WCPFC
MANAGEMENT OBJECTIVES WORKSHOP

Manila, Republic of the Philippines
28-29 November 2012

REFERENCE POINTS IN PRACTICE

MOW1-PRES/08
28 Nov 2012

SPC-OFP
Agenda item 4.3
How do we use Reference Points in practice? (Harvest Control Rules)

SPC, OFP
MOW1-WP-07
Current approach

- Population projections
- Fixed (constant) conditions assumed into the future
- Uncertainty can be incorporated
‘Dynamic’ projections

• Management does not set fishing levels for long periods
  – Adjustment based on latest information
• More realistic: adapt management decisions based on regular stock assessments

• ‘Management Strategy Evaluations’
• Allow the testing of different strategies for:
  – Ability to achieve Management Objectives (TRPs)
  – Robustness to uncertainty
‘Dynamic’ projections

Management Strategy Evaluation (MSE)

Management strategy decisions
- data collection
- stock assessment
- harvest control rules
- management intervention timing

Projected consequence

Projection model of real world

Management action

Option 1
Option 2
Option 3 (others)

Uncertainty
‘Dynamic’ projections

- Now need to define the management decisions that ensure the target reference points are reached, and hence the objectives are achieved:
  - Harvest Control Rules
What are harvest control rules?

• MSC definition:
  – “A set of well-defined pre-agreed rules or actions used for determining a management action in response to changes in indicators of stock status with respect to reference points”

• The annual level of fishing is defined by the HCR, not through annual negotiation (quicken management response time)
Key Features

• target and limit reference points incorporated
• specify pre-agreed responses to changes in the status of the stock relative to reference points
• increase transparency in how harvest management decisions are made
An example
Water rationing

Good water supply

Action

No action needed

No washing cars

Water rationing

Water level

Little water

Plenty

Supplies falling
Examples – operationalize reference points

Control measure
(For catch or effort based)

LRP  TrRP  TRP

Stock status
‘Sliding’ HCR

Adjustments fishing level if stock status declines. Higher levels are permitted with improved stock status.

- moderate yields
- lower levels of risk
- higher variation in yield
- gradual changes
HCR testing

• Variety of harvest control rules available
• Need to test them prior to implementation
• A number of HCRs may achieve one/some/all of the objectives
  – But may do this in different ways
  – But may have very different consequences for different fleets/stocks/timescales
Evaluating tradeoffs

- Need to present results and trade-offs to stakeholders to allow them to select the 'best' HCR
Early days

• Currently evaluating reference points
• HCRs are being evaluated at the same time
• WCPFC work will progress in the near future
Kobe II Strategy Matrix

- Approach to display advice to managers
- Displays what catch/effort level will likely achieve goals in what timescale
- Tool to facilitate precautionary actions

### SP Albacore

<table>
<thead>
<tr>
<th>Management Target</th>
<th>Time Frame</th>
<th>Probability of Meeting Target</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Control Rule A</td>
</tr>
<tr>
<td>SB &gt; 50%SB₀</td>
<td>5 years</td>
<td>0.83</td>
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<tr>
<td></td>
<td>20 years</td>
<td>0.60</td>
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