John Annala (chair)	MPI, Wellington, New Zealand	Invited Expert
Nokome Bentley	Trophia Ltd. New Zealand	Invited Expert
Rob Campbell	CSIRO, Melbourne, Australia	Invited Expert
Campbell Davies	CSIRO, Hobart, Australia	Invited Expert
Nick Davies	Te Takina Ltd, New Zealand	SPC
John Hampton	SPC, Noumea New Caledonia	SPC
Shelton Harley	MPI, Wellington, New Zealand	Invited Expert
Graham Pilling	SPC, Noumea New Caledonia	SPC
Chris Reid	FFA, Honiara, Solomon Islands	FFA
Victor Restrepo	ISSF, Washington DC, USA	Invited Expert
Robert Scott	SPC, Noumea New Caledonia	SPC
Sung Kwon Soh	WCPFC, Kolonia, Pohnpei	WCPFC
Ana Parma	Centro Nacional Patagonico, Chubut,Argentina	Invited expert
André Punt	University of Washington, Seattle, USA	Invited expert

Report Structure

- General Considerations and Recommendations
  - Operating Model
  - Management Strategy
  - Other Issues
    - How to include economics into the evaluations
    - Risk
    - Communication and participation

- WCPO Skipjack

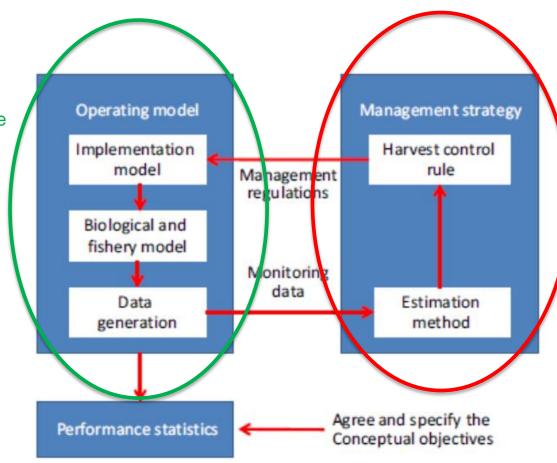- South Pacific Albacore

- Future Arrangements

MSE Framework

Punt, A. E., Butterworth, D., de Moor, C., De Oliveira, J. and Haddon, (2016) Management strategy evaluation: best practices. Fish and Fisheries, 17(2), 303-334, 2016

MSE Framework

OM
represents the true underlying dynamics of the resource, and relationship between state variables and data

Operating model

Implementation model

Biological and fishery model

Data generation

Management regulations

Monitoring data

Management strategy

Harvest control rule

Estimation method

Performance statistics

Agree and specify the Conceptual objectives

MP
Comprises the methods used to estimate stock status, and the HCR

Performance of the HCR is conditional on the Estimation method and the data collection processes
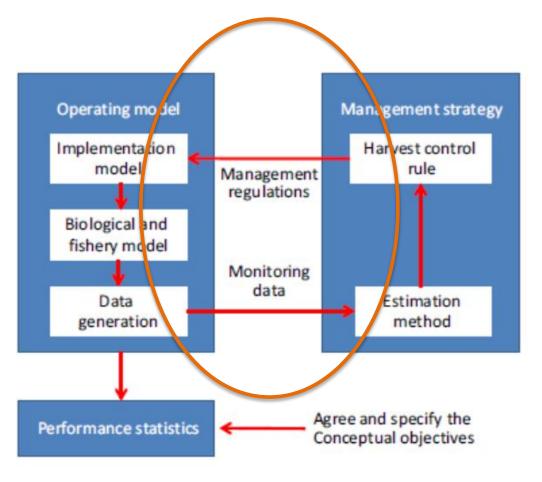
So these need to be considered as a whole

Operating Model Considerations

- MULTIFAN-CL is a useful tool for developing the OM – but developments will be required.

- Uncertainty grid was a starting point for capturing key uncertainties.

- Uncertainty
  - Process Error (underlying stochasticity)
  - Model Error (model misspecification, especially for spatial models)
  - Outcome Error (because management action not perfectly implemented)
  - Parameter Error (ability of models to estimate parameters).

Outcome Error

Important Consideration

Can arise through both legal and illegal activities

Need to think about how the results of the HCR will be implemented

Risk

- Acceptable level of risk of falling below LRP not yet agreed by WCPFC
  - Consequences of falling below the LRP
  - Relative trade-offs in other performance indicators

- Can be presented as a performance indicator to allow a decision based on the relative trade-offs with other management objectives.

- Possible to choose an interim value now but may be revisited as the MSE process progresses.

Economics

- Initial approach is to capture economics as performance indicators to allow comparison of economic consequences of candidate management strategies.
- Post hoc application of economics
  - i.e. no internal feedback from economic processes (simpler)
- Multi-species fisheries
  - Parallel single species models
- Choice of economic indicators
  - What gets measured and how
  - Potential for a very large number of performance indicators

General Considerations

- Monitoring
  - Track the actual performance of the management strategy
  - Revisit the operating model to check that data and assumptions remain appropriate.
  - More discussion on this may be necessary

- Exceptional Circumstances
  - When observations fall outside the range indicated for the projections by the MSE.
  - Important topic for discussion with stakeholders

- Communication and Participation
  - Iterative approach

Skipjack

- Management Strategy likely to be based on an analytical estimation method
  – Purse seine CPUE difficult to interpret
  – Reliance on tagging data

- Significant concern for the availability of future data
  – Jeopardises future stock assessments
  – Significant problem for MSE

- Alternative sources of information on the fishery ?
  – FAD data
  – Future tagging programs

Albacore

- Management Strategy can be based on an empirical or analytical estimation methods

- Standardised longline CPUE
  - Access to operational longline data in order to get a representative index for the whole fishery.
  - Varying spatial and temporal coverage of logbook data
  - Methods for calculating regional weightings
  - Targeting
    - Methods for estimating targeting
    - Temporal and spatial changes in targeting

Future Arrangements

- Dedicated technical working group
  - Technical discussion and review
  - Reports formally to the Scientific Committee

- Stakeholder consultation workshops
  - Interactive workshop to focus on development of HCRs, implementation errors, performance indicators etc.
  - Consider outputs of evaluations for subsequent review by the Commission.

- Continued involvement of experts to provide scientific and technical expertise on MSE and review of the process.

Recommendations to SC

We invite the SC to:

o <u>Note</u> the concern of the workshop on the future availability of data for skipjack and to consider how these data can continue to be provided and what alternative data may be available to support the assessment and MSE

o <u>Note</u> that both empirical and model-based management strategies could be tested for South Pacific albacore but that CPUE based methods may be dependent on access to operational longline logbook data,

o <u>Endorse</u> the recommendation of the workshop for a dedicated technical working group and a second interactive working group to facilitate the development of the operating models and management procedure components of the MSE.