SCIENTIFIC COMMITTEE
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Addendum to SC9-WCPFC9-04

WCPFC-SC9-2013/ SC9-WCPFC9-05

SPC-OFP

Addendum to WCPFC9-2012-IP10: further model runs undertaken in development of the stock assessment for swordfish in the southwest Pacific Ocean

Further progress to that outlined in WCPFC9-2012-IP10 has been made towards the new assessment. No analysis of model fit or other diagnostics have been undertaken for these runs and therefore they should not be considered reflective of potential outcomes of the complete assessment.

The set of develop model runs have indicated that:

- The stock assessment conclusions will likely be sensitive to the CPUE series assumed to track abundance and subsequently reiterate the need for carefully constructed indices for the Spanish longline fleet; and
- There are strong interactions between the resolution of the size data used the assessments, the estimated growth and selectivity patterns, and the resulting stock status and yields. These issues will need to be carefully examined and will likely reflect key axes of uncertainty in the assessment.

Table 1: Descriptions of development model runs undertaken in swordfish assessment

Folder	Name	Description	Steepness	Result
oldone	model08	2008 input frq file - includes projection years; uses 2006 MFCL executable	0.9	Replicates the 2008 result
oldone_working_2	model08_newMFCL	2008 input frq file - includes projection years; uses mfcl064.exe v.1.1.4.2	0.9	Changes the 2008 result, halves the biomass
oldone_working_con	model08_corrFRQ	Excludes fisheries data for projection years	0.9	Biomass is around 75% of the 2008 result
run1_con	model08_update	2008 assessment structure. Simple update to 2011. Correct whole weight L-W parameters	0.9	Biomass is around 80-90% of the 2008 result
run2_con	model12_fineres	2012 assessment structure. No standardised CPUE. Fine resolution size composition data.	0.9	Biomass is around 1.4 times larger the 2008 result
run3_con	-	2012 model with updated fisheries data to 2011 using same coarse resolution size strata as for the 2008 assessment	0.9	Biomass blows up (e07)
run4_corr	model12_stdsdeff_corr	2012 assessment structure. Fits standardised CPUE. Fine resolution size composition data. Corrected .frq for zero catches.	0.9	Biomass is around 1.4 times larger the 2008 result
run5	CP_JPAUNZ_fine	2012 assessment structure. Fits standardised CPUE for fisheries: 1, 2, 4, 8, and 10 (JP, AU, NZ) with q constant. Fine resolution size composition data. Corrected .frq for zero catches.	0.9	Biomass: 140,000 decline to 26,000
run6	CP_JPAUNZ_coarse	As for run5; coarse size data resolution (as in 2008 assessment)	0.9	Biomass: 220,000 decline to 140,000
run7	CP_updateAU_fine	As for run5; add updated AU indices	0.9	
run8	CP_updateAU_coarse	As for run7; coarse size data resolution (as in 2008 assessment)	0.9	
run9	CP_EUnotarg_fine	As for run7; add EU indices - model No_target	0.9	
run10	CP_EUnotarg_coarse	As for run9; coarse size data resolution (as in 2008 assessment)	0.9	
run11	CP_EUtargrel_fine	As for run7; add EU indices - model Target_reltv	0.9	
run12	CP_EUtargrel_coarse	As for run11; coarse size data resolution (as in 2008 assessment)	0.9	
run13	CP_EUtargclust_fine	As for run7; add EU indices - model Target_clust	0.9	
run14	CP_EUtargclust_coarse	As for run13; coarse size data resolution (as in 2008 assessment)	0.9	
run15	CP_EUnotarg_fine_h0.8	As for run9; steepness=0.8	0.8	
run16	CP_EUnotarg_coarse_h0.8	As for run15; coarse size data resolution (as in 2008 assessment)	0.8	

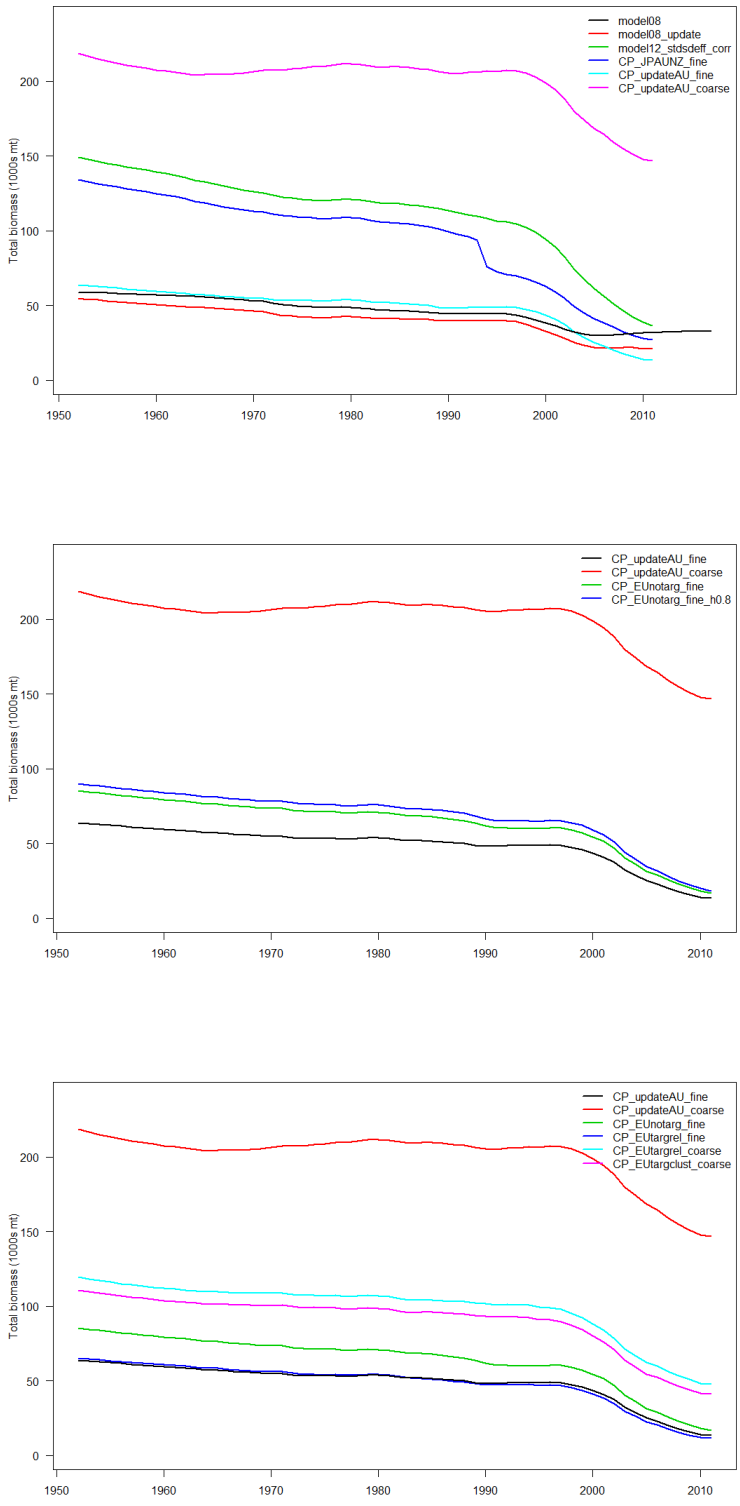

Figure 1: Biomass trajectories for step-wise development model runs.

Table 2: Summary of key outputs from the development model runs.

Qnts	CP_JPAUNZ_fine	CP_updateAU_fine	CP_updateAU_coarse	CP_EUnotarg_fine	CP_EUnotarg_coarse	CP_EUtargrel_fine	CP_EUtargrel_coarse	CP_EUtargclust_fine	CP_EUtargclust_coarse	CP_EUnotarg_fine_h0.8	CP_EUnotarg_coarse_h0.8
MSY (t)	**1635**	**2005**	**8764**	**2190**	**67920000**	**1957**	**5084**	**31380000**	**4816**	**2020**	**50130000**
Fcurr.Fmsy	**3.46**	**2.27**	**0.41**	**2.54**	**0.00**	**2.52**	**1.04**	**0.00**	**1.17**	**3.05**	**0.00**
Bmsy.B0	0.18	0.27	0.27	0.25	0.21	0.27	0.29	0.20	0.30	0.29	0.26
SBmsy.SB0	0.16	0.20	0.17	0.20	0.20	0.21	0.18	0.18	0.18	0.25	0.25
Bcurr.Bmsy	1.17	0.85	2.44	0.90	4.65	0.74	1.40	4.96	1.28	0.79	3.81
SBcurr.SBmsy	**1.16**	**0.94**	**3.67**	**1.00**	**5.02**	**0.79**	**1.68**	**5.60**	**1.48**	**0.86**	**4.03**
Lmax (cm)	352.4	252.9	258.8	279.6	448.3	255.3	254.1	374.4	251.4	279.6	448.3