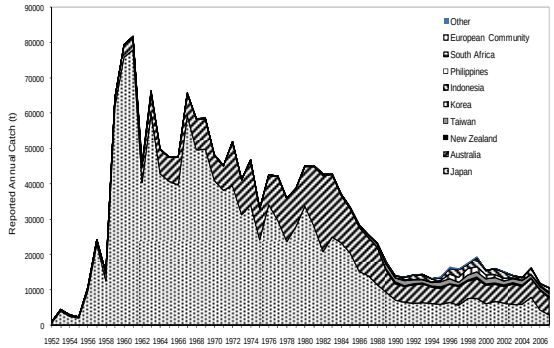
REPORT OF THE 9th MEETING OF THE CCSBT STOCK ASSESSMENT GROUP AND THE 13th MEETING OF THE SCIENTIFIC COMMITTEE

Rotorua, 2 – 12 Sep 2008

Review of SBT Fisheries

Reported SBT Global Catches: 1952 – 2007



Reported southern bluefin tuna catches by flag, 1952 to 2007

Issues of Concern Related to Assessment and Management

- Efforts must be made to reduce uncertainties regarding the magnitude and source of any past over-catches, and to provide reasonable estimates of past catch and CPUE trends with which to condition the Operating Model – only limited progress has been made since 2006
- It is particularly important to continue to ensure that accurate catch data and CPUE indices are obtained from the main SBT fishery sectors in future, for use as fisheries indicators, and to provide reliable indices of abundance

Issues of Concern Related to Assessment and Management (continued)

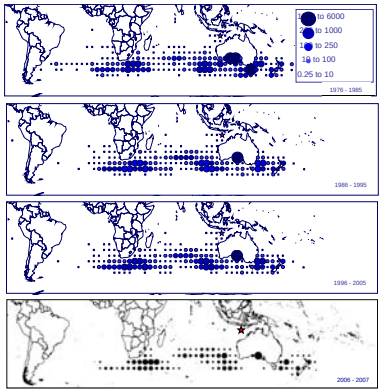
- It was agreed that management advice in 2009 could be based on constant catch projections from the reconditioned operating model, and an evaluation of current stock status and recent recruitment based on indicators in contrast to a fully developed Management Procedure
- The conditioning of the operating model would be broadened to include some of the available indicators, e.g. scientific aerial survey and trolling index

Review of Fisheries Indicators

Impact of Catch Anomalies on Indicators

Indicator	Influence of Catch Anomalies
Estimates of past total SBT catch	Affected
CPUE trends in Japanese LL fishery	Affected
CPUE by year/age class in Japanese LL fishery	CPUE affected, proportions by age potentially affected
Length frequency in Japanese LL fishery	Potentially affected
Conventional tagging (LL reporting rates)	Potentially affected
CPUE and length frequency for New Zealand domestic and charter LL fisheries	Unaffected
Indonesian catch, age composition, and CPUE	Unaffected
Fishery independent aerial survey	Unaffected
Commercial spotting index	Unaffected
Acoustic index	Unaffected
Troll survey	Unaffected

SBT Distribution Range: 1976 – 2007



Geographical distribution of average annual southern bluefin tuna catches (t) by CCSBT members and cooperating non-members over the periods 1976-1985, 1986-1995, 1996-2005 and 2006-2007 per 5° block by oceanic region. Block catches averaging less than 0.25 tons per year are not shown.

Recruitment Indicators

Aerial Surveys

- The Australian scientific aerial survey in the Great Australian Bight (GAB) fluctuated without trend from 1994 to 2005. However, year class strength for this index was about three times higher during 1990-93
- The commercial spotting (SAPUE) index in the GAB shows particularly low year class strength for 2000 and 2001

Recruitment Indicators (continued)

Commercial and research CPUE

- Japanese nominal commercial longline CPUE shows poor 1999 - 2001 year classes, but indicates the 2003 and 2004 year classes may be larger
- The same trend is shown in the New Zealand commercial longline CPUE
- The research trolling survey index in the GAB shows similar trends to other indices for the 1995 – 2001 year classes

Recruitment Indicators (continued)

Size Frequency

- Size distribution in the NZ charter longline fishery and the Japanese longline fishery both indicate poor year classes from 1999 to 2002

Tagging Data

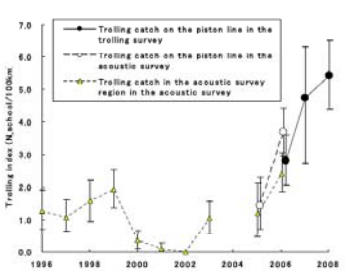
- The high fishing mortality estimates for ages 3 and 4 from recent SRP tagging suggest low year class strengths between 2001 and 2003

Recruitment Indicators (continued)

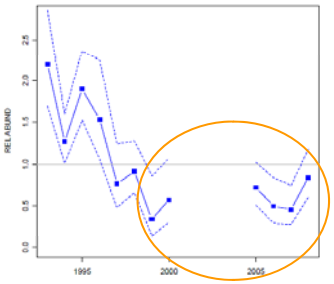
Summary of recruitment indicators

- The recruitment indicators continue to support the previous conclusion of poor 2000 and 2001 year classes
- The evidence is stronger now that the 2002 year class was also poor
- The status of the 2003 year class is unclear, but there are indications of a better year class in 2004 for a number of indicators
- Overall, recruitment levels remain lower than the 1990s and considerably lower than the 1980s estimates

Recruitment Indicators

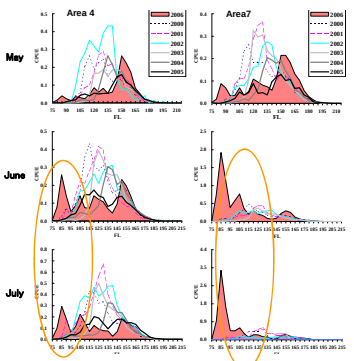


Trends of trolling catch index of age 1 SBT in the Western Australia, 1996 - 2008.

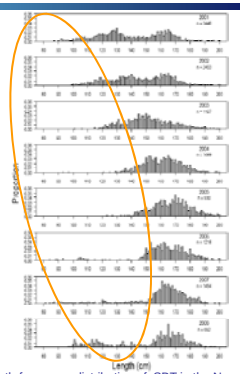


Relative abundance from scientific aerial surveys of age 2-4 SBT in the Great Australian Bight, showing lower abundance after 1999.

Recruitment Indicators



Size composition in the Japanese LL fishery from 2000 - 2006 showing reduction of fish from the 1999 - 2001 year classes, but re-appearance of fish <115cm in 2006*.



Length-frequency distribution of SBT in the New Zealand charter catch showing the near absence of fish from cohorts of 1999 onwards, but some small fish in 2006 and 2007.

Spawning Biomass Indicators

Longline Catch Rates

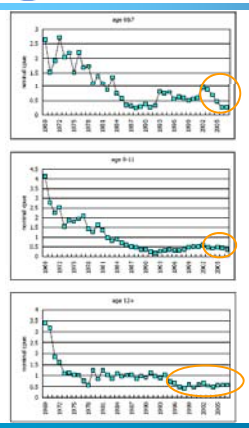
- Reported catch rates of fish aged 12 and older in the Japanese longline fishery indicate a drop in spawning stock biomass between 1993 and 1998
- Since 1998 this index has been stable
- The catch anomalies make interpretation of CPUE less certain

Spawning Biomass Indicators (continued)

Indonesian Catches

- Increase in tonnage of Indonesian catch in 2004-05,as well as the increase in proportion of SBT in the Indonesian catch, was associated with a shift in the behaviour of the Indonesian fleet to target SBT south of the spawning ground
- This change in behaviour complicates the interpretation of the age and size structure of catches from the spawning stock
- However, the average age in the Indonesian catch declined from about 21 years prior to 1998-99 to about 15 years since 2001-02 and has remained stable since

Spawning Biomass Indicators



Nominal CPUE of Japanese longline SBT catches by age group, showing recent declines in catches of ages 6-7, 8-11 (since 2002) and 12+ (since 1994)*.

Exploitable Biomass Indicators

Longline CPUE:

- Reported Japanese longline CPUE for all ages combined suggests that the exploitable biomass for these gears has remained fairly constant during the past 10 years, though this level is low compared to historical values
- Reported CPUE indicates increases in the CPUE of ages 8-11 since about 1992, but a slight decline in 2003 and 2004, with a slight increase in 2005, and 2006 is similar to 2005
- Reported CPUE of fish aged 4-7 has increased since the mid 1980s but has been declining in recent years

Confidence in this indicator has diminished considerably due to the uncertainty associated with catch anomalies.

Summary of Fishery Indicators

- No new model-based assessment was conducted in 2008
- Recruitments in the last decade are estimated to be well below the levels in the period 1950 – 1980
- Recruitment in the 1990's fluctuated at a low level with no overall trend

Summary of Fishery Indicators (continued)

- Analysis of the average of all indicators suggest historically low recruitments from 1999-2002 that will lead to further decline in spawning stock in coming years
- Indicators suggest that the 2004 and 2005 year classes are stronger and close to the average of the 1990's

Assessment of Stock Status

Conclusions Regarding Stock Status

- Results of scenario evaluations in 2008 are generally similar to those evaluated in 2006
- SBT spawning biomass in 2008 is:
  - At a low fraction (generally < 10%) of its original biomass, a level at which recruitment may be at risk of further decline
  - Well below the 1980 level
  - Well below the level that could produce MSY

Conclusions Regarding Stock Status (continued)

- Rebuilding the spawning stock biomass would:
  - Almost certainly increase the sustainable yield
  - Provide security against unforeseen environmental effects
- However, presently, there is no sign of spawning stock biomass rebuilding

Advice on Stock Status

Positive factors affecting sustainability of future catches are:

- The reported catch has been reduced
- Indicators suggest that the 2004 and later year classes are not as low as the 2000 – 02 year classes

Advice on Stock Status (continued)

However serious sources of concern remain from new and previous information:

- Spawning stock is very low
- At least 3 poor recruitments in the recent past, will lead to further decline in spawning stock
- Recruitment has generally declined since about 1970, coincident with declining spawning stock size

Advice on Stock Status (continued)

Serious sources of concern (continued):

- Increased exploitation rates, particularly on recent weak year classes
- Shift in exploitation towards younger age classes, the abundances of which are poorly estimated
- Potential for increasing exploitation rate with declining recruitment, which would pose a serious threat to rebuilding

Management Advice

2007 Management Recommendations

The ESC made the following management recommendations in 2007:

- The indicator analysis did not provide any appreciable signs of change in stock status and hence there is no basis to revise the conclusions from 2006
- Because the TAC has been set for 2007 – 2009 and no changes are anticipated until 2009, the SAG will need to consider new available information in 2009 and use scenario modelling to evaluate the impact of different future catch levels on stock status
- To ensure a high probability of stock rebuilding, all unreported catches must be eliminated and a management procedure needs to be adopted as a basis to provide TAC advice in 2011 or 2012

2007 Management Recommendations (continued)

- Further work is needed to reduce the uncertainty about historical catches and CPUE
- Previous MP development assumed that the sole indicator used for input was Japanese longline CPUE and its age structure. There is now agreement that future MPs should be based on inputs from a broader range of indicators
- Accurate catch and effort data are critical to any stock assessment or management procedure and there needs to be assurance that future data are accurate

2008 Management Recommendations

Given the current stock status, the ESC recommends the Extended Commission consider:

- Reducing fishing mortality by immediately eliminating all unreported and under-reported catches
- Applying a broader suite of technical measures after the 2009 fishing season

2008 Management Recommendations (continued)

The ESC makes the following additional recommendations:

- A Management Procedure needs to be adopted by no later than 2011 as a basis to guide management advice
- Uncertainty about historical catch and effort needs to be reduced

2008 Management Recommendations (continued)

- Accurate catch and effort reporting needs to be ensured for the future
- Reliable indicators of recruitment and spawning biomass need to be developed and maintained long-term
- A wider range of indicators within MPs need to be considered to guide management

Management Procedure Implications

Management Procedure Implications

- The ESC endorsed the view that the basis for management advice at this time would be the reconditioned operating model, in conjunction with an evaluation of current stock status and recent recruitment based on indicators
- The conditioning of the operating model would be broadened to include some of the available indicators
- Indicators evaluated for inclusion in the operating model included the scientific aerial survey and the trolling index

Management Procedure Implications (continued)

- The development of methods and code for inclusion of the recent SRP tagging data was considered a high priority
- It was agreed that management advice in 2009 could be based on constant catch projections from the reconditioned operating model and an evaluation of current stock status and recent recruitment based on indicators, in contrast to a fully developed Management Procedure

Comments on the Report of the Performance Review Working Group

Performance Review Report

4.2.3 Status of Living Marine Resources

- The ESC strongly recommends the development of an MP be continued, noting that:
  - An MP will provide neutral framework to base recommendations to the Extended Commission
  - Currently there is no basis for stock assessment, but scenario approach adopted because of uncertainties about catch
  - An MP should incorporate additional indicators such as the scientific aerial survey
  - Verified catch and effort data pivotal to an MP

Performance Review Report (continued)

4.2.3 Status of Living Marine Resources (continued)

- Failure to implement an MP in 2006 was entirely the result of information on substantial overcatch suddenly becoming available and not a flaw in the MP approach
- ESC strongly supports the recommendation to give maximum priority to accurate reporting and validation of future catch and effort
- ESC endorses the recommendation to implement items prioritized in the SRP (ESC 12, Attachment 9)
- Broader fishery issues (e.g. effects of fishing on ecologically related species) can be incorporated in an MP

Performance Review Report (continued)

4.3.3 Data collection and sharing

- The ESC strongly endorses the recommendation to improve data collection and reporting in particular through the development and implementation of effective MCS measures
- The ESC encourages the development of data-sharing arrangements among Members and further collaboration through joint analyses amongst Members

Performance Review Report (continued)

4.4.3 Quality and provision of scientific advice

- The ESC advises that the Advisory panel has very effectively facilitated consensus in the past, which has to a great extent negated the need to provide independent advice directly to the Extended Commission
- The ESC notes that roles and relationships will evolve over time and the structural arrangements for the Advisory Panel should be reviewed according to the work program

Review of the 2009 Work Schedule

2008 -09 Proposed Workplan

Activity	Timing	Nature
Report to other RFMOs and FAO	Nov 08	report
Secretariat coordination of the tag returns, including rewards	Ongoing	administrative
Aerial survey of Great Australian Bight	Jan 08	field work
Webinars to further develop CPUE series	Dec 08 – Sep 09	workshops
National scientists to evaluate technical measures	Nov 08 – Jul 09	report
Data exchange by all parties	Nov 08 - Jul 09	report
Explanation of operating model and MP approach to Indonesian scientists and managers	Mar or Apr 09	report and workshop
Technical meeting to update the operating model to provide stock status and management advice (1st priority) and develop MP (2nd priority)	Jul 09	workshop
Report on operational and training requirements for implementation of large scale gene-tagging including design and cost analyses	ESC	report
Reports on technical issues associated with development and evaluation of MPs based on fisheries independent indicators	ESC	report
SAG/ESC meeting	Sep 09	meeting

END