Commission for the Conservation of
Southern Bluefin Tuna

みなみまぐろ保存委員会

CCSBT–SFM/1507/04

Budget Implications of the Extended Scientific Committee's Three Year Workplan

Purpose

To provide information on the implications of the Extended Scientific Committee's proposed three year workplan (3YP) on the Extended Commission's (EC) budget for 2016 through to 2018.

A proper understanding of the long term financial implications of adopting projects in the 3YP requires budget projections beyond 2018. However, this could not be done due to uncertainties in some of the costs beyond 2018 (such as gene tagging[1]).

This paper does not attempt to provide any information concerning the relative importance of different components of the 3YP. This is crucial information for decision making, but needs to be provided by the Extended Scientific Committee.

Background

The ESC recommended a three year workplan in 2014 (**Attachment A**) that, if adopted, will add significant costs to the EC's annual budget.

One of the 3YP projects, the Scientific Aerial Survey (SAS), is an expensive ongoing project (costed by Australia at $800,000 for 2015) that has previously been funded by Australia except for a $100,000 contribution by the CCSBT. Australia has advised that it cannot continue to operate its SAS without a major funding increase from the CCSBT.

The 3YP projects for 2015 were funded by the EC with the exception of the SAS. As a consequence, the SAS did not operate in 2015. However, the SAS provides an important source of recruitment information for the CCSBT's stock assessment operating model and it is an essential data input for the CCSBT's Management Procedure (MP). If the SAS is not conducted in 2016, the MP will not be able to be run for recommending a TAC for 2018 to 2020 inclusive.

Part of the 3YP is to develop a monitoring technique (gene tagging) that can provide absolute estimates of recruitment in the long term and at a lower cost than the SAS. Therefore, even though the cost of the 3YP is high, there is expected to be some cost reductions in the long term once gene tagging can replace the SAS.

The EC has a long standing preference of keeping fluctuations in the budget to within +/- 10% of the previous year. Unfortunately, full implementation of the 3YP will require larger than 10% increases. Nevertheless, precedence does exist for larger than 10% budgetary increases as a result of CCSBT science activities. This occurred for the CCSBT tagging project which ran from 2002 to 2007 inclusive.

[1] The Secretariat understands that gene tagging has been estimated to cost between $580,000 to $720,000 each year for an estimate of the absolute abundance of an age 2 cohort, but it is not yet known whether Gene Tagging would be required every year or only every second year etc.

Discussion

For the purposes of this paper, the Secretariat has assumed that the full costs of the 3YP is to be funded by the CCSBT. This has yet to be agreed by the EC. The Secretariat has also assumed that the funding contribution model for the 3YP will be in accordance with the contribution model for the annual budget as specified in Article 11(2) of the Convention. Assumptions used in preparing budget estimates are provided in **Attachment B**.

The Secretariat has examined options for minimising the financial impact on Members of conducting the SAS in 2016 and for implementing the 3YP beyond 2016.

In particular, we have focused on approaches to limit the budgetary increase for 2016 to the 10% maximum increase that CCSBT Members prefer. This has required two strategies:

- Deferring some elements of the 3YP as follows:
  - Deferring the "Pilot gene tagging project" and "Further locus development and validation" from 2016 to 2017. This deferral means that the "Pilot gene tagging project", which is a two year project, will continue into 2018.
  - Deferring the commencement of "Processing accumulated backlog of close-kin samples" from 2017 to 2018.
  - Defering the "Independent estimate of maturity schedule" from 2016 to 2018. This project has a small element that would also continue into 2019.
- Contributing a total of $500,000 to the budget for 2016 and 2017 from the Secretariat's accumulated bank savings.

Three scenarios for implementing the 3YP in relation to the SAS and gene tagging pilot (GTP) have been considered. These are shown in Table 1. One of these scenarios has included a reduced precision SAS which is understood by the Secretariat to cost about $570,000 annually. The suitability of a reduced precision SAS from a scientific perspective is still being considered.

Table 1: Scenarios for which budgets have been calculated (SASr refers to the reduced precision SAS).

Scenario	2016	2017	2018
(1) SAS, no GTP	SAS	SAS	SAS
(2) Full 3YP[2]	SAS	SAS, GTP	SAS, GTP
(3) Full 3YP[2] but with reduced SAS	SASr	SASr, GTP	SASr, GTP

Table 2 shows the percentage increase in Member contributions required each year from 2016 to 2018 for each of the 3 scenarios examined. This table also shows the effect on contributions if the European Union is admitted to the Extended Commission from 2016.

Table 2: Percentage increase in Member contributions for each scenario. The increases are relative to the previous year, not the current year. So, the 2016 increases are relative to 2015 contribution levels and the 2017 increases are relative to the estimated 2016 contribution levels etc.

Scenario	2016	2017	2018
Assuming current CCSBT Members only			
(1) SAS, no GTP	10.0	48.2	4.0
(2) Full 3YP[2]	10.0	61.4	3.6
(3) Full 3YP[2] but with reduced SAS	10.0	36.2	13.2
Assuming that the EU is admitted from the start of 2016			
(1) SAS, no GTP	10.0	37.4	7.2
(2) Full 3YP[2]	10.0	50.1	6.6
(3) Full 3YP[2] but with reduced SAS	10.0	25.9	17.1

[2] This uses the deferred start to some projects as mentioned in the text.

In all cases it was possible to keep the increase in contributions for 2016 to 10% by the combination of deferring some elements of the 3YP and withdrawing $500,000 from the Secretariat's savings. However, this was not possible for 2017, in which the contributions increase a further 25.9% to 61.4% over the 2016 levels depending on scenario and EU Membership. In addition, for 2018, there was also one scenario which had increases greater than 10% regardless of the EU's Membership status.

The pattern of increases from 2016 to 2017 and 2017 to 2018 for scenario "3" is noticeably different than the other two scenarios. This is because of the reduced cost of scenario "3" which mean that less of the Secretariat's savings was required in 2016 to keep the increases to 10%, which has left more of the $500,000 to offset the 2017 cost increases.

If the increased contributions listed in table 2 cannot be funded by Members, consideration could be given to other significant 3YP projects that have not been considered in the above scenarios. These include:

- Further locus development and validation (~$230,000). This has been included in all scenarios for 2017. Cancellation or deferment of this project would cut the increases for 2017 by between 11.0 and 11.5. For example, scenario 1 with current members only would be revised to an increase in 2017 of only 36.7% (down from 48.2% shown in Table 2).
- Process accumulated backlog of close-kin samples then conduct annual processing for long-term series (~$250,000/year for the first 6 years then reducing to ~$150,000/year). This has been included in all scenarios for 2018. Deferment of this project would cut the increases for 2018 by between 7.7 and 9.5. For example, scenario 1 with current members only would be revised to a decrease in 2018 of 4.4% (down from the 4.0% increase shown in Table 2).
- Independent estimate of maturity schedule (~$101,000 for 2018). Cancellation or deferment of this project would cut the increases for 2018 by between 3.1 and 3.8 depending on scenario. For example, scenario 1 with current members only would be revised to an increase in 2018 of only 0.6% (down from 4.0% shown in Table 2).

Members could also look for savings in other areas of the budget such as the number of meetings, quality assurance reviews, intersessional compliance work, assistance to developing states and support to the AD Model Builder Foundation. These costs are indicated in **Attachment B**.

Further advice from the Extended Scientific Committee is required before the budgetary implications of its research plan beyond 2018 can be considered. In particular, if gene tagging proves successful, a refined cost estimate would be required[1] together with information on when gene tagging could replace the SAS and whether gene tagging be required every year or every second year.

Prepared by the Secretariat

Attachment A

The ESC's three year workplan for meetings and projects to be funded by the CCSBT

(from Attachment E of CCSBT–EC/1410/06 – Draft 2015 Budget)

Cells are shaded according to how projects have been assumed to proceed in the calculations within this paper. Red is not proceeding; Green is proceeding according to the original 3YP; Orange is proceeding according to the 3YP, but delayed by 1 or 2 years; Blue is proceeding dependent on the particular scenario being considered.

		Costs and/or resources required for projects to be funded by CCSBT		
		2015	2016	2017
1	ESC Meeting	$206,700 (5 days)	~$260,000 (6 days)	~$260,000 (6 days)
2	OMMP Meeting	$0	~$50,000 (4 days)	~$50,000 (4 days)
4	CPUE Webinar	3,600	3,600	3,600
5	Routine OMMP Code Maintenance / Development	$6,500	$6,500	$6,500
6	Evaluation of possible changes in the OM structure	$22,700[1]	$0	$0
7	Continued close-kin sample collection[2]	$35,000	$35,000	$35,000
8	Scientific Aerial Survey[3]	Up to $800,000[4]	Up to $800,000[4]	Up to $800,000[4]
9	Aging Indonesian Otoliths[2]	$15,000[5]	$15,000	$15,000
10	Review of otolith sampling design & age estimation calibration	$0	$30,000[6]	$0
11	Design/feasibility study of gene tagging for providing absolute recruitment estimates[2]	$75,000	$0	$0
12	Pilot gene tagging project for providing absolute recruitment estimates[2]	$0	$265,000	$265,000
13	Preparatory work for expert review of which genotyping technique to use for further Close-Kin: preliminary calculation of numbers of loci needed in different techniques; lab- and desk-based investigtions of Dart genotyping results; preparation of report suitable for non-CCSBT [2]	$85,000	$0	$0
14	Further locus development and validation (conditional on 13 and an expert review workshop) [2]	$0	~$230,000	$0
15	Process accumulated backlog of close-kin samples (4-6 years), then conduct annual processing for long-term time series. (conditional on 13 and the expert review workshop) [2]	$0	$0	$250,000/year (~6 years to process back log), then $150,000/year for annual processing
16	Independent estimate of maturity schedule	$0	$1,000[7] + $70,000 for otolith preparation & reading[2] + $30,000 for 0.2 of histology reading biologist[2]	$15,000 for 0.1 experienced statistician[2]

[1] Two day technical workshop, immediately prior to ESC.
[2] This work would be conducted by CSIRO under contract to the CCSBT.
[3] This work would be conducted by the Australian Department of Agriculture and its sub-contractors under contract to the CCSBT.
[4] $800,000 is the total cost for this survey. CCSBT is currently contributing $100,000/year. Australia has paid the remaining amount but has requested full funding from CCSBT.
[5] If aging of Indonesian otoliths is not funded in 2015, this will add an additional $15,000 to this item for 2016.
[6] For a 3 day workshop at a free venue in Bali. Funds are for 2 interpreters, 1 invited expert and catering.
[7] For a 3 day workshop at a free venue in Bali. Funds are for catering only (there will be no interpretation).

Attachment B

Assumptions used in preparing budget forecasts

Unless otherwise stated, the budget forecasts for 2016 to 2018 are based on a combination of the current costs for 2015 and the costs of the 3YP (as specified in **Attachment A**) with the application of a 2.5% annual inflationary (CPI) increase. Exceptions include:

- The ESC, CC and EC/CCSBT meetings for 2016 have been based partially on quoted costs for these meetings;
- CPI increases have not been applied to tagging program coordination; assistance to developing States; and the genetic components of the 3YP (as it is assumed that genetic techniques should become more efficient with time).

The following table summarises the meetings and special projects that have been budgeted for the 2016-2018 period. This excludes the 3YP projects apart from ESC and OMMP meetings. The 3YP projects have been budgeted in accordance with the costs presented in **Attachment A** plus CPI unless described otherwise in the text of the paper, such as delaying some of those projects or implementing different scenarios examined in relation to the Scientific Aerial Survey and Pilot Gene Tagging projects.

	2016	2017	2018
Meetings			
Annual EC & CC	302,265	308,182	315,887
ESC	228,254	231,808	237,603
OMMP	50,000	51,250	52,531
ERSWG	0	107,794	0
SFMWG / CCWG	51,250	52,531	53,845
Special Projects			
AD Model Builder Support	12,700	13,028	13,353
Tagging program coordination	1,000	1,000	1,000
ERSWG Chair participation in joint bycatch WG	4,920	5,043	5,169
Assistance to developing States	12,500	12,500	12,500
QAR (2 QARs per year after 2017)	59,990	33,990	69,680
Intersessional Compliance work (consultant)	0	50,000	0
Secretariat Costs			
Staff costs, insurance, reports, travel, etc.	992,713	1,017,530	1,042,969
Office Management Costs			
Lease, operating, equipment, comm's & website	140,835	144,356	147,965

It should be noted that no funds have been "earmarked" for development of an electronic CDS in this three year tentative budget. However, an electronic CDS may be considered to be an important project to commence in around 2018.