Operational issues to be considered for MP selection

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Abstract: From eight years experiences of being involved SBT management using the current MP, we have learned about some operational issues of the MP. This document summarizes these issues to be considered when selecting CMP(s) in the ESC and recommending it(them) to the EC. The main point is the importance of future data availability of the GT and CKMR.

MP 選考で考慮すべき運用上の問題

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要旨：現行 MP を用いたミナミマグロ管理に関わってきた 8 年間の経験から、MP のいくつかの運用上の問題について学んできた。この文書では、ESC で CMP を選択するとき、およびそれ（それら）を EC へ推奨するときに検討すべきこれらの問題点をまとめる。主要なポイントは GT と CKMR の将来のデータ入手可能性の重要性である。

Introduction

Since 2011, the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) has used a management procedure (MP; called the "Bali procedure") to guide the setting of the global total allowable catch (TAC) for SBT. However, due to the cessation of the CCSBT scientific aerial survey (AS) after 2017 for both budgetary and logistic reasons, the CCSBT decided to develop a new MP which utilizes longline CPUE index, recruitment estimates (age 2 fish abundance) obtained from the gene-tagging project (GT) and/or spawning stock indices from the close-kin mark recapture project (CKMR) in place of the current MP by 2019 (CCSBT 2017). Various candidate MPs (CMPs) have been developed for the new MP in the CCSBT Extended Scientific Committee (ESC) (Butterworth et al. 2019, Hillary et al. 2019, Preece et al. 2019, Takahashi 2019) and CMP(s) selected by the ESC is to be recommended to the Extended Commission (EC) in 2019. From eight years experiences of being involved SBT management using the current MP, we have learned about some operational issues of the MP. This document summarizes these issues to be considered when selecting CMP(s) in the ESC and recommending it(them) to the EC.

Issues to be considered for MP selection and recommendation

・ When the current MP (Bali procedure) was adopted in 2011, no one expected a cessation of

the AS for budgetary and logistic reasons even though potential future budgetary and logistic issues could be anticipated at that time.   Similar things may be repeated in the GT and/or CKMR, both of which are subject to budgetary and logistical constraint.   Most of the CMPs being developed in the ESC (Butterworth et al. 2019, Hillary et al. 2019, Preece et al. 2019, Takahashi 2019) utilize data from the GT and CKMR in combination with longline CPUE which is not subject to budgetary concern.   Some CMPs utilize data exclusively from the GT and CKMR without using longline CPUE.   Cessation of either GT or CKMR would require development of another new MP in the future, which would consume a huge amount of time and resources of scientists and relevant stakeholders once again.   With this in mind, when recommending selected CMP(s) to the EC, it is important to remind the EC of the importance of a priori consideration about future requirements for budget and/or logistics to continue/maintain the GT and CKMR.

· SBT stock has started recovering and will increase further in the future.   The costs of the GT and CKMR will rise further as the SBT stock increases due to an increase of the sample size for releases and/or recaptures required to maintain a similar precision level (i.e., CV).   From the view point of managers, the need for prompt and accurate stock management will become less important as the SBT stock increases, and thus the firm intention to cost a great deal of budgets may disappear.   It should be better to suggest the EC that there is such a trade-off.

· While cessation of the GT or CKMR is an extreme situation, there may also be a possibility that survey(s) of either GT or CKMR fails for some reason(s) in some year(s) which results in a lack of some data points.   In fact, there was no AS in 2015 due to lack of agreement on funding arrangements in the EC.   When selecting CMP(s), it should be understood a priori how each CMP deals with the missing of the data (e.g., unable to calculate TAC, able to tolerate some missing data points) and it should be explained to the EC with recommendation for CMP(s). This can provide the EC with some basis for MP selection.

· When presenting CMP(s) to the EC for MP selection, it is important not only to illustrate behaviors of dynamics of TAC and SBT stock including trade-offs between catch and conservation risk, but also to explain (not by using equations, but verbally in plain words) how the CMP(s) utilizes data from longline CPUE, GT, and CKMR, how the CMP(s) calculates TAC from these data, and how each CMP is robust/vulnerable to future situational changes. This can also provide the EC with some basis for better informed MP selection with respect to the points described in the bullets above, taking fully into account the operational lessons from the past.

· With decrease of risk of stock collapse along with increase of the SBT stock, it would be sufficient to adopt a MP having moderate performances (also demanding lower costs for inputs data) in the future after the SBT stock reaches the point to be fully recovered.   For such an

MP with moderate performances, data from fishery independent research may be allowed to have larger variance and/or an index from a low-cost simple survey may be sufficient. Currently, fishery dependent data used in stock assessments and the current MP are highly dependent on Japanese longline CPUE. Fishery data from other sectors can be utilized for a future MP, recalling that some costs are necessary to collect information, to develop and maintain databases, and to ensure the data accuracy by inspection. The use of various sources of information can lead to more robust assessment and management for SBT stock. Understanding of characteristics of research surveys and fishery data, and, if needed, improvements of the surveys and data should be undertaken from now on to prepare for its future use.

References

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