



# **Re-evaluation of CMM 2017-01 for bigeye tuna, updated growth only**

WCPFC-SCI4-2018/MI-WP-08a

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## APPROACH

- Take the CMM projection results from the 36 'Updated new growth' models (Vincent et al., 2018)
- Collate and summarise as MI-WP-08

- Recent recruitments – 3:1 weighting

Fishery	Assessment	Status quo	Optimistic	Pessimistic
Purse seine	-	I	0.64	1.02
Longline	-	I	0.80	1.08
Average $SB/SB_{F=0}$	0.33	0.40	0.39	0.34
$SB/SB_{F=0}$ relative to assessment	-	1.21	1.17	1.01
Risk $SB_{2045} < LRP$	15%	3%	5%	12%
Average $F/F_{MSY}$	0.81	0.78	0.80	0.95
$F/F_{MSY}$ relative to assessment		0.96	0.99	1.17
Risk $F > F_{MSY}$	22%	24%	27%	43%

- Recent recruitments (3:1 top, updated new growth bottom)

Fishery	Assessment	Status quo	Optimistic	Pessimistic
Average $SB/SB_{F=0}$	0.33	0.40	0.39	0.34
$SB/SB_{F=0}$ relative to assessment	-	1.21	1.17	1.01
Risk $SB_{2045} < LRP$	15%	3%	5%	12%
Average $F/F_{MSY}$	0.81	0.78	0.80	0.95
$F/F_{MSY}$ relative to assessment		0.96	0.99	1.17
Risk $F > F_{MSY}$	22%	24%	27%	43%

Average $SB/SB_{F=0}$	0.36	0.42	0.41	0.36
$SB/SB_{F=0}$ relative to assessment	-	1.18	1.15	1.00
Risk $SB_{2045} < LRP$	0%	0%	0%	5%
Average $F/F_{MSY}$	0.77	0.73	0.75	0.89
$F/F_{MSY}$ relative to assessment		0.95	0.98	1.15
Risk $F > F_{MSY}$	6%	11%	13%	30%

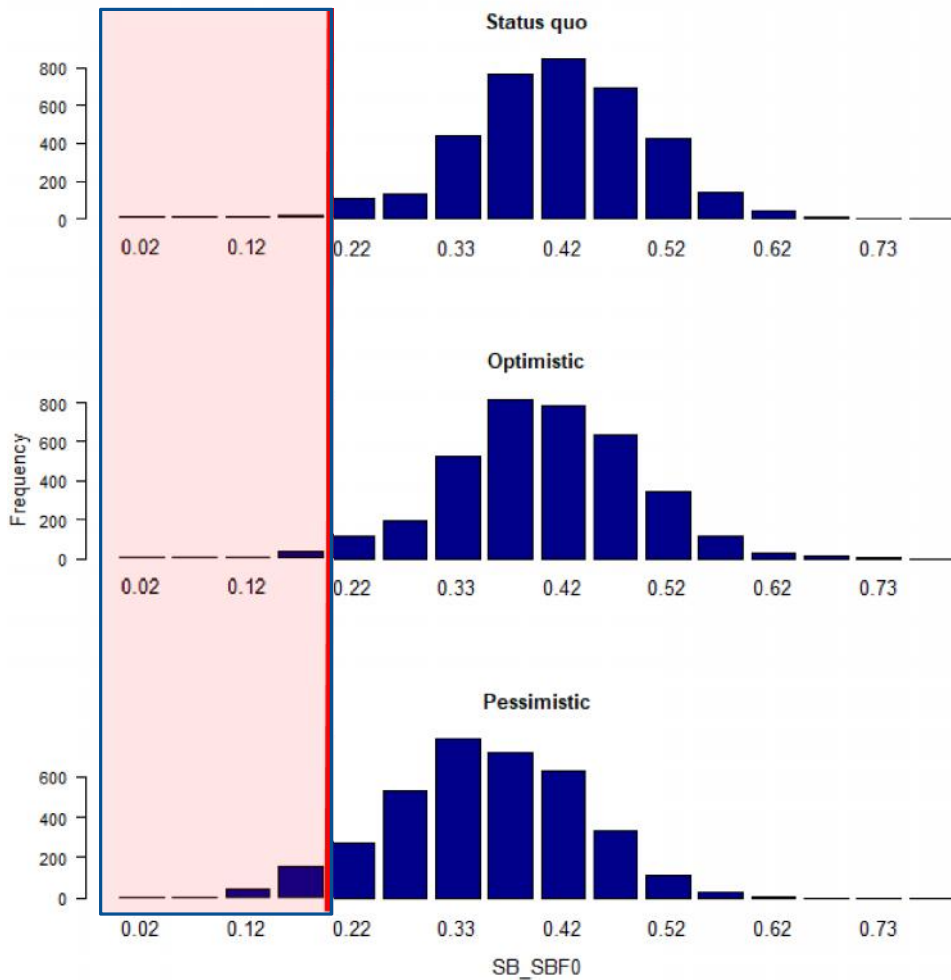
- Long-term recruitments (3:1 top, updated new growth bottom)

Fishery	Assessment	Status quo	Optimistic	Pessimistic
Average $SB/SB_{F=0}$	0.33	0.28	0.27	0.23
$SB/SB_{F=0}$ relative to assessment	-	0.85	0.82	0.69
Risk $SB_{2045} < LRP$	15%	24%	26%	40%
Average $F/F_{MSY}$	0.81	1.62	1.65	1.86
$F/F_{MSY}$ relative to assessment		2.00	2.03	2.30
Risk $F > F_{MSY}$	22%	95%	95%	98%

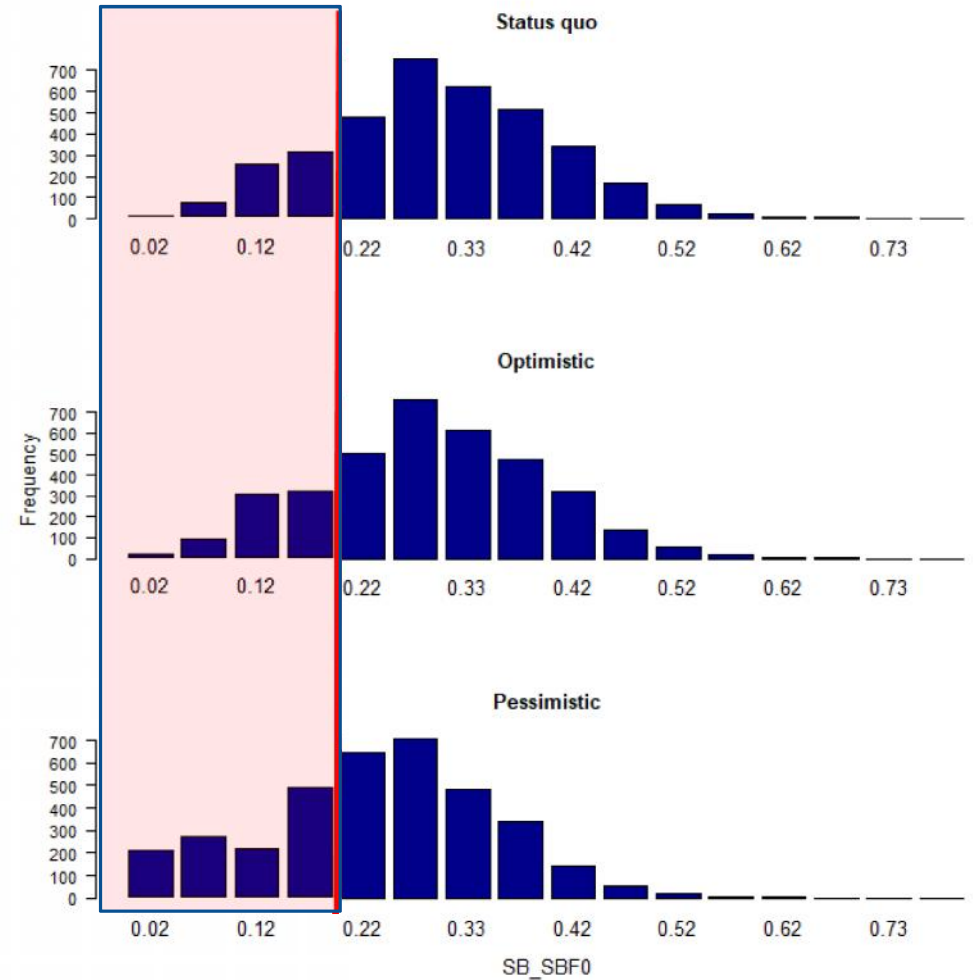
Average $SB/SB_{F=0}$	0.36	0.30	0.29	0.25
$SB/SB_{F=0}$ relative to assessment	-	0.84	0.82	0.70
Risk $SB_{2045} < LRP$	0%	17%	18%	32%
Average $F/F_{MSY}$	0.77	1.60	1.64	1.84
$F/F_{MSY}$ relative to assessment		2.09	2.13	2.38
Risk $F > F_{MSY}$	6%	93%	94%	98%

# TERMINAL SB/SB<sub>F=0</sub>

- Recent recruitment

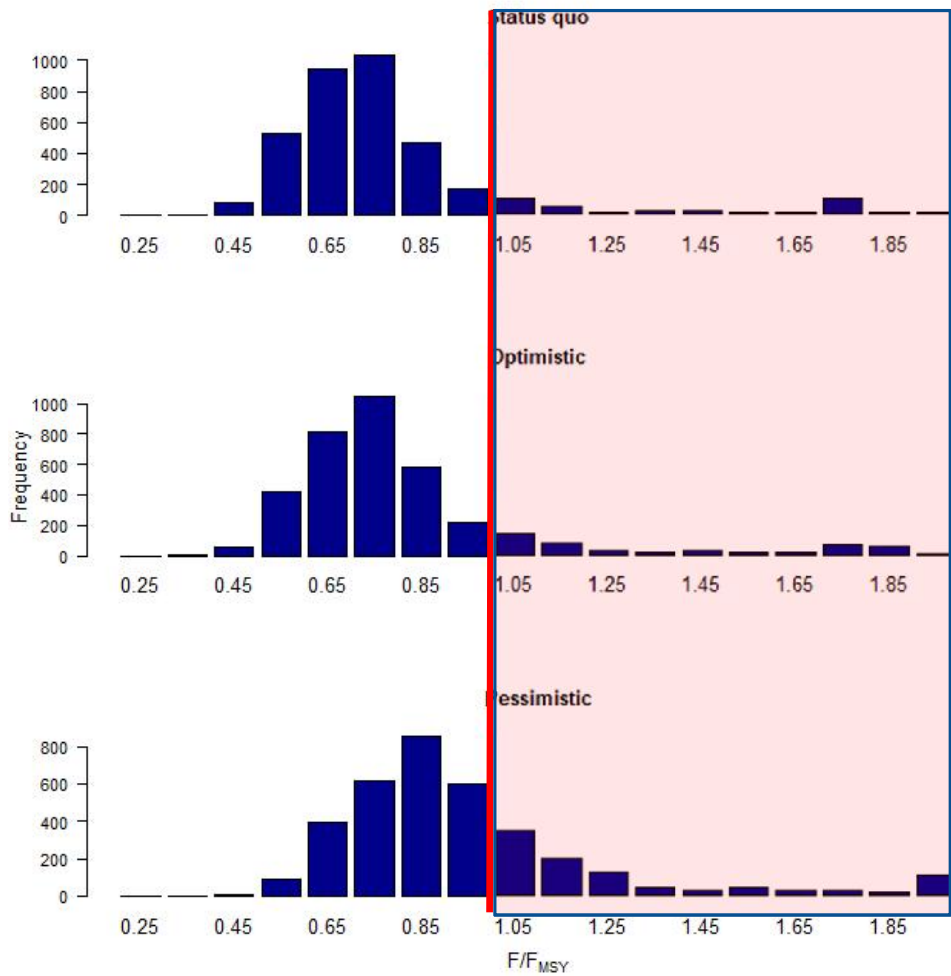


- Long term recruitment

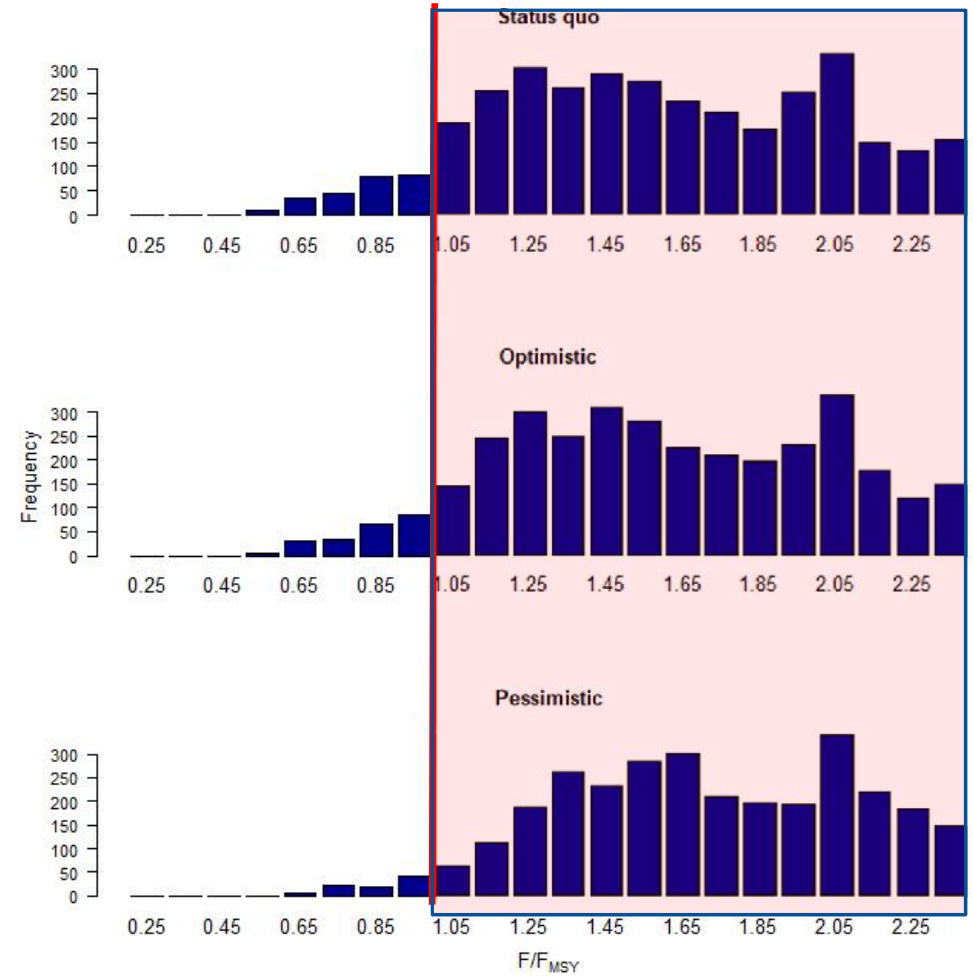


# TERMINAL $F/F_{MSY}$

- Recent recruitment

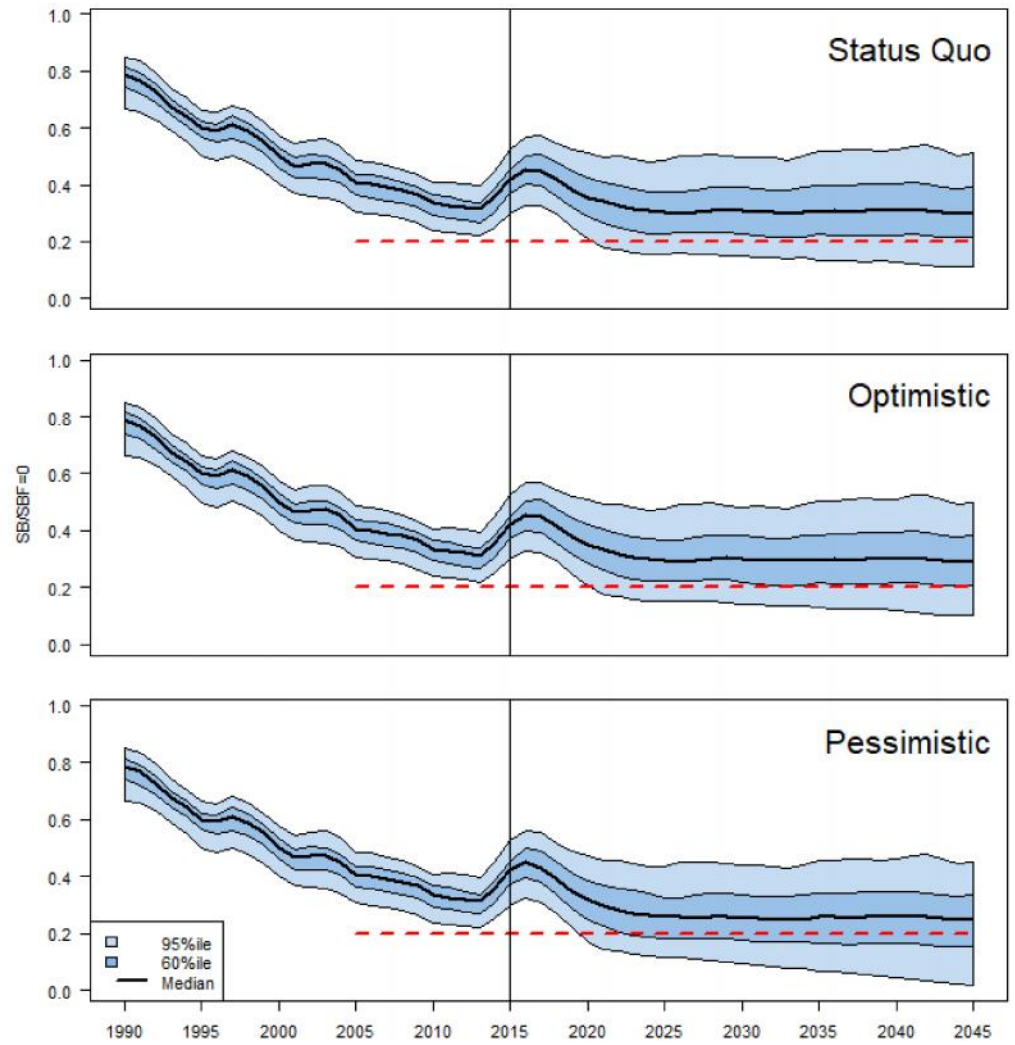
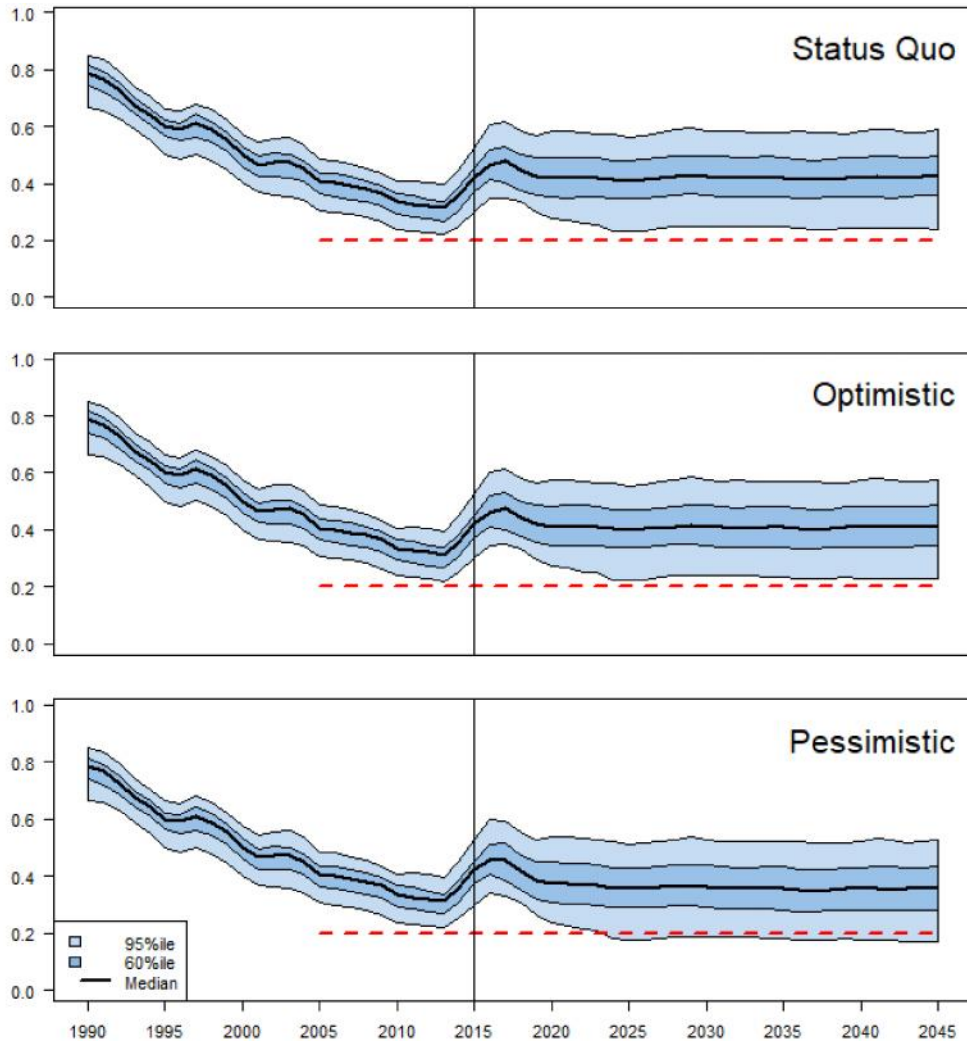


- Long term recruitment



- Recent recruitment

- Long term recruitment





# SUMMARY

- Will the CMM achieve it's objectives?
  - Dependent on assumption of future recruitment
  - Recent positive recruitments – yes, under all scenarios (SB  $\Rightarrow$   $SB_{\text{recent}}$ ,  $F$  always  $< F_{\text{MSY}}$ ,  $F < F_{\text{recent}}$  except 'pessimistic' scenario)
  - Long term recruitment – no, under all scenarios. Risk  $SB < \text{LRP}$  around or greater than 20%,  $F \gg F_{\text{MSY}}$