ISC Management Strategy Evaluation (MSE) Activity Report

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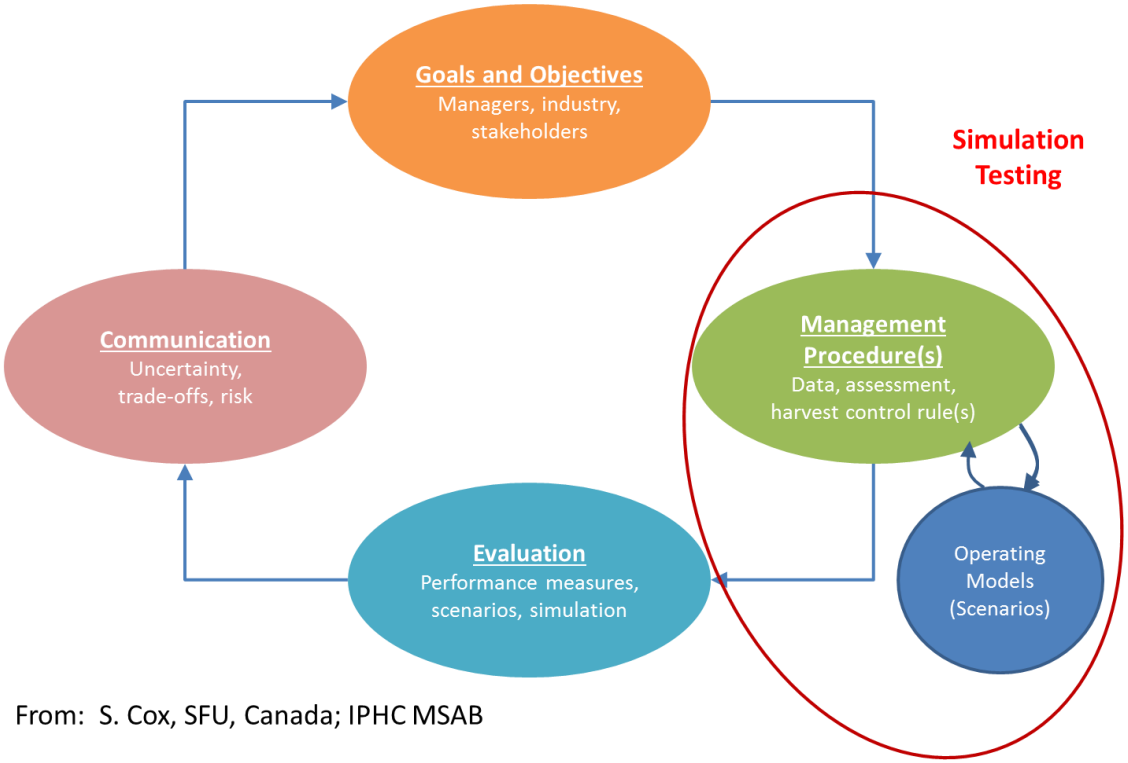
John Holmes
Chair, ALBWG

Outline

- MSE Process
- Timeline to Date
- ISC-MSE Workshop Outcomes
- MSE Progress
- Next Steps

MSE Process Review



From: S. Cox, SFU, Canada; IPHC MSAB

- Four components, starting with objectives
- Continuous process of simulation testing, evaluating, and communicating results to managers/stakeholders
- Simulation results used to update/revise objectives for stock
- Simulation testing does not project future states of the stock for management advice (as in an assessment). It is used to capture uncertainty in system.
- Longer simulation period is better, especially if robustness to rare/less frequent events important.

MSE Historical Timeline

1. USA submits proposal to 87th meeting of IATTC (July 2014) for MSE on north Pacific albacore (NPALB); withdrawn prior to discussion
2. ISC discusses MSE and concludes that it is useful process for species WGs and that NPALB would be a good candidate (July 2014)
3. NC10 (Sept 2014) adopts management framework for NPALB and tasks ALBWG with conducting analyses to determine a target reference point (TRP) for this stock
4. ALBWG concludes that an MSE process is appropriate approach for TRP analysis
5. CMM 20140-06 approved; harvest strategy for key fisheries and stocks, including north Pacific albacore. Establishes MSE as important element.
6. ISC and Japan sponsor 1st MSE workshop in Yokohama, April 2015; introduces topic to managers, stakeholders, scientists
7. ALBWG develops an MSE implementation plan (April 2015); approved by ISC (July 2015)
8. ISC reports on 1st MSE workshop and ALBWG MSE planning to NC11 (Sept 2015) and requests preliminary ideas for objectives
9. Preliminary ideas for objectives collated at WCPFC 12, Bali (Dec 2015)
10. ISC and Japan sponsor 2nd MSE workshop in Yokohama, May 2016; Set of proposed management objectives and performance criteria developed

ISC MSE WORKSHOPS

- 1st ISC Workshop on MSE, 16-17 April 2015
  - Introduced concepts, roles, & benefits of MSE
  - 71 participants, including fishery managers, stakeholders and scientists
  - 10 presentations on ISC website at: http://isc.fra.go.jp/reports/isc_mse_workshop.html
  - Agreement that regular workshops on MSE would be beneficial to stimulate continued dialogue, education, and information transfer
- 2nd ISC Workshop on MSE, 24-25 May 2016
  - Set of 6 management objectives proposed (5 by participants, 1 by ALBWG to facilitate TRP analyses)
  - Performance metrics for each MO proposed by ALBWG as requested by participants
  - 24 participants, including managers, industry stakeholders, and scientists
  - Trouble with concept of acceptable risk & how operationalized. Further engagement with managers/stakeholders needed to continue education on MSE and to develop additional components for simulation testing and evaluation
  - See Attachment 5 in Annex 8 of ISC16 Plenary Report

Objective	Target, Threshold or Benchmark	Performance Indicators
1. Maintain SSB above LRP	• 20%SSB0 F=0 • 14%SSB0 F=0 • SSB0.5R0, h=0.75	• SSBcurrent/LRP
2. Maintain total biomass, with reasonable variability, around the average depletion level in the recent 10 years of the latest stock assessment	• B is estimated as average depletion level for final 10 yr in 2017 assessment • Variability is estimated from historical period (1996-2015)	• Median depletion current year /Depletion(10 yr avg) • Historical CV (1966-2014)/Current depletion CV (over 30 years)
3. Maintain harvest ratios by fishery (fraction of SSB harvested) at current average	• Current average ratio last 10 years in 2017 assessment • Reasonable variability is CV estimate from fishing intensity plot (late 1990s to present)	• Median current harvest ratio (1-SPR)i/Average 1-SPR (10 years)i, where i = fishery • Historical CV/current CV (over 30 years)
4. Maintain catches by fishery above average historical catch	• Average catch by fishery, 1981-2010	• Current total catch/average historical catch • Current median catch/historical median (by fishery) • Historical CV of catch/ Current CV of catch (by fishery)
5. Limit the magnitude of change to effort or catch to < 15% at any time due to management actions by fishery		• % change due to HCR between years • % years change due to HCR < 15% within a run
6. Maintain F at the target value with reasonable variabiility [proposed by ALBWG]	• Various potential target values suggested by NC • Variability around target value, estimated from historical period	• Ftarget/Fcurrent
I. Maximize economic returns of existing fisheries (Place holder – more development required) II. Maintain interests of artisanal, subsistence and small-scale fishers, including limiting the regulatory impact on these fisheries (Placeholder – more development required)		

2nd MSE Workshop Outcomes – NPALB Management Objectives

- Management objectives are the basis for evaluating performance of different management procedures
- Set of 5 objectives identify things that matter (green); 2 objectives for future consideration (orange)
- Operational Objectives: 1) Quantity (see Table), 2) time horizon, & 3) acceptable risk
- Time horizon: 30 yrs (2 gen). Longer is better – trying to characterize system uncertainty in operating model, not projecting future states of the stock
- Trouble with acceptable risk and how it is operationalized; further engagement needed
- Change/modification of objectives part of MSE process; better to do so based on feedback

2nd MSE Workshop Outcomes – Performance Indicators

- Configured so that higher estimated values mean better performance and lower estimated values are interpreted as poorer performance
- Consistent directionality to reduce confusion when interpreting results

2nd MSE Workshop Outcomes – Acceptable Risk

Common language and values for acceptable risk proposed by the Albacore Working Group. Based on a scheme proposed by Conrow (2003).

Term	Median	Quantiles
Almost Certain	95	90-<100
Highly Likely	85	80-90
Likely	75	70-80
Better than Even	65	60-70
Even	50	40-60
Less than Even	35	30-40
Unlikely	25	20-30
Highly Unlikely	15	10-20
Almost Never	5	>0-10

NPALB MSE Progress

- IATTC Secretariat recommended that Commission adopt proposed objectives at 90th meeting in June (IATTC-90-04d (REV)
- ISC reviewed and approved objectives at 16th Plenary session in Sapporo (July 2016)
- Not committed to proposed objectives; set is expected to be revised/changed as information from simulation testing is evaluated. Normal part of MSE process

Next Steps – NPALB MSE

- ALBWG scientists are now focusing on upcoming stock assessment in April 2017
- MSE analyst expected to be in place by fall 2016 (USA) and will be a member of ALBWG
- MSE analyst will lead the MSE process with assistance from the ALBWG Chair
- MSE analyst will develop work plan to lead engagement with managers/stakeholders to obtain additional input for MSE process in next year.

Questions?