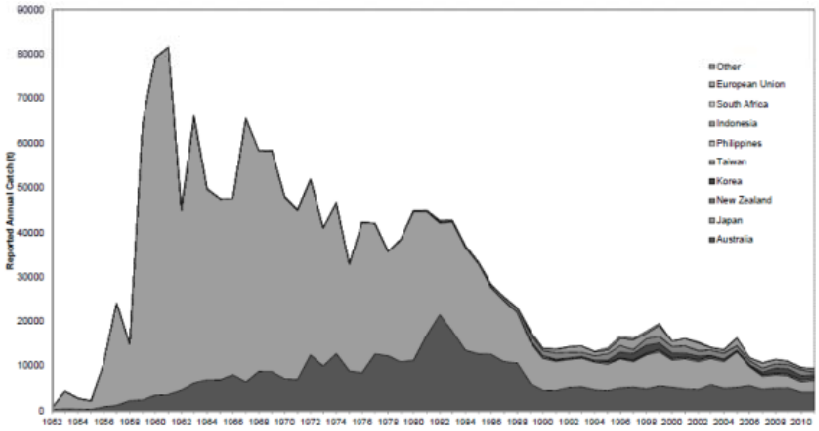
REPORT OF THE 17th MEETING OF THE SCIENTIFIC COMMITTEE

Tokyo, Japan 27 – 31 Aug 2012

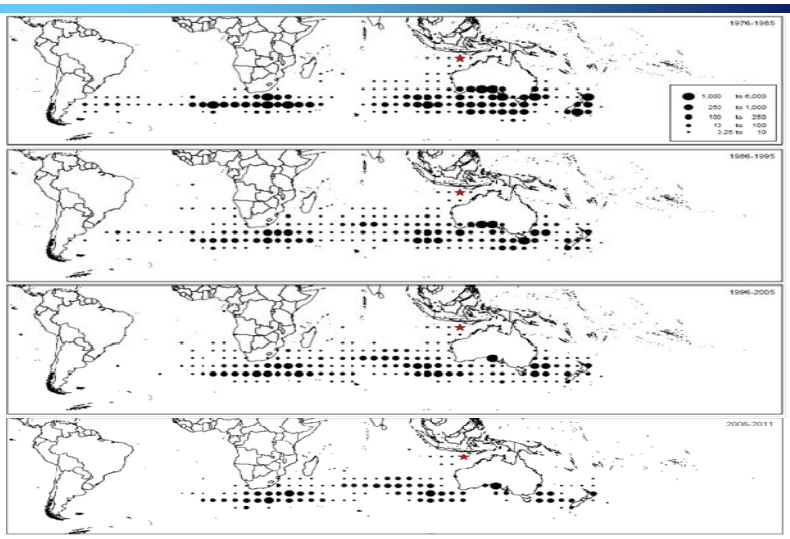
Review of SBT Fisheries and Fisheries Indicators

Reported SBT Global Catches
1952 – 2011



Reported southern bluefin tuna catches by flag, 1952 to 2011

SBT Distribution Range
1976 – 2011

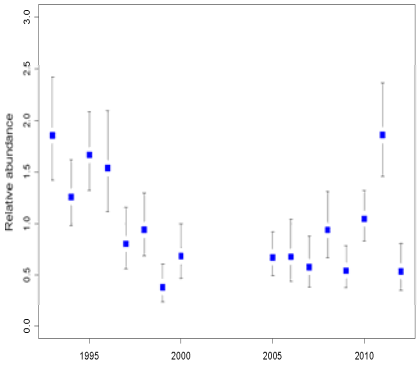


Recruitment indicators

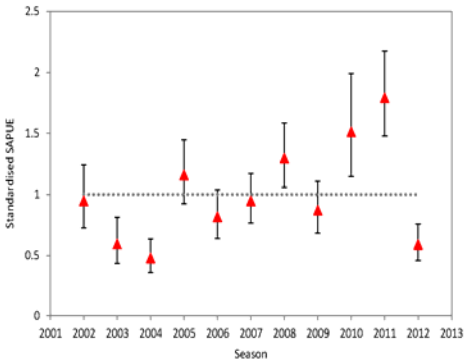
Juvenile indices in the GAB

- All three indices – scientific aerial survey (AS), SAPUE, and trolling survey – exhibited decreases from values in 2010 – 11
- 2012 AS index exhibited a substantial decrease compared to 2011 and is the second lowest level since 1993 when survey began
- 2012 AS index similar to 1999 and most 2005 – 09 indices

Recruitment Indicators



Scientific aerial survey index of relative abundance of juvenile SBT in the Great Australian Bight.



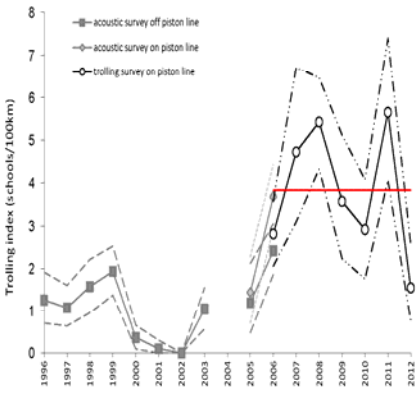
SAPUE index of relative surface abundance of juvenile SBT in the Great Australian Bight.

Recruitment indicators

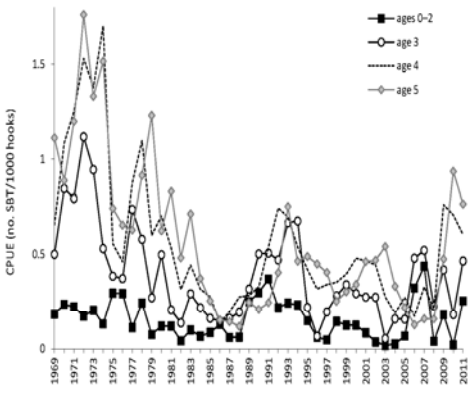
Japanese longline CPUE for juveniles

- The longline CPUE indices for ages 0 – 2 and age 3 increased in 2011
- The longline CPUE indices for age 4 and age 5 declined in 2011
- Age 5 was the dominant year class in 2011 followed by age 4

Recruitment Indicators



Trends of trolling catch index of age 1 SBT in the Western Australia.



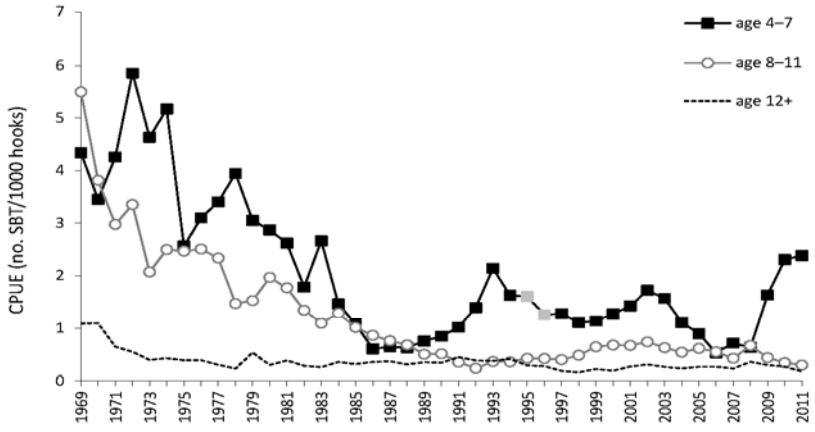
Nominal CPUE of ages 0-2, 3, 4 and 5 SBT for Japanese longliners operating in statistical areas 4-9 in months 4-9.

Trends in age 4+ SBT

Japanese longline CPUE for age 4+

- Age 4-7 CPUE has shown a recent increase that leveled off in 2011
- Age 8-11 CPUE has shown a slight decline since 2008
- Age 12+ CPUE has remained low with little variability since the early 1970's

Age 4+ Biomass Indicators



Nominal CPUE of ages 4-7, 8-11 and 12+ SBT for Japanese longliners operating in statistical areas 4-9 in months 4-9

Summary of indicators

- There have been mixed signals from the indicators in 2011 and 2012
- Longline CPUE has an increasing trend since 2007
- A decrease in the Aerial Survey index in 2012 to a low level was also seen in the SAPUE and troll survey results
- The ESC has identified the need to further examine the factors that may have impacted on the Aerial Survey at their 2013 meeting.

SBT Stock Status

Stock Status

- Spawning stock biomass (SSB) in 2011 was very low (0.035 – 0.077 SSB_0), and below the level that could produce MSY
- Rebuilding SSB would almost certainly increase sustainable yield and provide security against unforeseen environmental effects
- Current TAC has been set using a MP adopted in 2011 which provides a 70% probability of rebuilding to the interim target biomass level by 2035

Stock Status

Spawning stock

•There have been several positive signs about the outlook for the spawning stock based on the 2011 assessment

- Reduction in total reported global catch
- Current fishing mortality reduced and now below F_{MSY}
- Stock expected to increase at current catch level and future catch levels determined by the MP

Stock Status

Recruitment

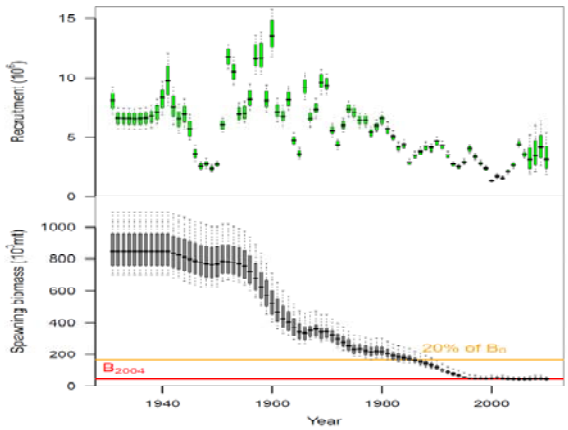
- A decrease in the Aerial Survey index in 2012 to a low level was also seen in the SAPUE and troll survey results
- The ESC has identified the need to further examine the factors that may have impacted on the Aerial Survey at their 2013 meeting

Summary of stock status from 2011

Maximum Sustainable Yield	34,500 t (31,100–36,500 t)[1]
Reported (2011) Catch	9309 t
Current Replacement Yield	27,200 t (22,200–32,800 t)
Current (2011) Spawner Biomass	45,400 t (31,000–72,700 t)
Current (2011) Depletion	0.055 (0.035–0.077)
Fishing Mortality (2010)/F_{msy}	0.76 (0.52–1.07)

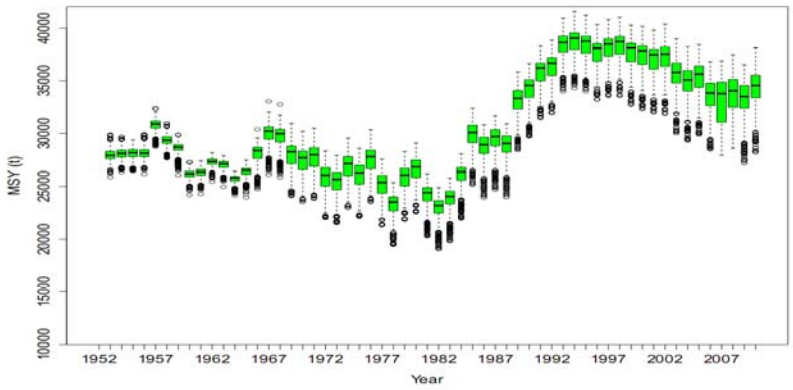
[1]Median and range from lower 5th to upper 95th percentile of 320 models contained in the base case.

Stock Status from the 2011 ESC meeting



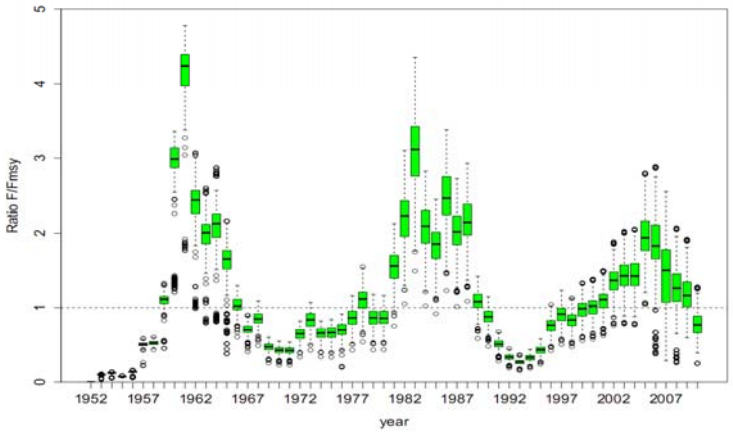
Recruitment and spawning stock biomass for the base case, showing the medians, quartiles and 90th percentiles, together with reference points of 20% of pre- exploitation spawning stock biomass (B_0) and the spawning stock biomass in 2004 (B_{2004}).

Estimates of MSY



Estimated MSY based on annual age-specific mean weight and selectivity estimates as computed over the base grid of the operating model.

Current fishing mortality rate



Boxplots of average fishing mortality over the F_{msy} (for ages 2-15).

SBT Assessment and Management

Management Recommendations

Summary of performance of the Bali Procedure

- The catch projections reach the interim rebuilding target of 0.2 SSB_0 with a 70% probability as specified by the tuning year
- An earlier tuning year, lower maximum TAC change and no TAC increase in the first TAC setting period leads to faster rebuilding, lower catches and lower probability of catch decreases in the short term
- Based on model results there is virtually no possibility of extinction under the recommended MP

Management Recommendations

Current TAC

- For the first three year TAC setting period the TAC will be as follows
  - 2012 – 10,449 t
  - 2013 – 10,949 t
  - 2014 – 12,449 t

NB: The 2014 TAC shall be either 12,449 t or the output of the MP for 2015 – 2017, whichever is less

Management Recommendations

Review of MP implementation

- The ESC considered whether or not the low 2012 scientific aerial survey index triggered exceptional circumstances according to the meta-rules process
- The ESC agreed that exceptional circumstances had not been triggered this year
- The results of the close-kin genetics and the preliminary estimate of spawning abundance developed were also examined
- The ESC noted the preliminary nature of the results and the need for a full range of sensitivity tests of model assumptions to be conducted for discussion at ESC18 in 2013.

Management Recommendations

Management Recommendations

Consistent with the MP, the ESC recommended that there is no need to revise the Commission's 2011 TAC decision based on the following:

- Review of the indicators
- The 2011 stock assessment
- MP inputs
- The preliminary outcomes of the close kin analysis

Update of Operating Model

Evaluation of new data sources

Close – kin genetics analysis

- Close-kin results suggest higher levels of adult abundance and survival probabilities
- More work is required to confirm this and to decide how best to incorporate the results into the assessment
- This will be the subject of more substantial work during the 2013 scientific process

Evaluation of new data sources

Other possible new data sources for the Operating Model

- Direct ageing data
- Results from global spatial dynamics project
- Using AS data to develop an index for 1 year old SBT
- Evaluation of incorporation of SAPUE index as a juvenile index

These issues will be further evaluated in the future beginning in 2013

Review of the 2013 Work Schedule

ESC Workplan for 2013

The proposed 2013 ESC workplan has the following elements:

- Evaluation of fishery indicators
- Update the OM with the close-kin results
- Run the MP to produce a recommended TAC for 2015-17
- Finalize the Scientific Research Program
- Finalize the work program for the 2014 stock assessment

2012 -13 Proposed Workplan

Activity	Approximate Period	Resources or approximate budgetary implications[1]
Continuation of tag recovery efforts	Tag recovery is continuous	$3,000 for tag recovery as per draft budget in Attachment C of CCSBT-ESC/1208/07
Provide SBT Stock Status Report to the other tuna RFMOs	Aug – Nov 2012	N/A
Update Operating Model with Close-kin results	Sep 2012 – Aug 2013	Led by Australia using version control software
CPUE webinar to review progress of intersessional work in Attachment 5	Apr 2013	Intersessional work by Japan, Australia, New Zealand, Taiwan and possibly Korea and Indonesia. Three panel days
Standard Scientific Data Exchange	Apr – Jul 2013	N/A
Update Operating Model with Close-kin results	Sep 2012 – Aug 2013	Led by Australia using version control software

2012 -13 Proposed Workplan
(continued)

Activity	Approximate Period	Resources or approximate budgetary implications[1]
Small technical meeting in relation to the Operating Model in advance of ESC meeting. See **Attachment 11** for details	4 days, July (*most likely USA, in Seattle or Portland, Maine*)	3 panel members, MP consultant, 1 interpreter
Calculation of TAC using MP	Mid-Aug 2013	Everyone
Extended Scientific Committee for the 18th meeting of the Scientific Committee. The meeting will focus on finalising the SRP, running the MP to produce a recommended TAC for 2015-2017, review of indicators and finalising the work program for the 2014 stock assessment	6 days, first half of September 2013 (*Canberra*)	ESC Chair, 3 panel members, full interpretation and 3 Secretariat staff. For the full assessment in 2014 it is likely that 4 panel members will be required

[1] These preliminary estimates will be refined in the draft budget for 2013 that the Secretariat will submit to the Extended Commission

END