

Update on the inter-sessional work of the WPM Small Working Group on Management Strategy Evaluation

Working Party on Methods - I. MOSQUEIRA, T. KITAKADO

SC16 - DEC 2013



- ▶ COM tasked SC with MSE work
- ▶ SC tasked WPM with development of MSE
 1. Develop OM_s and HCR_s
 2. Test draft MP_s
 3. Dialogue on Objectives
- ▶ WPM04 MSE launch
 1. ALB OM_s + HCR_s
 2. SKJ OM_s
 3. TROP OM_s
- ▶ WPM MSE Workshops 2013
 - ▶ No WPM session in 2013
- ▶ Res. 13/10 On interim T&LRPs and a decision framework

- ▶ EC JRC, Ispra, Italy
- ▶ 16-19 April 2013
- ▶ 9 scientists

1. Initial ALB OM
2. Draft ALB MPs
3. SKJ plans

- ▶ IOTC-2013-SC16-INF07.pdf

- ▶ With WPTT

- ▶ 23 October 2013

1. Update on progress

2. Initial SKJ OM

3. t-RFMO MSE

- ▶ IOTC-2013-SC16-INF08.pdf

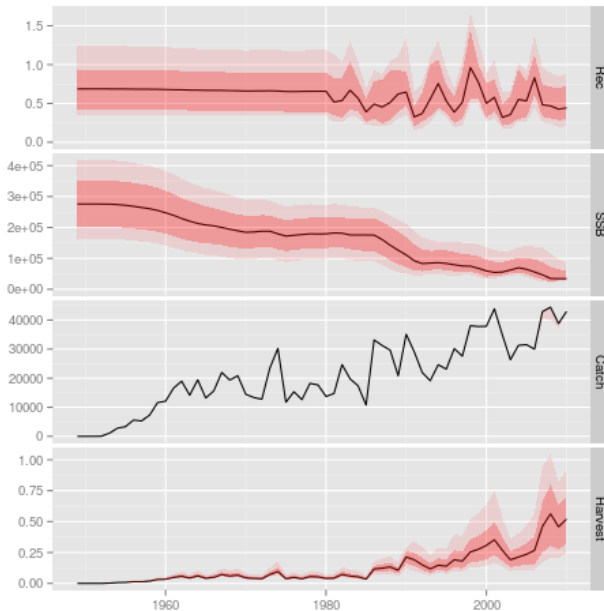
CURRENT STATUS

- ▶ Initial ALB OM ready, review in progress
- ▶ Draft ALB HCRs being tested
 - ▶ Interim set of objectives
- ▶ Initial design SKJ OM ready

Factor	Levels
M , natural mortality at age	0.2, 0.3, 0.4
sigmaR , variance in recruitment	0.2, 0.4, 0.6
h , stock-recruit steepness	0.65, 0.8, 0.95
CV(CPUE) , CV in LL CPUE series	0.1, 0.2, 0.3
ESS , weight to length data in lkhd	10, 20
TWN LL Q , change in catchability	1.00, 1.0025
TWN LL select , selectivity TWN LL	Logarithmic, Double normal

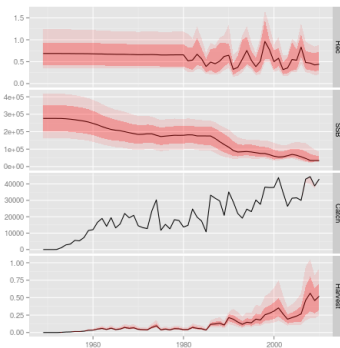
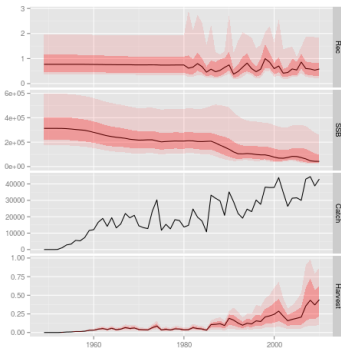
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ALB OM



ALB OM Problems

- ▶ Iterations with unrealistic SSB values
 - ▶ Lack of information in dataset - One Way trip
 - ▶ CPUE vs Catch conflict



TARGETS

- ▶ $SSB = SSB@MSY$
- ▶ $F = F@MSY$

LIMITS

- ▶ $SSBLim: 0.4 * SSB@MSY$
- ▶ $FLim: 1.4 * F@MSY$



ALB Objectives

OBJECTIVES

- ▶ $P(SSB \geq SSB@MSY) > 60\%$
- ▶ $P(F \leq F@MSY) > 60\%$
- ▶ $P(SSB > SSBLim) > 95\%$
- ▶ $P(F < FLim) > 95\%$

PERFORMANCE MEASURES

- ▶ $P(SSB_{y,end} \geq SSB@MSY)$
- ▶ $P(F_{y,end} \geq F@MSY)$
- ▶ Median C_y , Var C_y



ALB HCRs

BD Model-based HCR

- ▶ Biomass dynamics SA
- ▶ IF $SSB_y < BETA * SSB@MSY$
 - ▶ $F_{y+1} = F(SSB_{y+5} > SSB@MSY)$
- ▶ $F_{y+1} \rightarrow C_{y+1}$
- ▶ $E(C_{y+1})$

CPUE-based indicator HCR

- ▶ Linear trend of last 5 years
- ▶ $NC = PC * (1 + BETA * slope)$

- ▶ Development work by N. Bentley (MDV)
- ▶ Initial design:
 - ▶ 3 areas (W, E, MDV)
 - ▶ Length & age-based
 - ▶ Quaterly time step
- ▶ Conditioned on:
 - ▶ Catches
 - ▶ PL & PS CPUE
 - ▶ Tagging Z estimates
- ▶ <http://trophia.github.io/ioskj/>

MSE DEMONSTRATION

- ▶ Presentation on MSE, 30'
 - ▶ What is MSE?
 - ▶ Key concepts
- ▶ Demonstration MSE results, 30'
 - ▶ Simulated data
 - ▶ results given different OM & HCR options
- ▶ TUE & WED 5PM



DRAFT WORKPLAN 2014

MAR 2014 Workshop (25-27 MAR)

- ▶ Finalise ALB OM
- ▶ Set of ALB HCRs
- ▶ Agree on performance criteria

OCT 2014 Workshop

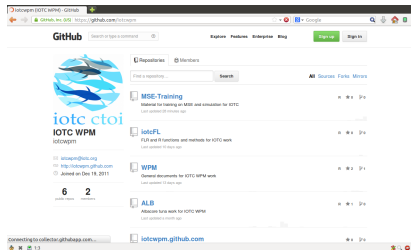
- ▶ Review ALB OM and HCR performance with draft objectives
- ▶ Review SKJ OM and HCR performance with draft objectives
- ▶ Setup YFT & BET OM
- ▶ Draft framework for TROP OM

RECOMMENDATIONS

SC to

- ▶ NOTE paper IOTC-2013-SC16-11, plus INF07 & INF08
- ▶ REVIEW and SUPPORT WPM workplan
 - ▶ SUPPORT for funding attempts
- ▶ THINK on Management Objectives dialogue w/ COM
 - ▶ SC chair + Task Force
 - ▶ Session at COM18 2014

Working Party on Methods - IOTC



<http://github.com/iotcwpm>

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