



**Proposal for continued monitoring of southern bluefin tuna recruitment via scientific aerial survey of juveniles in the Great Australian Bight**

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## Abstract

Recruitment monitoring of juvenile SBT has been undertaken by Australia and Japan since the early 1990s through the bi-lateral recruitment monitoring program (RMP). The indices derived from the RMP are considered by the Scientific Committee as part of their annual assessment of the current status and trend in the SBT stock. This most recent season (2004-05) saw the resumption of the formal scientific aerial survey following its cessation in 2001. The results of the 2005 season research survey are presented in CCSBT-ESC/0509/22. In the current paper we present a proposal from Australia to continue the formal scientific aerial survey program for an additional three years to provide a consistent time-series of estimates of recruitment of SBT in the Great Australian Bight. Given the importance of the aerial survey for providing a quantitative index of juvenile abundance, particularly in light of possible low recruitment, consideration should be given to whether the aerial survey be given a higher priority and form a core part of the CCSBT Scientific Research Program.

## Introduction

Concern over the level recruitment of SBT in the late 1980s resulted in the development and implementation of methods to provide indices of annual recruitment strength under the bi-lateral Recruitment Monitoring Program between Australia and Japan. The main goal has been to develop a fishery-independent index of juvenile abundance. Much effort in the RMP has been directed at development of a juvenile SBT abundance index based on two approaches: a scientific aerial survey and an acoustic survey of juveniles.

Validation of survey assumptions has also been a major research focus, including archival tagging to study the surfacing behaviour of SBT (Cowling *et al.* 2003), and acoustic tracking projects to study the movement patterns of SBT in the area where the acoustic survey has taken place. Efforts are underway to improve the manner in which the RMP results (other than the conventional tagging data, which has since become a CCSBT tagging program) could be used in the analytical assessment process.

In 2004, Australia advised the Scientific Committee of CCSBT that they intended to re-instate the formal scientific aerial survey (CCSBT-ESC/0409/29). A survey was successfully completed between December 2004 and March 2005. The results of that survey are presented in CCSBT-ESC/0509/22 and demonstrate again that the aerial survey can provide a robust index of abundance for juvenile SBT in the GAB, as was the case for the earlier period (Cowling *et al.* 2000, Bravington 2001).

## Continuation of the Scientific Aerial Survey

Australia's support and execution of the most recent aerial survey has confirmed that the logistic and expertise issues that resulted in the cessation of the scientific aerial survey in 2001 can be overcome. In addition, and noting the importance of building a continuous time series of recent recruitments (in the context of recent low recruitments and the potential for auto-correlation in recruitment) to estimating the likely trajectory of the SBT stock in the medium term, Australia is proposing to contribute to supporting the continuation of the scientific survey. This support will take the form of funding and in-kind support for the field

operations, data management and analysis and reporting. Support from the SC as to the merits of continuing to build this times series would be welcomed.

## **Scientific Aerial Survey and the CCSBT SRP**

Given the importance of the aerial survey for providing a quantitative index of juvenile abundance, particularly in light of possible recent low recruitment, consideration should be given to whether the aerial survey be given a higher priority and form a core part of the CCSBT Scientific Research Program. Australia would welcome the views of the SC as to the merits of considering contributions from the SRP to the continuation of the survey and the issues that would need to be considered in the implementation of such an arrangement should it be considered valuable to pursue.

## **References**

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