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

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Johnston and Butterworth (2011) presented some preliminary recovery target results for alternate future poaching levels based on different tuning of the **current OMP**.

Further such results presented are presented here with new summary statistics being reported. These being: expected catches are reported for the 10-year period 2011-2020, and the recovery target B75m(2021)/B75m(2006) is reported.

To recap: 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.

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 a previous meeting, these being:

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

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 1. Three different tunings are presented. One "error" that these results contain is that the catch

allocation for subsistence fishing for 2010/11 season is assumed to be 270 MT (the actual amount estimated to be caught), incontrast to 200 MT (the amount that was allocated). This will be rectified in future results.

**Results**

For all cases 700 simulations were run. Table 2a reports comparative results between the Option A and Option B future poaching scenarios for $\alpha$=2300, Table 2b for three tunings for Option B.

Figure 1 shows 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 tuning of $\alpha$=2300.

Figure 2 compares results of three alternate tunings ($\alpha$=3200, 2300 and 3200) for the future poaching Option B.

Figure 3a shows plots of B75(male) relative to 2006 trajectories for the Option B future poaching scenario for the tuning $\alpha$=2300. Medians are shown in black and the $5^{th}$ and $95^{th}$ percentiles shown as hashed lines.

Figure 3b shows plots of the commercial TAC trajectories for the Option B future poaching scenario for the tuning $\alpha$=2300. Medians are shown in black and the $5^{th}$ and $95^{th}$ percentiles shown as hashed lines.

Figure 4 shows plots of median catch trajectories for the different fishing sectors for Option B future poaching scenario for the tunings $\alpha$=2300.

Table 1: 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 2a: Comparison between option A and B poaching scenarios for a tuning value of **α=2300**. Values in parenthesis are the 5th and 95th percentile values.

| | **Initial OMP α=2300 Option A poaching** | **Initial OMP α=2300 Option B poaching** |
|---|---|---|
| **10-yr (2011-2020) Ave commercial TAC** | 1981 (1457; 2514) | 1893 (1362; 2462) |
| **10-yr (2011-2020) Ave near shore TAC** | 433 (327; 545) | 416 (317; 527) |
| **10-yr (2011-2020) Ave offshore TAC** | 1552 (1120; 1967) | 1480 (1050; 1934) |
| **10-yr (2011-2020) Ave subsistence TAC** | 190 (146; 235) | 184 (142; 229) |
| **10 yr (2011-2020) Ave Total Recreational Take** | 107 (76; 127) | 102 (73; 126) |
| $B_m$**(21/06)** | **1.229 (0.530; 2.938)** | **1.137 (0.458; 2.829)** |
| $B_m$**(21/96)** | 1.060 (0.454; 2.509) | 0.989 (0.393; 2.421) |

Table 2b: Comparison between three different tunings for option B poaching scenario. Values in parenthesis are the 5th and 95th percentile values.

| | **Initial OMP α=1500 Option B poaching** | **Initial OMP α=2300 Option B poaching** | **Initial OMP α=3200 Option B poaching** |
|---|---|---|---|
| **10-yr (2011-2020) Ave commercial TAC** | 1474 (1110; 1900) | 1893 (1362; 2462) | 2307 (1689; 2971) |
| **10-yr (2011-2020) Ave near shore TAC** | 323 (251; 410) | 416 (317; 527) | 507 (387; 620) |
| **10-yr (2011-2020) Ave offshore TAC** | 1146 (854; 1497) | 1480 (1050; 1934) | 1802 (1298; 2359) |
| **10-yr (2011-2020) Ave subsistence TAC** | 150 (114; 184) | 184 (142; 229) | 221 (170; 280) |
| **10 yr (2011-2020) Ave Total Recreational Take** | 79 (62; 99) | 102 (73; 126) | 107 (82; 147) |
| $B_m$**(21/06)** | **1.387 (0.618; 3.142)** | **1.137 (0.458; 2.829)** | **1.004 (0.318; 2.700)** |
| $B_m$**(21/96)** | 1.215 (0.539; 2.742) | 0.989 (0.393; 2.421) | 0.874 (0.282; 2.347) |

Figure 1: Comparative plots of B75(male) relative to 2006, and the commercial TAC trajectories for the α=2300 tuning, comparing Option A vs Option B future poaching scenarios.

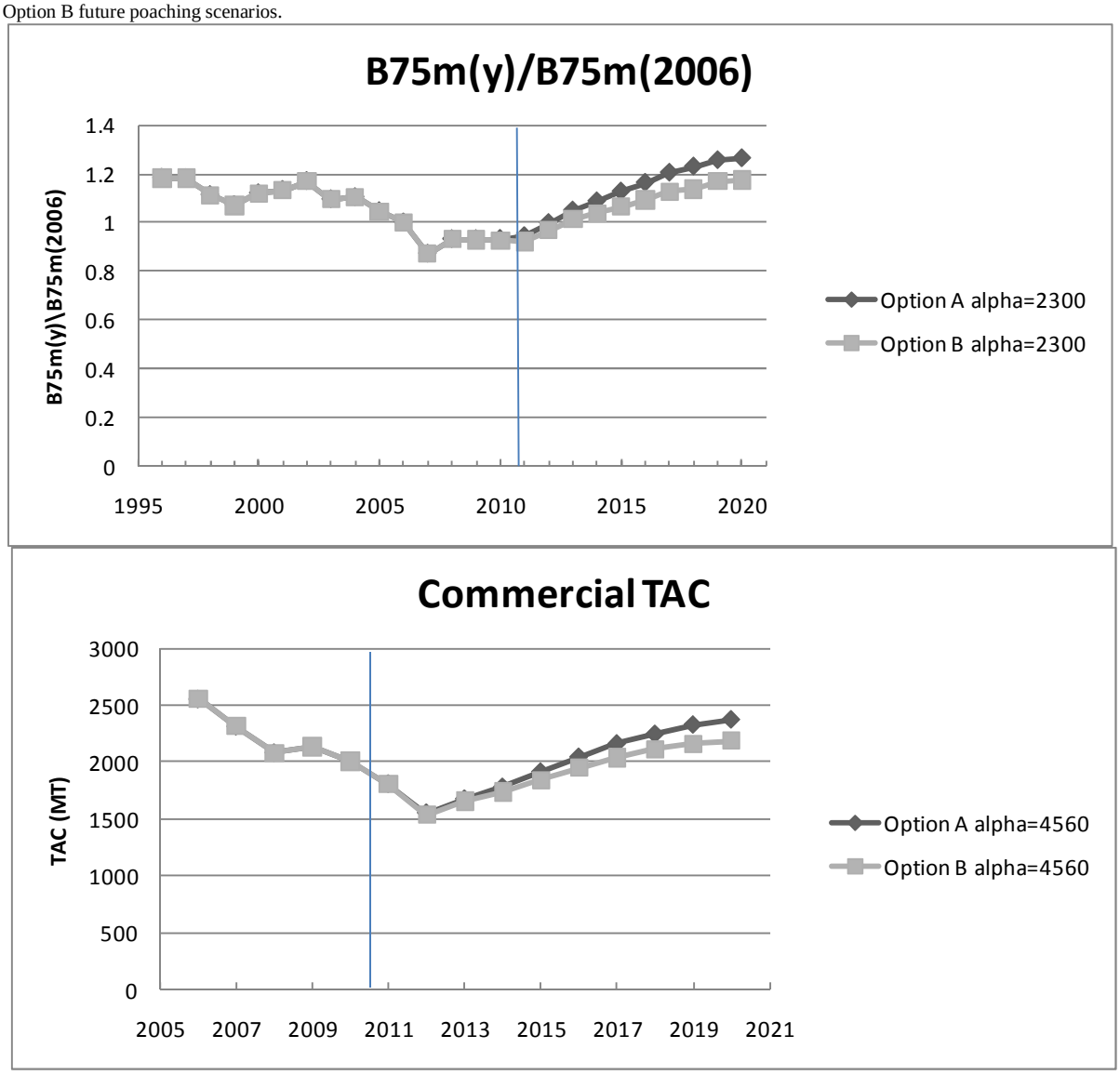

Figure 2: Comparative plots of B75(male) relative to 2006, and the commercial TAC trajectories for the Option B future poaching scenario, comparing three alternate tunings.

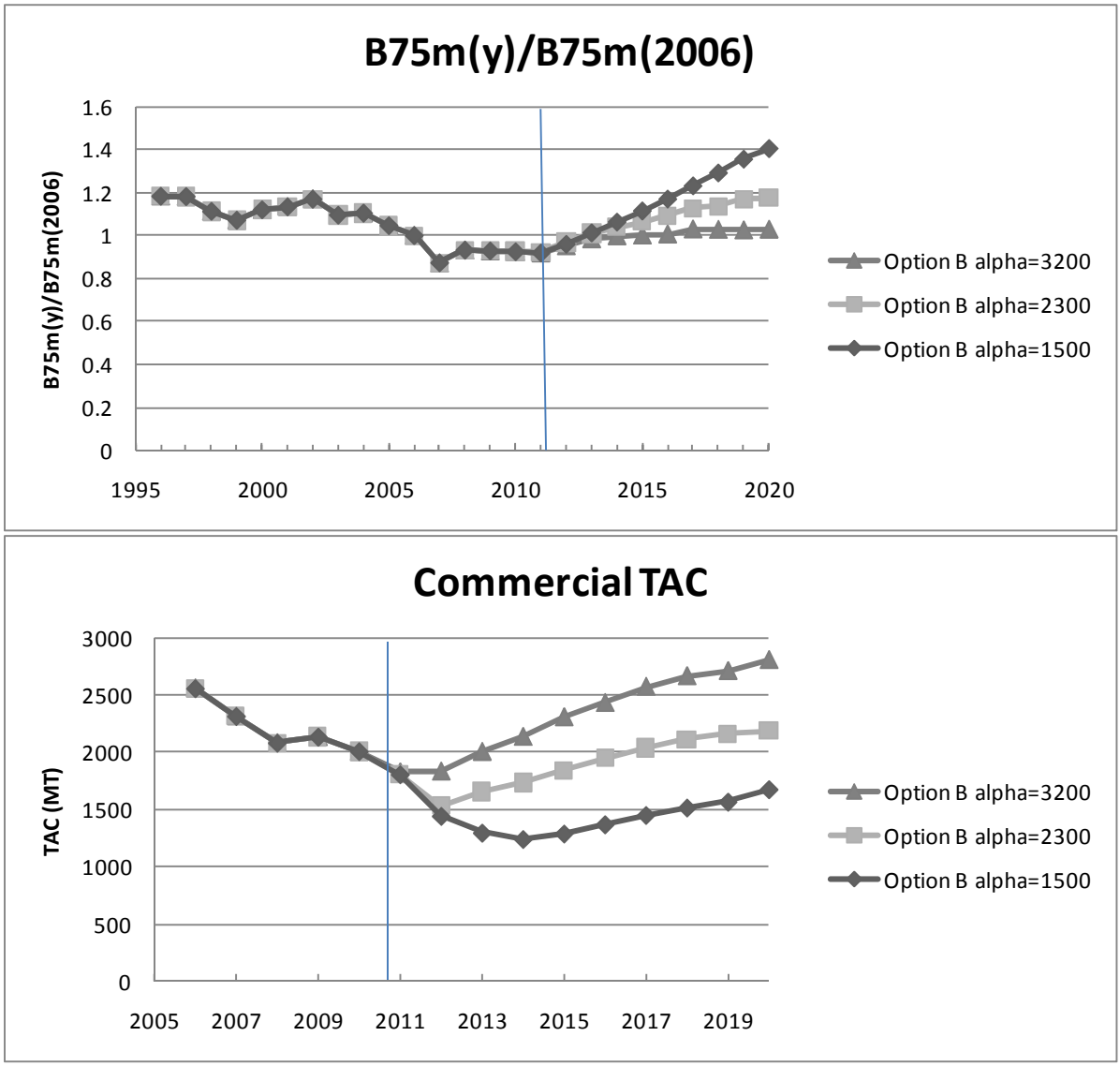

Figure 3a: Plots of B75(male) relative to 2006 trajectories for the Option B future poaching scenario for the tunings α=2300. Medians are shown in black and the 5th and 95th percentiles shown as hashed lines.

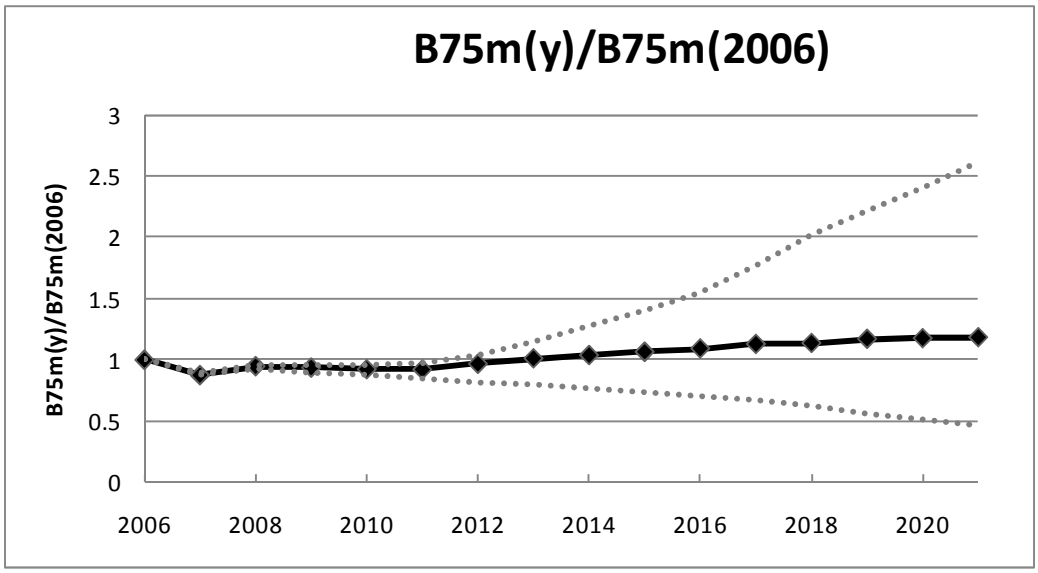


Figure 3b: Plots of the commercial TAC trajectories for the Option B future poaching scenario for the tunings α=2300. Medians are shown in black and the 5th and 95th percentiles shown as hashed lines.

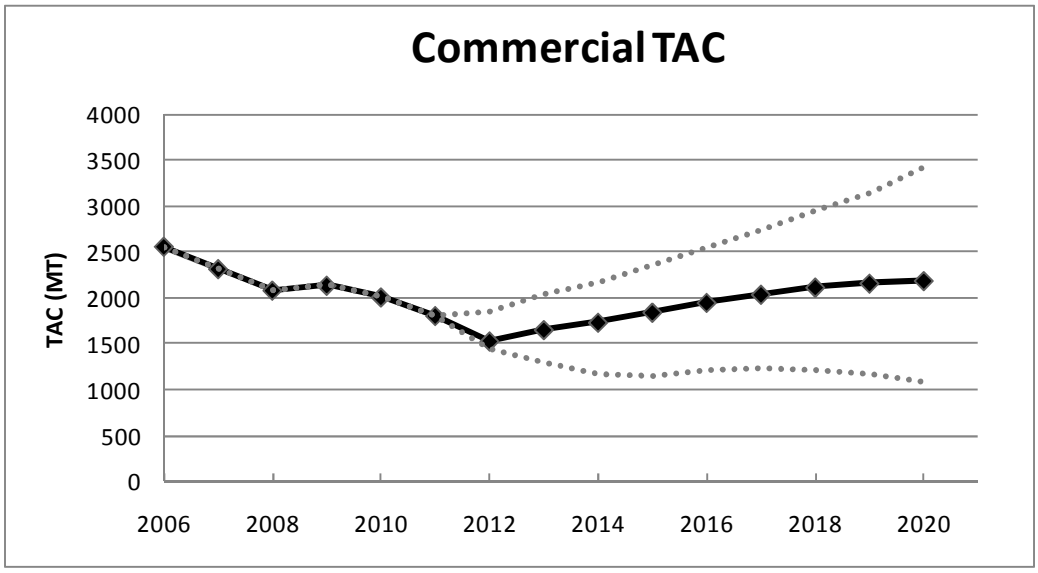

Figure 4: Plots median catch trajectories for Option B future poaching scenario for the tunings α=2300.