

MANAGEMENT STRATEGY EVALUATION FOR THE WESTERN ATLANTIC SKIPJACK TUNA WITH OPERATING MODEL CONDITIONING BASED ON THE STOCK SYNTHESIS MODEL

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SUMMARY

During the 2022 ICCAT Atlantic skipjack stock assessment, the model adopted for management advice was based on the Stock Synthesis and included a set of scenarios, including an uncertainty grid for the growth pattern and steepness, totalizing nine different models. The present analysis aimed to update the initial trials of the management strategy evaluation for Western Atlantic skipjack tuna by reconditioning the operating models using the SS outputs of the last assessment. The analysis also included evaluating the relative performance of pre-selected management procedures across a set of performance metrics. In general, simulations presented excellent performance metrics across management procedures regarding the safety, status, yield, and stability of Western Atlantic skipjack tuna.

RESUMEN

Durante la evaluación de stock de listado del Atlántico de 2022, el modelo adoptado para el asesoramiento en materia de ordenación se basó en Stock Synthesis e incluyó un conjunto de escenarios, incluida una matriz de incertidumbre para el patrón de crecimiento y la inclinación, con un total de nueve modelos diferentes. El presente análisis tenía como objetivo actualizar las pruebas iniciales de la evaluación de estrategias de ordenación para el listado del Atlántico occidental mediante el recondicionamiento de los modelos operativos utilizando los resultados de SS de la última evaluación. El análisis también incluía la evaluación del desempeño relativo de los procedimientos de ordenación preseleccionados a través de un conjunto de mediciones del desempeño. En general, las simulaciones presentaron excelentes mediciones del desempeño en todos los procedimientos de ordenación en relación con la seguridad, el estado, el rendimiento y la estabilidad del listado del Atlántico occidental.

RÉSUMÉ

Lors de l'évaluation 2022 du stock de listao de l'Atlantique de l'ICCAT, le modèle adopté pour l'avis de gestion était basé sur Stock Synthesis et comprenait un ensemble de scénarios, y compris une grille d'incertitude pour le schéma de croissance et la pente, totalisant neuf modèles différents. La présente analyse visait à actualiser les essais initiaux de l'évaluation de la stratégie de gestion pour le listao de l'Atlantique Ouest en reconditionnant les modèles opérationnels à l'aide des résultats de Stock Synthesis de la dernière évaluation. L'analyse comprenait également l'évaluation de la performance relative des procédures de gestion présélectionnées sur une série de paramètres de performance. En général, les simulations ont présenté d'excellents paramètres de performance pour l'ensemble des procédures de gestion concernant la sécurité, l'état, la production et la stabilité du listao de l'Atlantique Ouest.

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KEYWORDS

Management procedures, stock assessment, performance metrics, closed-loop simulation, harvest strategy

1 Introduction

The work on developing the Western Atlantic Skipjack MSE began in 2020 through a collaboration between Brazilian scientists and scientists who developed the openMSE (Open Source Software for Management Strategy Evaluation). This collaboration resulted in the presentation of document SCRS/2020/140 (Huynh et al., 2020) at the 2020 ICCAT Tropical Tunas Species Group meeting and included a first demonstration MSE framework with operating model (OM) conditioning for the Western Atlantic Skipjack. An updated MSE framework was developed in 2022 (SCRS/2022/097, Mourato et al., 2022) and presented at the 2022 Tropical Tuna MSE Technical Sub-group meeting. This update included all fishing fleets that catch the western Atlantic Skipjack tuna for OM conditioning. A set of OMs covering uncertainty in life-history parameters was explored, including the initial trials of closed-loop simulations evaluating the relative performance of pre-selected management procedures (MPs) across an initial set of performance metrics (PMs). From this presentation, the tropical tuna MSE Technical Sub-group recommended that OMs for the MSE must be reconditioned following the 2022 skipjack stock assessment results and the simulations must include specific MPs and PMs.

During the 2022 ICCAT Atlantic skipjack stock assessment, the model adopted for management advice was based on the Stock Synthesis (see document SCRS/2022/098). This document presented a set of scenarios, including an uncertainty grid for the growth pattern and steepness, totalizing nine different models. Therefore, taking into consideration the agreement made by tropical tuna MSE Technical Sub-group in 2022, the present analysis has two main objectives: 1) to use the stock assessment model output for OMs reconditioning; 2) to update the MSE simulations using the new OMs for the evaluation of the relative performance of pre-selected MPs across a specific set of PMs. Additionally, we also explored a robustness test by applying alternative values for the recruitment parameter (*SigmaR*) and also considering different options for the catches overages by including errors at the total allowable catch (TAC) implementation. The present results may be used to better understand the axes of the uncertainty of the population dynamics of the Western Atlantic Skipjack and the performance of the MPs.

2 Methods

2.1 Operating model conditioning

The openMSE framework was used to conduct the OMs reconditioning and the subsequent MSE analysis (see openMSE vignettes for greater detail on model equations and conditioning on the website: <https://openmse.com/>). During the 2022 ICCAT Atlantic skipjack stock assessment, the model adopted for management advice was based on the Stock Synthesis (see document SCRS/2022/098). This document presented a set of scenarios, including an uncertainty grid for the growth pattern and steepness, totalizing nine different models. To import the Stock Synthesis model outputs to an OM object in openMSE, we used the *SS2OM* R function (see openMSE vignettes at <https://openmse.com/features-importing-ss3/2-om/>). **Table 1** discriminate the list of OMs, including a short description of the main parameters. For the MSE proposal, 27 operational models were reconditioned, based on each SS model presented in the SCRS/2022/098 and three different options for the catches overages by including errors at the total allowable catch (TAC) implementation (see **Table 1**), as follows:

- with perfect TAC implementations (nine OMs)
- with 10% error overage on TAC implementations (nine OMs)
- with 20% error overage on TAC implementations (nine OMs)

2.2 MSE simulation

The projection period for this exercise of the closed-loop MSE simulation was 40 years with 100 replicates. Considering the discussion during the 2022 Tropical Tuna MSE Technical Sub-group meeting and the adopted report, the new MSE simulations considered 3-year intervals for the management period and implementation of the MPs. The selectivity is based on the F-at-age in the terminal year of the historical period (e.g. 2020). A coefficient of variation of 0.4 and the autocorrelation based on the operating model conditioning was used as the model's error structure. The Beverton-Holt model was used to describe the stock-recruitment relationship and the

parameter *SigmaR* was set at 0.4 for all operating models. The parameterization regarding the probability of individuals staying in each stock (“*prob_staying*”, “*Size_area_1*” and “*Frac_area_1*”), were set at 0.5. This value-level approximates a single area model but allows some exchanges (migrations) between western and eastern stocks. The observation model parameters were set up following the “*Precise_unbiased*” model available in OpenMSE package.

We used the same set of MPs presented in the SCRS/2022/097 (see Mourato et al., 2022 for details), which was based on constant catches (*CC* of 15, 20, 25, 30, 35 and 40 kt), index-based (*Iratio*, *Islope1*, and *GBslope*; see Huynh et al., 2020 and Mourato et al., 2022), and assessment model-based harvest control rules (HCRs). However, for the last, following the guidance of the MSE Tropical Tunas Technical Sub-group, the target reference point (TRP) was set as 40% *B₀* or *SBMSY*, and the limit reference point (LRP) at 20% *B₀* or 40% *SBMSY*. **Figure 1** illustrates the HCRs applied in the MSE simulations for the assessment model-based MPs. The green area represents the values equal or higher than TRP, which is associated with 100% of relative fishing mortality at the *MSY* level. In contrast, the yellow area shows the region between the LRP and TRP where fishing mortality decreases based on depletion or relative *SB* at *MSY* levels. The red area indicates the stock status with a lower level than LRP (stock collapse) but keeping fishing mortality at 10% of relative fishing mortality at the *MSY* level. Based on the rules of these two HCRs, the following assessment model-based MPs were applied in the MSE simulations:

- **SP_40_20_Bo** - A surplus production model with a 40-20 control rule based on depletion and minimum *F* at 10% of *F_{MSY}*
- **SP_100_40_SBMSY** - A surplus production model with an 80-40 control rule based on spawning biomass at *MSY* level and minimum *F* at 10% of *F_{MSY}*.
- **SCA_40_20_Bo** - A statistical catch-at-age model with a 40-20 control rule based on depletion and minimum *F* at 10% of *F_{MSY}*
- **SCA_100_40_SBMSY** - A statistical catch-at-age model with an 100-40 control rule based on spawning biomass at *MSY* level and minimum *F* at 10% of *F_{MSY}*.

Following the guidance of the MSE Tropical Tunas Technical Sub-group, the present evaluation of the relative performance of MPs considered the PMs described in **Table 2**. A total of 33 PMs were calculated to evaluate the performance of MPs. We also considered three different time window options to get each PM's statistics: 1) short-term (“_S”; 1-3rd projected year); 2) medium-term (“_M”; 4-10th projected year) and; 3) long-term (“_L”; 15-30th projected year).

For the entire grid of uncertainty (nine OMs based on SS models), the *SigmaR* value will be set at 0.4 and represent the reference level for all simulations. The robustness tests on climate change will include three different options for evaluating OMs with more recruitment variability in the future projections by increasing the *SigmaR*, as follows (see details in **Table 1**):

- Reference case model (OM 5) with *SigmaR* at 0.5
- Reference case model (OM 5) with *SigmaR* at 0.6
- Reference case model (OM 5) with *SigmaR* at 0.7

We used the R package *ggmse* (<https://github.com/pbs-assess/ggmse> ; Anderson et al., 2020) to generate many figures and outputs for evaluating the MPs throughout the closed-loop MSE simulation.

3 Results and Discussion

All MSE simulations converged satisfactorily, and the number of interactions was sufficient for stabilizing each selected MP inside the model. **Tables 3, 4, and 5** show the averaged statistics of PMs across the reference set of OMs with perfect (OMs 1-9), 10% error overage (OMs 10-18), and 20% error overage (OMs 19-27) for TAC implementation, respectively. PMs statistics for the individual OMs can be consulted in the **Table A1 of Appendix A**. The analysis of the trade-offs of the performance of MPs (**Figures 2, 3, and 4**) was also based on the averaged statistics of PMs across the reference set of OMs with different TAC implementation approaches (**Tables 3, 4, and 5**), and included PMs concerned to the safety, status, yield, and stability.

In general, all PMs across the different scenarios of TAC implementation showed similar results for each MP. Regarding the probability of staying above “40% *SSBMSY_M*”, all MPs had satisfactory results to keep the stock in a healthy condition with high probabilities (> 80%). At the same time, as expected for the

“*mean_prop_catch_change*”, the scenarios with error overage on TAC implementation presented less stability in terms of yield (**Figures 2, 3, and 4**). It was noticed that the assessment model MPs (SPs and SCAs) presented lower stability than the other MPs (**Tables 3, 4, and 5**). Concerning the trade-off between status (“*Green_M*”) and yield (“*Yield_M*”), the results are very similar between scenarios, with the great majority of MPs presenting high probabilities (> 90%) to keep the stock on the Kobe green quadrant. However, these probabilities are lower for the “*CC_35kt*” and “*CC_40kt*” MPs, with the last being less than 50%. Regarding yield, a significant difference was observed among index-slope and assessment model MPs, with the last ones resulting in catches 50% higher with values around 22,000 t. In all scenarios, it was observed a low proportion (< 10%) of simulations where the biomass is among LRP and TRP (“ $0.4 < SSBMSY < 1$ ”) for all MPs, except for the empirical constant catch MPs with TACs higher than 20,000 (**Tables 3, 4, and 5; Figures 2, 3, and 4**).

Trade-off plots also show that a set of candidate assessment model MPs resulted in less stability in terms of TAC (see the “*mean_TAC_change*” PM). Concerning the status of the stock for the median period (4-10th project years), the performance of the numerical results for the PMs shows a very satisfactory values, with the great majority of the simulations being placed above of 1 for the relative biomass and below 1 for the relative fishing mortality (except for the constant catches with TAC at 35 and 40 kt) (**Figures 2, 3, and 4**). However, the examination of the distributions of the PMs values for the entire projection period (1-40th period) indicated a significant part of the simulations resulted in a relative biomass lower than 1 (**Figure 5**). It was also noted that index-based MPs produce lower values for yield and TACs in the long-term than the rest of the MPs (**Figure 5**).

The proportion of years in each Kobe quadrant is depicted in **Figures 6, 7, and 8**. All MPs generally resulted in a more significant proportion of the green area throughout the years. However, as other PMs indicate, the empirical constant catches MPs with TACs higher than 25 kt and produce higher proportions for the red quadrant. From the radar plots, all MPs presented similar shapes among the depicted OM in **Figure 9**. However, for the OM with steepness at 0.8, there is a notable difference in the TAC and yield stability, with the statistical catch-at-age MPs being the worst options.

The projected biomass and fishing mortality relative to the MSY time series is presented for OM 2, 5, and 8 (**Figure 10**). In general, “*CC_35kt*” and “*CC_40kt*” MPs resulted in a decline in biomass in the future (not shown). In contrast, the rest of the MPs show a relatively stable trend, with few exceptions, such as “*Slope1*” MP, that resulted in a significant increase of biomass in the projection period (**Figure 10**). In the robustness test on climate change, the “*CC_30kt*” MP were less likely to achieve the conservation performance metric with ($B/BMSY < 1$) compared to the reference case OM (OM 5) (**Figure 11**) but presented similar results to other PMs, as indicated by the radar plots (**Figure 9**).

The present analysis updates the initial operating models presented by Huynh et al. (2020) and Mourato et al. (2022) by including OM conditioned based on the last stock assessment for the Western Atlantic Skipjack tuna (Cardoso et al. 2022). We explored the results of the closed-loop MSE simulations of a set of MPs with presentation of relevant PMs. The results demonstrate that the uncertainty in natural mortality, growth parameters, and alternative steepness values are most consequential in predicting stock dynamics. Additional management procedures and performance metrics can also be explored in future MSE simulations. However, despite the number of operating models seeming to be sufficiently wide-ranging and probably covering much of the main sources of uncertainty, it is important to include as few OM as possible so that MSE results are more easily interpreted.

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Table 1. - Operating model scenarios for the management strategy evaluation of the western Atlantic Skipjack stock

Operating model	Growth vector	Steepness	SigmaR	Scenario
OM 1	25th	0.6	0.4	Perfect TAC implementation
OM 2	50th			
OM 3	75th			
OM 4	25th	0.7		
OM 5 (Ref Case)	50th			
OM 6	75th			
OM 7	25th	0.8		
OM 8	50th			
OM 9	75th			
OM 10	25th	0.6		10% overage TAC error implementation
OM 11	50th			
OM 12	75th			
OM 13	25th	0.7		
OM 14	50th			
OM 15	75th			
OM 16	25th	0.8		
OM 17	50th			
OM 18	75th			
OM 19	25th	0.6	20% overage TAC error implementation	
OM 20	50th			
OM 21	75th			
OM 22	25th	0.7		
OM 23	50th			
OM 24	75th			
OM 25	25th	0.8		
OM 26	50th			
OM 27	75th			
OM 28	50th	0.7	0.5	Perfect TAC implementation & Alternative SigmaR values
OM 29			0.6	
OM 30			0.7	

Table 2. List of performance metrics considered in the close-loop MSE simulation for the management strategy evaluation of the western Atlantic Skipjack stock.

1. Status	Unit of measurement	Type of statistic(s)	Name
1.1 Minimum biomass relative to BMSY	B/ BMSY	Minimum over [x] Years	Min_SB_SBMSY
1.2 Mean biomass relative to BMSY	B/ BMSY	Geometric mean over [x] Years	MeanSB_SBMSY
1.3 Mean fishing mortality relative to FMSY	F/ FMSY	Geometric mean over [x] years	MeanF_FMSY
1.4 Probability of being in the Kobe green quadrant	B/ BMSY, F/ FMSY	Proportion of years where $B \geq BMSY$ and $F \leq FMSY$	Green
1.5 Probability of being in the Kobe red quadrant	B/ BMSY, F/ FMSY	Proportion of years where $B \leq BMSY$ and $F \geq FMSY$	Red
2. Safety			
2.1 Probability that biomass is above Blim	B	Proportion of years that $B > Blim$	40% SSBMSY; 20% SB0
2.2 Probability of $Blim < B < B_{thresh}$	B	Proportion of years where $Blim < B < B_{thresh}$	$0.4 < SSBMSY < 1$; $0.2 < SB0 < 0.4$
3. Yield			
3.1 Mean catch – short term	C	Mean over 1-3 years	Yield_S
3.2 Mean catch – medium term	C	Mean over 4-10 years	Yield_M
3.3 Mean catch – long term	C	Mean over 15 and 30 years	Yield_L
4. Stability			
4.1 Mean absolute proportional change in catch	Catch (C)	Mean over [x] years of	mean_catch_change
		$(C_n - C_{n-1}) / C_{n-1}$	mean_prop_catch_change
4.2 Variance in catch	Catch (C)	Variance over [x] Years	Variance_Yield
4.3 Probability of shutdown	TAC	Proportion of years that $TAC = 0$	TAC_Shutdown
4.4 Probability of TAC change over a certain level	TAC	Proportion of management cycles where the TAC changes $(TAC_n - TAC_{n-1}) / TAC_{n-1} > 20\%$.	TAC_Variation
4.5 Maximum amount of TAC change between management periods.	TAC	Maximum change in TAC	max_TAC_Change
4.6 Mean amount of TAC change between management periods.	TAC	Mean change in TAC	mean_TAC_Change

Table 3. Performance metrics for each MP showing the averaged statistics across the reference set of OM with perfect TAC implementation (OMs 1-9). The color gradient (by row) spans green to orange to red, corresponding to values of 0, 0.5, and 1, respectively, for each performance metric.

MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_100_40_SBMSY	SCA_40_20_SB0	SP_100_40_SBMSY	SP_40_20_SB0
SAFETY															
0.2 < SB0 < 0.4	0.02	0.30	0.08	0.16	0.27	0.35	0.36	0.31	0.06	0.08	0.06	0.24	0.21	0.22	0.22
0.4 < SSBMSY < 1	0.01	0.06	0.02	0.04	0.10	0.18	0.25	0.27	0.02	0.02	0.01	0.07	0.05	0.07	0.07
20% SB0_L	1.00	1.00	1.00	0.99	0.94	0.80	0.60	0.39	0.99	1.00	1.00	0.98	0.99	0.99	0.99
20% SB0_M	1.00	0.99	1.00	0.98	0.96	0.88	0.77	0.65	1.00	1.00	1.00	0.99	0.99	0.99	0.99
20% SB0_S	1.00	1.00	1.00	1.00	0.99	0.98	0.96	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_L	1.00	1.00	1.00	1.00	0.97	0.88	0.72	0.55	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_M	1.00	1.00	1.00	1.00	0.99	0.96	0.90	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_S	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STATUS															
MeanF_FMSY_L	0.00	0.48	0.22	0.34	0.55	0.95	1.50	2.07	0.17	0.22	0.18	0.45	0.42	0.42	0.42
MeanF_FMSY_M	0.00	0.48	0.24	0.36	0.53	0.77	1.10	1.46	0.18	0.22	0.19	0.40	0.39	0.36	0.36
MeanF_FMSY_S	0.00	0.48	0.29	0.40	0.54	0.70	0.88	1.07	0.20	0.16	0.21	0.36	0.29	0.44	0.43
MeanSB_SBMSY_L	3.17	1.73	2.41	2.12	1.79	1.40	1.02	0.73	2.60	2.46	2.52	1.89	1.94	1.97	1.97
MeanSB_SBMSY_M	2.81	1.67	2.13	1.91	1.68	1.44	1.23	1.02	2.31	2.27	2.28	1.89	1.96	1.90	1.90
MeanSB_SBMSY_S	1.66	1.38	1.48	1.42	1.36	1.30	1.25	1.20	1.53	1.57	1.52	1.44	1.48	1.40	1.41
Min_SB_SBMSY_L	1.58	0.77	0.83	0.49	0.22	0.10	0.08	0.07	0.70	0.68	0.92	0.54	0.56	0.38	0.38
Min_SB_SBMSY_M	1.41	0.73	0.66	0.40	0.20	0.12	0.09	0.08	0.74	0.73	0.84	0.47	0.46	0.53	0.53
Min_SB_SBMSY_S	1.25	1.11	1.21	1.10	0.97	0.88	0.78	0.70	1.21	1.23	1.24	0.96	0.96	0.88	0.88
Red_L	0.00	0.00	0.00	0.01	0.07	0.23	0.46	0.67	0.01	0.01	0.00	0.02	0.02	0.02	0.02
Red_M	0.00	0.00	0.00	0.02	0.06	0.18	0.33	0.49	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Red_S	0.00	0.00	0.00	0.00	0.04	0.18	0.27	0.32	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Green_L	1.00	0.95	1.00	0.97	0.87	0.67	0.45	0.27	0.99	0.98	1.00	0.92	0.92	0.93	0.93
Green_M	1.00	0.93	0.98	0.95	0.87	0.73	0.57	0.41	0.98	0.98	0.99	0.94	0.94	0.94	0.94
Green_S	0.89	0.81	0.86	0.83	0.79	0.74	0.67	0.59	0.87	0.88	0.87	0.87	0.87	0.83	0.84
YIELD															
Yield_L	0	26778	15000	20000	24889	28444	29889	29333	11089	13333	12444	25556	24333	23667	23667

Yield_M	0	26333	15000	20000	25000	29667	33889	37000	11411	13667	12111	23222	22778	20000	20000
Yield_S	0	23333	15000	20000	25000	30000	34889	39667	10433	8811	11411	20267	17578	22444	22111
STABILITY															
TAC_shutdown	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TAC_variation	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.17	0.00	0.20	0.25	0.08	0.08
Variance_yield	0	7156	0	26	287	1533	3941	7044	2933	4467	530	7178	10822	4856	5056
max_TAC_change	0	0	0	0	0	0	0	0	-1441	2944	556	1578	13578	-2833	-2611
mean_catch_change	0	26667	15000	20000	24889	28556	30778	31444	10833	12778	12222	24889	23778	23111	23111
mean_prop_catch_change	0.14	0.17	0.00	0.00	0.01	0.03	0.08	0.14	0.05	0.09	0.01	0.14	0.46	0.13	0.15
mean_TAC_change	0	0	0	0	0	0	0	0	-190	40	103	630	847	151	161

Table 4. Performance metrics for each MP showing the averaged statistics across the reference set of OMs with 10% error overage for TAC implementation (OMs 10-18). The color gradient (by row) spans green to orange to red, corresponding to values of 0, 0.5, and 1, respectively, for each performance metric.

MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_100_40_SBMSY	SCA_40_20_SB0	SP_100_40_SBMSY	SP_40_20_SB0
SAFETY															
0.2 < SB0 < 0.4	0.02	0.30	0.08	0.16	0.27	0.35	0.36	0.31	0.06	0.08	0.06	0.24	0.21	0.22	0.22
0.4 < SSBMSY < 1	0.01	0.06	0.02	0.04	0.10	0.19	0.25	0.27	0.02	0.02	0.01	0.07	0.06	0.07	0.07
20% SB0_L	1.00	1.00	1.00	0.99	0.94	0.81	0.59	0.40	0.99	1.00	1.00	0.98	0.98	0.99	0.99
20% SB0_M	1.00	0.99	1.00	0.98	0.96	0.88	0.77	0.65	0.99	1.00	1.00	0.98	0.99	0.99	0.99
20% SB0_S	1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_L	1.00	1.00	1.00	1.00	0.97	0.88	0.72	0.55	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_M	1.00	1.00	1.00	1.00	0.99	0.96	0.90	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_S	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STATUS															
MeanF_FMSY_L	0.00	0.48	0.22	0.34	0.54	0.94	1.49	2.06	0.16	0.21	0.18	0.45	0.42	0.42	0.42
MeanF_FMSY_M	0.00	0.48	0.24	0.37	0.54	0.77	1.08	1.45	0.18	0.22	0.19	0.40	0.39	0.36	0.36
MeanF_FMSY_S	0.00	0.48	0.28	0.40	0.54	0.70	0.88	1.07	0.20	0.16	0.21	0.36	0.29	0.44	0.43
MeanSB_SBMSY_L	3.17	1.73	2.41	2.12	1.79	1.40	1.02	0.73	2.61	2.47	2.52	1.89	1.93	1.97	1.97
MeanSB_SBMSY_M	2.81	1.67	2.13	1.92	1.68	1.44	1.23	1.03	2.31	2.28	2.28	1.89	1.94	1.90	1.90
MeanSB_SBMSY_S	1.66	1.38	1.48	1.42	1.36	1.31	1.25	1.20	1.53	1.57	1.52	1.46	1.49	1.40	1.41
Min_SB_SBMSY_L	1.58	0.77	0.80	0.47	0.21	0.09	0.07	0.06	0.80	0.71	0.91	0.51	0.51	0.32	0.32
Min_SB_SBMSY_M	1.41	0.73	0.59	0.34	0.15	0.10	0.09	0.08	0.56	0.58	0.79	0.45	0.46	0.50	0.51
Min_SB_SBMSY_S	1.25	1.11	1.19	1.06	0.95	0.84	0.74	0.66	1.23	1.23	1.24	0.90	0.90	0.86	0.86
Red_L	0.00	0.00	0.00	0.01	0.06	0.23	0.46	0.66	0.01	0.01	0.00	0.02	0.01	0.02	0.02
Red_M	0.00	0.00	0.00	0.02	0.07	0.17	0.32	0.48	0.01	0.01	0.00	0.01	0.01	0.01	0.01
Red_S	0.00	0.00	0.00	0.01	0.04	0.15	0.25	0.30	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Green_L	1.00	0.95	1.00	0.97	0.87	0.67	0.44	0.26	0.99	0.98	1.00	0.92	0.92	0.93	0.93
Green_M	1.00	0.93	0.98	0.95	0.86	0.72	0.56	0.40	0.98	0.97	0.99	0.94	0.94	0.93	0.93
Green_S	0.89	0.81	0.86	0.83	0.79	0.74	0.67	0.56	0.87	0.88	0.87	0.86	0.87	0.83	0.84
YIELD															
Yield_L	0	26778	15000	20000	24889	28444	29778	29333	10722	12778	12444	25444	24333	23667	23667

Yield_M	0	26333	15000	20000	25000	29667	33889	37111	11300	13556	12111	23222	22778	19778	19889
Yield_S	0	23333	15000	20000	25000	30000	34778	39444	10422	8778	11411	20256	17322	22333	22000

STABILITY

TAC_shutdown	0		0	0	0	0	0	0	0	0	0	0	0	0	0
TAC_variation	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.18	0.00	0.20	0.26	0.08	0.09
Variance_yield	0.00	7155.56	1500.00	2011.11	2633.33	3844.44	6011.11	8477.78	3266.67	4722.22	1333.33	7666.67	11277.78	5611.11	5766.67
max_TAC_change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-988.89	2833.33	553.33	1577.78	13922.22	-2833.33	-2566.67
mean_catch_change	0.00	26666.67	15000.00	20000.00	24888.89	28666.67	30777.78	31222.22	10600.00	12666.67	12222.22	24888.89	23777.78	23000.00	23000.00
mean_prop_catch_change	0.14	0.17	0.11	0.11	0.12	0.13	0.16	0.20	0.13	0.17	0.12	0.23	0.54	0.23	0.24
mean_TAC_change	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-254.44	7.33	101.56	644.44	868.89	133.78	148.22

Table 5 - Performance metrics for each MP showing the averaged statistics across the reference set of OMs with 20% error overage for TAC implementation (OMs 19-27). The color gradient (by row) spans green to orange to red, corresponding to values of 0, 0.5, and 1, respectively, for each performance metric.

MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_100_40_SBMSY	SCA_40_20_SB0	SP_100_40_SBMSY	SP_40_20_SB0
SAFETY															
0.2 < SB0 < 0.4	0.02	0.30	0.08	0.16	0.27	0.35	0.35	0.31	0.07	0.08	0.06	0.24	0.21	0.22	0.22
0.4 < SSBMSY < 1	0.01	0.06	0.02	0.04	0.11	0.19	0.25	0.27	0.02	0.03	0.01	0.07	0.06	0.07	0.07
20% SB0_L	1.00	1.00	1.00	0.99	0.94	0.81	0.59	0.40	1.00	1.00	1.00	0.98	0.98	0.98	0.99
20% SB0_M	1.00	0.99	1.00	0.98	0.95	0.87	0.77	0.65	0.99	0.99	1.00	0.98	0.98	0.99	0.99
20% SB0_S	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_L	1.00	1.00	1.00	1.00	0.98	0.89	0.73	0.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_M	1.00	1.00	1.00	1.00	0.98	0.96	0.90	0.83	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40% SSBMSY_S	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STATUS															
MeanF_FMSY_L	0.00	0.48	0.22	0.34	0.55	0.94	1.48	2.04	0.16	0.20	0.18	0.45	0.42	0.42	0.42
MeanF_FMSY_M	0.00	0.48	0.24	0.37	0.54	0.77	1.10	1.44	0.19	0.23	0.19	0.40	0.39	0.36	0.37
MeanF_FMSY_S	0.00	0.48	0.28	0.40	0.54	0.70	0.88	1.06	0.20	0.16	0.21	0.36	0.29	0.44	0.43
MeanSB_SBMSY_L	3.17	1.73	2.41	2.12	1.79	1.40	1.03	0.74	2.61	2.49	2.52	1.89	1.93	1.97	1.97
MeanSB_SBMSY_M	2.81	1.67	2.13	1.92	1.69	1.46	1.24	1.05	2.31	2.28	2.28	1.89	1.94	1.90	1.90
MeanSB_SBMSY_S	1.66	1.38	1.48	1.42	1.36	1.31	1.26	1.20	1.53	1.57	1.52	1.46	1.49	1.40	1.41
Min_SB_SBMSY_L	1.58	0.77	0.79	0.45	0.18	0.09	0.07	0.06	0.65	0.65	0.90	0.48	0.51	0.29	0.31
Min_SB_SBMSY_M	1.41	0.73	0.53	0.28	0.13	0.09	0.08	0.07	0.34	0.42	0.73	0.45	0.47	0.49	0.50
Min_SB_SBMSY_S	1.25	1.11	1.18	1.05	0.92	0.81	0.71	0.63	1.23	1.23	1.24	0.88	0.88	0.83	0.83
Red_L	0.00	0.00	0.00	0.01	0.06	0.22	0.44	0.64	0.01	0.01	0.00	0.02	0.01	0.02	0.02
Red_M	0.00	0.00	0.00	0.02	0.07	0.17	0.31	0.46	0.01	0.01	0.00	0.01	0.01	0.01	0.01
Red_S	0.00	0.00	0.00	0.01	0.05	0.14	0.22	0.29	0.00	0.00	0.00	0.00	0.00	0.02	0.02
Green_L	1.00	0.95	1.00	0.97	0.86	0.66	0.43	0.26	0.98	0.97	1.00	0.91	0.91	0.93	0.93
Green_M	1.00	0.93	0.98	0.94	0.85	0.71	0.55	0.39	0.98	0.97	0.99	0.93	0.93	0.93	0.93
Green_S	0.89	0.81	0.86	0.83	0.78	0.73	0.65	0.55	0.87	0.88	0.87	0.86	0.86	0.82	0.82
YIELD															
Yield_L	0	26778	15000	20000	24889	28444	29889	29556	10233	12333	12444	25444	24333	23667	23667

Yield_M	0	26333	15000	20000	25000	29667	33889	37000	11300	13444	12111	23333	22889	20000	20222
Yield_S	0	23333	15000	20000	25000	29778	34667	39333	10400	8744	11400	20122	17200	22111	21778
STABILITY															
TAC_shutdown	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TAC_variation	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.19	0.00	0.21	0.25	0.10	0.10
Variance_yield	0	7156	2744	3700	4733	6167	8156	10178	4011	5300	2333	8989	12322	6989	7144
max_TAC_change	0	0	0	0	0	0	0	0	-1556	2611	559	1800	15878	-2789	-2467
mean_catch_change	0	26667	15000	20000	24889	28667	30778	31444	10233	11867	12222	24778	23889	23222	23111
mean_prop_catch_change	0.14	0.17	0.22	0.22	0.22	0.23	0.25	0.26	0.22	0.25	0.22	0.34	0.64	0.33	0.34
mean_TAC_change	0	0	0	0	0	0	0	0	-394	-104	102	624	897	157	171

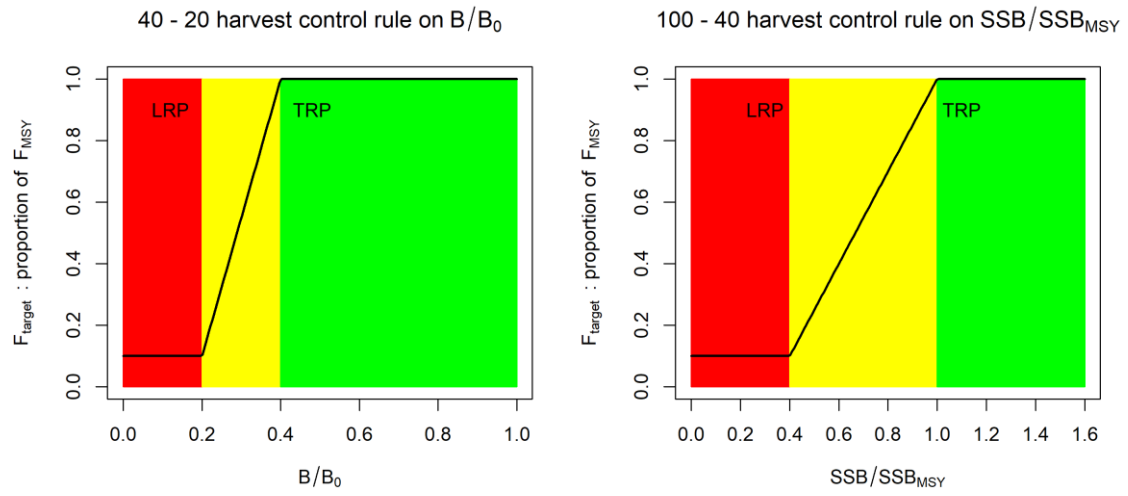


Figure 1. Harvest control rule (HCR) that will be applied in the MSE simulations for the assessment model-based MPs

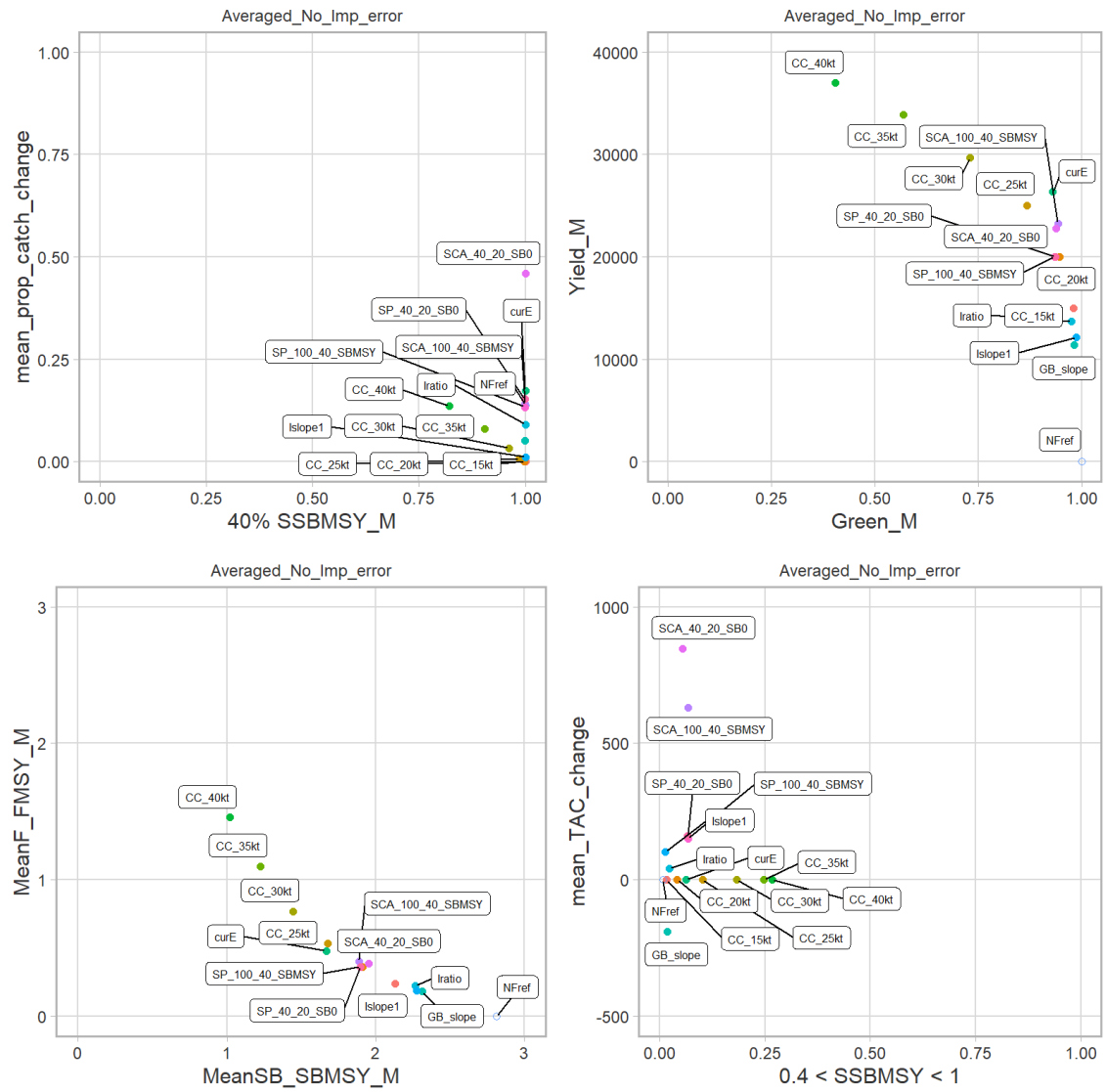


Figure 2. Trade-off plots showing the PM averaged statistics across the reference set of OMs with perfect TAC implementation (OMs 1-9) concerning safety, status, yield and stability for each MP

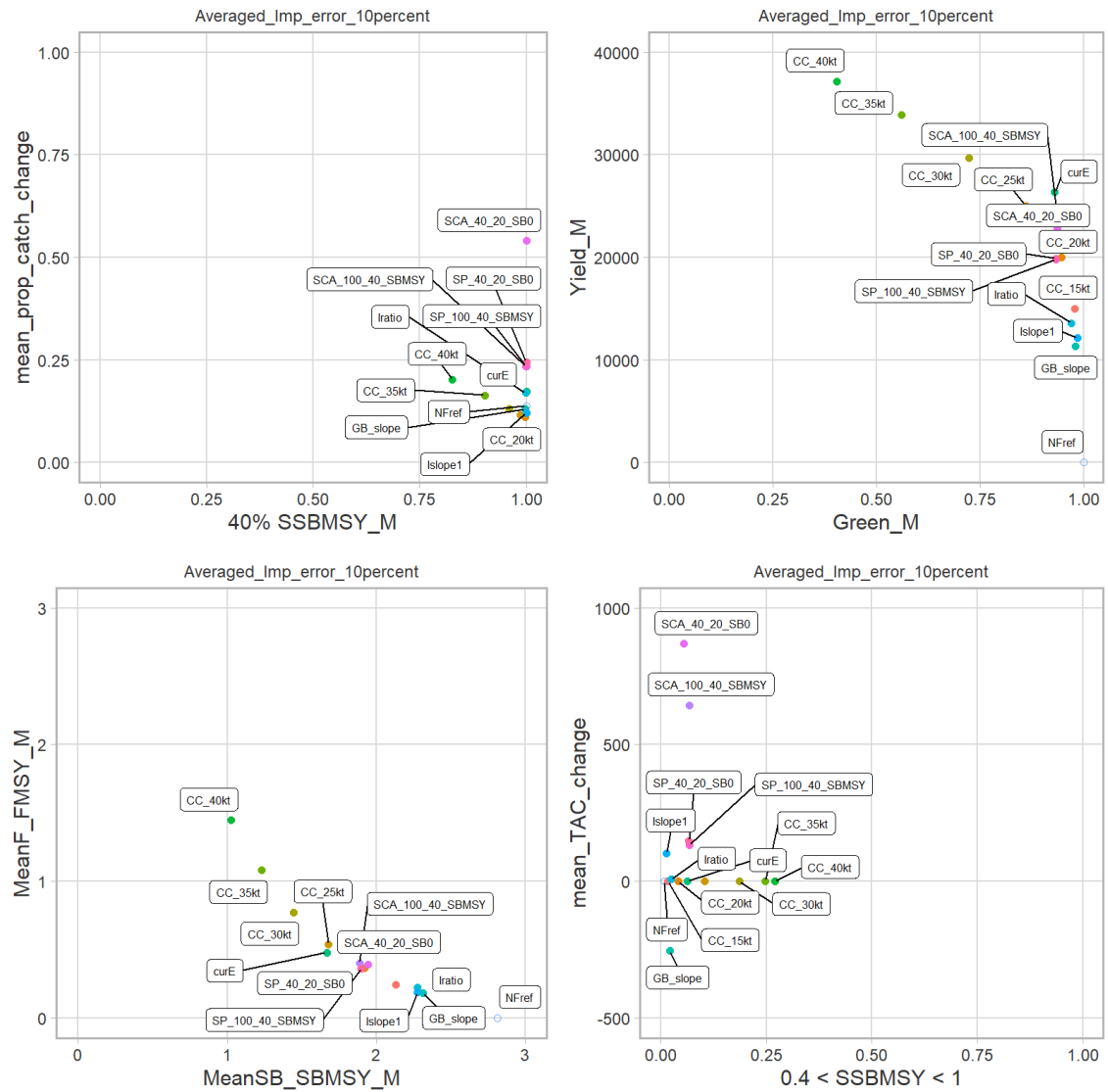


Figure 3. Trade-off plots showing the PM averaged statistics across the reference set of OMs with 10% error overage for TAC implementation (OMs 10-18) concerning safety, status, yield and stability for each MP

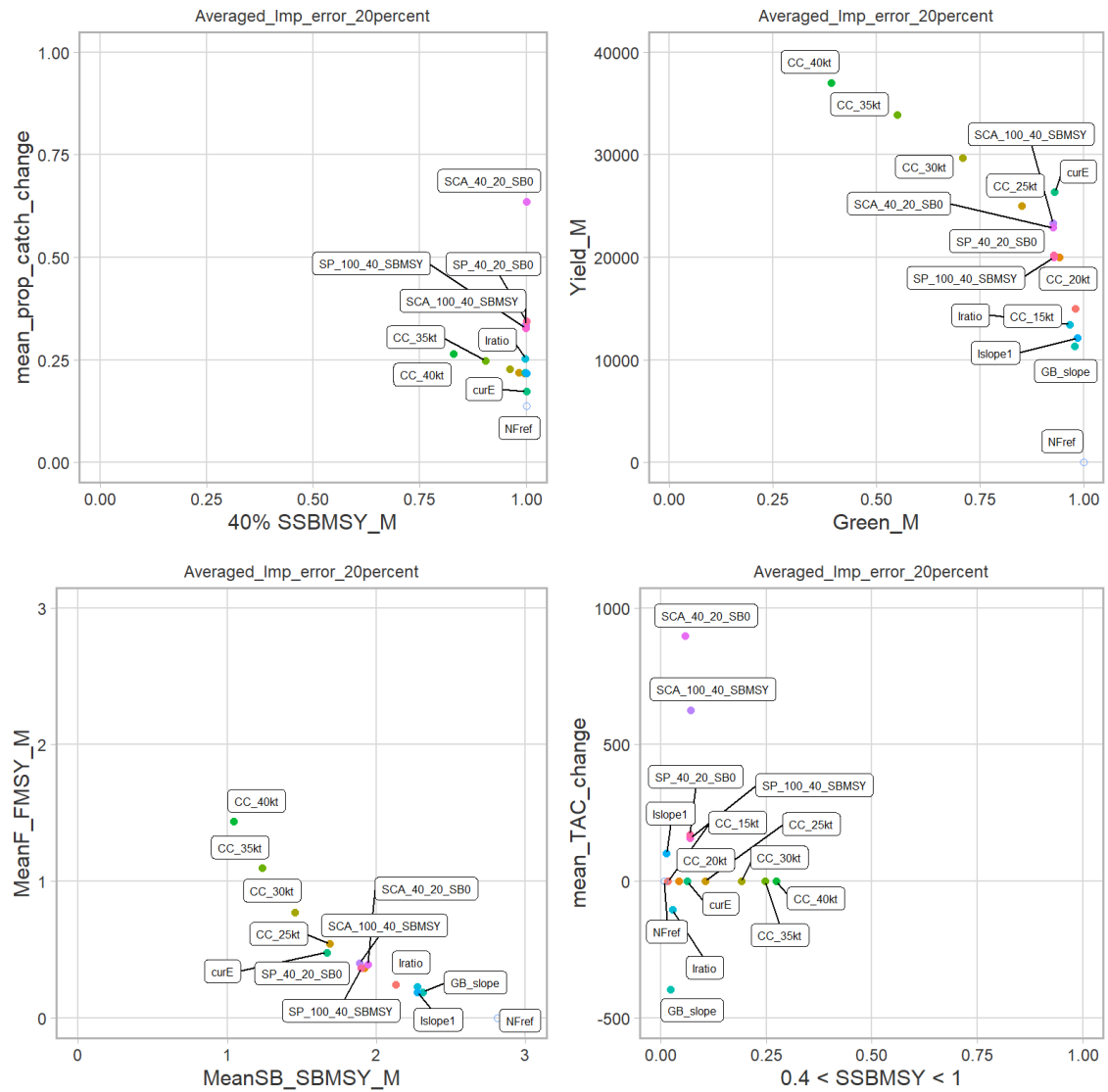


Figure 4. Trade-off plots showing the PM averaged statistics across the reference set of OMs with 20% error overage for TAC implementation (OMs 19-27) concerning safety, status, yield and stability for each MP.

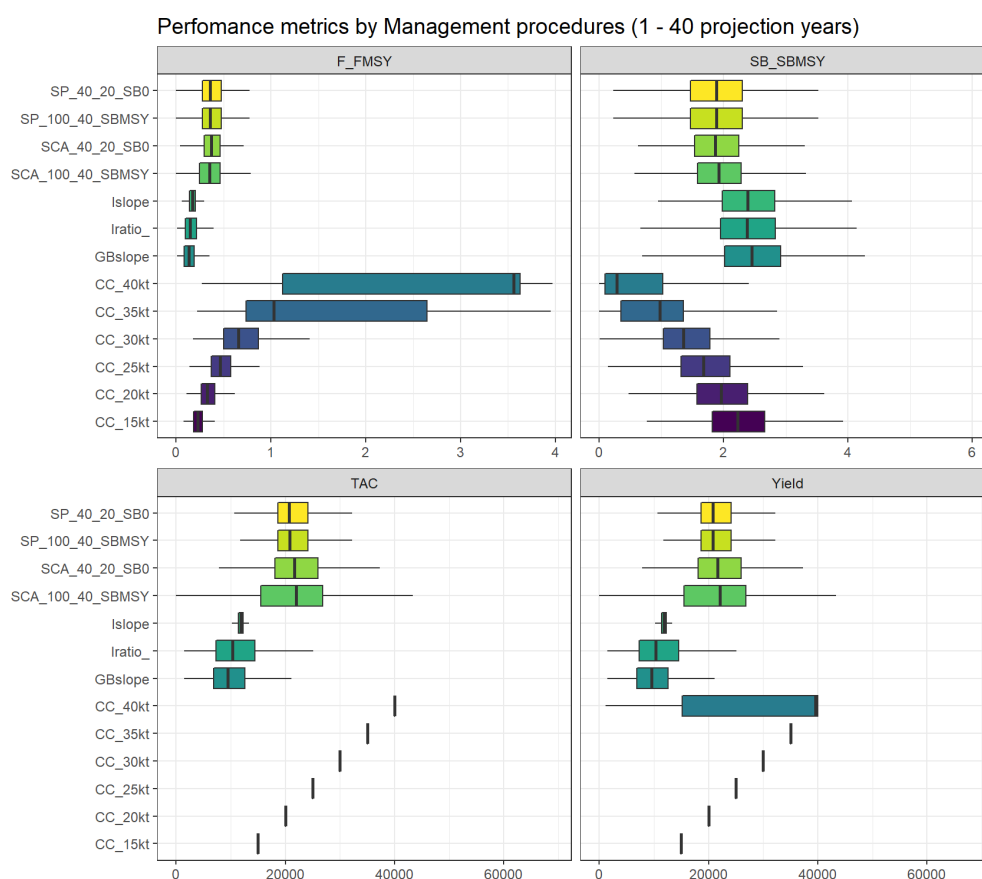


Figure 5. Boxplot of distributions of SSB/SSBMSY, F/FMSY, TACs and yield for all simulations (4000 replicates) of the OM 5 (reference case) for all years.



Figure 6. Probability of being in each of the Kobe plot through years of the OM 2.



Figure 7. Probability of being in each of the Kobe plot through years of the OM 5 (reference case).



Figure 8. Probability of being in each of the Kobe plot through years of the OM 8.

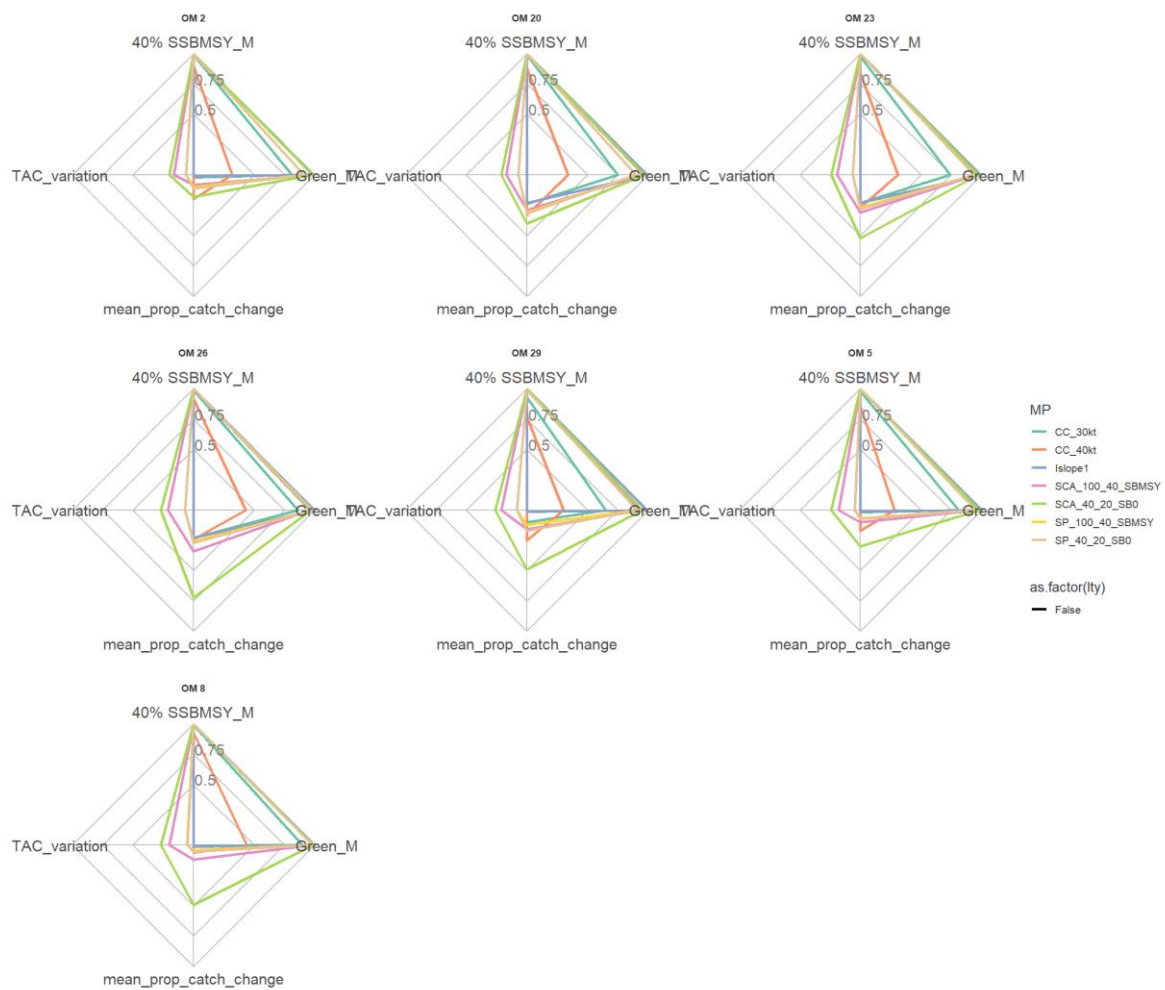


Figure 9. Radar plots for relevant PMs between concerning safety, status, yield and stability for the main MPs of the western Atlantic Skipjack MSE.

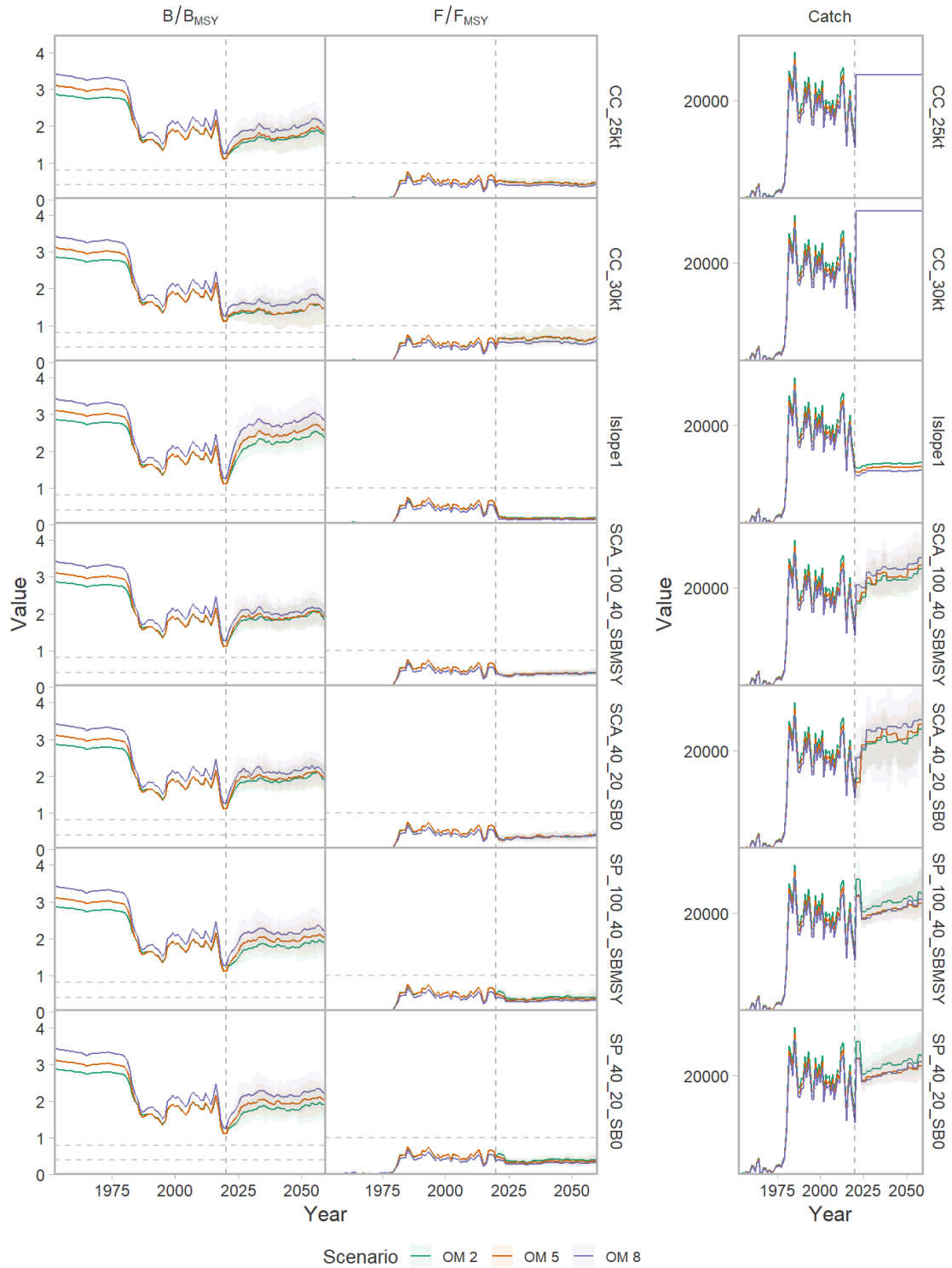


Figure 10. Relative spawning biomass and fishing mortality (left column) and catches (right column) from the closed-loop simulation for a selection of MPs (rows) for the OMs 2, 5 and 8. Dashed, horizontal lines for spawning biomass indicate a value of 0.8 and 0.4. Dashed, vertical lines separate the historical and projection periods of the operating model. The lines indicate the median from 100 simulation replicates, while color shadow bands represent the interquartile range and 95% confidence intervals.

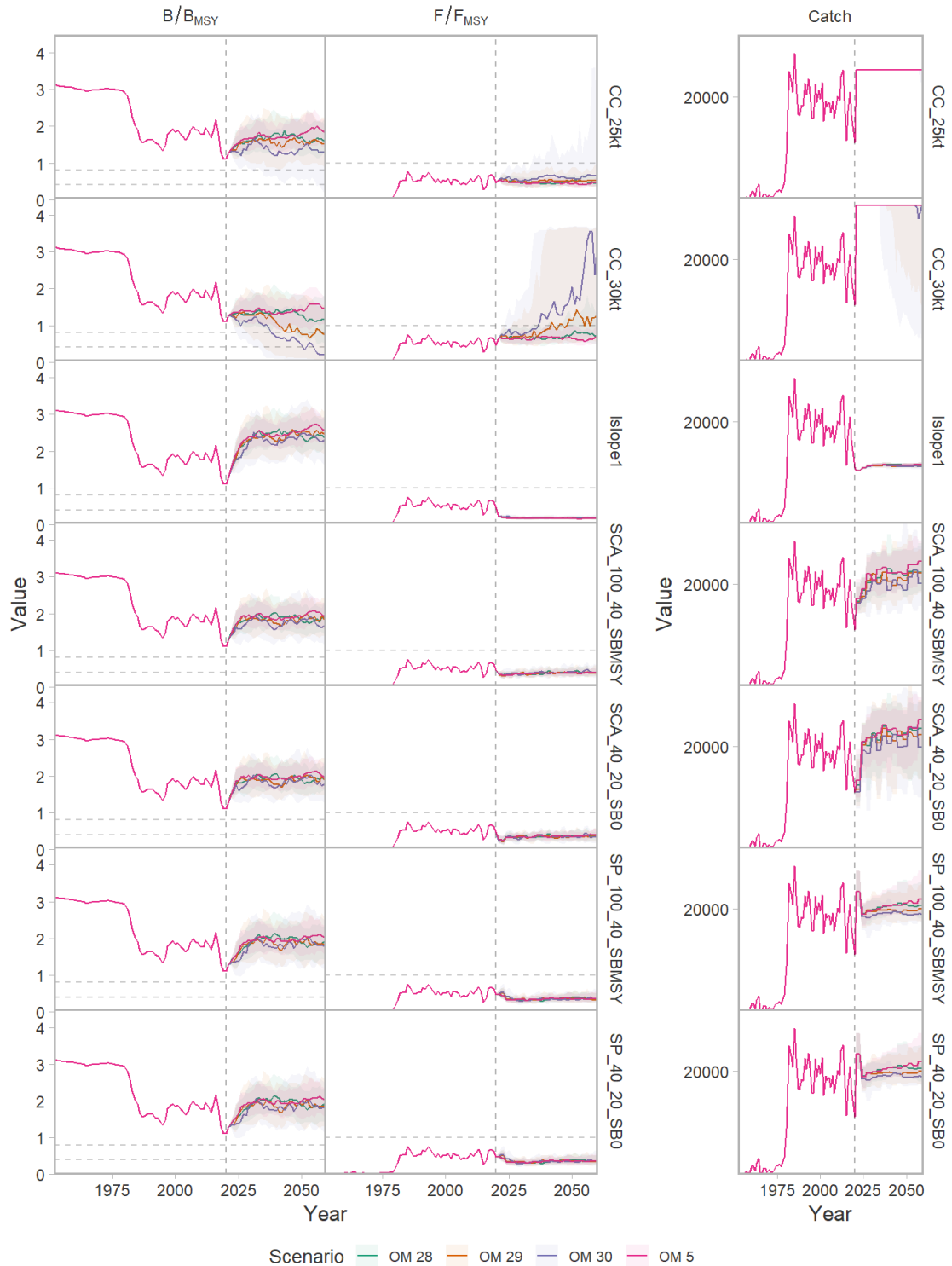


Figure 10. Relative spawning biomass and fishing mortality (left column) and catches (right column) from the closed-loop simulation for a selection of MPs (rows) for the OMs 5, 28, 29 and 30. Dashed, horizontal lines for spawning biomass indicate a value of 0.8 and 0.4. Dashed, vertical lines separate the historical and projection periods of the operating model. The lines indicate the median from 100 simulation replicates, while color shadow bands represent the interquartile range and 95% confidence intervals.

Appendix A

Table A1 - Performance metrics for each MP showing the statistics for each OMs.

<i>OM_1</i>	<i>PM/MP</i>	<i>NFref</i>	<i>curE</i>	<i>CC_15kt</i>	<i>CC_20kt</i>	<i>CC_25kt</i>	<i>CC_30kt</i>	<i>CC_35kt</i>	<i>CC_40kt</i>	<i>GB_slope</i>	<i>Iratio</i>	<i>Islope1</i>	<i>SCA_40_20_SB0</i>	<i>SCA_100_40_SBMSY</i>	<i>SP_40_20_SB0</i>	<i>SP_100_40_SBMSY</i>
OM_1	0.2 < SB0 < 0.4	0%	12%	5%	11%	19%	28%	34%	38%	3%	3%	3%	32%	34%	21%	21%
OM_1	0.4 < SSBMSY < 1	0%	1%	1%	2%	5%	10%	18%	24%	0%	0%	0%	12%	16%	9%	9%
OM_1	20% SB0_L	100%	100%	100%	100%	99%	94%	84%	65%	100%	100%	100%	97%	94%	96%	96%
OM_1	20% SB0_M	100%	100%	100%	99%	99%	98%	96%	92%	100%	100%	100%	98%	97%	99%	99%
OM_1	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_1	40% SSBMSY_L	100%	100%	100%	100%	100%	97%	92%	78%	100%	100%	100%	100%	99%	99%	99%
OM_1	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	99%	97%	100%	100%	100%	100%	99%	100%	100%
OM_1	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_1	Green_L	100%	99%	100%	98%	94%	84%	70%	50%	100%	100%	100%	82%	77%	88%	88%
OM_1	Green_M	100%	99%	99%	98%	96%	92%	86%	74%	99%	99%	99%	89%	89%	94%	94%
OM_1	Green_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	95%	95%	98%	98%
OM_1	max_TAC_change	0	0	0	0	0	0	0	0	-590	1400	330	-11000	-9100	-9800	-9800
OM_1	mean_catch_change	4E-11	26000	15000	20000	25000	30000	34000	38000	10000	11000	11000	32000	32000	27000	27000
OM_1	mean_prop_catch_change	10%	11%	0%	0%	0%	0%	1%	3%	5%	8%	1%	25%	11%	30%	28%
OM_1	mean_TAC_change	0	0	0	0	0	0	0	0	-200	-100	61	420	390	-110	-150
OM_1	MeanF_FMSY_L	2E-15	0.32	0.17	0.25	0.35	0.55	0.82	1.30	0.11	0.13	0.12	0.53	0.58	0.44	0.45
OM_1	MeanF_FMSY_M	2E-15	0.32	0.18	0.26	0.36	0.48	0.63	0.83	0.12	0.13	0.13	0.42	0.45	0.29	0.29
OM_1	MeanF_FMSY_S	2E-15	0.32	0.21	0.29	0.37	0.46	0.56	0.67	0.14	0.12	0.15	0.54	0.54	0.47	0.47
OM_1	MeanSB_SBMSY_L	2.8	1.90	2.30	2.10	1.90	1.60	1.40	1.10	2.50	2.40	2.40	1.60	1.60	1.80	1.80
OM_1	MeanSB_SBMSY_M	2.5	1.80	2.10	2.00	1.80	1.70	1.50	1.40	2.20	2.20	2.20	1.70	1.70	1.90	1.90
OM_1	MeanSB_SBMSY_S	1.7	1.60	1.60	1.60	1.50	1.50	1.40	1.40	1.60	1.70	1.60	1.50	1.50	1.50	1.50
OM_1	Min_SB_SBMSY_L	1.3	0.78	0.80	0.63	0.38	0.12	0.06	0.05	0.98	0.81	0.90	0.32	0.18	0.22	0.22
OM_1	Min_SB_SBMSY_M	1.2	0.75	0.66	0.47	0.28	0.14	0.11	0.09	0.79	0.81	0.83	0.23	0.23	0.50	0.50
OM_1	Min_SB_SBMSY_S	1.4	1.30	1.40	1.30	1.20	1.20	1.10	1.00	1.40	1.40	1.40	0.90	0.90	0.93	0.93
OM_1	Red_L	0%	0%	0%	0%	1%	6%	20%	44%	0%	0%	0%	5%	7%	4%	4%
OM_1	Red_M	0%	0%	0%	0%	1%	3%	7%	19%	0%	0%	0%	2%	3%	1%	1%
OM_1	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%

OM_1	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_1	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	16%	0%	21%	18%	14%	14%
OM_1	Variance_yield	8E-12	6100	0.31	0.38	0.43	140	840	2600	2800	3900	420	11000	8700	8700	8600
OM_1	Yield_L	4E-11	26000	15000	20000	25000	30000	34000	38000	10000	11000	11000	32000	33000	28000	28000
OM_1	Yield_M	3E-11	25000	15000	20000	25000	30000	35000	40000	10000	12000	11000	27000	28000	20000	20000
OM_1	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9900	9000	11000	33000	33000	29000	29000
OM_2	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_2	0.2 < SB0 < 0.4	3%	15%	6%	11%	23%	35%	38%	29%	5%	5%	4%	10%	11%	20%	20%
OM_2	0.4 < SSBMSY < 1	0%	1%	1%	2%	7%	17%	24%	21%	1%	0%	0%	1%	2%	6%	6%
OM_2	20% SB0_L	100%	100%	100%	100%	97%	89%	61%	30%	100%	100%	100%	100%	100%	100%	100%
OM_2	20% SB0_M	100%	100%	100%	99%	99%	96%	91%	79%	100%	100%	100%	100%	100%	99%	99%
OM_2	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_2	40% SSBMSY_L	100%	100%	100%	100%	98%	92%	71%	37%	100%	100%	100%	100%	100%	100%	100%
OM_2	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	96%	90%	100%	100%	100%	100%	100%	100%	100%
OM_2	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_2	Green_L	100%	99%	100%	98%	90%	72%	40%	15%	99%	99%	100%	99%	99%	94%	94%
OM_2	Green_M	100%	97%	99%	96%	92%	81%	58%	32%	99%	99%	99%	98%	98%	91%	91%
OM_2	Green_S	100%	100%	100%	100%	100%	97%	87%	67%	100%	100%	100%	100%	100%	95%	95%
OM_2	max_TAC_change	0	0	0	0	0	0	0	0	-1800	1900	400	5600	2600	-6200	-6200
OM_2	mean_catch_change	4E-11	27000	15000	20000	25000	29000	29000	24000	11000	12000	13000	21000	22000	24000	24000
OM_2	mean_prop_catch_change	13%	16%	0%	0%	1%	2%	9%	20%	5%	8%	1%	18%	8%	11%	10%
OM_2	mean_TAC_change	0	0	0	0	0	0	0	0	-220	-22	89	800	560	-210	-210
OM_2	MeanF_FMSY_L	3E-15	0.48	0.23	0.35	0.58	0.95	2.00	3.30	0.17	0.20	0.19	0.36	0.38	0.45	0.45
OM_2	MeanF_FMSY_M	3E-15	0.48	0.26	0.38	0.53	0.74	1.00	1.50	0.19	0.20	0.20	0.35	0.36	0.40	0.41
OM_2	MeanF_FMSY_S	3E-15	0.48	0.30	0.41	0.54	0.68	0.83	1.00	0.21	0.17	0.23	0.30	0.35	0.60	0.60
OM_2	MeanSB_SBMSY_L	2.9	1.70	2.20	2.00	1.70	1.40	0.90	0.46	2.40	2.30	2.30	1.90	1.90	1.80	1.80
OM_2	MeanSB_SBMSY_M	2.5	1.60	2.00	1.80	1.60	1.40	1.20	1.00	2.10	2.10	2.10	1.90	1.80	1.70	1.70
OM_2	MeanSB_SBMSY_S	1.5	1.30	1.40	1.40	1.30	1.30	1.20	1.20	1.40	1.50	1.40	1.40	1.40	1.30	1.30
OM_2	Min_SB_SBMSY_L	1.5	0.79	0.86	0.63	0.00	0.00	0.00	0.00	0.76	0.95	0.93	0.79	0.77	0.51	0.51
OM_2	Min_SB_SBMSY_M	1.3	0.75	0.70	0.45	0.15	0.05	0.03	0.01	0.78	0.83	0.85	0.64	0.65	0.49	0.49
OM_2	Min_SB_SBMSY_S	1.2	1.10	1.20	1.10	0.97	0.89	0.80	0.71	1.20	1.20	1.20	1.10	1.10	0.84	0.84

OM_2	Red_L	0%	0%	0%	0%	4%	19%	51%	80%	0%	0%	0%	0%	0%	1%	1%
OM_2	Red_M	0%	0%	0%	1%	3%	10%	29%	52%	0%	0%	0%	0%	0%	1%	1%
OM_2	Red_S	0%	0%	0%	0%	0%	1%	6%	10%	0%	0%	0%	0%	0%	2%	2%
OM_2	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_2	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	17%	0%	20%	16%	6%	6%
OM_2	Variance_yield	9E-12	6600	0.5	0.65	220	1100	5900	13000	3000	4100	480	6200	4700	4100	4000
OM_2	Yield_L	4E-11	27000	15000	20000	25000	29000	29000	21000	11000	13000	13000	21000	22000	24000	24000
OM_2	Yield_M	4E-11	26000	15000	20000	25000	30000	35000	39000	11000	12000	12000	20000	20000	20000	21000
OM_2	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	11000	8900	12000	15000	17000	27000	27000
OM_3	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_3	0.2 < SB0 < 0.4	5%	53%	13%	24%	34%	31%	23%	14%	12%	15%	12%	11%	14%	27%	28%
OM_3	0.4 < SSBMSY < 1	3%	23%	6%	12%	23%	28%	23%	17%	6%	7%	5%	4%	5%	14%	14%
OM_3	20% SB0_L	100%	100%	100%	97%	83%	49%	22%	7%	98%	98%	100%	100%	100%	99%	98%
OM_3	20% SB0_M	100%	99%	99%	97%	91%	76%	53%	34%	99%	99%	99%	100%	100%	97%	97%
OM_3	20% SB0_S	100%	100%	100%	100%	99%	98%	93%	89%	100%	100%	100%	100%	100%	100%	100%
OM_3	40% SSBMSY_L	100%	100%	100%	98%	88%	57%	26%	10%	99%	99%	100%	100%	100%	100%	100%
OM_3	40% SSBMSY_M	100%	100%	100%	99%	96%	89%	72%	52%	99%	100%	100%	100%	100%	99%	99%
OM_3	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_3	Green_L	100%	82%	99%	91%	68%	32%	10%	3%	96%	93%	99%	98%	98%	88%	88%
OM_3	Green_M	100%	75%	94%	84%	64%	38%	20%	8%	94%	92%	95%	95%	95%	84%	84%
OM_3	Green_S	67%	32%	51%	40%	28%	17%	9%	3%	58%	60%	55%	66%	64%	44%	43%
OM_3	max_TAC_change	0	0	0	0	0	0	0	0	-2100	3700	670	22000	11000	2000	1900
OM_3	mean_catch_change	5E-11	29000	15000	20000	24000	23000	20000	17000	13000	16000	15000	17000	18000	22000	22000
OM_3	mean_prop_catch_change	19%	24%	0%	1%	3%	12%	22%	29%	5%	10%	1%	42%	15%	12%	9%
OM_3	mean_TAC_change	0	0	0	0	0	0	0	0	-210	79	150	1600	1000	370	370
OM_3	MeanF_FMSY_L	2E-15	0.74	0.29	0.52	0.99	2.00	2.80	3.30	0.31	0.37	0.30	0.37	0.39	0.54	0.54
OM_3	MeanF_FMSY_M	2E-15	0.74	0.34	0.54	0.83	1.30	1.90	2.50	0.32	0.38	0.33	0.42	0.42	0.55	0.55
OM_3	MeanF_FMSY_S	2E-15	0.74	0.42	0.60	0.81	1.10	1.40	1.70	0.35	0.28	0.38	0.06	0.19	0.52	0.55
OM_3	MeanSB_SBMSY_L	3	1.30	2.20	1.80	1.40	0.79	0.37	0.17	2.20	2.00	2.20	2.00	2.00	1.70	1.70
OM_3	MeanSB_SBMSY_M	2.4	1.20	1.70	1.50	1.30	1.00	0.76	0.55	1.80	1.80	1.80	1.90	1.80	1.50	1.50
OM_3	MeanSB_SBMSY_S	1.2	0.97	1.10	1.00	0.96	0.91	0.86	0.81	1.10	1.10	1.10	1.20	1.10	1.00	1.00

OM_3	Min_SB_SBMSY_L	1.4	0.54	0.68	0.03	0.01	0.00	0.00	0.00	0.08	0.16	0.62	0.66	0.68	0.18	0.18
OM_3	Min_SB_SBMSY_M	1.2	0.47	0.35	0.10	0.03	0.02	0.02	0.02	0.31	0.42	0.43	0.42	0.46	0.32	0.31
OM_3	Min_SB_SBMSY_S	0.88	0.74	0.80	0.70	0.60	0.50	0.41	0.35	0.75	0.76	0.83	0.88	0.88	0.62	0.62
OM_3	Red_L	0%	0%	0%	4%	23%	60%	85%	96%	2%	2%	0%	0%	0%	4%	4%
OM_3	Red_M	0%	0%	1%	5%	18%	47%	69%	82%	1%	1%	1%	1%	0%	4%	4%
OM_3	Red_S	0%	0%	0%	1%	13%	66%	81%	91%	0%	0%	0%	0%	0%	7%	7%
OM_3	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_3	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	18%	0%	26%	20%	7%	6%
OM_3	Variance_yield	2E-11	9300	0.14	130	1200	5600	10000	13000	3400	5600	750	8500	5900	4000	3600
OM_3	Yield_L	5E-11	29000	15000	20000	24000	22000	16000	11000	14000	17000	15000	18000	19000	23000	23000
OM_3	Yield_M	5E-11	28000	15000	20000	25000	29000	32000	32000	14000	17000	15000	19000	19000	21000	21000
OM_3	Yield_S	3E-11	25000	15000	20000	25000	30000	35000	40000	12000	10000	14000	2200	7200	17000	18000
OM_4	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_4	0.2 < SB0 < 0.4	0%	13%	5%	11%	20%	30%	39%	44%	3%	3%	3%	35%	39%	21%	21%
OM_4	0.4 < SSBMSY < 1	0%	0%	0%	1%	4%	9%	17%	26%	0%	0%	0%	10%	13%	6%	6%
OM_4	20% SB0_L	100%	100%	100%	100%	99%	96%	86%	71%	100%	100%	100%	97%	94%	98%	98%
OM_4	20% SB0_M	100%	100%	100%	99%	99%	97%	95%	90%	100%	100%	100%	98%	97%	99%	99%
OM_4	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_4	40% SSBMSY_L	100%	100%	100%	100%	100%	99%	96%	89%	100%	100%	100%	100%	99%	100%	100%
OM_4	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_4	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_4	Green_L	100%	100%	100%	99%	96%	88%	75%	56%	100%	100%	100%	83%	79%	92%	92%
OM_4	Green_M	100%	99%	99%	98%	96%	93%	87%	76%	99%	99%	100%	91%	90%	96%	96%
OM_4	Green_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	96%	96%	98%	98%
OM_4	max_TAC_change	0	0	0	0	0	0	0	0	-980	1700	370	15000	-9100	-7700	-7700
OM_4	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	39000	9600	11000	11000	32000	33000	26000	26000
OM_4	mean_prop_catch_change	10%	11%	0%	0%	0%	0%	0%	2%	5%	9%	1%	36%	12%	27%	24%
OM_4	mean_TAC_change	0	0	0	0	0	0	0	0	-210	-130	62	450	390	69	69
OM_4	MeanF_FMSY_L	2E-15	0.29	0.16	0.23	0.32	0.46	0.68	1.00	0.10	0.11	0.11	0.50	0.56	0.37	0.37
OM_4	MeanF_FMSY_M	2E-15	0.29	0.16	0.24	0.33	0.45	0.59	0.78	0.10	0.12	0.11	0.38	0.41	0.25	0.25
OM_4	MeanF_FMSY_S	2E-15	0.29	0.19	0.26	0.34	0.43	0.52	0.62	0.12	0.11	0.12	0.51	0.51	0.40	0.40

OM_4	MeanSB_SBMSY_L	3	2.00	2.40	2.20	2.00	1.80	1.50	1.20	2.70	2.60	2.60	1.70	1.60	2.00	2.00
OM_4	MeanSB_SBMSY_M	2.8	2.00	2.30	2.10	1.90	1.80	1.60	1.40	2.50	2.40	2.40	1.80	1.80	2.00	2.00
OM_4	MeanSB_SBMSY_S	1.9	1.70	1.70	1.70	1.60	1.60	1.50	1.50	1.80	1.80	1.80	1.60	1.60	1.60	1.60
OM_4	Min_SB_SBMSY_L	1.4	0.86	0.85	0.65	0.44	0.19	0.15	0.14	1.10	1.00	1.00	0.29	0.29	0.38	0.38
OM_4	Min_SB_SBMSY_M	1.4	0.84	0.76	0.54	0.31	0.19	0.16	0.14	0.90	0.88	0.97	0.38	0.44	0.57	0.57
OM_4	Min_SB_SBMSY_S	1.5	1.40	1.50	1.40	1.30	1.20	1.10	1.00	1.50	1.50	1.50	0.92	0.92	1.00	1.00
OM_4	Red_L	0%	0%	0%	0%	0%	3%	15%	35%	0%	0%	0%	4%	5%	2%	2%
OM_4	Red_M	0%	0%	0%	0%	1%	2%	6%	17%	0%	0%	0%	1%	1%	0%	0%
OM_4	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%
OM_4	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_4	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	16%	0%	23%	20%	13%	13%
OM_4	Variance_yield	8E-12	5900	0.3	0.35	0.4	77	430	1800	2700	3800	390	13000	9300	7700	7600
OM_4	Yield_L	4E-11	26000	15000	20000	25000	30000	35000	39000	9700	11000	11000	32000	33000	27000	27000
OM_4	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	40000	10000	12000	11000	27000	28000	20000	20000
OM_4	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9500	8700	10000	33000	33000	27000	27000
OM_5	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_5	0.2 < SB0 < 0.4	3%	19%	6%	13%	27%	40%	40%	28%	5%	5%	4%	13%	16%	19%	19%
OM_5	0.4 < SSBMSY < 1	0%	1%	0%	2%	7%	16%	25%	20%	0%	0%	0%	1%	2%	4%	4%
OM_5	20% SB0_L	100%	100%	100%	100%	97%	86%	57%	25%	100%	100%	100%	100%	100%	100%	100%
OM_5	20% SB0_M	100%	100%	100%	99%	98%	94%	87%	69%	100%	100%	100%	100%	100%	99%	99%
OM_5	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_5	40% SSBMSY_L	100%	100%	100%	100%	98%	92%	68%	32%	100%	100%	100%	100%	100%	100%	100%
OM_5	40% SSBMSY_M	100%	100%	100%	100%	99%	98%	95%	86%	100%	100%	100%	100%	100%	100%	100%
OM_5	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_5	Green_L	100%	100%	100%	99%	90%	71%	37%	12%	99%	99%	100%	99%	99%	96%	96%
OM_5	Green_M	100%	99%	99%	97%	93%	81%	55%	28%	99%	99%	100%	98%	97%	95%	95%
OM_5	Green_S	100%	100%	100%	100%	100%	97%	85%	67%	100%	100%	100%	100%	100%	99%	99%
OM_5	max_TAC_change	0	0	0	0	0	0	0	0	-1300	2400	480	7200	2900	-4200	-4200
OM_5	mean_catch_change	4E-11	26000	15000	20000	25000	29000	31000	29000	10000	12000	12000	21000	22000	22000	22000
OM_5	mean_prop_catch_change	13%	16%	0%	0%	0%	2%	7%	17%	5%	9%	1%	30%	10%	7%	7%
OM_5	mean_TAC_change	0	0	0	0	0	0	0	0	-190	21	93	940	580	-110	-110

OM_5	MeanF_FMSY_L	2E-15	0.47	0.23	0.34	0.53	0.92	1.80	2.80	0.16	0.19	0.17	0.37	0.40	0.40	0.40
OM_5	MeanF_FMSY_M	2E-15	0.47	0.25	0.36	0.53	0.74	1.10	1.60	0.17	0.19	0.18	0.35	0.37	0.36	0.36
OM_5	MeanF_FMSY_S	2E-15	0.47	0.29	0.40	0.53	0.67	0.83	1.00	0.19	0.15	0.20	0.30	0.36	0.50	0.50
OM_5	MeanSB_SBMSY_L	3.1	1.70	2.40	2.10	1.80	1.40	0.89	0.45	2.60	2.50	2.50	2.00	2.00	2.00	2.00
OM_5	MeanSB_SBMSY_M	2.8	1.70	2.10	1.90	1.70	1.40	1.20	0.96	2.30	2.30	2.30	2.00	1.90	1.80	1.80
OM_5	MeanSB_SBMSY_S	1.7	1.40	1.50	1.40	1.40	1.30	1.30	1.20	1.50	1.60	1.50	1.50	1.50	1.40	1.40
OM_5	Min_SB_SBMSY_L	1.6	0.84	0.89	0.61	0.10	0.04	0.02	0.01	0.85	0.71	1.00	0.71	0.74	0.54	0.54
OM_5	Min_SB_SBMSY_M	1.5	0.80	0.77	0.48	0.15	0.07	0.04	0.03	0.86	0.88	0.95	0.57	0.63	0.61	0.61
OM_5	Min_SB_SBMSY_S	1.3	1.10	1.20	1.10	0.98	0.87	0.76	0.65	1.20	1.30	1.30	1.00	1.00	0.91	0.91
OM_5	Red_L	0%	0%	0%	0%	3%	19%	54%	82%	0%	0%	0%	0%	0%	1%	1%
OM_5	Red_M	0%	0%	0%	1%	3%	10%	31%	57%	0%	0%	0%	0%	0%	1%	1%
OM_5	Red_S	0%	0%	0%	0%	0%	1%	6%	10%	0%	0%	0%	0%	0%	0%	0%
OM_5	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_5	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	17%	0%	24%	18%	5%	5%
OM_5	Variance_yield	9E-12	6500	0.49	0.64	31	810	4300	9800	2800	4000	470	7700	5200	3100	3000
OM_5	Yield_L	4E-11	26000	15000	20000	25000	29000	30000	25000	11000	12000	12000	22000	23000	22000	22000
OM_5	Yield_M	4E-11	26000	15000	20000	25000	30000	35000	39000	11000	12000	12000	21000	21000	19000	19000
OM_5	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	10000	8400	11000	15000	18000	24000	24000
OM_6	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_6	0.2 < SB0 < 0.4	5%	67%	14%	25%	38%	37%	25%	15%	12%	17%	12%	16%	19%	26%	26%
OM_6	0.4 < SSBMSY < 1	3%	21%	4%	10%	22%	33%	32%	25%	5%	6%	4%	4%	5%	10%	10%
OM_6	20% SB0_L	100%	99%	100%	98%	86%	55%	23%	9%	98%	99%	100%	100%	100%	99%	99%
OM_6	20% SB0_M	100%	97%	99%	96%	90%	69%	45%	29%	99%	99%	99%	99%	99%	98%	98%
OM_6	20% SB0_S	100%	100%	100%	100%	98%	93%	86%	73%	100%	100%	100%	100%	100%	100%	100%
OM_6	40% SSBMSY_L	100%	100%	100%	99%	93%	67%	37%	20%	99%	100%	100%	100%	100%	100%	100%
OM_6	40% SSBMSY_M	100%	100%	100%	99%	96%	89%	71%	52%	100%	100%	100%	100%	100%	100%	100%
OM_6	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	100%	100%	100%	100%
OM_6	Green_L	100%	82%	99%	94%	73%	36%	11%	4%	97%	94%	100%	96%	97%	92%	92%
OM_6	Green_M	100%	78%	96%	88%	69%	39%	20%	8%	96%	94%	97%	94%	96%	91%	90%
OM_6	Green_S	67%	36%	59%	44%	32%	19%	9%	4%	62%	64%	63%	67%	66%	55%	54%
OM_6	max_TAC_change	0	0	0	0	0	0	0	0	-2200	5000	860	27000	14000	6700	5300

OM_6	mean_catch_change	6E-11	29000	15000	20000	25000	27000	27000	26000	13000	16000	14000	18000	19000	21000	21000
OM_6	mean_prop_catch_change	19%	25%	0%	0%	2%	8%	18%	25%	5%	10%	1%	67%	20%	12%	11%
OM_6	mean_TAC_change	0	0	0	0	0	0	0	0	-150	280	170	1600	1100	680	640
OM_6	MeanF_FMSY_L	1E-15	0.75	0.28	0.45	0.81	1.50	2.20	2.60	0.28	0.37	0.27	0.39	0.41	0.49	0.49
OM_6	MeanF_FMSY_M	1E-15	0.75	0.32	0.51	0.79	1.20	1.80	2.20	0.28	0.38	0.29	0.44	0.44	0.48	0.47
OM_6	MeanF_FMSY_S	1E-15	0.75	0.40	0.58	0.80	1.10	1.40	1.70	0.30	0.24	0.33	0.05	0.19	0.37	0.41
OM_6	MeanSB_SBMSY_L	3.3	1.30	2.40	2.00	1.50	0.94	0.51	0.33	2.40	2.20	2.40	2.10	2.00	1.90	1.90
OM_6	MeanSB_SBMSY_M	2.8	1.20	1.90	1.60	1.30	1.00	0.77	0.57	2.10	2.00	2.00	2.00	1.90	1.80	1.80
OM_6	MeanSB_SBMSY_S	1.3	0.98	1.10	1.00	0.98	0.91	0.85	0.79	1.20	1.20	1.10	1.30	1.20	1.10	1.10
OM_6	Min_SB_SBMSY_L	1.7	0.54	0.71	0.15	0.06	0.04	0.03	0.02	0.16	0.21	0.71	0.74	0.55	0.07	0.11
OM_6	Min_SB_SBMSY_M	1.3	0.50	0.40	0.13	0.06	0.05	0.05	0.04	0.46	0.40	0.56	0.42	0.42	0.43	0.43
OM_6	Min_SB_SBMSY_S	0.87	0.73	0.83	0.69	0.56	0.44	0.37	0.34	0.79	0.80	0.87	0.87	0.87	0.68	0.68
OM_6	Red_L	0%	0%	0%	2%	18%	52%	84%	94%	2%	2%	0%	0%	0%	3%	2%
OM_6	Red_M	0%	0%	1%	5%	16%	45%	69%	82%	1%	1%	0%	1%	1%	1%	2%
OM_6	Red_S	0%	0%	0%	1%	12%	66%	81%	91%	0%	0%	0%	0%	0%	1%	1%
OM_6	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_6	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	10%	19%	0%	29%	23%	6%	6%
OM_6	Variance_yield	2E-11	9400	0.15	60	670	3500	7300	10000	3300	5800	750	11000	6700	3900	3500
OM_6	Yield_L	6E-11	29000	15000	20000	25000	27000	25000	23000	13000	17000	15000	19000	20000	21000	21000
OM_6	Yield_M	5E-11	29000	15000	20000	25000	29000	31000	31000	14000	18000	14000	21000	21000	21000	20000
OM_6	Yield_S	4E-11	25000	15000	20000	25000	30000	35000	39000	12000	9400	13000	2100	7600	13000	14000

OM_7	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_7	0.2 < SB0 < 0.4	0%	12%	5%	11%	20%	31%	41%	47%	3%	3%	2%	38%	40%	21%	21%
OM_7	0.4 < SSBMSY < 1	0%	0%	0%	1%	3%	6%	14%	23%	0%	0%	0%	11%	13%	4%	4%
OM_7	20% SB0_L	100%	100%	100%	100%	99%	96%	89%	77%	100%	100%	100%	94%	91%	98%	98%
OM_7	20% SB0_M	100%	100%	100%	99%	99%	97%	95%	89%	100%	100%	100%	96%	95%	99%	99%
OM_7	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_7	40% SSBMSY_L	100%	100%	100%	100%	100%	100%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_7	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	99%	98%	100%	100%	100%	100%	100%	100%	100%
OM_7	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_7	Green_L	100%	100%	100%	99%	97%	92%	80%	67%	100%	100%	100%	82%	80%	95%	95%

OM_7	Green_M	100%	99%	99%	99%	97%	95%	90%	80%	100%	100%	100%	90%	91%	98%	98%
OM_7	Green_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94%	94%	99%	99%
OM_7	max_TAC_change	0	0	0	0	0	0	0	0	-1300	1800	400	23000	-14000	-7400	-7400
OM_7	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	40000	9100	11000	10000	32000	34000	25000	25000
OM_7	mean_prop_catch_change	10%	12%	0%	0%	0%	0%	0%	1%	5%	9%	1%	56%	16%	20%	17%
OM_7	mean_TAC_change	0	0	0	0	0	0	0	0	-200	-50	58	190	230	120	120
OM_7	MeanF_FMSY_L	1E-15	0.25	0.14	0.21	0.29	0.40	0.57	0.79	0.08	0.10	0.09	0.48	0.55	0.32	0.32
OM_7	MeanF_FMSY_M	1E-15	0.25	0.14	0.21	0.29	0.40	0.53	0.70	0.09	0.10	0.09	0.36	0.39	0.23	0.23
OM_7	MeanF_FMSY_S	1E-15	0.25	0.17	0.23	0.30	0.38	0.46	0.56	0.10	0.09	0.10	0.52	0.52	0.33	0.33
OM_7	MeanSB_SBMSY_L	3.3	2.20	2.60	2.40	2.10	1.90	1.60	1.40	2.90	2.80	2.80	1.80	1.70	2.10	2.10
OM_7	MeanSB_SBMSY_M	3.1	2.10	2.50	2.30	2.10	1.90	1.70	1.50	2.70	2.70	2.70	1.90	1.90	2.20	2.20
OM_7	MeanSB_SBMSY_S	2.1	1.80	1.90	1.80	1.80	1.70	1.70	1.60	2.00	2.00	2.00	1.60	1.60	1.80	1.80
OM_7	Min_SB_SBMSY_L	1.6	0.96	0.92	0.69	0.46	0.27	0.23	0.20	1.10	1.10	1.10	0.37	0.29	0.39	0.39
OM_7	Min_SB_SBMSY_M	1.5	0.92	0.87	0.63	0.38	0.27	0.23	0.21	0.99	0.92	1.10	0.36	0.33	0.64	0.64
OM_7	Min_SB_SBMSY_S	1.6	1.50	1.60	1.50	1.40	1.30	1.20	1.10	1.60	1.60	1.60	0.86	0.86	1.10	1.10
OM_7	Red_L	0%	0%	0%	0%	0%	1%	8%	24%	0%	0%	0%	4%	5%	2%	2%
OM_7	Red_M	0%	0%	0%	0%	1%	1%	5%	13%	0%	0%	0%	1%	2%	0%	0%
OM_7	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%
OM_7	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_7	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	17%	0%	27%	22%	12%	12%
OM_7	Variance_yield	8E-12	5700	0.29	0.34	0.37	43	300	1300	2600	3600	380	16000	11000	7000	6900
OM_7	Yield_L	4E-11	25000	15000	20000	25000	30000	35000	39000	9200	11000	10000	32000	35000	26000	26000
OM_7	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	40000	9700	11000	10000	27000	29000	20000	20000
OM_7	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9100	8300	9700	36000	36000	26000	26000
OM_8	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_8	0.2 < SB0 < 0.4	3%	12%	5%	11%	24%	38%	48%	42%	4%	4%	3%	15%	17%	17%	17%
OM_8	0.4 < SSBMSY < 1	0%	0%	0%	1%	4%	12%	23%	33%	0%	0%	0%	1%	1%	2%	2%
OM_8	20% SB0_L	100%	100%	100%	100%	99%	93%	75%	47%	100%	100%	100%	100%	100%	100%	100%
OM_8	20% SB0_M	100%	100%	100%	99%	99%	96%	89%	76%	100%	100%	100%	100%	100%	100%	100%
OM_8	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_8	40% SSBMSY_L	100%	100%	100%	100%	100%	99%	89%	68%	100%	100%	100%	100%	100%	100%	100%

OM_8	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	97%	93%	100%	100%	100%	100%	100%	100%	100%
OM_8	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_8	Green_L	100%	100%	100%	99%	96%	83%	57%	27%	100%	100%	100%	98%	99%	98%	98%
OM_8	Green_M	100%	100%	99%	99%	96%	90%	72%	44%	100%	100%	100%	99%	98%	98%	98%
OM_8	Green_S	100%	100%	100%	100%	100%	100%	94%	81%	100%	100%	100%	100%	100%	100%	100%
OM_8	max_TAC_change	0	0	0	0	0	0	0	0	-1400	2300	500	3400	2900	-4700	-4700
OM_8	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	38000	9800	11000	11000	22000	24000	22000	22000
OM_8	mean_prop_catch_change	13%	16%	0%	0%	0%	0%	2%	6%	5%	9%	1%	49%	12%	5%	4%
OM_8	mean_TAC_change	0	0	0	0	0	0	0	0	-200	14	83	620	430	-56	-56
OM_8	MeanF_FMSY_L	2E-15	0.38	0.20	0.30	0.42	0.63	1.00	1.70	0.13	0.15	0.14	0.35	0.38	0.35	0.35
OM_8	MeanF_FMSY_M	2E-15	0.38	0.21	0.31	0.44	0.61	0.85	1.20	0.14	0.16	0.14	0.32	0.34	0.31	0.31
OM_8	MeanF_FMSY_S	2E-15	0.38	0.24	0.33	0.44	0.56	0.69	0.85	0.14	0.12	0.16	0.32	0.36	0.42	0.42
OM_8	MeanSB_SBMSY_L	3.4	2.00	2.60	2.30	2.00	1.60	1.20	0.83	2.90	2.80	2.80	2.20	2.10	2.20	2.20
OM_8	MeanSB_SBMSY_M	3.1	2.00	2.40	2.10	1.90	1.60	1.40	1.10	2.60	2.60	2.60	2.20	2.10	2.10	2.10
OM_8	MeanSB_SBMSY_S	1.9	1.60	1.70	1.70	1.60	1.50	1.50	1.40	1.80	1.80	1.80	1.70	1.70	1.60	1.60
OM_8	Min_SB_SBMSY_L	1.8	1.00	1.00	0.71	0.40	0.12	0.08	0.07	1.00	0.90	1.20	0.71	0.79	0.56	0.56
OM_8	Min_SB_SBMSY_M	1.7	0.97	0.91	0.64	0.31	0.14	0.09	0.08	1.00	1.00	1.10	0.74	0.67	0.71	0.71
OM_8	Min_SB_SBMSY_S	1.5	1.30	1.40	1.30	1.10	1.00	0.88	0.75	1.50	1.50	1.50	1.10	1.10	1.00	1.00
OM_8	Red_L	0%	0%	0%	0%	1%	7%	30%	62%	0%	0%	0%	0%	0%	1%	1%
OM_8	Red_M	0%	0%	0%	0%	1%	5%	17%	38%	0%	0%	0%	0%	0%	0%	0%
OM_8	Red_S	0%	0%	0%	0%	0%	0%	1%	5%	0%	0%	0%	0%	0%	0%	0%
OM_8	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_8	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	17%	0%	27%	20%	5%	5%
OM_8	Variance_yield	8E-12	6000	0.48	0.63	0.76	130	1100	3900	2700	3800	430	10000	5900	3100	3100
OM_8	Yield_L	4E-11	25000	15000	20000	25000	30000	34000	37000	9900	12000	11000	23000	24000	22000	22000
OM_8	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	39000	10000	12000	11000	21000	22000	20000	20000
OM_8	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	9400	7900	10000	19000	21000	24000	24000
OM_9	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_9	0.2 < SB0 < 0.4	4%	65%	13%	27%	41%	44%	35%	25%	11%	16%	10%	20%	23%	25%	25%
OM_9	0.4 < SSBMSY < 1	3%	9%	3%	7%	18%	34%	47%	51%	4%	5%	3%	5%	5%	6%	6%
OM_9	20% SB0_L	100%	100%	100%	99%	89%	66%	39%	24%	99%	99%	100%	99%	100%	99%	99%

OM_9	20% SB0_M	100%	99%	99%	97%	90%	71%	46%	31%	99%	99%	100%	99%	99%	98%	98%
OM_9	20% SB0_S	100%	100%	100%	100%	98%	93%	86%	72%	100%	100%	100%	100%	100%	100%	100%
OM_9	40% SSBMSY_L	100%	100%	100%	100%	98%	87%	73%	62%	100%	100%	100%	100%	100%	100%	100%
OM_9	40% SSBMSY_M	100%	100%	100%	99%	97%	94%	86%	74%	100%	100%	100%	100%	100%	100%	100%
OM_9	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_9	Green_L	100%	94%	100%	96%	78%	47%	22%	9%	98%	95%	100%	91%	97%	95%	95%
OM_9	Green_M	100%	92%	98%	93%	78%	49%	24%	14%	98%	96%	99%	91%	95%	96%	96%
OM_9	Green_S	67%	59%	66%	63%	53%	39%	21%	10%	66%	66%	67%	67%	67%	65%	65%
OM_9	max_TAC_change	0	0	0	0	0	0	0	0	-1300	6300	990	30000	13000	7800	7300
OM_9	mean_catch_change	5E-11	28000	15000	20000	25000	29000	31000	32000	12000	15000	13000	19000	20000	19000	19000
OM_9	mean_prop_catch_change	18%	25%	0%	0%	1%	5%	12%	20%	5%	11%	1%	90%	22%	13%	10%
OM_9	mean_TAC_change	0	0	0	0	0	0	0	0	-130	270	160	1000	990	700	690
OM_9	MeanF_FMSY_L	1E-15	0.64	0.26	0.41	0.67	1.10	1.60	1.80	0.23	0.32	0.23	0.42	0.41	0.41	0.41
OM_9	MeanF_FMSY_M	1E-15	0.64	0.29	0.46	0.70	1.00	1.50	1.80	0.23	0.34	0.23	0.45	0.44	0.40	0.40
OM_9	MeanF_FMSY_S	1E-15	0.64	0.35	0.51	0.70	0.95	1.20	1.50	0.24	0.19	0.26	0.06	0.21	0.28	0.31
OM_9	MeanSB_SBMSY_L	3.7	1.50	2.60	2.20	1.70	1.20	0.82	0.62	2.80	2.50	2.70	2.20	2.10	2.20	2.20
OM_9	MeanSB_SBMSY_M	3.3	1.40	2.20	1.90	1.50	1.20	0.91	0.71	2.50	2.30	2.40	2.20	2.10	2.10	2.10
OM_9	MeanSB_SBMSY_S	1.6	1.10	1.30	1.20	1.10	1.00	0.97	0.90	1.40	1.40	1.40	1.50	1.40	1.40	1.30
OM_9	Min_SB_SBMSY_L	1.9	0.64	0.73	0.33	0.13	0.12	0.10	0.10	0.29	0.30	0.83	0.44	0.54	0.54	0.54
OM_9	Min_SB_SBMSY_M	1.6	0.61	0.50	0.20	0.11	0.11	0.11	0.11	0.56	0.42	0.74	0.42	0.42	0.46	0.47
OM_9	Min_SB_SBMSY_S	1	0.85	0.97	0.79	0.62	0.50	0.42	0.39	0.97	0.97	1.00	1.00	1.00	0.83	0.83
OM_9	Red_L	0%	0%	0%	1%	12%	38%	66%	82%	2%	2%	0%	0%	0%	1%	1%
OM_9	Red_M	0%	0%	0%	3%	11%	35%	62%	77%	0%	0%	0%	1%	1%	1%	1%
OM_9	Red_S	0%	0%	0%	0%	9%	24%	72%	85%	0%	0%	0%	0%	0%	0%	0%
OM_9	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_9	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	10%	20%	0%	31%	25%	7%	6%
OM_9	Variance_yield	1E-11	8900	0.16	43	460	2400	5300	8000	3100	5600	700	14000	7200	3900	3400
OM_9	Yield_L	5E-11	28000	15000	20000	25000	29000	31000	31000	12000	16000	14000	20000	21000	20000	20000
OM_9	Yield_M	5E-11	28000	15000	20000	25000	29000	32000	33000	13000	17000	13000	22000	21000	19000	19000
OM_9	Yield_S	4E-11	25000	15000	20000	25000	30000	34000	38000	11000	8700	12000	2900	9600	12000	13000
OM_10	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY

OM_10	0.2 < SB0 < 0.4	0%	12%	5%	11%	18%	28%	35%	38%	3%	4%	3%	33%	35%	21%	21%
OM_10	0.4 < SSBMSY < 1	0%	1%	1%	2%	5%	10%	18%	25%	0%	0%	0%	12%	15%	8%	8%
OM_10	20% SB0_L	100%	100%	100%	100%	99%	94%	84%	66%	100%	100%	100%	96%	94%	97%	97%
OM_10	20% SB0_M	100%	100%	100%	99%	99%	97%	96%	91%	100%	100%	100%	97%	97%	99%	99%
OM_10	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_10	40% SSBMSY_L	100%	100%	100%	100%	100%	97%	93%	78%	100%	100%	100%	100%	99%	100%	100%
OM_10	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_10	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_10	Green_L	100%	99%	100%	98%	94%	84%	70%	48%	100%	100%	100%	81%	78%	89%	89%
OM_10	Green_M	100%	99%	99%	98%	96%	92%	84%	72%	99%	99%	99%	89%	89%	93%	93%
OM_10	Green_S	100%	100%	100%	100%	100%	100%	100%	97%	100%	100%	100%	94%	94%	96%	96%
OM_10	max_TAC_change	0	0	0	0	0	0	0	0	-1100	1600	340	-10000	-9000	-9500	-9500
OM_10	mean_catch_change	4E-11	26000	15000	20000	25000	30000	34000	38000	9600	11000	11000	32000	33000	26000	26000
OM_10	mean_prop_catch_change	10%	11%	11%	11%	11%	11%	12%	12%	13%	16%	12%	34%	20%	40%	38%
OM_10	mean_TAC_change	0	0	0	0	0	0	0	0	-310	-110	62	510	400	-180	-230
OM_10	MeanF_FMSY_L	2E-15	0.32	0.17	0.25	0.35	0.54	0.80	1.30	0.10	0.12	0.12	0.54	0.59	0.43	0.44
OM_10	MeanF_FMSY_M	2E-15	0.32	0.18	0.26	0.36	0.49	0.64	0.84	0.12	0.14	0.13	0.42	0.45	0.29	0.29
OM_10	MeanF_FMSY_S	2E-15	0.32	0.21	0.29	0.37	0.46	0.56	0.67	0.14	0.12	0.15	0.54	0.54	0.46	0.46
OM_10	MeanSB_SBMSY_L	2.8	1.90	2.30	2.10	1.90	1.60	1.40	1.10	2.50	2.40	2.40	1.60	1.60	1.80	1.80
OM_10	MeanSB_SBMSY_M	2.5	1.80	2.10	2.00	1.80	1.70	1.50	1.40	2.20	2.20	2.20	1.70	1.70	1.90	1.90
OM_10	MeanSB_SBMSY_S	1.7	1.60	1.60	1.60	1.50	1.50	1.40	1.40	1.60	1.70	1.60	1.50	1.50	1.50	1.50
OM_10	Min_SB_SBMSY_L	1.3	0.78	0.79	0.61	0.41	0.12	0.06	0.05	0.99	0.93	0.90	0.26	0.20	0.28	0.28
OM_10	Min_SB_SBMSY_M	1.2	0.75	0.63	0.43	0.21	0.12	0.10	0.08	0.62	0.64	0.80	0.27	0.27	0.47	0.47
OM_10	Min_SB_SBMSY_S	1.4	1.30	1.40	1.30	1.20	1.10	1.00	0.97	1.40	1.40	1.40	0.73	0.73	0.93	0.93
OM_10	Red_L	0%	0%	0%	0%	1%	6%	20%	43%	0%	0%	0%	4%	6%	3%	3%
OM_10	Red_M	0%	0%	0%	0%	1%	3%	8%	18%	0%	0%	0%	3%	3%	1%	1%
OM_10	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%
OM_10	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_10	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	11%	17%	0%	22%	18%	14%	14%
OM_10	Variance_yield	8E-12	6100	1500	2000	2500	3000	3900	5300	3100	4100	1200	12000	9500	9500	9300
OM_10	Yield_L	4E-11	26000	15000	20000	25000	30000	34000	38000	9600	11000	11000	32000	33000	28000	28000

OM_10	Yield_M	3E-11	25000	15000	20000	25000	30000	35000	40000	10000	12000	11000	27000	28000	20000	20000
OM_10	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9900	9000	11000	32000	33000	28000	28000
OM_11	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_11	0.2 < SB0 < 0.4	3%	15%	6%	11%	22%	35%	37%	28%	5%	5%	4%	10%	11%	20%	20%
OM_11	0.4 < SSBMSY < 1	0%	1%	0%	2%	7%	17%	24%	21%	1%	1%	0%	1%	2%	6%	6%
OM_11	20% SB0_L	100%	100%	100%	100%	97%	89%	60%	30%	100%	100%	100%	100%	100%	100%	100%
OM_11	20% SB0_M	100%	100%	100%	99%	99%	96%	90%	78%	99%	100%	100%	100%	100%	99%	99%
OM_11	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_11	40% SSBMSY_L	100%	100%	100%	100%	98%	94%	69%	36%	100%	100%	100%	100%	100%	100%	100%
OM_11	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	96%	90%	100%	100%	100%	100%	100%	100%	100%
OM_11	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_11	Green_L	100%	99%	100%	98%	89%	70%	38%	14%	100%	99%	100%	99%	99%	94%	94%
OM_11	Green_M	100%	97%	99%	97%	92%	79%	54%	33%	99%	99%	99%	98%	97%	91%	91%
OM_11	Green_S	100%	100%	100%	100%	99%	95%	84%	57%	100%	100%	100%	100%	100%	94%	94%
OM_11	max_TAC_change	0	0	0	0	0	0	0	0	-1000	1900	400	5500	2500	-6100	-6100
OM_11	mean_catch_change	4E-11	27000	15000	20000	25000	29000	29000	24000	11000	12000	13000	21000	21000	24000	24000
OM_11	mean_prop_catch_change	13%	16%	11%	11%	12%	13%	18%	27%	13%	16%	12%	27%	18%	19%	19%
OM_11	mean_TAC_change	0	0	0	0	0	0	0	0	-260	-68	85	790	560	-210	-210
OM_11	MeanF_FMSY_L	3E-15	0.48	0.23	0.35	0.58	0.93	2.00	3.40	0.16	0.19	0.19	0.36	0.38	0.44	0.44
OM_11	MeanF_FMSY_M	3E-15	0.48	0.26	0.38	0.54	0.74	1.00	1.50	0.19	0.20	0.20	0.35	0.36	0.40	0.40
OM_11	MeanF_FMSY_S	3E-15	0.48	0.30	0.41	0.54	0.67	0.83	1.00	0.21	0.17	0.23	0.30	0.35	0.60	0.60
OM_11	MeanSB_SBMSY_L	2.9	1.70	2.20	2.00	1.70	1.40	0.89	0.45	2.40	2.30	2.30	1.90	1.90	1.80	1.80
OM_11	MeanSB_SBMSY_M	2.5	1.60	2.00	1.80	1.60	1.40	1.20	1.00	2.10	2.10	2.10	1.90	1.80	1.70	1.70
OM_11	MeanSB_SBMSY_S	1.5	1.30	1.40	1.40	1.30	1.30	1.20	1.20	1.40	1.50	1.40	1.40	1.40	1.30	1.30
OM_11	Min_SB_SBMSY_L	1.5	0.79	0.84	0.60	0.00	0.00	0.00	0.00	1.00	0.91	0.91	0.77	0.71	0.50	0.50
OM_11	Min_SB_SBMSY_M	1.3	0.75	0.64	0.36	0.08	0.03	0.02	0.01	0.56	0.65	0.80	0.63	0.62	0.48	0.48
OM_11	Min_SB_SBMSY_S	1.2	1.10	1.10	1.00	0.95	0.85	0.76	0.67	1.20	1.20	1.20	1.00	1.00	0.80	0.80
OM_11	Red_L	0%	0%	0%	0%	4%	18%	51%	80%	0%	0%	0%	0%	0%	1%	1%
OM_11	Red_M	0%	0%	0%	1%	3%	10%	27%	51%	0%	0%	0%	0%	0%	1%	1%
OM_11	Red_S	0%	0%	0%	0%	0%	0%	6%	9%	0%	0%	0%	0%	0%	2%	2%
OM_11	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0

OM_11	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	12%	17%	0%	21%	17%	6%	6%
OM_11	Variance_yield	9E-12	6600	1500	2000	2600	3700	8200	14000	3300	4400	1300	6700	5300	4700	4700
OM_11	Yield_L	4E-11	27000	15000	20000	25000	29000	28000	21000	11000	12000	13000	21000	22000	24000	24000
OM_11	Yield_M	4E-11	26000	15000	20000	25000	30000	35000	39000	11000	12000	12000	20000	20000	20000	20000
OM_11	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	11000	8900	12000	14000	17000	27000	27000
OM_12	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_12	0.2 < SB0 < 0.4	5%	53%	13%	23%	34%	32%	22%	14%	12%	15%	13%	11%	13%	27%	27%
OM_12	0.4 < SSBMSY < 1	3%	23%	6%	12%	24%	29%	22%	17%	7%	8%	5%	4%	5%	15%	15%
OM_12	20% SB0_L	100%	100%	100%	97%	84%	50%	20%	7%	98%	99%	100%	100%	100%	99%	98%
OM_12	20% SB0_M	100%	99%	99%	96%	91%	74%	54%	36%	98%	99%	99%	99%	99%	97%	97%
OM_12	20% SB0_S	100%	100%	100%	100%	100%	98%	91%	89%	100%	100%	100%	100%	100%	100%	100%
OM_12	40% SSBMSY_L	100%	100%	100%	98%	89%	57%	24%	10%	100%	100%	100%	100%	100%	100%	100%
OM_12	40% SSBMSY_M	100%	100%	99%	99%	97%	88%	71%	54%	99%	99%	100%	100%	100%	100%	99%
OM_12	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_12	Green_L	100%	82%	99%	91%	67%	31%	9%	3%	95%	93%	99%	99%	98%	88%	88%
OM_12	Green_M	100%	75%	94%	84%	63%	38%	22%	9%	94%	92%	95%	95%	95%	83%	83%
OM_12	Green_S	67%	32%	51%	41%	27%	18%	11%	5%	58%	60%	54%	67%	64%	45%	43%
OM_12	max_TAC_change	0	0	0	0	0	0	0	0	-1500	3400	650	22000	12000	2000	1700
OM_12	mean_catch_change	5E-11	29000	15000	20000	24000	24000	20000	17000	13000	16000	15000	17000	18000	22000	22000
OM_12	mean_prop_catch_change	19%	24%	11%	12%	13%	19%	27%	31%	13%	17%	12%	50%	24%	20%	20%
OM_12	mean_TAC_change	0	0	0	0	0	0	0	0	-270	120	150	1600	1000	370	360
OM_12	MeanF_FMSY_L	2E-15	0.74	0.29	0.52	0.96	2.00	2.90	3.30	0.29	0.36	0.30	0.36	0.38	0.54	0.54
OM_12	MeanF_FMSY_M	2E-15	0.74	0.35	0.55	0.83	1.30	1.90	2.50	0.32	0.38	0.33	0.42	0.42	0.55	0.55
OM_12	MeanF_FMSY_S	2E-15	0.74	0.42	0.60	0.81	1.10	1.40	1.70	0.35	0.28	0.38	0.05	0.19	0.52	0.55
OM_12	MeanSB_SBMSY_L	3	1.30	2.20	1.80	1.40	0.79	0.36	0.17	2.20	2.10	2.20	2.00	2.00	1.70	1.70
OM_12	MeanSB_SBMSY_M	2.4	1.20	1.70	1.50	1.30	1.00	0.77	0.57	1.80	1.80	1.80	1.90	1.80	1.50	1.50
OM_12	MeanSB_SBMSY_S	1.2	0.97	1.10	1.00	0.96	0.91	0.86	0.81	1.10	1.10	1.10	1.20	1.10	1.00	1.00
OM_12	Min_SB_SBMSY_L	1.4	0.54	0.65	0.03	0.01	0.00	0.00	0.00	0.12	0.18	0.59	0.63	0.68	0.18	0.18
OM_12	Min_SB_SBMSY_M	1.2	0.47	0.25	0.07	0.04	0.02	0.02	0.02	0.21	0.31	0.36	0.39	0.41	0.36	0.34
OM_12	Min_SB_SBMSY_S	0.88	0.74	0.78	0.67	0.56	0.46	0.39	0.36	0.77	0.76	0.81	0.88	0.88	0.59	0.59
OM_12	Red_L	0%	0%	0%	4%	22%	60%	85%	95%	2%	2%	0%	0%	0%	3%	4%

OM_12	Red_M	0%	0%	1%	5%	19%	46%	67%	81%	2%	3%	1%	1%	0%	5%	5%
OM_12	Red_S	0%	0%	0%	3%	15%	51%	74%	87%	1%	0%	0%	0%	0%	7%	7%
OM_12	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_12	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	12%	19%	0%	26%	20%	6%	6%
OM_12	Variance_yield	2E-11	9300	1500	2100	3200	6800	11000	13000	3900	5900	1700	8800	6200	4700	4400
OM_12	Yield_L	5E-11	29000	15000	20000	24000	22000	16000	11000	13000	16000	15000	18000	19000	23000	23000
OM_12	Yield_M	5E-11	28000	15000	20000	25000	29000	32000	32000	14000	17000	15000	19000	19000	21000	21000
OM_12	Yield_S	3E-11	25000	15000	20000	25000	30000	35000	39000	12000	10000	14000	2100	7000	17000	18000
OM_13	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_13	0.2 < SB0 < 0.4	0%	13%	5%	11%	20%	30%	40%	43%	3%	3%	3%	35%	38%	21%	21%
OM_13	0.4 < SSBMSY < 1	0%	0%	0%	1%	4%	9%	17%	26%	0%	0%	0%	11%	13%	6%	6%
OM_13	20% SB0_L	100%	100%	100%	100%	99%	96%	86%	71%	100%	100%	100%	96%	95%	98%	98%
OM_13	20% SB0_M	100%	100%	100%	99%	99%	97%	94%	89%	100%	100%	100%	97%	97%	99%	99%
OM_13	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_13	40% SSBMSY_L	100%	100%	100%	100%	100%	99%	97%	89%	100%	100%	100%	100%	100%	100%	100%
OM_13	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_13	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_13	Green_L	100%	100%	100%	99%	96%	88%	75%	55%	100%	100%	100%	83%	79%	92%	92%
OM_13	Green_M	100%	99%	99%	99%	96%	93%	86%	74%	99%	99%	99%	91%	91%	97%	97%
OM_13	Green_S	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	95%	95%	99%	99%
OM_13	max_TAC_change	0	0	0	0	0	0	0	0	-1300	1700	370	17000	-11000	-7800	-7800
OM_13	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	39000	9300	11000	11000	32000	33000	26000	26000
OM_13	mean_prop_catch_change	10%	11%	11%	11%	11%	11%	11%	12%	13%	16%	12%	47%	22%	35%	33%
OM_13	mean_TAC_change	0	0	0	0	0	0	0	0	-280	-120	63	520	450	17	17
OM_13	MeanF_FMSY_L	2E-15	0.29	0.16	0.23	0.32	0.46	0.68	0.99	0.09	0.11	0.11	0.50	0.55	0.38	0.38
OM_13	MeanF_FMSY_M	2E-15	0.29	0.17	0.24	0.34	0.45	0.60	0.79	0.10	0.12	0.11	0.38	0.41	0.25	0.25
OM_13	MeanF_FMSY_S	2E-15	0.29	0.19	0.26	0.34	0.42	0.52	0.62	0.12	0.10	0.12	0.51	0.52	0.39	0.39
OM_13	MeanSB_SBMSY_L	3	2.00	2.40	2.20	2.00	1.80	1.50	1.20	2.70	2.60	2.60	1.70	1.60	2.00	2.00
OM_13	MeanSB_SBMSY_M	2.8	2.00	2.30	2.10	1.90	1.80	1.60	1.40	2.50	2.50	2.40	1.80	1.80	2.00	2.00
OM_13	MeanSB_SBMSY_S	1.9	1.70	1.70	1.70	1.60	1.60	1.50	1.50	1.80	1.80	1.80	1.60	1.60	1.60	1.60
OM_13	Min_SB_SBMSY_L	1.4	0.86	0.84	0.63	0.41	0.19	0.15	0.12	1.10	0.99	1.00	0.38	0.26	0.29	0.29

OM_13	Min_SB_SBMSY_M	1.4	0.84	0.72	0.48	0.24	0.17	0.15	0.13	0.73	0.69	0.94	0.33	0.35	0.54	0.54
OM_13	Min_SB_SBMSY_S	1.5	1.40	1.50	1.40	1.30	1.20	1.10	0.97	1.50	1.50	1.50	0.86	0.86	1.00	1.00
OM_13	Red_L	0%	0%	0%	0%	0%	3%	15%	34%	0%	0%	0%	4%	4%	3%	3%
OM_13	Red_M	0%	0%	0%	0%	1%	3%	7%	17%	0%	0%	0%	2%	2%	0%	0%
OM_13	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%
OM_13	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_13	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	12%	17%	0%	24%	20%	13%	13%
OM_13	Variance_yield	8E-12	5900	1500	2000	2500	3000	3600	4600	2900	4000	1100	14000	10000	8300	8200
OM_13	Yield_L	4E-11	26000	15000	20000	25000	30000	35000	39000	9300	11000	11000	32000	33000	27000	27000
OM_13	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	40000	10000	11000	11000	27000	28000	20000	20000
OM_13	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9500	8500	10000	33000	33000	27000	27000

OM_14	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_14	0.2 < SB0 < 0.4	3%	19%	6%	13%	27%	40%	40%	26%	5%	6%	4%	13%	16%	19%	19%
OM_14	0.4 < SSBMSY < 1	0%	1%	0%	2%	7%	17%	26%	20%	0%	1%	0%	1%	2%	4%	4%
OM_14	20% SB0_L	100%	100%	100%	100%	97%	86%	56%	23%	100%	100%	100%	100%	100%	100%	100%
OM_14	20% SB0_M	100%	100%	100%	99%	98%	94%	85%	68%	100%	100%	100%	100%	100%	99%	99%
OM_14	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_14	40% SSBMSY_L	100%	100%	100%	100%	98%	93%	67%	32%	100%	100%	100%	100%	100%	100%	100%
OM_14	40% SSBMSY_M	100%	100%	100%	100%	99%	98%	94%	86%	100%	100%	100%	100%	100%	100%	100%
OM_14	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_14	Green_L	100%	100%	100%	98%	91%	70%	35%	11%	100%	99%	100%	99%	99%	97%	97%
OM_14	Green_M	100%	99%	99%	97%	92%	79%	52%	31%	99%	99%	99%	97%	97%	95%	95%
OM_14	Green_S	100%	100%	100%	100%	99%	95%	83%	56%	100%	100%	100%	100%	100%	98%	98%
OM_14	max_TAC_change	0	0	0	0	0	0	0	0	-1300	2300	490	7400	2500	-4300	-4300
OM_14	mean_catch_change	4E-11	26000	15000	20000	25000	29000	31000	28000	10000	12000	12000	21000	22000	22000	22000
OM_14	mean_prop_catch_change	13%	16%	11%	11%	11%	12%	16%	22%	13%	17%	12%	38%	19%	16%	16%
OM_14	mean_TAC_change	0	0	0	0	0	0	0	0	-250	-36	90	900	580	-130	-130
OM_14	MeanF_FMSY_L	2E-15	0.47	0.23	0.34	0.53	0.89	1.80	2.80	0.15	0.19	0.17	0.37	0.39	0.40	0.40
OM_14	MeanF_FMSY_M	2E-15	0.47	0.25	0.37	0.53	0.75	1.10	1.60	0.17	0.20	0.18	0.36	0.37	0.36	0.36
OM_14	MeanF_FMSY_S	2E-15	0.47	0.29	0.40	0.53	0.67	0.83	1.00	0.19	0.15	0.20	0.29	0.36	0.50	0.50
OM_14	MeanSB_SBMSY_L	3.1	1.70	2.40	2.10	1.80	1.40	0.88	0.44	2.60	2.50	2.50	2.00	2.00	2.00	2.00

OM_14	MeanSB_SBMSY_M	2.8	1.70	2.10	1.90	1.70	1.40	1.20	0.96	2.30	2.30	2.30	2.00	1.90	1.80	1.80
OM_14	MeanSB_SBMSY_S	1.7	1.40	1.50	1.40	1.40	1.30	1.30	1.20	1.50	1.60	1.50	1.50	1.50	1.40	1.40
OM_14	Min_SB_SBMSY_L	1.6	0.84	0.87	0.58	0.06	0.03	0.02	0.01	1.10	0.81	1.00	0.71	0.73	0.48	0.48
OM_14	Min_SB_SBMSY_M	1.5	0.80	0.70	0.38	0.10	0.05	0.04	0.03	0.61	0.62	0.89	0.64	0.62	0.60	0.60
OM_14	Min_SB_SBMSY_S	1.3	1.10	1.20	1.10	0.95	0.83	0.71	0.59	1.30	1.30	1.30	1.00	1.00	0.87	0.87
OM_14	Red_L	0%	0%	0%	0%	3%	19%	54%	83%	0%	0%	0%	0%	0%	1%	1%
OM_14	Red_M	0%	0%	0%	1%	4%	11%	29%	54%	0%	0%	0%	0%	0%	0%	0%
OM_14	Red_S	0%	0%	0%	0%	0%	1%	6%	10%	0%	0%	0%	0%	0%	0%	0%
OM_14	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_14	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	11%	17%	0%	23%	19%	5%	5%
OM_14	Variance_yield	9E-12	6500	1500	2000	2500	3400	6100	11000	3200	4200	1300	8000	5700	3800	3800
OM_14	Yield_L	4E-11	26000	15000	20000	25000	29000	30000	25000	10000	12000	12000	22000	23000	22000	22000
OM_14	Yield_M	4E-11	26000	15000	20000	25000	30000	35000	39000	11000	13000	12000	21000	21000	19000	19000
OM_14	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	10000	8400	11000	15000	18000	24000	24000
OM_15	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_15	0.2 < SB0 < 0.4	5%	67%	13%	25%	38%	38%	25%	16%	12%	16%	12%	16%	18%	26%	27%
OM_15	0.4 < SSBMSY < 1	3%	21%	5%	10%	23%	33%	32%	26%	6%	7%	4%	5%	5%	10%	10%
OM_15	20% SB0_L	100%	99%	100%	98%	86%	56%	23%	10%	98%	99%	100%	100%	100%	98%	98%
OM_15	20% SB0_M	100%	97%	99%	96%	88%	68%	46%	30%	99%	99%	99%	100%	99%	98%	98%
OM_15	20% SB0_S	100%	100%	100%	100%	99%	91%	84%	75%	100%	100%	100%	100%	100%	100%	100%
OM_15	40% SSBMSY_L	100%	100%	100%	99%	94%	68%	38%	20%	99%	100%	100%	100%	100%	100%	100%
OM_15	40% SSBMSY_M	100%	100%	99%	99%	96%	89%	72%	53%	99%	100%	100%	100%	100%	100%	100%
OM_15	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	99%	98%	100%	100%	100%	100%	100%	100%	100%
OM_15	Green_L	100%	82%	99%	94%	72%	35%	11%	4%	96%	93%	99%	95%	97%	92%	92%
OM_15	Green_M	100%	78%	96%	87%	68%	40%	22%	10%	96%	93%	97%	93%	95%	90%	90%
OM_15	Green_S	67%	36%	58%	45%	33%	20%	11%	5%	62%	64%	62%	67%	64%	56%	55%
OM_15	max_TAC_change	0	0	0	0	0	0	0	0	-1600	4600	870	26000	14000	6600	5400
OM_15	mean_catch_change	6E-11	29000	15000	20000	25000	27000	27000	26000	12000	16000	14000	18000	19000	21000	21000
OM_15	mean_prop_catch_change	19%	25%	11%	11%	12%	16%	22%	27%	13%	18%	12%	76%	29%	23%	21%
OM_15	mean_TAC_change	0	0	0	0	0	0	0	0	-200	200	160	1700	1100	700	640
OM_15	MeanF_FMSY_L	1E-15	0.75	0.28	0.45	0.78	1.50	2.20	2.50	0.27	0.35	0.27	0.40	0.41	0.49	0.49

OM_15	MeanF_FMSY_M	1E-15	0.75	0.32	0.51	0.79	1.20	1.70	2.20	0.29	0.38	0.29	0.45	0.45	0.48	0.47
OM_15	MeanF_FMSY_S	1E-15	0.75	0.40	0.58	0.80	1.10	1.40	1.70	0.30	0.24	0.33	0.05	0.19	0.37	0.41
OM_15	MeanSB_SBMSY_L	3.3	1.30	2.40	2.00	1.50	0.94	0.52	0.34	2.50	2.20	2.40	2.10	2.00	1.90	1.90
OM_15	MeanSB_SBMSY_M	2.8	1.20	1.90	1.70	1.30	1.00	0.78	0.58	2.10	2.00	2.00	2.00	1.90	1.80	1.80
OM_15	MeanSB_SBMSY_S	1.3	0.98	1.10	1.00	0.98	0.91	0.85	0.79	1.20	1.20	1.10	1.30	1.20	1.10	1.10
OM_15	Min_SB_SBMSY_L	1.7	0.54	0.67	0.16	0.06	0.04	0.03	0.02	0.17	0.22	0.67	0.43	0.49	0.11	0.11
OM_15	Min_SB_SBMSY_M	1.3	0.50	0.29	0.09	0.06	0.05	0.04	0.04	0.30	0.32	0.48	0.39	0.41	0.39	0.40
OM_15	Min_SB_SBMSY_S	0.87	0.73	0.80	0.66	0.52	0.42	0.37	0.33	0.80	0.82	0.86	0.87	0.87	0.65	0.65
OM_15	Red_L	0%	0%	0%	2%	16%	51%	83%	93%	2%	2%	0%	0%	0%	2%	2%
OM_15	Red_M	0%	0%	1%	5%	17%	42%	67%	81%	2%	2%	0%	1%	1%	2%	2%
OM_15	Red_S	0%	0%	0%	2%	16%	50%	74%	86%	0%	0%	0%	0%	0%	2%	2%
OM_15	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_15	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	12%	19%	0%	29%	22%	7%	7%
OM_15	Variance_yield	2E-11	9400	1500	2000	2800	4800	7800	10000	3800	6100	1600	11000	7100	4800	4400
OM_15	Yield_L	6E-11	29000	15000	20000	25000	27000	25000	23000	13000	16000	15000	19000	20000	21000	21000
OM_15	Yield_M	5E-11	29000	15000	20000	25000	29000	31000	32000	13000	17000	14000	21000	21000	21000	20000
OM_15	Yield_S	4E-11	25000	15000	20000	25000	30000	34000	38000	12000	9400	13000	2000	7700	13000	14000
OM_16	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_16	0.2 < SB0 < 0.4	0%	12%	5%	11%	21%	31%	41%	47%	3%	3%	2%	38%	41%	22%	22%
OM_16	0.4 < SSBMSY < 1	0%	0%	0%	1%	3%	7%	14%	24%	0%	0%	0%	10%	13%	4%	4%
OM_16	20% SB0_L	100%	100%	100%	100%	99%	97%	89%	78%	100%	100%	100%	94%	92%	98%	98%
OM_16	20% SB0_M	100%	100%	100%	99%	99%	97%	94%	88%	100%	100%	100%	96%	95%	99%	99%
OM_16	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_16	40% SSBMSY_L	100%	100%	100%	100%	100%	100%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_16	40% SSBMSY_M	100%	100%	100%	100%	100%	99%	99%	98%	100%	100%	100%	100%	100%	100%	100%
OM_16	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_16	Green_L	100%	100%	100%	100%	98%	92%	81%	67%	100%	100%	100%	82%	80%	94%	94%
OM_16	Green_M	100%	99%	99%	99%	97%	94%	89%	77%	99%	99%	100%	90%	90%	98%	98%
OM_16	Green_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	95%	95%	99%	99%
OM_16	max_TAC_change	0	0	0	0	0	0	0	0	-1400	1700	380	23000	-14000	-7400	-7400
OM_16	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	39000	8900	10000	10000	32000	34000	25000	25000

OM_16	mean_prop_catch_change	10%	12%	11%	11%	11%	11%	11%	12%	13%	17%	12%	64%	25%	30%	29%
OM_16	mean_TAC_change	0	0	0	0	0	0	0	0	-270	-79	58	50	300	140	140
OM_16	MeanF_FMSY_L	1E-15	0.25	0.14	0.21	0.29	0.40	0.57	0.79	0.08	0.10	0.09	0.48	0.54	0.33	0.33
OM_16	MeanF_FMSY_M	1E-15	0.25	0.15	0.21	0.30	0.40	0.53	0.70	0.09	0.10	0.09	0.36	0.39	0.23	0.23
OM_16	MeanF_FMSY_S	1E-15	0.25	0.16	0.23	0.30	0.38	0.46	0.56	0.10	0.09	0.10	0.51	0.51	0.33	0.33
OM_16	MeanSB_SBMSY_L	3.3	2.20	2.60	2.40	2.10	1.90	1.60	1.40	2.90	2.80	2.80	1.80	1.70	2.10	2.10
OM_16	MeanSB_SBMSY_M	3.1	2.10	2.50	2.30	2.10	1.90	1.70	1.50	2.70	2.70	2.70	1.90	1.90	2.20	2.20
OM_16	MeanSB_SBMSY_S	2.1	1.80	1.90	1.80	1.80	1.70	1.70	1.60	2.00	2.00	2.00	1.70	1.70	1.80	1.80
OM_16	Min_SB_SBMSY_L	1.6	0.96	0.90	0.67	0.44	0.25	0.21	0.20	1.20	1.20	1.10	0.34	0.30	0.31	0.31
OM_16	Min_SB_SBMSY_M	1.5	0.92	0.83	0.57	0.31	0.24	0.21	0.19	0.79	0.80	1.10	0.39	0.38	0.61	0.61
OM_16	Min_SB_SBMSY_S	1.6	1.50	1.60	1.50	1.40	1.30	1.10	1.00	1.60	1.60	1.60	0.69	0.69	1.10	1.10
OM_16	Red_L	0%	0%	0%	0%	0%	1%	8%	22%	0%	0%	0%	4%	5%	2%	2%
OM_16	Red_M	0%	0%	0%	0%	1%	2%	5%	13%	0%	0%	0%	2%	2%	0%	0%
OM_16	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%
OM_16	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_16	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	11%	17%	0%	27%	22%	13%	12%
OM_16	Variance_yield	8E-12	5700	1500	2000	2500	3000	3500	4300	2800	3900	1100	17000	11000	7600	7500
OM_16	Yield_L	4E-11	25000	15000	20000	25000	30000	35000	39000	8900	11000	10000	32000	34000	26000	26000
OM_16	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	40000	9700	11000	10000	27000	29000	20000	20000
OM_16	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9000	8200	9700	36000	36000	26000	26000
OM_17	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_17	0.2 < SB0 < 0.4	3%	12%	5%	11%	24%	39%	47%	41%	4%	5%	3%	15%	18%	18%	18%
OM_17	0.4 < SSBMSY < 1	0%	0%	0%	1%	4%	11%	23%	33%	0%	0%	0%	1%	1%	2%	2%
OM_17	20% SB0_L	100%	100%	100%	100%	99%	94%	75%	47%	100%	100%	100%	100%	100%	100%	100%
OM_17	20% SB0_M	100%	100%	100%	99%	98%	95%	88%	74%	100%	100%	100%	100%	100%	100%	100%
OM_17	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_17	40% SSBMSY_L	100%	100%	100%	100%	100%	99%	90%	69%	100%	100%	100%	100%	100%	100%	100%
OM_17	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	97%	93%	100%	100%	100%	100%	100%	100%	100%
OM_17	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_17	Green_L	100%	100%	100%	99%	96%	83%	57%	26%	100%	100%	100%	98%	99%	99%	99%
OM_17	Green_M	100%	100%	99%	99%	95%	88%	69%	44%	99%	99%	100%	98%	97%	98%	98%

OM_17	Green_S	100%	100%	100%	100%	100%	98%	93%	81%	100%	100%	100%	100%	100%	100%	100%
OM_17	max_TAC_change	0	0	0	0	0	0	0	0	-1000	2200	520	4400	3200	-4600	-4600
OM_17	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	38000	9600	11000	11000	22000	24000	22000	22000
OM_17	mean_prop_catch_change	13%	16%	11%	11%	11%	11%	12%	15%	13%	17%	12%	60%	22%	15%	14%
OM_17	mean_TAC_change	0	0	0	0	0	0	0	0	-220	-31	86	750	430	-63	-63
OM_17	MeanF_FMSY_L	2E-15	0.38	0.20	0.30	0.42	0.62	1.00	1.70	0.12	0.15	0.14	0.35	0.38	0.35	0.35
OM_17	MeanF_FMSY_M	2E-15	0.38	0.21	0.31	0.44	0.62	0.86	1.20	0.14	0.16	0.14	0.33	0.35	0.31	0.31
OM_17	MeanF_FMSY_S	2E-15	0.38	0.24	0.33	0.44	0.56	0.69	0.85	0.14	0.12	0.16	0.32	0.36	0.42	0.42
OM_17	MeanSB_SBMSY_L	3.4	2.00	2.60	2.30	2.00	1.60	1.20	0.83	2.90	2.80	2.80	2.10	2.10	2.20	2.20
OM_17	MeanSB_SBMSY_M	3.1	2.00	2.40	2.10	1.90	1.60	1.40	1.10	2.60	2.60	2.60	2.10	2.10	2.10	2.10
OM_17	MeanSB_SBMSY_S	1.9	1.60	1.70	1.70	1.60	1.50	1.50	1.40	1.80	1.80	1.80	1.70	1.70	1.60	1.60
OM_17	Min_SB_SBMSY_L	1.8	1.00	0.98	0.68	0.34	0.11	0.09	0.07	1.20	0.87	1.20	0.65	0.73	0.47	0.47
OM_17	Min_SB_SBMSY_M	1.7	0.97	0.82	0.54	0.19	0.11	0.09	0.08	0.80	0.75	1.10	0.72	0.65	0.67	0.67
OM_17	Min_SB_SBMSY_S	1.5	1.30	1.40	1.20	1.10	0.96	0.82	0.68	1.50	1.50	1.50	1.10	1.10	1.00	1.00
OM_17	Red_L	0%	0%	0%	0%	1%	7%	29%	60%	0%	0%	0%	0%	0%	0%	0%
OM_17	Red_M	0%	0%	0%	0%	2%	6%	16%	37%	0%	0%	0%	0%	0%	0%	0%
OM_17	Red_S	0%	0%	0%	0%	0%	0%	1%	5%	0%	0%	0%	0%	0%	0%	0%
OM_17	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_17	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	11%	18%	0%	27%	21%	6%	5%
OM_17	Variance_yield	8E-12	6000	1500	2000	2500	3000	3900	5800	2900	4000	1200	10000	6500	3900	3900
OM_17	Yield_L	4E-11	25000	15000	20000	25000	30000	34000	37000	9700	11000	11000	23000	24000	22000	22000
OM_17	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	39000	10000	12000	11000	21000	22000	19000	19000
OM_17	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	9400	7900	10000	19000	21000	24000	24000
OM_18	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_18	0.2 < SB0 < 0.4	4%	65%	13%	27%	41%	44%	35%	26%	11%	16%	10%	21%	23%	25%	25%
OM_18	0.4 < SSBMSY < 1	3%	9%	3%	7%	18%	35%	47%	51%	5%	5%	3%	5%	5%	6%	6%
OM_18	20% SB0_L	100%	100%	100%	99%	89%	67%	40%	24%	99%	99%	100%	100%	100%	99%	99%
OM_18	20% SB0_M	100%	99%	99%	96%	89%	71%	48%	33%	99%	99%	99%	99%	99%	98%	98%
OM_18	20% SB0_S	100%	100%	100%	100%	99%	91%	83%	74%	100%	100%	100%	100%	100%	100%	100%
OM_18	40% SSBMSY_L	100%	100%	100%	100%	98%	88%	74%	62%	100%	100%	100%	100%	100%	100%	100%
OM_18	40% SSBMSY_M	100%	100%	100%	99%	97%	94%	85%	76%	100%	100%	100%	100%	100%	100%	100%

OM_18	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_18	Green_L	100%	94%	100%	96%	78%	46%	21%	9%	97%	96%	100%	91%	96%	95%	95%
OM_18	Green_M	100%	92%	97%	92%	76%	48%	27%	14%	98%	95%	99%	92%	95%	95%	95%
OM_18	Green_S	67%	59%	66%	63%	50%	36%	22%	10%	66%	67%	67%	67%	66%	65%	65%
OM_18	max_TAC_change	0	0	0	0	0	0	0	0	1300	6100	960	30000	14000	8000	7100
OM_18	mean_catch_change	5E-11	28000	15000	20000	25000	29000	31000	32000	12000	15000	13000	19000	20000	19000	19000
OM_18	mean_prop_catch_change	18%	25%	11%	11%	12%	14%	18%	23%	13%	18%	12%	91%	31%	22%	21%
OM_18	mean_TAC_change	0	0	0	0	0	0	0	0	-230	190	160	1000	980	690	680
OM_18	MeanF_FMSY_L	1E-15	0.64	0.26	0.41	0.67	1.10	1.50	1.80	0.22	0.30	0.23	0.42	0.41	0.41	0.41
OM_18	MeanF_FMSY_M	1E-15	0.64	0.29	0.46	0.70	1.00	1.40	1.70	0.23	0.34	0.24	0.45	0.44	0.40	0.40
OM_18	MeanF_FMSY_S	1E-15	0.64	0.35	0.51	0.70	0.94	1.20	1.50	0.24	0.19	0.26	0.06	0.21	0.28	0.31
OM_18	MeanSB_SBMSY_L	3.7	1.50	2.60	2.20	1.70	1.20	0.83	0.63	2.80	2.50	2.70	2.20	2.10	2.20	2.20
OM_18	MeanSB_SBMSY_M	3.3	1.40	2.20	1.90	1.50	1.20	0.93	0.73	2.50	2.30	2.40	2.20	2.10	2.10	2.10
OM_18	MeanSB_SBMSY_S	1.6	1.10	1.30	1.20	1.10	1.10	0.97	0.90	1.40	1.40	1.40	1.50	1.40	1.40	1.30
OM_18	Min_SB_SBMSY_L	1.9	0.64	0.70	0.30	0.13	0.11	0.10	0.10	0.36	0.31	0.79	0.41	0.45	0.30	0.30
OM_18	Min_SB_SBMSY_M	1.6	0.61	0.39	0.15	0.12	0.11	0.11	0.11	0.39	0.40	0.65	0.41	0.38	0.43	0.43
OM_18	Min_SB_SBMSY_S	1	0.85	0.93	0.75	0.56	0.48	0.41	0.37	0.98	1.00	1.00	1.00	0.99	0.79	0.79
OM_18	Red_L	0%	0%	0%	1%	11%	37%	66%	81%	1%	1%	0%	0%	0%	1%	1%
OM_18	Red_M	0%	0%	0%	3%	12%	34%	59%	76%	1%	1%	0%	1%	1%	1%	1%
OM_18	Red_S	0%	0%	0%	1%	8%	31%	60%	77%	0%	0%	0%	0%	0%	0%	0%
OM_18	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_18	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	12%	20%	0%	31%	25%	8%	7%
OM_18	Variance_yield	1E-11	8900	1500	2000	2600	3900	6100	8300	3500	5900	1500	14000	7700	4600	4300
OM_18	Yield_L	5E-11	28000	15000	20000	25000	29000	31000	31000	12000	15000	14000	20000	21000	20000	20000
OM_18	Yield_M	5E-11	28000	15000	20000	25000	29000	32000	33000	13000	17000	13000	22000	21000	19000	19000
OM_18	Yield_S	4E-11	25000	15000	20000	25000	30000	34000	38000	11000	8700	12000	2800	9600	12000	13000
OM_19	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_19	0.2 < SB0 < 0.4	0%	12%	5%	11%	19%	29%	36%	38%	4%	4%	3%	33%	35%	21%	21%
OM_19	0.4 < SSBMSY < 1	0%	1%	1%	2%	5%	11%	18%	25%	1%	1%	0%	12%	15%	8%	9%
OM_19	20% SB0_L	100%	100%	100%	100%	98%	95%	84%	65%	100%	100%	100%	96%	94%	97%	97%
OM_19	20% SB0_M	100%	100%	99%	99%	99%	97%	95%	90%	99%	99%	100%	97%	96%	99%	99%

OM_19	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_19	40% SSBMSY_L	100%	100%	100%	100%	100%	97%	93%	79%	100%	100%	100%	100%	99%	100%	100%
OM_19	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	99%	97%	100%	100%	100%	100%	99%	100%	100%
OM_19	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_19	Green_L	100%	99%	100%	98%	94%	84%	68%	47%	100%	100%	100%	80%	78%	89%	88%
OM_19	Green_M	100%	99%	99%	97%	96%	91%	82%	67%	99%	99%	99%	87%	87%	93%	93%
OM_19	Green_S	100%	100%	100%	100%	100%	100%	99%	93%	100%	100%	100%	93%	93%	94%	94%
OM_19	max_TAC_change	0	0	0	0	0	0	0	0	-1600	-1200	340	11000	-8400	-9800	-9800
OM_19	mean_catch_change	4E-11	26000	15000	20000	25000	30000	34000	38000	9400	10000	11000	32000	32000	26000	27000
OM_19	mean_prop_catch_change	10%	11%	23%	23%	23%	23%	23%	22%	23%	26%	23%	47%	31%	50%	48%
OM_19	mean_TAC_change	0	0	0	0	0	0	0	0	-410	-280	65	480	380	-100	-120
OM_19	MeanF_FMSY_L	2E-15	0.32	0.17	0.25	0.36	0.53	0.81	1.30	0.10	0.12	0.12	0.54	0.58	0.44	0.45
OM_19	MeanF_FMSY_M	2E-15	0.32	0.18	0.27	0.37	0.49	0.65	0.84	0.13	0.14	0.13	0.42	0.45	0.28	0.28
OM_19	MeanF_FMSY_S	2E-15	0.32	0.21	0.29	0.37	0.46	0.56	0.67	0.13	0.12	0.14	0.54	0.54	0.46	0.46
OM_19	MeanSB_SBMSY_L	2.8	1.90	2.30	2.10	1.90	1.60	1.40	1.10	2.50	2.40	2.40	1.60	1.60	1.80	1.80
OM_19	MeanSB_SBMSY_M	2.5	1.80	2.10	2.00	1.80	1.70	1.50	1.40	2.20	2.20	2.20	1.70	1.70	1.90	1.90
OM_19	MeanSB_SBMSY_S	1.7	1.60	1.60	1.60	1.50	1.50	1.40	1.40	1.60	1.70	1.60	1.50	1.50	1.50	1.50
OM_19	Min_SB_SBMSY_L	1.3	0.78	0.78	0.59	0.29	0.11	0.07	0.05	0.78	0.92	0.90	0.30	0.19	0.22	0.22
OM_19	Min_SB_SBMSY_M	1.2	0.75	0.60	0.38	0.16	0.10	0.08	0.07	0.38	0.58	0.78	0.30	0.28	0.47	0.47
OM_19	Min_SB_SBMSY_S	1.4	1.30	1.40	1.30	1.20	1.10	1.00	0.93	1.40	1.40	1.40	0.71	0.71	0.90	0.90
OM_19	Red_L	0%	0%	0%	0%	1%	6%	20%	42%	0%	0%	0%	4%	6%	4%	4%
OM_19	Red_M	0%	0%	0%	0%	1%	3%	9%	18%	0%	0%	0%	2%	3%	1%	1%
OM_19	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%
OM_19	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_19	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	16%	19%	0%	21%	18%	15%	15%
OM_19	Variance_yield	8E-12	6100	2900	3900	4900	5900	7100	8400	3900	4700	2300	13000	11000	11000	11000
OM_19	Yield_L	4E-11	26000	15000	20000	25000	30000	34000	38000	9300	11000	11000	32000	33000	28000	28000
OM_19	Yield_M	3E-11	25000	15000	20000	25000	30000	35000	40000	10000	12000	11000	27000	28000	20000	20000
OM_19	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9800	8900	11000	32000	32000	28000	28000
OM_20	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_20	0.2 < SB0 < 0.4	3%	15%	5%	12%	22%	35%	37%	26%	6%	6%	4%	10%	11%	19%	20%

OM_20	0.4 < SSBMSY < 1	0%	1%	0%	2%	7%	18%	24%	21%	1%	1%	0%	1%	2%	6%	6%
OM_20	20% SB0_L	100%	100%	100%	100%	97%	87%	60%	28%	100%	100%	100%	100%	100%	100%	100%
OM_20	20% SB0_M	100%	100%	100%	99%	98%	95%	89%	75%	99%	99%	100%	100%	100%	99%	99%
OM_20	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_20	40% SSBMSY_L	100%	100%	100%	100%	98%	94%	68%	37%	100%	100%	100%	100%	100%	100%	100%
OM_20	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	95%	88%	99%	100%	100%	100%	100%	100%	100%
OM_20	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_20	Green_L	100%	99%	100%	98%	89%	67%	37%	13%	99%	99%	100%	99%	99%	94%	94%
OM_20	Green_M	100%	97%	99%	96%	90%	75%	53%	34%	99%	99%	99%	97%	96%	90%	90%
OM_20	Green_S	100%	100%	100%	100%	98%	92%	76%	56%	100%	100%	100%	100%	100%	92%	92%
OM_20	max_TAC_change	0	0	0	0	0	0	0	0	-1900	2100	390	5600	2700	-6100	-6100
OM_20	mean_catch_change	4E-11	27000	15000	20000	25000	29000	29000	24000	10000	11000	13000	21000	21000	24000	24000
OM_20	mean_prop_catch_change	13%	16%	23%	23%	23%	24%	27%	33%	23%	26%	23%	40%	29%	32%	31%
OM_20	mean_TAC_change	0	0	0	0	0	0	0	0	-460	-140	89	780	530	-220	-220
OM_20	MeanF_FMSY_L	3E-15	0.48	0.23	0.35	0.58	0.94	2.00	3.30	0.16	0.19	0.19	0.36	0.38	0.45	0.45
OM_20	MeanF_FMSY_M	3E-15	0.48	0.26	0.38	0.55	0.75	1.10	1.50	0.20	0.21	0.20	0.35	0.36	0.41	0.41
OM_20	MeanF_FMSY_S	3E-15	0.48	0.30	0.41	0.54	0.68	0.83	1.00	0.21	0.17	0.23	0.30	0.35	0.60	0.60
OM_20	MeanSB_SBMSY_L	2.9	1.70	2.20	2.00	1.70	1.30	0.88	0.45	2.40	2.30	2.30	1.90	1.90	1.80	1.80
OM_20	MeanSB_SBMSY_M	2.5	1.60	2.00	1.80	1.60	1.40	1.20	1.00	2.10	2.10	2.10	1.90	1.80	1.70	1.70
OM_20	MeanSB_SBMSY_S	1.5	1.30	1.40	1.40	1.30	1.30	1.20	1.20	1.40	1.50	1.40	1.40	1.40	1.30	1.30
OM_20	Min_SB_SBMSY_L	1.5	0.79	0.82	0.57	0.00	0.00	0.00	0.00	0.56	0.60	0.91	0.71	0.67	0.43	0.43
OM_20	Min_SB_SBMSY_M	1.3	0.75	0.58	0.27	0.05	0.02	0.01	0.01	0.22	0.45	0.75	0.65	0.60	0.44	0.44
OM_20	Min_SB_SBMSY_S	1.2	1.10	1.10	1.00	0.92	0.83	0.73	0.63	1.20	1.20	1.20	1.00	1.00	0.77	0.77
OM_20	Red_L	0%	0%	0%	0%	5%	18%	50%	80%	0%	0%	0%	0%	0%	1%	1%
OM_20	Red_M	0%	0%	0%	1%	4%	10%	27%	47%	1%	0%	0%	0%	0%	1%	1%
OM_20	Red_S	0%	0%	0%	0%	0%	1%	5%	9%	0%	0%	0%	0%	0%	2%	2%
OM_20	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_20	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	15%	19%	0%	21%	17%	7%	7%
OM_20	Variance_yield	9E-12	6600	2900	3900	5000	6400	10000	15000	4100	5000	2500	7900	6600	6500	6400
OM_20	Yield_L	4E-11	27000	15000	20000	25000	29000	28000	21000	10000	12000	13000	21000	22000	24000	24000
OM_20	Yield_M	4E-11	26000	15000	20000	25000	30000	35000	39000	11000	12000	12000	20000	20000	20000	20000

OM_20	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	11000	8900	12000	14000	17000	27000	27000
OM_21	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_21	0.2 < SB0 < 0.4	5%	53%	13%	23%	34%	32%	22%	14%	12%	15%	13%	11%	13%	27%	27%
OM_21	0.4 < SSBMSY < 1	3%	23%	6%	12%	24%	29%	22%	17%	7%	8%	5%	4%	5%	15%	15%
OM_21	20% SB0_L	100%	100%	100%	97%	84%	50%	20%	7%	98%	99%	100%	100%	100%	99%	98%
OM_21	20% SB0_M	100%	99%	99%	96%	91%	74%	54%	36%	98%	99%	99%	99%	99%	97%	97%
OM_21	20% SB0_S	100%	100%	100%	100%	100%	98%	91%	89%	100%	100%	100%	100%	100%	100%	100%
OM_21	40% SSBMSY_L	100%	100%	100%	98%	89%	57%	24%	10%	100%	100%	100%	100%	100%	100%	100%
OM_21	40% SSBMSY_M	100%	100%	99%	99%	97%	88%	71%	54%	99%	99%	100%	100%	100%	100%	99%
OM_21	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_21	Green_L	100%	82%	99%	91%	67%	31%	9%	3%	95%	93%	99%	99%	98%	88%	88%
OM_21	Green_M	100%	75%	94%	84%	63%	38%	22%	9%	94%	92%	95%	95%	95%	83%	83%
OM_21	Green_S	67%	32%	51%	41%	27%	18%	11%	5%	58%	60%	54%	67%	64%	45%	43%
OM_21	max_TAC_change	0	0	0	0	0	0	0	0	-1500	3400	650	22000	12000	2000	1700
OM_21	mean_catch_change	5E-11	29000	15000	20000	24000	24000	20000	17000	13000	16000	15000	17000	18000	22000	22000
OM_21	mean_prop_catch_change	19%	24%	11%	12%	13%	19%	27%	31%	13%	17%	12%	50%	24%	20%	20%
OM_21	mean_TAC_change	0	0	0	0	0	0	0	0	-270	120	150	1600	1000	370	360
OM_21	MeanF_FMSY_L	2E-15	0.74	0.29	0.52	0.96	2.00	2.90	3.30	0.29	0.36	0.30	0.36	0.38	0.54	0.54
OM_21	MeanF_FMSY_M	2E-15	0.74	0.35	0.55	0.83	1.30	1.90	2.50	0.32	0.38	0.33	0.42	0.42	0.55	0.55
OM_21	MeanF_FMSY_S	2E-15	0.74	0.42	0.60	0.81	1.10	1.40	1.70	0.35	0.28	0.38	0.05	0.19	0.52	0.55
OM_21	MeanSB_SBMSY_L	3	1.30	2.20	1.80	1.40	0.79	0.36	0.17	2.20	2.10	2.20	2.00	2.00	1.70	1.70
OM_21	MeanSB_SBMSY_M	2.4	1.20	1.70	1.50	1.30	1.00	0.77	0.57	1.80	1.80	1.80	1.90	1.80	1.50	1.50
OM_21	MeanSB_SBMSY_S	1.2	0.97	1.10	1.00	0.96	0.91	0.86	0.81	1.10	1.10	1.10	1.20	1.10	1.00	1.00
OM_21	Min_SB_SBMSY_L	1.4	0.54	0.65	0.03	0.01	0.00	0.00	0.00	0.12	0.18	0.59	0.63	0.68	0.18	0.18
OM_21	Min_SB_SBMSY_M	1.2	0.47	0.25	0.07	0.04	0.02	0.02	0.02	0.21	0.31	0.36	0.39	0.41	0.36	0.34
OM_21	Min_SB_SBMSY_S	0.88	0.74	0.78	0.67	0.56	0.46	0.39	0.36	0.77	0.76	0.81	0.88	0.88	0.59	0.59
OM_21	Red_L	0%	0%	0%	4%	22%	60%	85%	95%	2%	2%	0%	0%	0%	3%	4%
OM_21	Red_M	0%	0%	1%	5%	19%	46%	67%	81%	2%	3%	1%	1%	0%	5%	5%
OM_21	Red_S	0%	0%	0%	3%	15%	51%	74%	87%	1%	0%	0%	0%	0%	7%	7%
OM_21	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_21	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	12%	19%	0%	26%	20%	6%	6%

OM_21	Variance_yield	2E-11	9300	1500	2100	3200	6800	11000	13000	3900	5900	1700	8800	6200	4700	4400
OM_21	Yield_L	5E-11	29000	15000	20000	24000	22000	16000	11000	13000	16000	15000	18000	19000	23000	23000
OM_21	Yield_M	5E-11	28000	15000	20000	25000	29000	32000	32000	14000	17000	15000	19000	19000	21000	21000
OM_21	Yield_S	3E-11	25000	15000	20000	25000	30000	35000	39000	12000	10000	14000	2100	7000	17000	18000
OM_22	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_22	0.2 < SB0 < 0.4	0%	13%	5%	11%	20%	30%	39%	43%	3%	4%	2%	36%	38%	21%	21%
OM_22	0.4 < SSBMSY < 1	0%	0%	0%	2%	4%	9%	17%	27%	0%	0%	0%	11%	14%	6%	6%
OM_22	20% SB0_L	100%	100%	100%	100%	99%	96%	86%	71%	100%	100%	100%	96%	94%	97%	97%
OM_22	20% SB0_M	100%	100%	100%	99%	99%	97%	94%	88%	99%	99%	100%	97%	96%	99%	99%
OM_22	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_22	40% SSBMSY_L	100%	100%	100%	100%	100%	99%	97%	89%	100%	100%	100%	100%	100%	100%	100%
OM_22	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_22	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_22	Green_L	100%	100%	100%	99%	96%	87%	74%	54%	100%	100%	100%	82%	80%	92%	92%
OM_22	Green_M	100%	99%	99%	98%	96%	93%	84%	69%	99%	99%	99%	90%	89%	96%	96%
OM_22	Green_S	100%	100%	100%	100%	100%	100%	99%	95%	100%	100%	100%	93%	93%	98%	98%
OM_22	max_TAC_change	0	0	0	0	0	0	0	0	-1300	1500	380	15000	-11000	-7500	-7500
OM_22	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	39000	9000	10000	11000	32000	33000	26000	26000
OM_22	mean_prop_catch_change	10%	11%	23%	23%	23%	23%	23%	22%	23%	26%	23%	59%	33%	43%	41%
OM_22	mean_TAC_change	0	0	0	0	0	0	0	0	-410	-210	64	430	330	120	67
OM_22	MeanF_FMSY_L	2E-15	0.29	0.16	0.23	0.33	0.46	0.68	0.98	0.09	0.11	0.11	0.51	0.56	0.39	0.39
OM_22	MeanF_FMSY_M	2E-15	0.29	0.17	0.24	0.34	0.45	0.60	0.79	0.11	0.12	0.11	0.38	0.41	0.26	0.26
OM_22	MeanF_FMSY_S	2E-15	0.29	0.19	0.26	0.34	0.42	0.52	0.62	0.12	0.10	0.12	0.52	0.52	0.39	0.39
OM_22	MeanSB_SBMSY_L	3	2.00	2.40	2.20	2.00	1.80	1.50	1.20	2.70	2.60	2.60	1.70	1.60	2.00	2.00
OM_22	MeanSB_SBMSY_M	2.8	2.00	2.30	2.10	1.90	1.80	1.60	1.40	2.50	2.50	2.40	1.80	1.80	2.00	2.00
OM_22	MeanSB_SBMSY_S	1.9	1.70	1.70	1.70	1.60	1.60	1.50	1.50	1.80	1.80	1.80	1.60	1.60	1.60	1.60
OM_22	Min_SB_SBMSY_L	1.4	0.86	0.83	0.61	0.39	0.18	0.13	0.11	0.89	0.99	0.99	0.28	0.25	0.27	0.27
OM_22	Min_SB_SBMSY_M	1.4	0.84	0.68	0.43	0.20	0.16	0.13	0.12	0.46	0.45	0.91	0.36	0.32	0.53	0.53
OM_22	Min_SB_SBMSY_S	1.5	1.40	1.50	1.40	1.30	1.10	1.00	0.93	1.50	1.50	1.50	0.83	0.83	0.98	0.98
OM_22	Red_L	0%	0%	0%	0%	0%	4%	14%	32%	0%	0%	0%	4%	5%	3%	3%
OM_22	Red_M	0%	0%	0%	0%	1%	3%	7%	16%	0%	0%	0%	2%	2%	0%	0%

OM_22	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%
OM_22	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_22	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	16%	20%	0%	24%	20%	14%	14%
OM_22	Variance_yield	8E-12	5900	2900	3900	4900	5900	6900	7900	3700	4600	2200	15000	12000	9700	9600
OM_22	Yield_L	4E-11	26000	15000	20000	25000	30000	35000	39000	9000	10000	11000	32000	33000	27000	27000
OM_22	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	40000	10000	11000	11000	27000	28000	20000	20000
OM_22	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9400	8500	10000	33000	33000	27000	27000
OM_23	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_23	0.2 < SB0 < 0.4	3%	19%	6%	14%	27%	40%	38%	25%	6%	6%	4%	13%	16%	19%	19%
OM_23	0.4 < SSBMSY < 1	0%	1%	0%	2%	7%	18%	25%	20%	1%	1%	0%	1%	2%	4%	4%
OM_23	20% SB0_L	100%	100%	100%	100%	97%	85%	54%	23%	100%	100%	100%	100%	100%	100%	100%
OM_23	20% SB0_M	100%	100%	100%	99%	98%	94%	83%	66%	99%	99%	100%	100%	100%	100%	100%
OM_23	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_23	40% SSBMSY_L	100%	100%	100%	100%	98%	93%	66%	33%	100%	100%	100%	100%	100%	100%	100%
OM_23	40% SSBMSY_M	100%	100%	100%	99%	99%	98%	94%	84%	100%	100%	100%	100%	100%	100%	100%
OM_23	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_23	Green_L	100%	100%	100%	98%	90%	67%	34%	11%	99%	98%	100%	98%	98%	96%	96%
OM_23	Green_M	100%	99%	99%	97%	91%	74%	51%	31%	99%	99%	99%	97%	96%	94%	94%
OM_23	Green_S	100%	100%	100%	100%	98%	91%	75%	55%	100%	100%	100%	98%	98%	95%	95%
OM_23	max_TAC_change	0	0	0	0	0	0	0	0	-1400	2100	490	7300	2400	-4200	-4200
OM_23	mean_catch_change	4E-11	26000	15000	20000	25000	29000	31000	29000	9900	11000	12000	21000	22000	22000	22000
OM_23	mean_prop_catch_change	13%	16%	23%	23%	23%	23%	25%	27%	23%	26%	23%	52%	31%	28%	27%
OM_23	mean_TAC_change	0	0	0	0	0	0	0	0	-410	-150	94	890	560	-110	-110
OM_23	MeanF_FMSY_L	2E-15	0.47	0.23	0.34	0.53	0.90	1.80	2.80	0.15	0.19	0.17	0.38	0.40	0.40	0.40
OM_23	MeanF_FMSY_M	2E-15	0.47	0.25	0.37	0.54	0.76	1.10	1.60	0.18	0.20	0.18	0.36	0.37	0.36	0.36
OM_23	MeanF_FMSY_S	2E-15	0.47	0.29	0.40	0.53	0.67	0.84	1.00	0.19	0.15	0.20	0.30	0.36	0.50	0.50
OM_23	MeanSB_SBMSY_L	3.1	1.70	2.40	2.10	1.80	1.40	0.87	0.45	2.60	2.50	2.50	2.00	2.00	2.00	2.00
OM_23	MeanSB_SBMSY_M	2.8	1.70	2.10	1.90	1.70	1.40	1.20	0.97	2.30	2.30	2.30	2.00	1.90	1.80	1.80
OM_23	MeanSB_SBMSY_S	1.7	1.40	1.50	1.40	1.40	1.30	1.30	1.20	1.50	1.60	1.50	1.50	1.50	1.40	1.40
OM_23	Min_SB_SBMSY_L	1.6	0.84	0.85	0.54	0.06	0.03	0.01	0.01	0.68	0.50	1.00	0.68	0.65	0.38	0.38
OM_23	Min_SB_SBMSY_M	1.5	0.80	0.61	0.26	0.08	0.04	0.03	0.03	0.23	0.38	0.83	0.66	0.61	0.64	0.57

OM_23	Min_SB_SBMSY_S	1.3	1.10	1.20	1.00	0.92	0.79	0.67	0.55	1.30	1.30	1.30	0.98	0.98	0.83	0.83
OM_23	Red_L	0%	0%	0%	0%	4%	18%	52%	83%	0%	0%	0%	0%	0%	1%	1%
OM_23	Red_M	0%	0%	0%	1%	4%	10%	29%	50%	1%	0%	0%	0%	0%	0%	0%
OM_23	Red_S	0%	0%	0%	0%	0%	1%	6%	10%	0%	0%	0%	0%	0%	1%	1%
OM_23	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_23	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	16%	19%	0%	24%	19%	7%	6%
OM_23	Variance_yield	9E-12	6500	2900	3900	4900	6100	8500	12000	3900	4900	2400	9200	7200	5600	5500
OM_23	Yield_L	4E-11	26000	15000	20000	25000	29000	30000	26000	9900	12000	12000	22000	23000	22000	22000
OM_23	Yield_M	4E-11	26000	15000	20000	25000	30000	35000	38000	11000	12000	12000	21000	21000	20000	20000
OM_23	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	10000	8300	11000	15000	18000	23000	23000
OM_24	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_24	0.2 < SB0 < 0.4	5%	67%	13%	25%	38%	38%	25%	17%	13%	16%	12%	16%	19%	26%	26%
OM_24	0.4 < SSBMSY < 1	3%	21%	5%	10%	23%	34%	33%	27%	6%	8%	4%	5%	5%	10%	10%
OM_24	20% SB0_L	100%	99%	100%	98%	86%	57%	24%	11%	99%	99%	100%	100%	100%	99%	98%
OM_24	20% SB0_M	100%	97%	99%	96%	88%	67%	48%	33%	98%	98%	99%	99%	99%	98%	97%
OM_24	20% SB0_S	100%	100%	100%	100%	98%	90%	79%	74%	100%	100%	100%	100%	100%	100%	100%
OM_24	40% SSBMSY_L	100%	100%	100%	99%	95%	71%	41%	22%	100%	100%	100%	100%	100%	100%	100%
OM_24	40% SSBMSY_M	100%	100%	99%	99%	96%	90%	73%	57%	99%	99%	100%	100%	100%	100%	100%
OM_24	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	99%	96%	100%	100%	100%	100%	100%	100%	100%
OM_24	Green_L	100%	82%	99%	94%	71%	35%	11%	5%	95%	91%	99%	94%	96%	91%	90%
OM_24	Green_M	100%	78%	96%	87%	65%	40%	22%	10%	96%	92%	97%	91%	94%	89%	89%
OM_24	Green_S	67%	36%	56%	45%	31%	23%	12%	5%	61%	64%	61%	67%	65%	56%	55%
OM_24	max_TAC_change	0	0	0	0	0	0	0	0	-1800	5200	870	26000	14000	7200	5400
OM_24	mean_catch_change	6E-11	29000	15000	20000	25000	27000	28000	27000	12000	15000	14000	18000	19000	21000	21000
OM_24	mean_prop_catch_change	19%	25%	23%	23%	23%	24%	27%	29%	23%	27%	23%	84%	40%	33%	31%
OM_24	mean_TAC_change	0	0	0	0	0	0	0	0	-430	81	160	1700	1100	700	640
OM_24	MeanF_FMSY_L	1E-15	0.75	0.28	0.45	0.78	1.50	2.10	2.50	0.25	0.34	0.27	0.40	0.42	0.48	0.49
OM_24	MeanF_FMSY_M	1E-15	0.75	0.33	0.52	0.80	1.20	1.70	2.10	0.30	0.39	0.29	0.45	0.45	0.48	0.48
OM_24	MeanF_FMSY_S	1E-15	0.75	0.40	0.58	0.81	1.10	1.40	1.70	0.31	0.24	0.33	0.05	0.19	0.37	0.41
OM_24	MeanSB_SBMSY_L	3.3	1.30	2.40	2.00	1.50	0.97	0.55	0.36	2.50	2.30	2.40	2.10	2.00	1.90	1.90
OM_24	MeanSB_SBMSY_M	2.8	1.20	1.90	1.70	1.40	1.10	0.80	0.61	2.10	2.00	2.00	2.00	1.90	1.80	1.80

OM_24	MeanSB_SBMSY_S	1.3	0.98	1.10	1.00	0.98	0.92	0.86	0.80	1.20	1.20	1.10	1.30	1.20	1.10	1.10
OM_24	Min_SB_SBMSY_L	1.7	0.54	0.64	0.13	0.05	0.04	0.03	0.03	0.28	0.35	0.64	0.49	0.45	0.21	0.11
OM_24	Min_SB_SBMSY_M	1.3	0.50	0.22	0.07	0.06	0.05	0.04	0.04	0.20	0.23	0.39	0.37	0.38	0.37	0.38
OM_24	Min_SB_SBMSY_S	0.87	0.73	0.78	0.63	0.48	0.40	0.36	0.32	0.81	0.83	0.84	0.87	0.87	0.61	0.61
OM_24	Red_L	0%	0%	0%	2%	15%	49%	80%	91%	1%	2%	0%	0%	0%	2%	2%
OM_24	Red_M	0%	0%	1%	5%	17%	42%	63%	79%	2%	3%	0%	1%	1%	2%	2%
OM_24	Red_S	0%	0%	0%	4%	21%	45%	64%	80%	1%	0%	0%	0%	0%	4%	4%
OM_24	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_24	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	15%	20%	0%	29%	23%	10%	9%
OM_24	Variance_yield	2E-11	9400	2900	3900	5000	6600	8600	10000	4800	6900	2900	12000	8100	6100	5800
OM_24	Yield_L	6E-11	29000	15000	20000	25000	27000	26000	24000	12000	15000	15000	19000	20000	21000	21000
OM_24	Yield_M	5E-11	29000	15000	20000	25000	29000	31000	32000	13000	17000	14000	21000	21000	21000	20000
OM_24	Yield_S	4E-11	25000	15000	20000	25000	29000	34000	38000	12000	9300	13000	2000	7600	13000	14000
OM_25	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_25	0.2 < SB0 < 0.4	0%	12%	6%	12%	21%	31%	41%	46%	3%	4%	2%	37%	41%	22%	22%
OM_25	0.4 < SSBMSY < 1	0%	0%	0%	1%	3%	7%	14%	24%	0%	0%	0%	11%	14%	5%	5%
OM_25	20% SB0_L	100%	100%	100%	100%	99%	97%	88%	78%	100%	100%	100%	94%	91%	97%	97%
OM_25	20% SB0_M	100%	100%	100%	99%	99%	97%	93%	87%	99%	99%	100%	95%	95%	100%	100%
OM_25	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%	100%	100%
OM_25	40% SSBMSY_L	100%	100%	100%	100%	100%	100%	99%	97%	100%	100%	100%	100%	100%	100%	100%
OM_25	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	99%	98%	100%	100%	100%	100%	100%	100%	100%
OM_25	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_25	Green_L	100%	100%	100%	99%	97%	92%	80%	65%	100%	100%	100%	82%	79%	94%	94%
OM_25	Green_M	100%	99%	99%	99%	97%	93%	87%	74%	99%	99%	100%	89%	88%	98%	98%
OM_25	Green_S	100%	100%	100%	100%	100%	100%	99%	97%	100%	100%	100%	92%	92%	99%	99%
OM_25	max_TAC_change	0	0	0	0	0	0	0	0	-1400	1900	410	22000	-13000	-7300	-7300
OM_25	mean_catch_change	4E-11	25000	15000	20000	25000	30000	35000	39000	8600	9800	10000	32000	34000	26000	26000
OM_25	mean_prop_catch_change	10%	12%	23%	23%	23%	23%	23%	23%	23%	26%	23%	73%	36%	41%	39%
OM_25	mean_TAC_change	0	0	0	0	0	0	0	0	-380	-220	60	63	310	140	170
OM_25	MeanF_FMSY_L	1E-15	0.25	0.14	0.21	0.29	0.40	0.57	0.78	0.08	0.09	0.09	0.48	0.55	0.34	0.34
OM_25	MeanF_FMSY_M	1E-15	0.25	0.15	0.21	0.30	0.40	0.54	0.71	0.09	0.10	0.09	0.36	0.39	0.23	0.23

OM_25	MeanF_FMSY_S	1E-15	0.25	0.16	0.23	0.30	0.38	0.46	0.56	0.10	0.09	0.10	0.51	0.52	0.33	0.33
OM_25	MeanSB_SBMSY_L	3.3	2.20	2.60	2.40	2.10	1.90	1.60	1.40	2.90	2.80	2.80	1.80	1.70	2.10	2.10
OM_25	MeanSB_SBMSY_M	3.1	2.10	2.50	2.30	2.10	1.90	1.70	1.50	2.70	2.70	2.70	1.90	1.90	2.20	2.20
OM_25	MeanSB_SBMSY_S	2.1	1.80	1.90	1.80	1.80	1.70	1.70	1.60	2.00	2.00	2.00	1.70	1.70	1.80	1.80
OM_25	Min_SB_SBMSY_L	1.6	0.96	0.90	0.66	0.41	0.23	0.20	0.19	1.10	0.88	1.10	0.35	0.29	0.31	0.31
OM_25	Min_SB_SBMSY_M	1.5	0.92	0.76	0.51	0.26	0.22	0.19	0.17	0.56	0.61	1.00	0.40	0.40	0.61	0.61
OM_25	Min_SB_SBMSY_S	1.6	1.50	1.60	1.50	1.30	1.20	1.10	0.96	1.60	1.60	1.60	0.66	0.66	1.10	1.10
OM_25	Red_L	0%	0%	0%	0%	0%	2%	9%	21%	0%	0%	0%	4%	6%	2%	2%
OM_25	Red_M	0%	0%	0%	0%	1%	2%	6%	14%	0%	0%	0%	2%	2%	0%	0%
OM_25	Red_S	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%	0%	0%
OM_25	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_25	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	16%	19%	0%	26%	22%	13%	13%
OM_25	Variance_yield	8E-12	5700	2900	3900	4900	5900	6800	7800	3600	4400	2100	18000	13000	9000	8900
OM_25	Yield_L	4E-11	25000	15000	20000	25000	30000	35000	39000	8600	10000	10000	32000	34000	26000	26000
OM_25	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	40000	9700	11000	10000	28000	29000	20000	20000
OM_25	Yield_S	3E-11	22000	15000	20000	25000	30000	35000	40000	9000	8200	9600	35000	36000	25000	25000

OM_26	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_26	0.2 < SB0 < 0.4	3%	12%	5%	12%	24%	39%	46%	40%	5%	5%	3%	16%	19%	18%	18%
OM_26	0.4 < SSBMSY < 1	0%	0%	0%	1%	4%	11%	24%	34%	0%	1%	0%	1%	1%	2%	2%
OM_26	20% SB0_L	100%	100%	100%	100%	99%	93%	74%	48%	100%	100%	100%	100%	100%	100%	100%
OM_26	20% SB0_M	100%	100%	100%	99%	98%	95%	88%	72%	99%	99%	100%	100%	100%	100%	100%
OM_26	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_26	40% SSBMSY_L	100%	100%	100%	100%	100%	98%	90%	70%	100%	100%	100%	100%	100%	100%	100%
OM_26	40% SSBMSY_M	100%	100%	100%	100%	99%	99%	97%	92%	100%	100%	100%	100%	100%	100%	100%
OM_26	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_26	Green_L	100%	100%	100%	99%	96%	81%	54%	26%	100%	99%	100%	97%	98%	98%	98%
OM_26	Green_M	100%	100%	99%	99%	95%	86%	65%	43%	99%	99%	100%	97%	96%	98%	98%
OM_26	Green_S	100%	100%	100%	100%	99%	97%	89%	75%	100%	100%	100%	100%	100%	98%	98%
OM_26	max_TAC_change	0	0	0	0	0	0	0	0	-1300	2300	500	4000	3500	-4500	-4500
OM_26	mean_catch_change	4E-11	25000	15000	20000	25000	30000	34000	38000	9200	10000	11000	23000	24000	22000	22000
OM_26	mean_prop_catch_change	13%	16%	23%	23%	23%	23%	23%	24%	23%	26%	23%	72%	34%	27%	26%

OM_26	mean_TAC_change	0	0	0	0	0	0	0	0	-380	-160	85	730	410	-53	-53
OM_26	MeanF_FMSY_L	2E-15	0.38	0.20	0.30	0.42	0.63	1.00	1.60	0.12	0.15	0.14	0.36	0.38	0.35	0.35
OM_26	MeanF_FMSY_M	2E-15	0.38	0.21	0.31	0.45	0.62	0.87	1.20	0.14	0.16	0.14	0.33	0.35	0.31	0.31
OM_26	MeanF_FMSY_S	2E-15	0.38	0.24	0.33	0.44	0.56	0.70	0.86	0.14	0.12	0.16	0.32	0.36	0.42	0.42
OM_26	MeanSB_SBMSY_L	3.4	2.00	2.60	2.30	2.00	1.60	1.20	0.85	2.90	2.80	2.80	2.10	2.10	2.20	2.20
OM_26	MeanSB_SBMSY_M	3.1	2.00	2.40	2.10	1.90	1.60	1.40	1.20	2.60	2.60	2.60	2.10	2.10	2.10	2.10
OM_26	MeanSB_SBMSY_S	1.9	1.60	1.70	1.70	1.60	1.50	1.50	1.40	1.80	1.80	1.80	1.70	1.70	1.60	1.60
OM_26	Min_SB_SBMSY_L	1.8	1.00	0.97	0.65	0.28	0.10	0.08	0.07	1.00	0.87	1.20	0.66	0.66	0.40	0.40
OM_26	Min_SB_SBMSY_M	1.7	0.97	0.73	0.41	0.16	0.09	0.08	0.08	0.52	0.46	1.00	0.71	0.69	0.66	0.65
OM_26	Min_SB_SBMSY_S	1.5	1.30	1.40	1.20	1.10	0.92	0.77	0.63	1.50	1.50	1.50	1.00	1.00	0.96	0.96
OM_26	Red_L	0%	0%	0%	0%	1%	8%	28%	58%	0%	0%	0%	0%	0%	0%	0%
OM_26	Red_M	0%	0%	0%	0%	2%	6%	16%	36%	0%	0%	0%	0%	0%	0%	0%
OM_26	Red_S	0%	0%	0%	0%	0%	0%	2%	6%	0%	0%	0%	0%	0%	0%	0%
OM_26	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_26	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	16%	19%	0%	27%	21%	7%	7%
OM_26	Variance_yield	8E-12	6000	2900	3900	4900	5900	7000	8400	3700	4700	2200	12000	8000	5600	5600
OM_26	Yield_L	4E-11	25000	15000	20000	25000	30000	34000	37000	9300	11000	11000	23000	24000	22000	22000
OM_26	Yield_M	4E-11	25000	15000	20000	25000	30000	35000	39000	10000	12000	11000	21000	22000	20000	20000
OM_26	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	9400	7900	10000	19000	21000	24000	24000
OM_27	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_27	0.2 < SB0 < 0.4	4%	65%	13%	27%	40%	44%	35%	27%	12%	16%	10%	21%	23%	24%	25%
OM_27	0.4 < SSBMSY < 1	3%	9%	3%	7%	19%	35%	46%	51%	5%	6%	3%	5%	5%	6%	6%
OM_27	20% SB0_L	100%	100%	100%	99%	88%	68%	41%	26%	99%	99%	100%	99%	100%	99%	99%
OM_27	20% SB0_M	100%	99%	99%	96%	88%	70%	51%	36%	98%	98%	99%	99%	99%	98%	98%
OM_27	20% SB0_S	100%	100%	100%	100%	98%	90%	79%	74%	100%	100%	100%	100%	100%	100%	100%
OM_27	40% SSBMSY_L	100%	100%	100%	100%	98%	90%	76%	66%	100%	100%	100%	100%	100%	100%	100%
OM_27	40% SSBMSY_M	100%	100%	100%	99%	97%	94%	87%	79%	100%	100%	100%	100%	100%	100%	100%
OM_27	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%
OM_27	Green_L	100%	94%	100%	96%	77%	47%	22%	11%	97%	95%	100%	91%	95%	95%	95%
OM_27	Green_M	100%	92%	98%	91%	73%	47%	29%	14%	97%	93%	99%	91%	93%	94%	94%
OM_27	Green_S	67%	59%	66%	60%	47%	34%	23%	14%	66%	66%	67%	67%	66%	64%	64%

OM_27	max_TAC_change	0	0	0	0	0	0	0	0	-1800	6200	1000	30000	14000	8000	7200
OM_27	mean_catch_change	5E-11	28000	15000	20000	25000	29000	31000	32000	11000	14000	13000	19000	20000	19000	19000
OM_27	mean_prop_catch_change	18%	25%	23%	23%	23%	23%	25%	27%	23%	28%	23%	95%	44%	36%	32%
OM_27	mean_TAC_change	0	0	0	0	0	0	0	0	-400	23	150	1400	1000	690	680
OM_27	MeanF_FMSY_L	1E-15	0.64	0.26	0.41	0.67	1.10	1.50	1.80	0.21	0.29	0.23	0.42	0.42	0.41	0.41
OM_27	MeanF_FMSY_M	1E-15	0.64	0.29	0.46	0.70	1.00	1.40	1.70	0.24	0.35	0.24	0.45	0.44	0.41	0.40
OM_27	MeanF_FMSY_S	1E-15	0.64	0.35	0.51	0.71	0.94	1.20	1.40	0.24	0.19	0.26	0.06	0.21	0.29	0.32
OM_27	MeanSB_SBMSY_L	3.7	1.50	2.60	2.20	1.70	1.20	0.87	0.66	2.80	2.60	2.70	2.20	2.10	2.20	2.20
OM_27	MeanSB_SBMSY_M	3.3	1.40	2.20	1.90	1.50	1.20	0.96	0.76	2.50	2.30	2.40	2.20	2.10	2.10	2.10
OM_27	MeanSB_SBMSY_S	1.6	1.10	1.30	1.20	1.10	1.10	0.98	0.92	1.40	1.40	1.40	1.50	1.40	1.40	1.30
OM_27	Min_SB_SBMSY_L	1.9	0.64	0.67	0.26	0.13	0.10	0.10	0.10	0.47	0.52	0.79	0.47	0.50	0.35	0.35
OM_27	Min_SB_SBMSY_M	1.6	0.61	0.31	0.13	0.12	0.11	0.11	0.10	0.28	0.31	0.54	0.39	0.38	0.42	0.40
OM_27	Min_SB_SBMSY_S	1	0.85	0.90	0.71	0.52	0.46	0.41	0.36	1.00	1.00	1.00	1.00	0.96	0.75	0.75
OM_27	Red_L	0%	0%	0%	1%	11%	34%	62%	78%	1%	1%	0%	0%	0%	1%	1%
OM_27	Red_M	0%	0%	1%	4%	12%	32%	52%	71%	1%	2%	0%	1%	1%	1%	1%
OM_27	Red_S	0%	0%	0%	1%	10%	31%	51%	69%	0%	0%	0%	0%	0%	1%	1%
OM_27	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_27	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	16%	20%	0%	31%	25%	10%	10%
OM_27	Variance_yield	1E-11	8900	2900	3900	4900	6000	7500	9100	4500	6600	2700	15000	8800	6100	5700
OM_27	Yield_L	5E-11	28000	15000	20000	25000	29000	31000	31000	11000	14000	14000	20000	21000	20000	20000
OM_27	Yield_M	5E-11	28000	15000	20000	25000	29000	32000	33000	13000	17000	13000	22000	22000	20000	19000
OM_27	Yield_S	4E-11	25000	15000	20000	25000	29000	33000	37000	11000	8700	12000	2700	9500	12000	13000
OM_28	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_28	0.2 < SB0 < 0.4	3%	25%	9%	19%	31%	37%	36%	24%	6%	6%	5%	17%	20%	22%	22%
OM_28	0.4 < SSBMSY < 1	0%	2%	1%	4%	10%	18%	24%	21%	1%	1%	0%	2%	3%	6%	5%
OM_28	20% SB0_L	100%	100%	100%	100%	95%	80%	58%	28%	100%	100%	100%	100%	100%	99%	99%
OM_28	20% SB0_M	100%	100%	100%	99%	95%	89%	78%	59%	100%	100%	100%	100%	99%	99%	99%
OM_28	20% SB0_S	100%	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	100%	100%	100%	100%
OM_28	40% SSBMSY_L	100%	100%	100%	100%	97%	85%	67%	37%	100%	100%	100%	100%	100%	100%	100%
OM_28	40% SSBMSY_M	100%	100%	100%	100%	99%	95%	90%	81%	100%	100%	100%	100%	100%	100%	100%
OM_28	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

OM_28	Green_L	100%	99%	100%	98%	88%	66%	39%	15%	99%	98%	100%	98%	97%	94%	94%
OM_28	Green_M	100%	97%	98%	94%	84%	69%	46%	24%	100%	100%	100%	96%	95%	93%	93%
OM_28	Green_S	100%	100%	100%	100%	98%	91%	77%	62%	100%	100%	100%	99%	99%	97%	97%
OM_28	max_TAC_change	0	0	0	0	0	0	0	0	-1100	2300	480	7900	2000	-4000	-4000
OM_28	mean_catch_change	4E-11	26000	15000	20000	25000	28000	30000	28000	10000	12000	12000	21000	22000	21000	21000
OM_28	mean_prop_catch_change	15%	20%	0%	0%	1%	4%	10%	19%	5%	9%	1%	35%	14%	10%	9%
OM_28	mean_TAC_change	0	0	0	0	0	0	0	0	-230	39	76	880	440	-210	-210
OM_28	MeanF_FMSY_L	2E-15	0.47	0.23	0.34	0.58	1.10	1.80	2.70	0.17	0.20	0.17	0.38	0.40	0.41	0.41
OM_28	MeanF_FMSY_M	2E-15	0.47	0.26	0.39	0.57	0.87	1.30	1.80	0.18	0.20	0.19	0.36	0.38	0.37	0.37
OM_28	MeanF_FMSY_S	2E-15	0.47	0.29	0.41	0.54	0.69	0.86	1.10	0.19	0.15	0.21	0.29	0.36	0.52	0.52
OM_28	MeanSB_SBMSY_L	3.2	1.80	2.40	2.20	1.80	1.40	0.96	0.51	2.60	2.50	2.60	2.10	2.00	2.10	2.10
OM_28	MeanSB_SBMSY_M	2.7	1.70	2.10	1.80	1.60	1.40	1.10	0.91	2.30	2.30	2.20	1.90	1.90	1.80	1.80
OM_28	MeanSB_SBMSY_S	1.7	1.40	1.50	1.40	1.40	1.30	1.30	1.20	1.60	1.60	1.50	1.50	1.50	1.40	1.40
OM_28	Min_SB_SBMSY_L	1.6	0.86	0.79	0.47	0.01	0.01	0.01	0.00	0.20	0.09	1.00	0.75	0.74	0.12	0.12
OM_28	Min_SB_SBMSY_M	1.3	0.78	0.76	0.58	0.31	0.10	0.04	0.03	0.97	0.78	0.90	0.41	0.41	0.39	0.39
OM_28	Min_SB_SBMSY_S	1.3	1.10	1.20	1.00	0.93	0.82	0.71	0.60	1.20	1.30	1.30	0.79	0.79	0.89	0.89
OM_28	Red_L	0%	0%	0%	0%	6%	25%	50%	78%	0%	1%	0%	0%	0%	2%	2%
OM_28	Red_M	0%	0%	0%	1%	7%	19%	37%	58%	0%	0%	0%	0%	0%	1%	1%
OM_28	Red_S	0%	0%	0%	0%	1%	4%	8%	12%	0%	0%	0%	0%	0%	1%	1%
OM_28	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_28	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	10%	18%	0%	25%	21%	7%	7%
OM_28	Variance_yield	1E-11	7800	0.5	0.65	280	1700	5100	10000	2800	4300	500	8600	6100	3600	3500
OM_28	Yield_L	4E-11	27000	15000	20000	25000	28000	29000	26000	11000	13000	12000	22000	23000	22000	22000
OM_28	Yield_M	4E-11	25000	15000	20000	25000	30000	34000	37000	11000	13000	12000	20000	21000	19000	19000
OM_28	Yield_S	3E-11	24000	15000	20000	25000	30000	35000	40000	10000	8400	11000	14000	18000	24000	24000
OM_29	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_29	0.2 < SB0 < 0.4	3%	33%	16%	26%	31%	28%	27%	22%	8%	9%	9%	22%	26%	27%	27%
OM_29	0.4 < SSBMSY < 1	0%	5%	3%	9%	17%	18%	18%	19%	1%	2%	1%	5%	7%	9%	9%
OM_29	20% SB0_L	100%	99%	99%	96%	85%	58%	43%	26%	100%	100%	100%	99%	98%	96%	96%
OM_29	20% SB0_M	100%	100%	99%	98%	92%	84%	73%	57%	100%	100%	100%	98%	98%	97%	97%
OM_29	20% SB0_S	100%	100%	100%	100%	100%	100%	99%	96%	100%	100%	100%	100%	100%	100%	100%

OM_29	40% SSBMSY_L	100%	100%	100%	97%	92%	68%	51%	34%	100%	100%	100%	100%	100%	99%	99%
OM_29	40% SSBMSY_M	100%	100%	100%	100%	98%	93%	86%	77%	100%	100%	100%	100%	100%	99%	99%
OM_29	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_29	Green_L	100%	95%	97%	89%	72%	48%	30%	14%	98%	98%	98%	92%	90%	88%	88%
OM_29	Green_M	100%	94%	97%	89%	79%	65%	46%	30%	98%	99%	99%	95%	94%	91%	91%
OM_29	Green_S	100%	100%	100%	99%	97%	88%	70%	58%	100%	100%	100%	99%	99%	95%	95%
OM_29	max_TAC_change	0	0	0	0	0	0	0	0	-1300	-1900	500	8200	3000	-4200	-4200
OM_29	mean_catch_change	4E-11	26000	15000	20000	24000	26000	26000	26000	10000	12000	12000	21000	22000	21000	21000
OM_29	mean_prop_catch_change	18%	23%	0%	1%	2%	10%	17%	25%	5%	10%	1%	49%	16%	17%	12%
OM_29	mean_TAC_change	0	0	0	0	0	0	0	0	-190	28	69	840	460	-260	-260
OM_29	MeanF_FMSY_L	2E-15	0.47	0.26	0.45	0.78	1.60	2.20	2.80	0.17	0.20	0.19	0.39	0.42	0.44	0.45
OM_29	MeanF_FMSY_M	2E-15	0.47	0.27	0.41	0.62	0.96	1.40	1.80	0.18	0.20	0.19	0.37	0.39	0.39	0.39
OM_29	MeanF_FMSY_S	2E-15	0.47	0.30	0.43	0.57	0.73	0.92	1.10	0.20	0.16	0.21	0.29	0.37	0.54	0.54
OM_29	MeanSB_SBMSY_L	3.1	1.70	2.30	2.00	1.70	1.20	0.82	0.52	2.60	2.50	2.50	2.00	2.00	2.00	2.00
OM_29	MeanSB_SBMSY_M	2.8	1.70	2.10	1.90	1.70	1.40	1.20	0.96	2.30	2.30	2.30	2.00	1.90	1.90	1.90
OM_29	MeanSB_SBMSY_S	1.7	1.40	1.50	1.40	1.40	1.30	1.20	1.20	1.50	1.60	1.50	1.50	1.50	1.40	1.40
OM_29	Min_SB_SBMSY_L	1.2	0.58	0.25	0.00	0.00	0.00	0.00	0.00	0.09	0.14	0.63	0.34	0.19	0.10	0.10
OM_29	Min_SB_SBMSY_M	1.2	0.66	0.50	0.16	0.05	0.02	0.02	0.01	0.72	0.80	0.76	0.41	0.43	0.14	0.14
OM_29	Min_SB_SBMSY_S	1.3	1.00	1.10	0.96	0.84	0.72	0.61	0.50	1.10	1.10	1.20	0.86	0.86	0.84	0.84
OM_29	Red_L	0%	0%	1%	4%	17%	45%	61%	79%	1%	1%	0%	1%	1%	3%	4%
OM_29	Red_M	0%	0%	0%	2%	11%	23%	39%	57%	0%	0%	0%	1%	1%	2%	2%
OM_29	Red_S	0%	0%	0%	0%	2%	7%	11%	15%	0%	0%	0%	0%	0%	2%	2%
OM_29	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_29	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	9%	19%	0%	26%	21%	9%	8%
OM_29	Variance_yield	1E-11	9700	0.51	140	830	4200	7700	11000	2800	4500	550	10000	7400	4500	4300
OM_29	Yield_L	4E-11	26000	15000	20000	24000	25000	24000	23000	10000	12000	12000	21000	22000	21000	21000
OM_29	Yield_M	4E-11	26000	15000	20000	25000	30000	33000	36000	11000	12000	12000	20000	21000	19000	19000
OM_29	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	10000	8400	11000	14000	17000	24000	24000
OM_30	PM/MP	NFref	curE	CC_15kt	CC_20kt	CC_25kt	CC_30kt	CC_35kt	CC_40kt	GB_slope	Iratio	Islope1	SCA_40_20_SB0	SCA_100_40_SBMSY	SP_40_20_SB0	SP_100_40_SBMSY
OM_30	0.2 < SB0 < 0.4	4%	38%	22%	28%	29%	27%	22%	18%	14%	14%	16%	28%	32%	30%	30%
OM_30	0.4 < SSBMSY < 1	0%	10%	7%	14%	18%	18%	16%	14%	3%	3%	3%	9%	12%	14%	14%

OM_30	20% SB0_L	100%	98%	98%	88%	71%	51%	30%	18%	98%	99%	99%	98%	96%	94%	93%
OM_30	20% SB0_M	100%	99%	97%	93%	84%	72%	59%	46%	99%	99%	99%	98%	96%	94%	94%
OM_30	20% SB0_S	100%	100%	100%	100%	100%	100%	97%	93%	100%	100%	100%	100%	100%	100%	100%
OM_30	40% SSBMSY_L	100%	100%	100%	93%	80%	58%	38%	24%	99%	100%	100%	100%	100%	98%	98%
OM_30	40% SSBMSY_M	100%	100%	100%	98%	94%	86%	75%	62%	100%	100%	100%	100%	100%	99%	98%
OM_30	40% SSBMSY_S	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM_30	Green_L	100%	89%	92%	80%	60%	39%	19%	9%	95%	95%	96%	88%	85%	84%	84%
OM_30	Green_M	100%	88%	92%	80%	67%	49%	37%	23%	95%	96%	96%	89%	86%	77%	77%
OM_30	Green_S	100%	99%	100%	99%	94%	83%	66%	55%	100%	100%	100%	99%	99%	92%	92%
OM_30	max_TAC_change	0	0	0	0	0	0	0	0	-820	1600	460	7600	-2500	-4600	-4600
OM_30	mean_catch_change	4E-11	26000	15000	20000	23000	24000	23000	22000	9800	11000	12000	20000	21000	20000	20000
OM_30	mean_prop_catch_change	20%	27%	0%	2%	7%	17%	27%	34%	6%	11%	1%	62%	23%	25%	21%
OM_30	mean_TAC_change	0	0	0	0	0	0	0	0	-240	-55	63	700	310	-330	-340
OM_30	MeanF_FMSY_L	2E-15	0.47	0.29	0.62	1.10	1.90	2.60	3.00	0.20	0.22	0.20	0.40	0.45	0.47	0.47
OM_30	MeanF_FMSY_M	2E-15	0.47	0.31	0.51	0.81	1.20	1.70	2.20	0.20	0.21	0.21	0.37	0.41	0.42	0.43
OM_30	MeanF_FMSY_S	2E-15	0.47	0.32	0.45	0.59	0.77	0.97	1.20	0.20	0.17	0.22	0.28	0.38	0.56	0.56
OM_30	MeanSB_SBMSY_L	3.1	1.70	2.30	1.90	1.40	0.98	0.61	0.37	2.50	2.40	2.40	2.00	1.90	2.00	2.00
OM_30	MeanSB_SBMSY_M	2.6	1.60	2.00	1.70	1.50	1.30	1.00	0.81	2.20	2.20	2.10	1.90	1.80	1.70	1.70
OM_30	MeanSB_SBMSY_S	1.6	1.40	1.40	1.40	1.30	1.30	1.20	1.20	1.50	1.50	1.50	1.50	1.40	1.30	1.30
OM_30	Min_SB_SBMSY_L	1.1	0.51	0.24	0.00	0.00	0.00	0.00	0.00	0.04	0.13	0.49	0.36	0.22	0.05	0.05
OM_30	Min_SB_SBMSY_M	1.1	0.58	0.39	0.09	0.03	0.02	0.02	0.02	0.60	0.62	0.58	0.49	0.30	0.08	0.04
OM_30	Min_SB_SBMSY_S	1.3	0.97	1.00	0.92	0.80	0.68	0.57	0.46	1.10	1.10	1.10	0.79	0.79	0.82	0.82
OM_30	Red_L	0%	0%	1%	10%	30%	53%	74%	86%	2%	1%	0%	1%	2%	4%	4%
OM_30	Red_M	0%	0%	1%	7%	21%	36%	52%	64%	0%	0%	0%	1%	2%	4%	4%
OM_30	Red_S	0%	0%	0%	0%	3%	8%	13%	16%	0%	0%	0%	1%	1%	3%	3%
OM_30	TAC_shutdown	0	NA	0	0	0	0	0	0	0	0	0	0	0	0	0
OM_30	TAC_variation	0%	NA	0%	0%	0%	0%	0%	0%	10%	20%	0%	27%	24%	10%	10%
OM_30	Variance_yield	2E-11	11000	7.1	470	2200	5800	9700	13000	2700	4600	590	11000	8800	4600	4400
OM_30	Yield_L	4E-11	26000	15000	19000	23000	23000	20000	18000	9800	11000	12000	21000	22000	20000	20000
OM_30	Yield_M	4E-11	25000	15000	20000	25000	29000	32000	33000	11000	12000	12000	19000	20000	18000	18000
OM_30	Yield_S	3E-11	23000	15000	20000	25000	30000	35000	40000	10000	8400	11000	13000	17000	24000	24000