



**WCPFC
MANAGEMENT OBJECTIVES WORKSHOP**

Manila, Republic of the Philippines
28-29 November 2012

**MANAGEMENT FRAMEWORK AND MANAGEMENT OBJECTIVES (2)
AND INDICATORS**

**MOW1-PRES/06
28 Nov 2012**

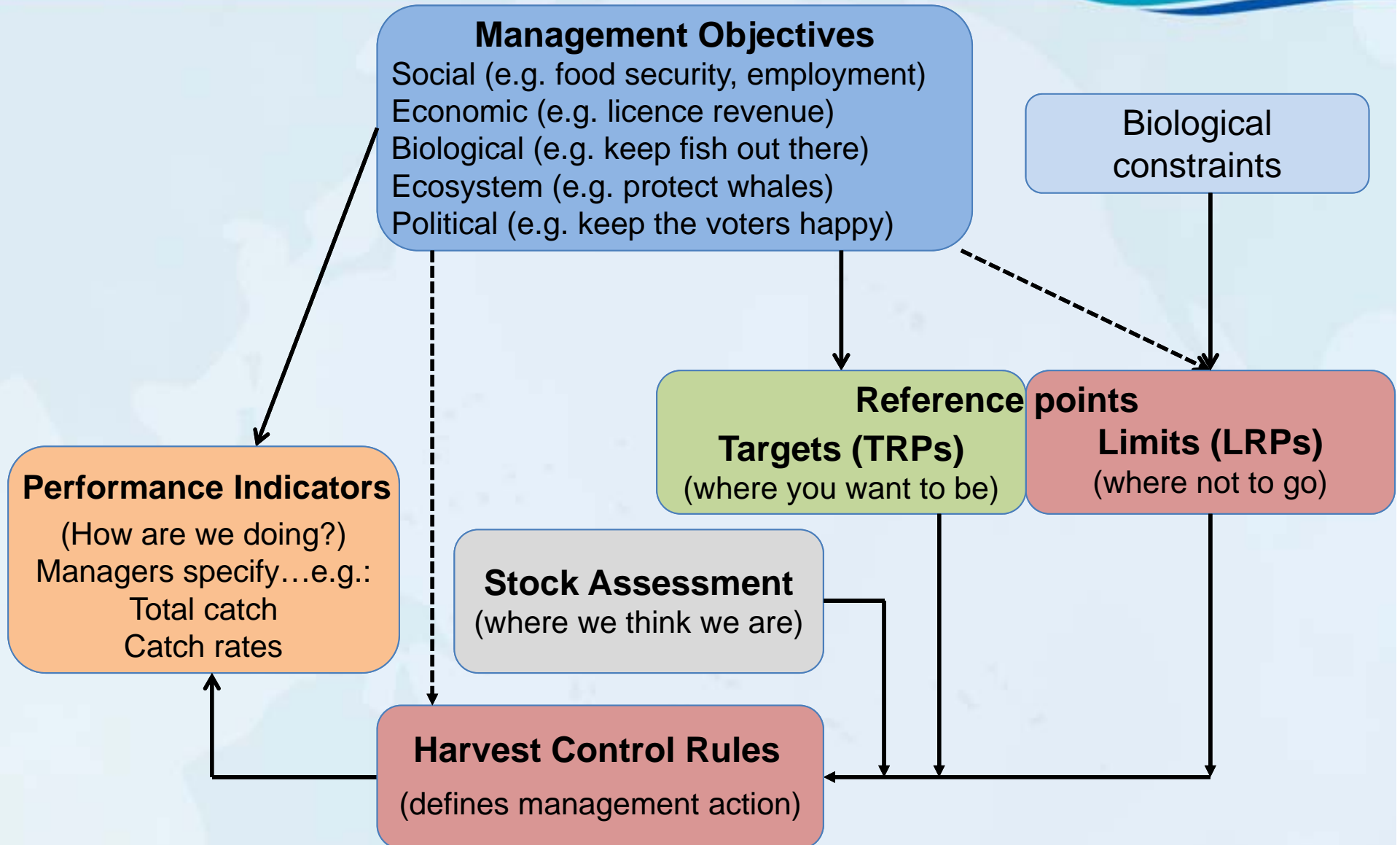
SPC-OFP



Agenda item 4

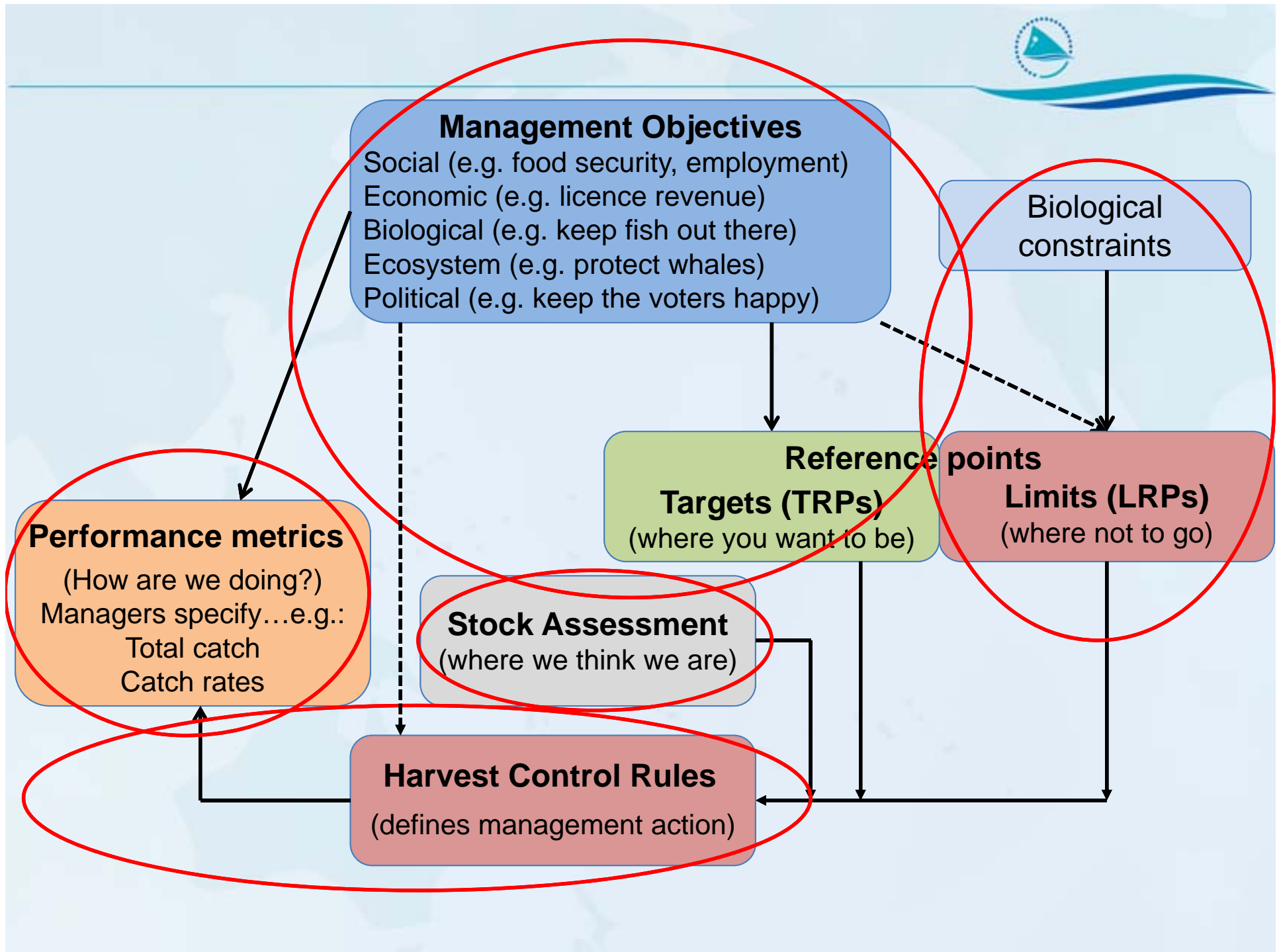
Management framework

SPC, OFP
MOW1-WP-04





Roles in the process





Agenda item 4.1

Performance indicators

SPC, OFP
MOW1-WP-05



Structure

- What are performance indicators?
 - And how do they link to Management Objectives?
- What is the current approach in WCPFC?
- Trade-offs



What are performance indicators?

- Provide a means to see whether Management Objectives are being achieved
- The indicators are defined by Objectives
 - Biological
 - Economic
 - Social
 - Ecosystem
 - Political
 - ...



Biological indicators

- Objective:
 - stock sustainability/long term viability
- Indicators:
 - Size of the stock, e.g. total biomass, adult (spawning stock) biomass
- Source:
 - Stock assessment models



Economic indicators

- Objective:
 - Maximising fishery profitability
 - Maximising licence revenue
 - Minimising year-on-year variability
 - Indicators:
 - Profits from the fishery
 - Licence revenue
 - Catch rates
 - Source:
 - Direct from the fishery
 - Stock assessment models
- Conflicting objectives?



Social indicators

- Objective:
 - Maximising employment
 - Protecting artisanal/local fisheries
- Indicators:
 - Employment levels
 - Stock size
- Source:
 - Country-level employment statistics
 - Creel surveys
 - Stock assessment models



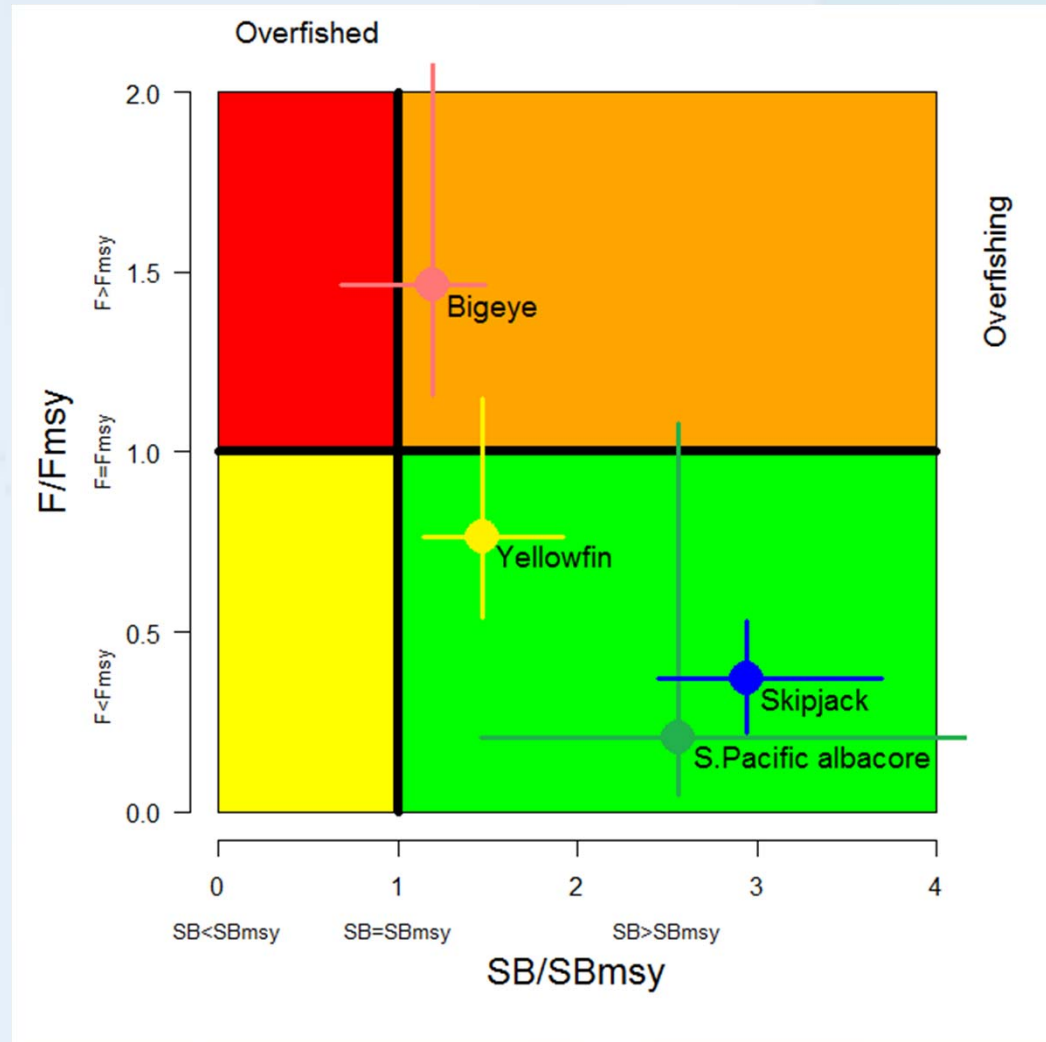
Current approach

Indicators:

- Biomass
- Fishing mortality

Objectives:

- MSY or greater
- avoiding overfishing
- NOT explicitly
- Maximising profits
- Minimising inter-annual variability





Example: – The WCPFC Science Committee has recommended a 30% reduction in fishing mortality of bigeye tuna to maintain the stock at levels that will support Maximum Sustainable Yield. In this case:

- The reference point is “the fishing mortality that results in Maximum Sustainable Yield” (F_{MSY});
- The indicator is “fishing mortality”, and its current level is 30% above the reference point.



Competing objectives

- Objectives may vary between stakeholders
- Those objectives may compete
- How do you balance these?





Competing objectives & trade-offs

Example: choosing an airplane ticket to Manila

Objectives

1. Minimize cost
2. Maximize convenience
3. Maximize comfort
4. Maximize benefits

Indicator

- price
- arrival time
departure time
- flight duration
seat assignment
- frequent flyer reward



Competing objectives & trade-offs

- Fisheries objectives are no different, e.g.:
 - Maximising employment ~ more vessels?
 - Maximising profits ~ fewer vessels?
- Very different conditions in the fishery to achieve these
- Trade-off objectives:
 - Fishery state that achieves one in full over others
 - Fishery state that partially fulfills all?



Role of indicators

- Indicators monitor how well Management Objectives are being achieved, allow trade-offs to be quantified
- Choice of Objectives needs to be explicit to allow relevant indicators to be chosen
- Selection of indicators therefore critical to allow:
 - Monitoring of management in fisheries against objectives
 - Allowing performance of alternative strategies to be tested and compared