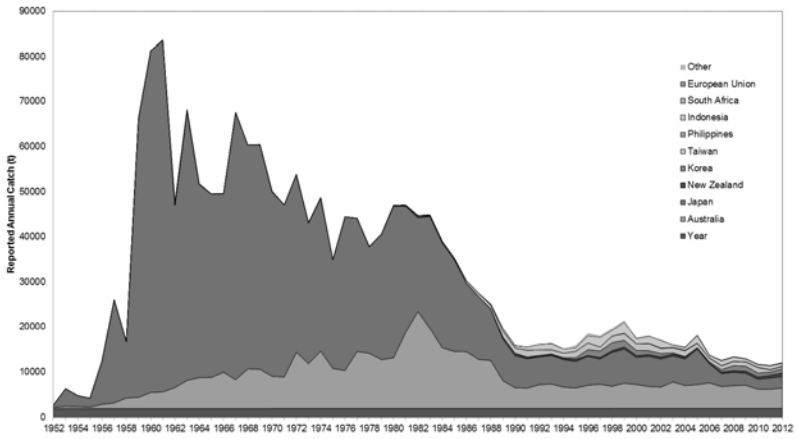
Presentation of the Report of the 2013 Meeting of the Extended Scientific Committee from the ESC Chair

## REPORT OF THE 18th MEETING OF THE SCIENTIFIC COMMITTEE

Canberra, Australia 2 – 7 Sep 2013

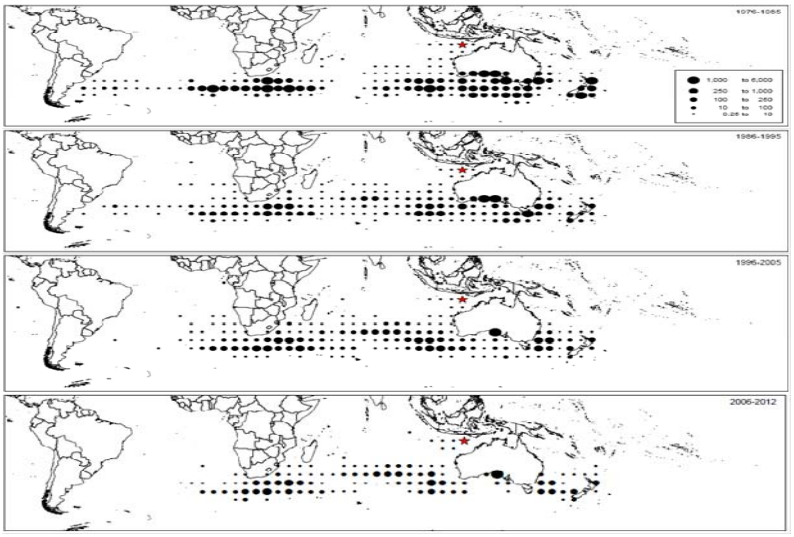
## Review of SBT Fisheries and Fisheries Indicators

## Reported SBT Global Catches
## 1952 – 2012




Reported southern bluefin tuna catches by flag, 1952 to 2012

## SBT Distribution Range
## 1976 – 2012

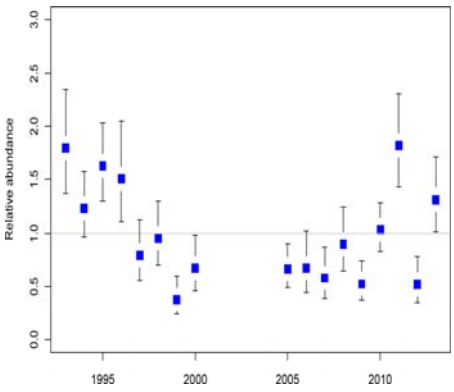


## Recruitment indicators

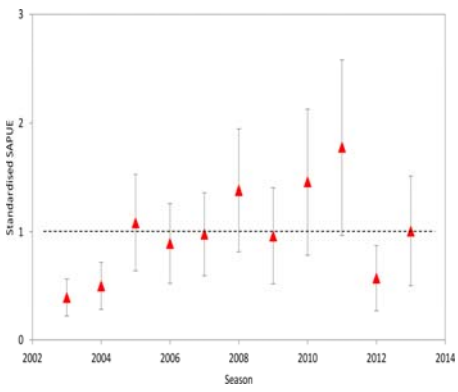
**Juvenile indices in the GAB**

- Although there was a decline in the scientific aerial survey index (AS) in 2012, the index for 2013 increased and is the second highest for the last 9 years
- A similar pattern of decline followed by an increase was observed in the commercial SAPUE and troll survey results from 2011 - 2013

## Recruitment Indicators

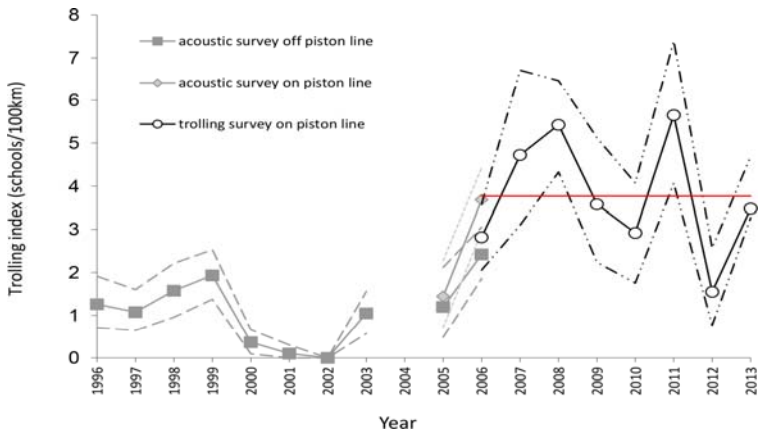



Scientific aerial survey index of relative abundance of juvenile SBT in the Great Australian Bight




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

## Recruitment Indicators



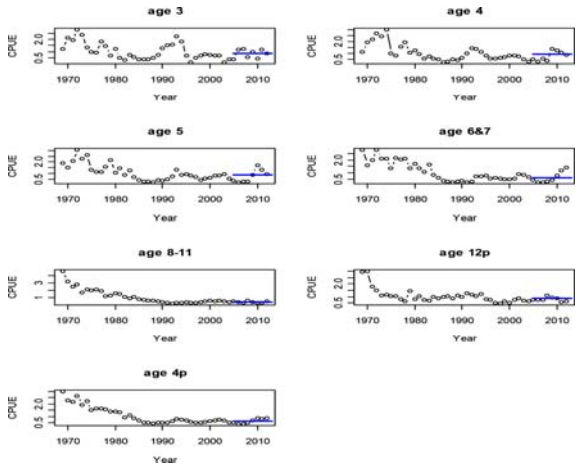

Trends of trolling catch index of age 1 SBT in the Western Australia

## Trends in longline CPUE

### Japanese longline CPUE

- Longline CPUE for the Japanese fleet for ages 6 and 7 continued to increase since 2007
- The age 12+ CPUE showed a slight decrease, but this was expected given the weak recruitment from 1999 to 2002
- There were no obvious trends in CPUE for other age groups

# Age 3+ Biomass Indicators



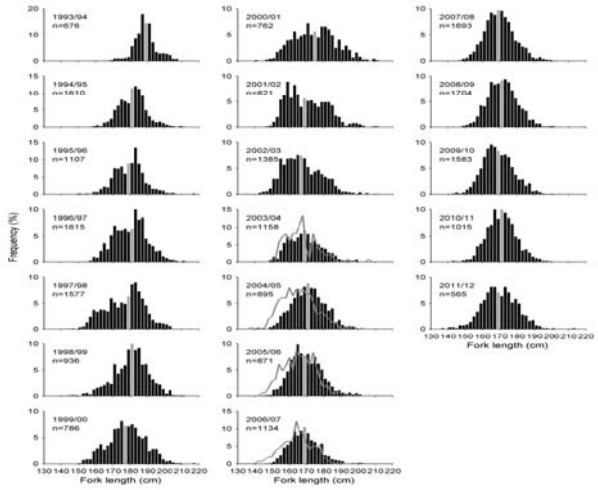

Nominal CPUE of ages 3 through 12+ SBT for Japanese longliners

# Lengths on the spawning ground

## Indonesian length frequencies

- Mean length of SBT on the spawning ground has declined
- This may reflect the strong 2005 year class arriving on the spawning ground
- It may also be the result of some Indonesian fishing vessels fishing further south, outside the spawning grounds

## Lengths on the spawning ground




Length frequency of SBT caught on the spawning ground by spawning season

## Close-kin abundance estimates

- The close-kin data has been reviewed and approved for inclusion in the Operating Model (OM)
- Both the stand-alone abundance estimator from the close-kin work and the OM with the close-kin data included suggest that current spawning biomass may be appreciably higher than previously estimated
- Indicators in the OM incorporating the close-kin data are that absolute biomass and the level of biomass depletion from the unfished state are not as low as previously estimated
- However estimates of productivity rate between the two models are very similar

## Summary of indicators

- The increase in the Aerial Survey index from 2012 to 2013 was also seen in the SAPUE and troll survey results
- Japanese longline CPUE has increased for the 6&7 and 12+ age groups and showed no trend for other ages
- Mean length of SBT on the spawning ground has declined, but its cause(s) are unknown
- Both the stand-alone abundance estimator from the close-kin work and the OM with the close-kin data included suggest that current spawning biomass may be appreciably higher than previously estimated

## SBT Stock Status

## Stock Status from 2011

- The 2011 assessment suggested that the spawning stock biomass (SSB) in 2011 was a very low fraction of its original biomass, and below the level that could produce MSY
- Rebuilding SSB would almost certainly lead to greater sustainable yields 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 from 2011

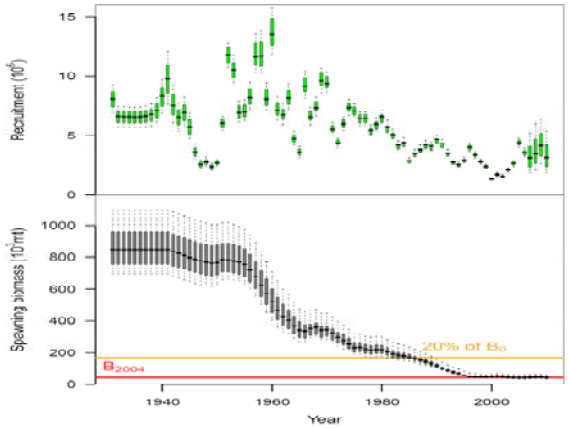
- There was a positive outlook for the SBT stock based on the 2011 assessment
  - Current fishing mortality had been reduced and was below $F_{MSY}$
  - The stock was expected to increase at current catch levels and future catch levels determined by the MP

## 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) |

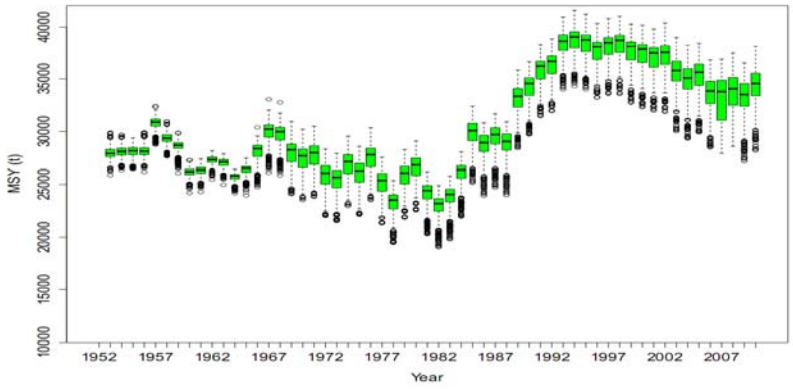
[1]Median and range from lower 5th to upper 95th percentile of 320 models contained in the base case.

## Stock Status from 2011



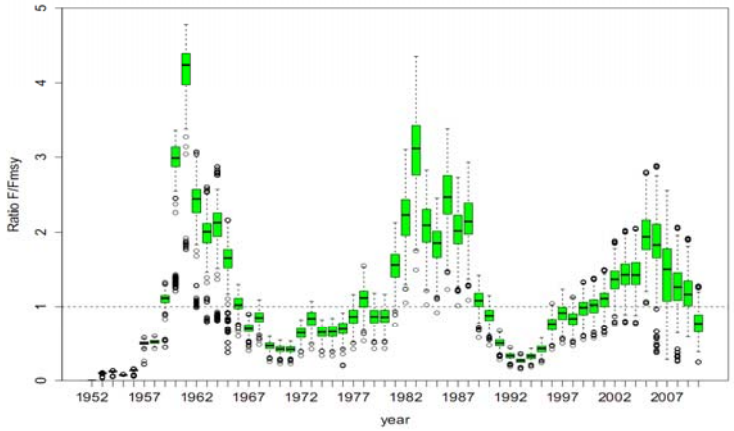

Recruitment and spawning stock biomass for the base case, showing the medians, quartiles and 90th percentiles, together with reference points of 20% of pre- exploitation spawning stock biomass ($B_0$) and the spawning stock biomass in 2004 ($B_{2004}$)

## Estimates of MSY from 2011




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

## Estimates of F from 2011




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

- At its meeting in 2011 the CCSBT adopted a Management Procedure (MP) to ensure that the SSB reaches the interim rebuilding target of 0.2 $SSB_0$ with a 70% probability as specified by the tuning year
- The CCSBT will set the TAC from 2012 and beyond based on the outcome of the MP, unless the CCSBT decides otherwise based on information not incorporate in the MP

## Management Recommendations in 2011

**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 in 2013

- The Advisory Panel ran the MP on behalf of the CCSBT Secretariat to produce the TAC recommendation
- The recommended annual TAC for the years 2015 – 17 is 14,647.4 t, a 2198.4 t increase from the current TAC of 12,449 t, and less than the maximum allowable increase of 3000 t in the MP
- The ESC also concluded that there were no exceptional circumstances
- Therefore there were no impediments to using the MP to set the TAC

## Management Recommendations

Recommendations for 2014

- Based on the results of the MP operation for 2015-17 and the outcome of the review of exceptional circumstances the ESC recommends that:
  - There is no need to revise CCSBT's 2011 TAC decision regarding a TAC for 2014 of 12,449 t
  - The recommended annual TAC for 2015 – 17 is 14,647.4 t
- The ESC recommends that an allocation of 10 t per year be made to cover mortality associate with approved research projects

## Update of Operating Model

## Inclusion of close-kin data in OM

- The fourth meeting of the Operating Model and Management Procedure (OMMP) Working Group was held in Portland, Maine in July 2013
- This was a highly technical meeting that fed into the discussions at the ESC meeting
- Progress was made at both meetings on the incorporation of the close-kin data into the OM for the updated assessment to be conducted in 2014

## Scientific Research Program for 2014 - 2018

## Scientific Research Program for 2014 - 2018

The ESC identified the following key research areas:

- Improved selectivity estimates of the Indonesian spawning ground fishery
- Spawning biomass indices
- Recruitment abundance indices
- Estimates of adult mortality
- Estimates of select biological parameters
- Estimates of total catch
- Preparation for formal review of the MP in 2017

## Review of the 2014 Work Schedule

## ESC Workplan for 2014

The proposed 2014 ESC workplan has the following key elements:

- Evaluation of fishery indicators and exceptional circumstances
- Conduct a full SBT stock assessment
- Develop and updated and comprehensive Scientific Research Program for 2014 – 2018

## 2013 -14 Proposed Workplan

| Activity | Approximate Period | Resources or approximate budgetary implications[1] |
|---|---|---|
| Continuation of tag recovery efforts | Tag recovery is continuous | $1,500 for tag rewards on the basis that few recaptures are expected to occur |
| Provide SBT Stock Status Report to the other tuna RFMOs | Aug – Nov 2013 | No additional cost |
| Collation of information on unreported mortalities and categorizing by "OM" fleets | Jan – Jun 2014 | New Zealand |
| Proposed SRP activities for 2014:<br>1. Continued collection of close kin (CK) samples<br>2. Design study for future gene-tagging and CK studies<br>3. Collation of info for Indonesian spawning ground fishery<br>4. Continued sampling for maturity studies | Jan – Dec 2014 | 1. CCSBT - $30,000<br>2. CCSBT - $150,000<br>3. Selectivity: Indonesia<br>4. Maturity samples: Members |

## 2013 -14 Proposed Workplan
(continued)

| Activity | Approximate Period | Resources or approximate budgetary implications[1] |
|---|---|---|
| Continue development of OMMP code and update data files for OM before Technical Meeting and ESC | Jan – Jul 2014 (Data inputs after data exchange) | Australia/Consultant 5 days |
| CPUE webinar to review progress of inter-sessional CPUE work | April 2014 | Japan, Australia, New Zealand, Taiwan, Korea and possibly Indonesia. Three panel days |
| Standard Scientific Data Exchange | Apr – Jul 2014 | No additional cost |
| Small Technical Meeting in relation to the full SBT stock assessment and update of OM | 4 days, July (Seattle, USA) | Three panel members, OM/MP consultant, 1 interpreter |

## 2013 -14 Proposed Workplan
(continued)

| Activity | Approximate Period | Resources or approximate budgetary implications[1] |
|---|---|---|
| Extended Scientific Committee for the 19th meeting of the Scientific Committee. The meeting will focus on the following:<br>• Regular review of indicators<br>• Evaluation of existence of exceptional circumstances<br>• Conduct a full SBT stock assessment<br>• Develop an updated comprehensive SRP | 1 – 6 Sep 2014 (Auckland, New Zealand) | ESC Chair, all 4 panel members, full interpretation and 3 Secretariat staff. |

END