

Preliminary alternate recovery target results for alternate future poaching scenarios based on different tunings of the current OMP

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Results presented here incorporate the new poaching scenarios (both historic and future) that were recently recommended by the SWG.

The two scenarios relating to past/historic poaching with the SWG-agreed relative weightings are:

- Poaching historic=500 MT with WT=0.65
- Poaching historic=250 MT with WT=0.35.

Along with three scenarios for future recruitment, two scenarios for future somatic growth, and three scenarios for alternative current abundance, a total of 36 total scenarios are now defined – each with an associated total weighting which depends on the individual weights of the various factors. Table 1 reports these 36 scenarios in more detail.

Two preliminary future options relating to future poaching levels were identified:

- Option A: 2009 poaching = +12%
2010+ poaching = +25%
- Option B: 2009 poaching = +50%
2010+ poaching = +100%

No weighting between these two options has yet been decided (and the options themselves may change given further analyses) and results are presented in this document separately for each option to illustrate the differences more clearly.

Future poaching splits are as agreed by the SWG at its last meeting, these being:

- A12: 0.15%
- A34: 24.97%
- A56: 30.13%
- A7: 10.0%
- A8: 34.75%

Recreational future take splits between super-area: the table below show the proportional splits used in current OMP and those recently estimated by the 2010/11 telephone survey.

	Current assumptions	2010/11 telephone survey
Area 1+2	2%	4.7%
Area 3+4	12.5%	9.9%
Area 5+6	12.5%	14.0%
Area 7	4%	8.4%
Area 8+	69%	63.1%

Results presented here assume the current assumptions continue to apply as these are not much different from the 2010/11 telephone survey results.

The aim of this document is to show the sensitivity of short-to-medium term future catches to alternate recovery targets, and how this depends on Option A vs Option B future poaching scenarios.

The results presented here are produced using the “Current” sector splits as defined in Table 2. Two different tunings are presented (note that the 4560 tuning is the current OMP 2007 re-cast tuning parameter).

Results

For all cases 700 simulations were run. Table 3a reports comparative results between the Option A and Option B future poaching scenarios for $\alpha=4560$. Table 3b reports comparative results for the Option B future poaching scenario for two alternate tunings ($\alpha=4560$ and $\alpha=3200$).

Figure 1 shows the total absolute median *B75m* trajectories, the median *B75m* relative to the 2006 values, and the median commercial TAC trajectories comparing Option A vs Option B future poaching scenarios for the current tuning of $\alpha=4560$.

Figure 2 compares results of two alternate tunings ($\alpha=4560$ and $\alpha=3200$) for the future poaching Option B.

Table 1: The 2011 OMP simulation scenarios.

Scenario	Rec	Somatic Growth	Current Abundance	Poach Historic	R WT	G WT	A WT	P WT	T WT	CUM WT
1	FRM	FSGL	RC	PH500	0.6	0.8	0.5	0.65	0.156	0.156
2	FRM	FSGL	RC	PH250	0.6	0.8	0.5	0.35	0.084	0.24
3	FRM	FSGL	ALTL	PH500	0.6	0.8	0.25	0.65	0.078	0.318
4	FRM	FSGL	ALTL	PH250	0.6	0.8	0.25	0.35	0.042	0.36
5	FRM	FSGL	ALTH	PH500	0.6	0.8	0.25	0.65	0.078	0.438
6	FRM	FSGL	ALTH	PH250	0.6	0.8	0.25	0.35	0.042	0.48
7	FRM	FSGM	RC	PH500	0.6	0.2	0.5	0.65	0.039	0.519
8	FRM	FSGM	RC	PH250	0.6	0.2	0.5	0.35	0.021	0.54
9	FRM	FSGM	ALTL	PH500	0.6	0.2	0.25	0.65	0.0195	0.5595
10	FRM	FSGM	ALTL	PH250	0.6	0.2	0.25	0.35	0.0105	0.57
11	FRM	FSGM	ALTH	PH500	0.6	0.2	0.25	0.65	0.0195	0.5895
12	FRM	FSGM	ALTH	PH250	0.6	0.2	0.25	0.35	0.0105	0.6
13	FRH	FSGL	RC	PH500	0.3	0.8	0.5	0.65	0.078	0.678
14	FRH	FSGL	RC	PH250	0.3	0.8	0.5	0.35	0.042	0.72
15	FRH	FSGL	ALTL	PH500	0.3	0.8	0.25	0.65	0.039	0.759
16	FRH	FSGL	ALTL	PH250	0.3	0.8	0.25	0.35	0.021	0.78
17	FRH	FSGL	ALTH	PH500	0.3	0.8	0.25	0.65	0.039	0.819
18	FRH	FSGL	ALTH	PH250	0.3	0.8	0.25	0.35	0.021	0.84
19	FRH	FSGM	RC	PH500	0.3	0.2	0.5	0.65	0.0195	0.8595
20	FRH	FSGM	RC	PH250	0.3	0.2	0.5	0.35	0.0105	0.87
21	FRH	FSGM	ALTL	PH500	0.3	0.2	0.25	0.65	0.0098	0.87975
22	FRH	FSGM	ALTL	PH250	0.3	0.2	0.25	0.35	0.0053	0.885
23	FRH	FSGM	ALTH	PH500	0.3	0.2	0.25	0.65	0.0098	0.89475
24	FRH	FSGM	ALTH	PH250	0.3	0.2	0.25	0.35	0.0053	0.9
25	FRL	FSGL	RC	PH500	0.1	0.8	0.5	0.65	0.026	0.926
26	FRL	FSGL	RC	PH250	0.1	0.8	0.5	0.35	0.014	0.94
27	FRL	FSGL	ALTL	PH500	0.1	0.8	0.25	0.65	0.013	0.953
28	FRL	FSGL	ALTL	PH250	0.1	0.8	0.25	0.35	0.007	0.96
29	FRL	FSGL	ALTH	PH500	0.1	0.8	0.25	0.65	0.013	0.973
30	FRL	FSGL	ALTH	PH250	0.1	0.8	0.25	0.35	0.007	0.98
31	FRL	FSGM	RC	PH500	0.1	0.2	0.5	0.65	0.0065	0.9865
32	FRL	FSGM	RC	PH250	0.1	0.2	0.5	0.35	0.0035	0.99
33	FRL	FSGM	ALTL	PH500	0.1	0.2	0.25	0.65	0.0033	0.99325
34	FRL	FSGM	ALTL	PH250	0.1	0.2	0.25	0.35	0.0018	0.995
35	FRL	FSGM	ALTH	PH500	0.1	0.2	0.25	0.65	0.0033	0.99825
36	FRL	FSGM	ALTH	PH250	0.1	0.2	0.25	0.35	0.0018	1

Table 2: Sector splits of global TAC (“Current”)

Sector	Baseline % of Global TAC	Range of global TAC allowed before revert to baseline	Maximum allowed
Recreational	5%	3% - 6%	250 MT
Subsistence/IR	8.8%	7% - 11%	500 MT
Nearshore commercial	19.7%	16% - 24%	800 MT
Offshore commercial	66.5%	Currently max 10% pa *	-

Table 3a: Comparison between option A and B poaching scenarios under OMP-2007 re-cast for its tuning value of $\alpha=4560$. Values in parenthesis are the 5th and 95th percentile values. [The OMP is applied for the 2011+ period only, and actual catches made prior to 2011 are taken into account].

		Initial OMP $\alpha=4560$ Option A poaching	Initial OMP $\alpha=4560$ Option B poaching
10-yr (2006-2015) Ave commercial TAC	A1-2	29 [27; 29]	29 [27; 29]
	A3-4	122 [100; 152]	122 [99; 150]
	A5-6	39 [36; 39]	39 [36; 39]
	A7	788 [636; 954]	782 [630; 955]
	A8	1418 [1257; 1583]	1411 [1241; 1583]
	T	2373 [2089; 2415]	2358 [2067; 2415]
10-yr (2006-2015) Ave near shore TAC	A1-2	27 [25; 28]	27 [25; 28]
	A3-4	82 [76; 83]	82 [76; 83]
	A5-6	37 [34; 37]	36 [34; 37]
	A7	0 [0; 0]	0 [0; 0]
	A8	365 [337; 369]	363 [337; 369]
	T	511 [472; 517]	515 [472; 517]
10-yr (2006-2015) Ave offshore TAC	A1-2	0 [0; 0]	0 [0; 0]
	A3-4	41 [22; 69]	41 [22; 69]
	A5-6	2 [2; 2]	2 [2; 2]
	A7	788 [636; 954]	782 [630; 955]
	A8	1057 [910; 1217]	1050 [903; 1217]
	T	1864 [1620; 1898]	1847 [1596; 1898]
10-yr (2006-2015) Ave subsistence TAC	A1-2	8 [6;8]	8 [6;8]
	A3-4	47 [39; 47]	47 [39; 47]
	A5-6	56 [46; 56]	56 [46; 56]
	A7	0 [0; 0]	0 [0; 0]
	A8	117 [97; 117]	117 [96; 117]
	T	231 [191; 231]	231 [191; 231]
10 yr (2006-2015) Ave Total Recreational Take	T	173 [173; 181]	173 [173; 181]
<i>B_m</i>(16/06)	A1-2	1.031 [0.605; 2.108]	0.826 [0.623; 1.303]
	A3-4	1.117 [0.566; 2.595]	1.023 [0.446; 2.505]
	A5-6	1.387 [0.960; 2.119]	1.150 [0.615; 1.857]
	A7	0.721 [0.049; 4.020]	0.687 [0.045; 3.978]
	A8	0.803 [0.564; 1.093]	0.752 [0.507; 1.036]
	T	0.972 [0.614; 1.632]	0.879 [0.552; 1.514]
<i>B_m</i>(06/96)	A1-2	1.425	1.425
	A3-4	1.517	1.517
	A5-6	1.141	1.141
	A7	0.456	0.456
	A8	0.860	0.860
	T	0.842	0.842
<i>B_m</i>(16/1910)	A1-2	0.008 [0.005;0.018]	0.008 [0.004;0.017]
	A3-4	0.027 [0.012; 0.063]	0.024 [0.009; 0.060]
	A5-6	0.015 [0.010; 0.024]	0.012 [0.006; 0.022]
	A7	0.021 [0.001; 0.119]	0.020 [0.001; 0.117]
	A8	0.070 [0.048; 0.097]	0.065 [0.043; 0.093]
	T	0.032 [0.021; 0.055]	0.030 [0.018; 0.052]

Table 3b: Comparison between two alternate tunings $\alpha=4560$ or 3200 for option B poaching scenario. Values in parenthesis are the 5th and 95th percentile values. [The OMP is applied for the 2011+ period only, and actual catches made prior to 2011 are taken into account].

		Initial OMP $\alpha=4560$ Option B poaching	Initial OMP $\alpha=3200$ Option B poaching
10-yr (2006-2015) Ave commercial TAC	A1-2	29 [27; 29]	27 [25; 29]
	A3-4	122 [99; 150]	109 [91; 135]
	A5-6	39 [36; 39]	36 [33; 39]
	A7	782 [630; 955]	726 [598; 883]
	A8	1411 [1241; 1583]	1291 [1138; 1464]
	T	2358 [2067; 2415]	2122 [1916; 2354]
10-yr (2006-2015) Ave near shore TAC	A1-2	27 [25; 28]	25 [23; 27]
	A3-4	82 [76; 83]	76 [69; 82]
	A5-6	36 [34; 37]	34 [30; 36]
	A7	0 [0; 0]	0 [0; 0]
	A8	363 [337; 369]	337 [305; 362]
	T	515 [472; 517]	472 [427; 507]
10-yr (2006-2015) Ave offshore TAC	A1-2	0 [0; 0]	0 [0; 0]
	A3-4	41 [22; 69]	32 [17; 57]
	A5-6	2 [2; 2]	2 [2; 2]
	A7	782 [630; 955]	726 [598; 883]
	A8	1050 [903; 1217]	951 [820; 1118]
	T	1847 [1596; 1898]	1651 [1484; 1848]
10-yr (2006-2015) Ave subsistence TAC	A1-2	8 [6;8]	6 [6;7]
	A3-4	47 [39; 47]	39 [36; 44]
	A5-6	56 [46; 56]	47 [43; 52]
	A7	0 [0; 0]	0 [0; 0]
	A8	117 [96; 117]	98 [89; 109]
	T	231 [191; 231]	193 [176; 215]
10 yr (2006-2015) Ave Total Recreational Take	T	173 [173; 181]	173 [173; 181]
$B_m(16/06)$	A1-2	0.826 [0.623; 1.303]	1.051 [0.606; 2.166]
	A3-4	1.023 [0.446; 2.505]	1.072 [0.500; 2.500]
	A5-6	1.150 [0.615; 1.857]	1.179 [0.663; 1.900]
	A7	0.687 [0.045; 3.978]	0.850 [0.057; 4.235]
	A8	0.752 [0.507; 1.036]	0.849 [0.632; 1.137]
	T	0.879 [0.552; 1.514]	0.974 [0.644; 1.619]
$B_m(06/96)$	A1-2	1.425	1.425
	A3-4	1.517	1.517
	A5-6	1.141	1.141
	A7	0.456	0.456
	A8	0.860	0.860
	T	0.842	0.842
$B_m(16/1910)$	A1-2	0.008 [0.004;0.017]	0.009 [0.005;0.018]
	A3-4	0.024 [0.009; 0.060]	0.026 [0.011; 0.061]
	A5-6	0.012 [0.006; 0.022]	0.013 [0.007; 0.022]
	A7	0.020 [0.001; 0.117]	0.025 [0.002; 0.125]
	A8	0.065 [0.043; 0.093]	0.073 [0.053; 0.099]
	T	0.030 [0.018; 0.052]	0.033 [0.021; 0.056]

Figure 1: Comparative plots of B75(male), B75(male) relative to 2006, and the commercial TAC trajectories for the $\alpha=4560$ tuning, comparing Option A vs Option B future poaching scenarios.

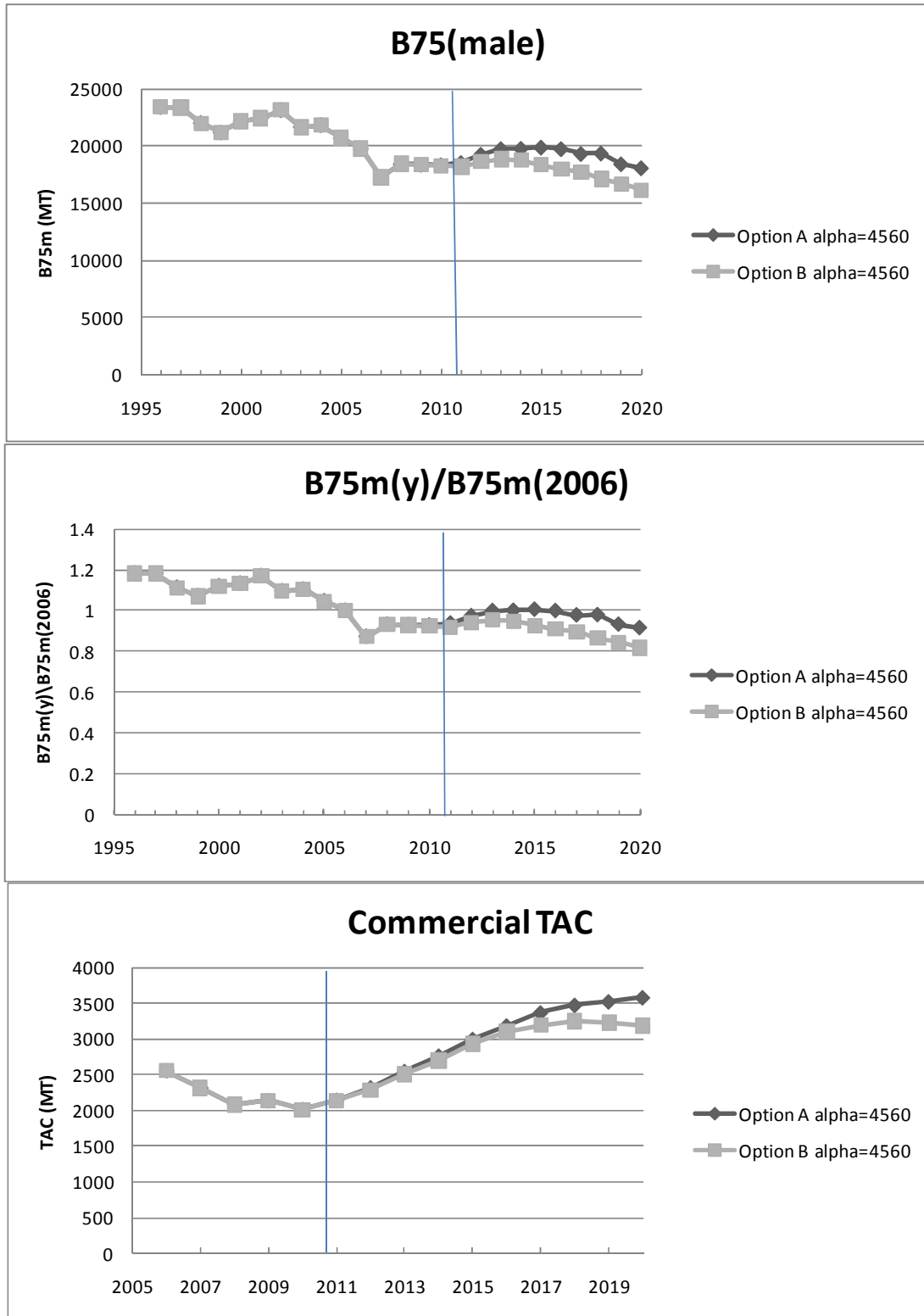


Figure 2: Comparative plots of B75(male), B75(male) relative to 2006, and the commercial TAC trajectories for the Option B future poaching scenario, comparing two alternate tunings.

