Introduction
Management Framework
Risk, limits and uncertainty
Approach
Analysis
Discussion

SECRETARIAT OF THE PACIFIC COMMUNITY
SECRÉTARIAT GÉNÉRAL DE LA COMMUNAUTÉ DU PACIFIQUE

Acceptable levels of risk of exceeding Limit Reference Points:

Uncertainty and implications for Target Reference Points and Harvest Control Rules

MOW3/WP-02

SPC-OFP
MOW3 Meeting, Apia, Samoa
Friday 28th November 2014

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Introduction

Aims

- Introduce the concept of uncertainty in the evaluation of management options;
- Demonstrate the relationship between acceptable risk and uncertainty and potential minimum standards for target reference points;
- Show what this all means for where the stocks are now; and
- Highlight the importance of developing Harvest Control Rules so that we can more fully evaluate the implications of particular levels of risk.

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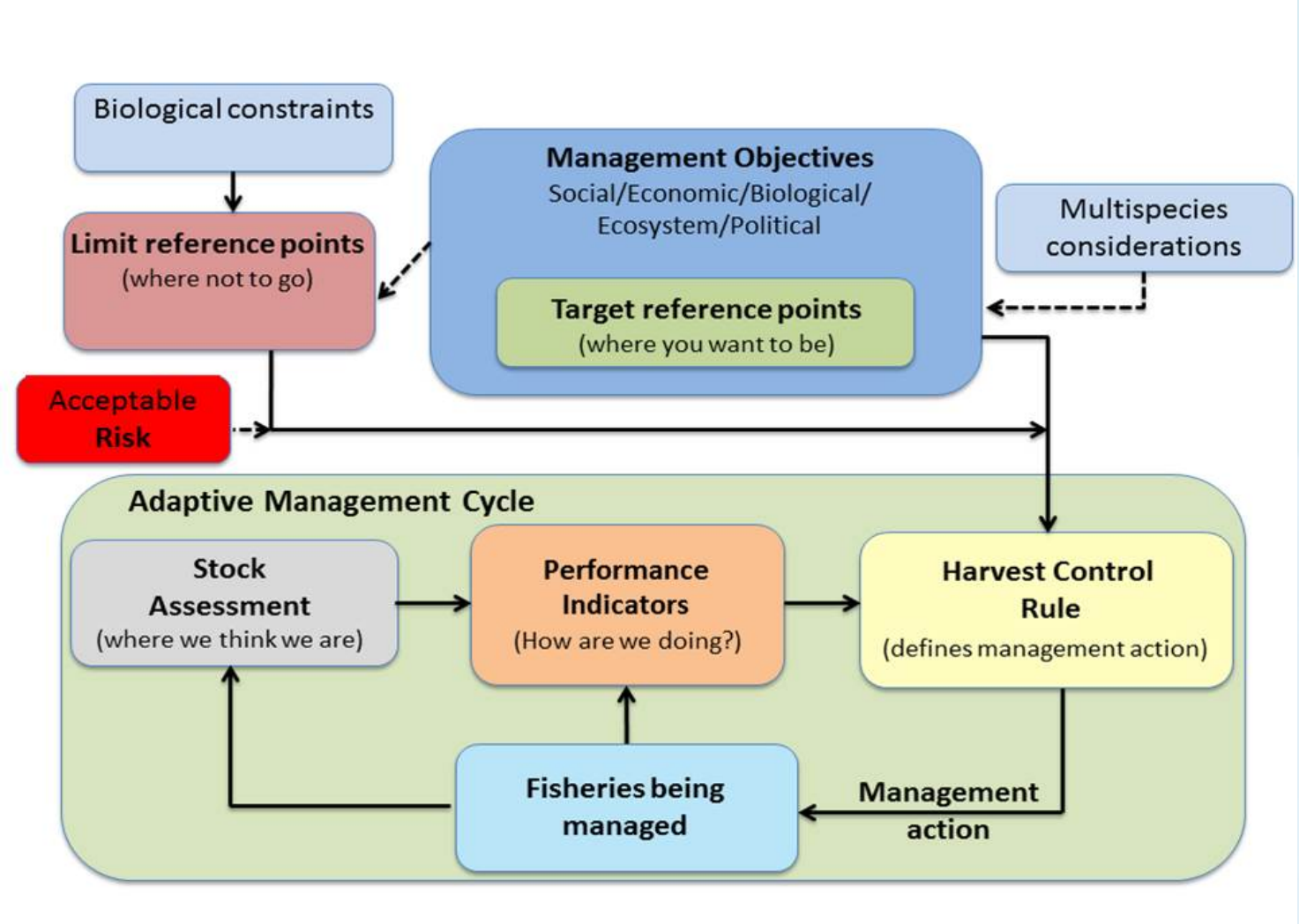
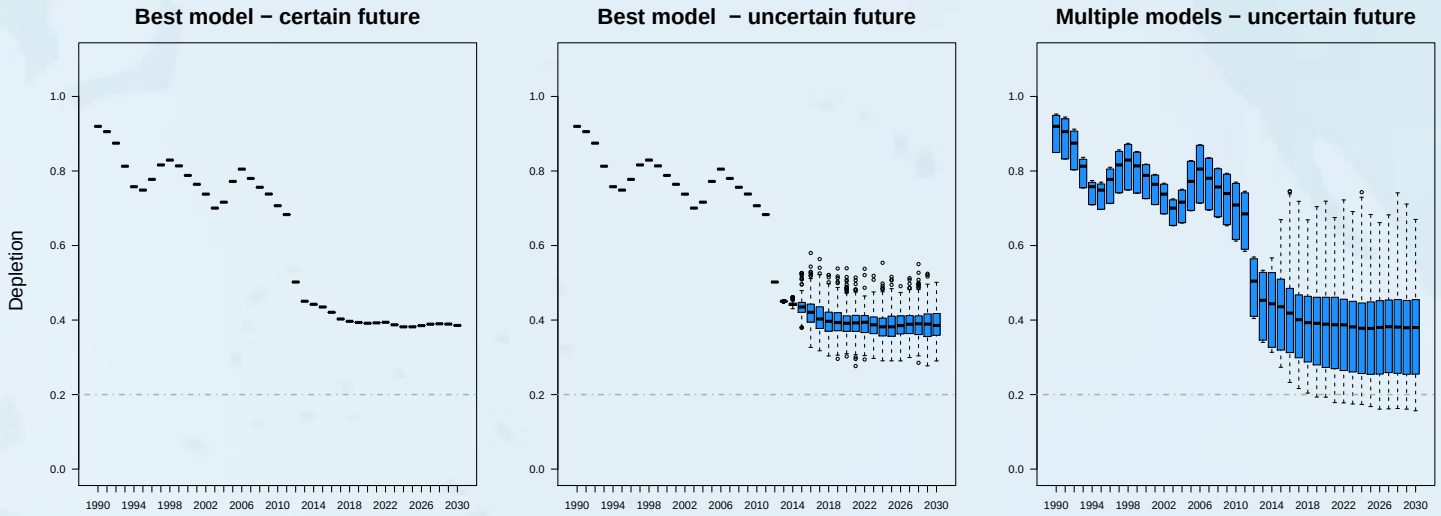
Management Framework



What is risk?

How much uncertainty?



Approach

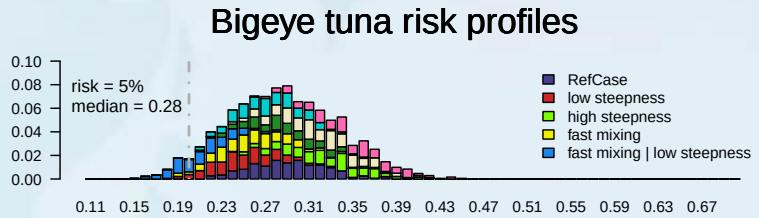
Basis

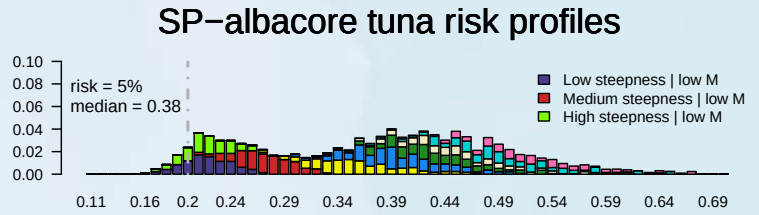
- 30 year stochastic projections across a range of models for the four tuna stocks

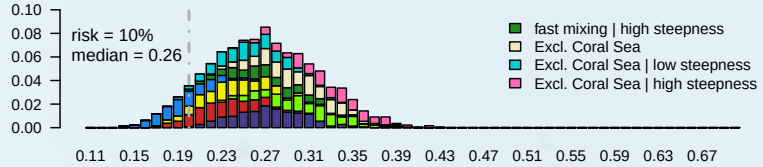
Methods

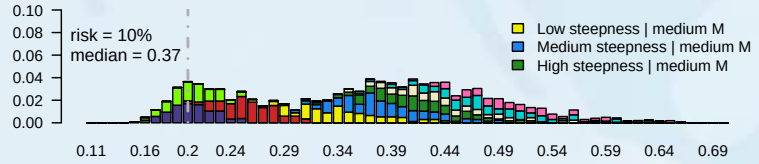
1. Undertake projections for several models and combine results taking into account SC10 plausibility weighting
   - Find scalars that gave a 5, 10, 15, and 20 % risk of exceeding the LRP
   - Compile important performance metrics including median depletion level

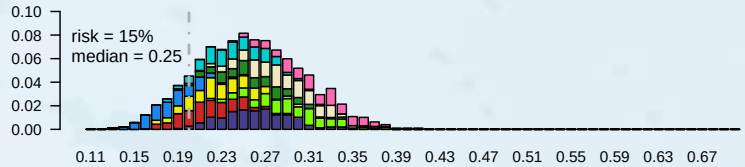
Distribution of depletion for different scalars0

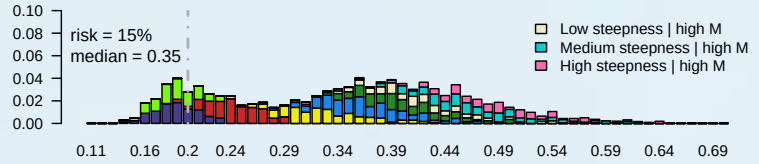


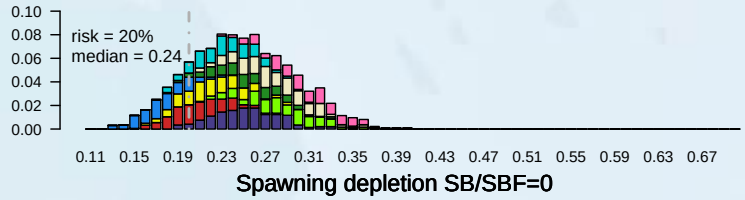


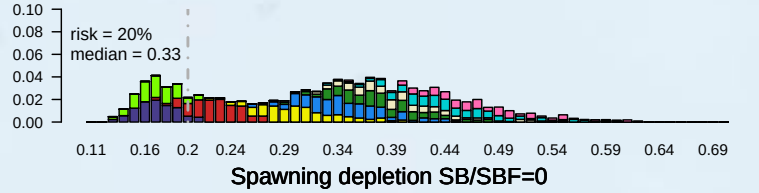












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General lessons

- The lower the acceptable risk, the higher and further away from the LRP you need to keep the stock;
- The greater the uncertainty, the higher and further away from the LRP you need to keep the stock; and
- The expected average biomass levels here give some indication of the minimum value of a TRP that could be compatible with the LRP and a given risk level.

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Discussion

1. How do we chose a risk level?
2. What might be the consequence of breaching the LRP for the different stocks?
3. Could allowable risk levels vary by species?
4. How does uncertainty impact on our allowable exploitation levels and what does this mean?