



**Description of the data provided by CSIRO for the 2006
CCSBT Data exchange.**

**Ann Preece
Jason Hartog
Scott Cooper**

**Prepared for the CCSBT 7th Meeting of the Stock Assessment Group (SAG7)
and the 11th Meeting of the Extended Scientific Committee (ESC11)
4-11 September, and 12-15 September 2006, Tokyo, Japan**

Table of Contents

Abstract.....	1
Introduction.....	1
Data Provided in 2006 by CSIRO.....	1
Summary and acknowledgments	2
References.....	2
Appendix 1.....	3
Appendix 2.....	4

Abstract

CSIRO provides processed data as part of Australia's contribution to the CCSBT data exchange. Documentation of the data and processing methods is provided as information for scientists using these data, as a trail of information on changing and improving methods, and to ensure transparency in the data and methods used.

The method and data used to create the Australian Joint Venture CPUE input file are documented here as requested for the 2006 data exchange. These have not changed from previous years.

Introduction

CSIRO provides processed data as part of Australia's contribution to the CCSBT data exchange. Documentation of the data and processing methods is provided as information for scientists using these data, as a trail of information on changing and improving methods, and to ensure transparency in the data and methods used.

The method and data used to create the Australian Joint Venture CPUE input file are documented here. These data and method are unchanged from previous years. Documentation was requested as part of the 2006 data exchange.

The Bureau of Rural Sciences (BRS) also provides Australian data to the CCSBT but their data and processing methods are not documented here.

Data Provided in 2006 by CSIRO

There have been no changes to methods used to update data provided by CSIRO to the CCSBT and members this year. Documentation of methods for various components has been provided in the past to CCSBT and Trilateral scientific meetings and workshops (e.g. Preece et al, 2004, 2001).

The method and data used to create the Australian Joint Venture CPUE input file are documented here in Appendix 1 (as requested as part of the 2006 data exchange). This method and data are unchanged from earlier years.

Software and full documentation of the method for creating the Laslett Core Area and Nominal CPUE series were also provided to the CCSBT this year. These methods are unchanged from previous years. A brief summary of the methods is provided in Appendix 2.

As part of the 2006 data exchange CSIRO provided the following items, which are documented in the referenced papers:

- 1) Australian Longline fishery Catch at Age for the 2005 calendar year
- 2) Australian Surface fishery Catch At Age for the 2005 season
- 3) Cohort slicing algorithms (described in Preece et al, 2004)

- 4) Australian Surface Fishery otolith ageing data 2001-2005
- 5) Indonesian longline fishery Catch at Age from direct ageing 1995 and 1997-2005 seasons
- 6) Indonesian longline fishery otolith ageing data 2004-2005
- 7) Indonesian longline age and size composition for 2005 season, length frequency for 2005 calendar yr, and age frequency for 2004 calendar year (Farley et al, 2006)
- 8) CPUE series: Laslett Core Areas and Nominal series
- 9) Australian Joint venture CPUE input file: documentation of data and methods (Appendix 1).
- 10) Laslett Core Areas and Nominal CPUE series documentation of methods (Appendix 2).
- 11) Tag releases, recoveries and reporting rates 1991-1997. No change to these data.
- 12) Aerial survey Index (Eveson et al, 2006)
- 13) SRP Mortality Allowance for the 2 Australian projects.

Summary and acknowledgments

This paper is provided to continue the documentation of methods and data provided to the CCSBT members. BRS and the CSIRO scientists who contributed data are thanked for their timely provision of data required.

References

- Eveson, P., M. Bravington and J. Farley. 2006. The Aerial survey index of abundance, updated to include the 2006 survey. CCSBT-ESC/0609/16
- Farley, J.H., Proctor, C.H. and Davis, T.L.O. 2006. Update on the length and age distribution of SBT in the Indonesian longline catch on the spawning ground. CCSBT-ESC/0609/11
- Laslett G. 2001. Exploratory analysis of the SBT CPUE data using smoothing splines. CCSBT-SC/0103/06
- Preece, A., S. Cooper and J. Hartog. 2004. Data post-processing for input to the 2004 stock assessments and comparisons of 2001 and 2004 assessment datasets. CCSBT-ESC/0409/27
- Preece, A., T. Polacheck, D. Kolody, P. Eveson, D. Ricard, P. Jumppanen, J. Farley and T. Davis. 2001. Summary of the primary data inputs to CSIRO's 2001 stock assessment models. CCSBT-SC/0108/21

Appendix 1

Data and methods used to Create the Australian Joint Venture CPUE input file.

The Australian Joint Venture CPUE input file contains Catch, Effort (hooks), and age distribution of the catch (as numbers at age), aggregated by Year, Month and square. For the purposes of this document, a square is defined as a 5 degree by 5 degree square, and a stratum is defined as a year x month x square aggregation.

There are 3 sources of data used to create this file.

1. Australian Joint Venture logbook records from the Japanese vessels fishing under the Australian Joint Venture agreement. These records contain the Catch and Effort data. In addition there are size data for some fishing operations.
2. Australian Observer records from observers onboard Australian Joint Venture Vessels, from which we use all the available size data.
3. Japanese size data from Japanese fishing operations (as provided by Japan as part of the usual trilateral and CCSBT data exchange agreements).

The size data are used to create an age frequency for each stratum. The age frequency is raised so that the sum of the numbers at age equals the full joint venture catch in that stratum. Where possible, Australian Observer size data are used. For stratum with no observer size data, the Australian Joint Venture logbook size data are used. For stratum with neither Observer data nor Australian Joint venture logbook size data, the size data from the Japanese fishing fleet for those strata are used.

The data are aged using the methods described in Preece et al (2004) appendix 1. The Australian JV logbook and Australian Observer size data are aged using the 'Cohort Age' method. The Japanese size data are aged using the 'Proportional Age' method.

Appendix 2

Method for calculating the Nominal CPUE series

The input data are the 5x5xMonth CPUE input file that is exchanged each year through the CCSBT Data Exchange process.

The Nominal CPUE series is simply the sum of the annual catch divided by the sum of the annual effort, including all observations from months 4-9, and statistical areas 4-9 from each year. The series is for ages 4+.

Method for calculating the Laslett Core Area CPUE series.

Full details of the method can be found in Laslett (2001).

This series is based on a set of core areas, defined in 2001, of relatively consistent fishing. The input data are the 5x5xMonth CPUE input file that is exchanged each year through the CCSBT Data Exchange process. Using data from only the core areas, the analysis uses a spline model to derive annual CPUE abundance indices for the core areas.

The analysis is a two stage process. The first stage iterates through each year in the series, where variance is estimated for each year. The variances are collected for each year and prior to running the second stage, a functional form is found to smooth them. The second stage uses this functional form in order to specify the variance for each year.

To normalize the CPUE series, divide each of the yearly indices by the mean of the series.