DRAFT: Initial thoughts for approaches for 2011 stock assessments

# Bigeye tuna

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| --- | --- | --- | --- | --- |
| Factor | Base 2010 model | Base 2011 model(Reference case?) | Sensitivity analyses | Grid |
| Regional structure | Six region model | Same | None |  |
| Temporal model domain | 1952- present by quarter | Same | None |  |
| Fisheries definitions | Reassigned all off-shore longline fleets to single fishery | New ID/PH domestic fishery definitions | Same as 2010, but perhaps done thru a shared selectivity |  |
| Purse seine catch | Spill sampling estimates | Same, but with modified length frequency samples | SBEST | SBEST, Spill |
| Catches for Indonesia and Philippines fisheries | Revised best estimates for domestic and longline fisheries  | Revised best estimates – including new fisheries definitions. Size data included.  | None |  |
| CPUE indices | Based on 5x5 degree aggregated Japanese LL data – YFT offset removedCV =0.20 and no temporal weighting of the effort deviates | CV=0.2 with temporal effort deviatesUse operational CPUE indices if available. Examine issue of scaling all indices at once to a global mean | Exclude JP index prior to 1975/1990 R3/R4Exclude JP index post-1990 R3/R4JP R3 index for core areaInclude the TW-DW indices for region 6 to replace the LL-ALL 6 indexAggregated indices vs operationalTW indices for R3/R4 | Exclude pre-1990 R3/R4 |
| Length and weight frequency data | Down-weighted offshore data and JP length data from research and other sources. Some non-JP length data were excluded from some combined fisheries.Weights of x and y | To be confirmed after further investigations | Full weight | Down-weight, Full weight |
| Tagging data | No PTTP | Include PTTPInclude JP tagging data | Without PPTP & JP |  |
| Reporting rates |  | By tagging program |  |  |
| Catchability trends | No forced vessel effect | Applied if using aggregated series, estimates from SC6-WP02, use year-by-year numbers if possibleNone, if using operational series | No time series applied as sensitivity if using aggregated series | If aggregate, Vessel effect on/offIf operational, none |
| Selectivity | Age-based | Same | None |  |
| Steepness: | Estimated | Fixed at 0.8 | 0.65, 0.95 and estimated | 0.65, 0.8, 0.95 |
| Growth: | Estimated | Estimated |  |  |
| Natural mortality: | Fixed | Fixed | Increased juvenile mortality to YFT level over 1st 4 age classesExtend the increase to the 1st 8 age classesEstimates from Hampton M paper | Extend the increase to the 1st 4 age classes |
| Movement: |  |  |  |  |
| Comparative run with 2010 model structure |  | Match run 3d:No q trendDon’t include PTTPSteepness fixed at 0.98 |  |  |
| Equilibrium recruitment  | Full time series | Full time series | Shorter time period for SRR: 1989-2009 (perhaps in separate document) |  |
| Management advice | run 3d | From the grid |  |  |

# Yellowfin tuna

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| Factor | Base 2009 model | Base 2011 model | Sensitivity analyses | Grid |
| Regional structure | Six region model | Same | A new regional weights for Region 3 and 5 considering the north of region 5Region 3 only |  |
| Temporal model domain | 1952- present by quarter | Same | None |  |
| Fisheries definitions | Non-optimal grouping of LL fisheries as with 2008 BET assessment | Same as for BET, e.g. revised LL(?) plus new ID/PH domestic fishery definitions | Same as 2010, but perhaps done thru a shared selectivity |  |
| Purse seine catch | Spill sampling estimates | Spill, but with modified length frequency samples | SBEST | SBEST/Spill |
| Catches for Indonesia and Philippines fisheries | Revised best estimates for domestic and longline fisheries  | Revised best estimates – including new fisheries definitions | None |  |
| CPUE indices | Based on 5x5 degree aggregated Japanese LL data – BET offset removedTemporal variation in CV,average CV=0.2 Catchability estimates based on operational data from R3 | CV=0.2 with temporal effort deviatesUse operational CPUE indices if available. Examine issue of scaling all indices at once to a global mean | Exclude JP index prior to 1975/1990 R3/R4Associated with regional weight sensitivityExclude JP index post-1990 R3/R4JP R3 index for core areaInclude the TW-DW indices for region 6 to replace the LL-ALL 6 indexAggregated indices vs operationalTW indices for R3/R4 |  |
| Length and weight frequency data | 0.2\* actual N, max=50 | To be confirmed after further investigations, but same as BET | Full weight |  |
| Tagging data | No PTTP | Include PTTPInclude JP tagging data | Without PPTP & JP |  |
| Reporting rates |  | By program |  |  |
| Catchability trends | Vessel effect 1.4% p.a. in region 3 and 0.5% elsewhere | ?; shifts to same penalties and timing as BET PS fisheriesApplied if using aggregated series, estimates from 2009 assessment, with year-by-year numbers if possibleNone, if using operational series | If using aggregated series, apply no time series  | If aggregate, Vessel effect on/offIf operational, none |
| Selectivity | Age-based | Same | None |  |
| Steepness: | Fixed at 0.75 | Fixed at 0.8 | 0.65, 0.95 and estimated | 0.65, 0.8, 0.95 |
| Growth: | Estimated | Estimated |  |  |
| Natural mortality: |  |  | Estimates from Hampton M paper | Estimates from Hampton M paper |
| Movement: |  |  |  |  |
| Comparative run with 2009 approach |  | Choose the reference case from 2009: CPUE Low, LL sample High, q\_incr |  |  |
| Management advice | CPUE Low, LL sample High, q\_incr | From the grid |  |  |
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# Skipjack tuna

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| Factor | Base 2010 model | Base 2011 model | Sensitivity analyses | Grid |
| Regional structure | Three region model | No change |  |  |
| Temporal model domain | 1972- present by quarter | No change |  |  |
| Fisheries definitions | Redesigned all fisheries | No changeID/PH changes, consistent with BET/YFT | Combined selectivity approach, to mimic 2010  |  |
| Purse seine catch | Spill sampling estimates | No change | S\_BEST | SBEST / spill (comb) |
| Catches for Indonesia and Philippines fisheries | Revised best estimates  | Improved estimates |  |  |
| CPUE indices | Based on operational Japanese PL dataDelta-lognormal indices | Update with 2010 dataMore vessel idsGroup size effectSearch devices for OS  | Binomial and adjusted binomial indicesDelta-lognormal using 2010 approach | Delta lognormal, binomial, and adjusted binomial indices |
| Length frequency data | LF data | Adjusted for grab biasInclude new ID/PH size data | 2010 approach | SBEST / spill (comb) |
| Tagging data | All JP taggingAll SPC tagging but PTTP removed for final run | PTTP included | Without PTTP |  |
| Reporting rates | By tagging program | No change |  |  |
| Catchability trends | None | No change |  |  |
| Selectivity | Age-based | No change |  |  |
| Steepness: | 0.75 | 0.8 | 0.65, 0.95Estimated steepness | 0.65, 0.8, 0.95 |
| Growth: | Estimated | No change |  |  |
| Natural mortality: | Estimated M at age | No change |  |  |
| Movement: | Estimated, constant movement at age | No change |  |  |
| Management advice | From the grid | From the grid |  |  |
| Comparative run with 2010 approach |  | Choose the reference case from 2010 (Run 41) |  |  |