

Code	Name	Type	Description
INPUT CONTROLS			
MRreal	Area 1 Marine Reserve with reallocation	MPA	Sets a marine reserve in Area 1 and reallocates fishing effort to area 2
MRnoreal	Area 1 Marine Reserve with no reallocation	MPA	Sets a marine reserve in Area 1 with no reallocation of fishing effort to area 2
curE	Current effort	Effort	A reference input control that maintains current effort (subject to fishing efficiency changes)
curE75	75% of Current effort	Effort	A reference input control that maintains 75% of current effort
matagelim	Age selectivity matches the maturity curve	Sel.	Fishing selectivity at age is the same as fraction mature at age
OUTPUT CONTROLS			
BK	Beddington and Kirkwood life-history	LH	Sets an OFL according to current abundance and an approximation of FMSY based on length at first capture.
BK_CC	BK linked to a catch curve	LH	Catch-curve analysis is used to estimate current abundance that is linked to BK FMSY estimate to give the OFL
BK_ML	BK linked to a mean length	LH	Mean length estimate of current F (abundance) is linked to BK FMSY estimate to provide the OFL
CC1	Constant catch linked to average catches	Catch	TAC is a average historical catches
CC4	Constant catch linked to average catches	Catch	TAC is 70% of average historical catches
CompSRA	Age Composition - Stock Reduction Analysis	F	What constant F creates the current composition, what is FMSY? $OFL = FMSY \times F / C$
CompSRA4010	CompSRA linked to a 40-10 rule	F	A 40-10 harvest control rule is added to the CompSRA MP
DBSRA	Depletion-Based Stock Reduction Analysis	Catch	The OFL is $M \times (FMSY/M) \times \text{depletion} \times \text{unfished biomass}$ (the first three factors are user defined, the fourth is determined by historical catches and stock reduction analysis)
DBSRA_40	DBSRA assuming current depletion is 40%	Catch	DBSRA where stock depletion is fixed at 40%
DBSRA_ML	DBSRA using mean length to estimate depletion	Catch	Mean length estimate of depletion is used to inform DBSRA depletion
DBSRA4010	DBSRA linked to a 40-10 rule	Catch	A 40-10 harvest control rule is added to the DBSRA MP
DCAC	Depletion-Corrected Average Catch	Catch	An MSY proxy that accounts for catches occuring whilst dropping to productive stock sizes
DCAC_ML	DCAC using mean length to estimate depletion	Catch	Mean length estimate of depletion is used to inform DCAC depletion
DCAC40	DCAC assuming depletion is 40%	Catch	DCAC where stock depletion is fixed at 40%
DCAC4010	DCAC linked to a 40-10 rule	Catch	A 40-10 harvest control rule is added to the DCAC MP
EDCAC	Extra DCAC	Catch	$DCAC \times 2 \times \text{depletion} \times B0 / BMSY$
DD	Delay-Difference assessment	Pop.D	A delay difference model is fitted to historical abundance indices and catches. The model does not estimate process error.
DD4010	DD linked to a 40-10 rule	Pop.D	A 40-10 harvest control rule is added to the DD MP

DepF	Fratio linked to a production curve control rule	Emlnd	Below BMSY, the OFL is multiplied by a production curve ie. $dep \times (1-dep) \times 4$
DynF	Dynamic Fratio MP	PopDy	Inferred derivative of surplus production with biomass is used to adjust F in relation to M
Fadapt	Adaptive F MP	PopDy	Inferred derivative of surplus production with biomass is used to adjust F between bounds $FMSY/2$ and $2FMSY$
Fdem	Demographic FMSY method	LH	FMSY is calculated as $r/2$ where r is calculated from a demographic approach (inc steepness). Coupled with an estimate of current abundance that gives you the OFL.
Fdem_CC	Fdem linked to a catch curve	LH	Current abundance estimates from a catch curve are linked to Fdem estimate of FMSY
Fdem_ML	Fdem using mean length to estimate depletion	LH	Mean length estimate of current abundance is linked to Fdem estimate of FMSY
FMSYref50	Half of FMSY ref	Catch	50% of true simulated OFL
FMSYref75	75% of FMSY ref	Catch	75% of true simulated OFL
Fratio	Fixed FMSY to M ratio	LH	FMSY is a fixed fraction of natural mortality rate
Fratio_CC	Fratio linked to a catch curve	LH	Current abundance estimates from a catch curve are linked to the Fratio MP
Fratio_ML	Fratio using mean length to estimate depletion	Length	Mean length estimate of depletion is used to inform Fratio abundance
Fratio4010	Fratio linked to a 40-10 rule	LH	A 40-10 harvest control rule is added to the Fratio MP
GB_CC	Geromont and Butterworth constant catch	Catch	MSY seeking rule that uses average historical catch as a proxy for MSY
GB_slope	Geromont and Butterworth CPUE slope	Emlnd	TAC recommendations to stabilize CPUE
GB_target	Geromont and Butterworth target CPUE and catch	Emlnd	TAC recommendations to achieve target CPUE and target catch
Gcontrol	G-control MP	PopDy	Inferred derivative of surplus production with biomass is used to alter the TAC
Islope1	CPUE slope MP	Emlnd	TAC is adjusted to maintain constant CPUE
Islope4	CPUE slope MP (more biologically precautionary)	Emlnd	TAC is adjusted to maintain constant CPUE
Itarget1	CPUE target MP	Emlnd	TAC is adjusted to achieve a target CPUE
Itarget4	CPUE target MP (more biologically precautionary)	Emlnd	TAC is adjusted to achieve a target CPUE
LstepCC1	Mean length MP	Length	Mean length relative to historical levels is used to alter the TAC
LstepCC4	Mean length MP (more biologically precautionary)	Length	Mean length relative to historical levels is used to alter the TAC
Ltarget1	Length target MP	Length	TAC is adjusted to reach a target mean length
Ltarget4	Length target MP (more biologically precautionary)	Length	TAC is adjusted to reach a target mean length
MCD	Mean Catch Depletion MP	Catch	MP to demonstrate high information content of depletion $OFL = \text{mean catches} \times 2 \times \text{dep}$
MCD4010	MCD linked to a 40-10 rule	Catch	A 40-10 harvest control rule is added to the MCD MP

Rcontrol	R-control MP	LH	A demographic prior for intrinsic rate of increase is used to firm up surplus production calculation of G-control
Rcontrol2	Rcontrol with quadratic SP-B relationship	LH	As Rcontrol but fits a quadratic relationship to the derivative of SP with stock biomass
SBT1	Southern Bluefin Tuna 1	Emlnd	An MP that adjusts TACs according to apparent trend in CPUE
SBT2	Southern Bluefin Tuna 2	Emlnd	An MP that adjusts TACs according to achieve target CPUE and catch
SPmod	Surplus production based TAC modifier	PopDy	Inferred derivative of surplus production with biomass is used to adjust the TAC
SPMSY	Catch-trend MSY MP	Catch	Catch trends reflect depletion and combined with catches can be used to find viable r-K pairs. The OFL is $\text{dep} \times (1 - \text{dep}) \times 2 \times r \times K$
SPslope	Slope in surplus production MP	PopDy	Inferred derivative of surplus production with biomass is used to adjust the TAC
SPSRA	Surplus Production Stock Reduction Analysis	PopDy	Like DBSRA but uses a surplus production model and a prior for intrinsic rate of increase
SPSRA_ML	SPSRA using mean length to estimate depletion	Length	mean length estimate of depletion is used to inform SPSRA depletion
YPR	Yield Per Recruit	LH	Yield Per Recruit estimate of $F_{0.1}$ (FMSY proxy) multiplied by estimate of current stock biomass
YPR_CC	YPR linked to a catch-curve	LH	Current abundance estimates of a catch curve analysis is linked to the YPR MP
YPR_ML	YPR using mean length to estimate current abundance	LH;Lt	Mean length estimate of current abundance is used to inform YPR abundance
FMSYref	Perfect OFL MP	Emlnd	True simulated FMSY is multiplied by a current estimate of abundance to derive true OFL