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The bigeye tuna catch composition estimation of Taiwanese purse seine fishery

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Abstract

This information paper replies to a request of SC10 on describing the methodology used to estimate tuna species catches in Taiwanese aggregate purse-seine data provided to WCPFC. Actually, we have conducted estimations of the bigeye tuna catch based on the species composition of commercial data collected from fishing fleet since 1999, and this information has been included in the notes appended to the fishery data provided to WCPFC since 2008. In this information paper, we use the data from 2008 to 2014 as the case to illustrate the estimation of bigeye tuna catch composition of Taiwanese purse tuna fishery. The weight composition ratio of bigeye tuna accounting for the total weight of bigeye and yellowfin tuna ranges from 8% to 14.24% from 2008 to 2014.

Introduction

We have conducted the bigeye catch adjustment based on the sizing reports collected from canneries of Thailand, which provided by our purse seine fishing fleet, since 1999 for realizing the character of lower bigeye tuna catch reporting in logbook of purse seine fishing vessel. Since the observer data and port sampling data are not available, the sizing reports of canneries are only available independent data collected for revising bigeye tuna catch reported by fishing fleet.

Bigeye tuna catch estimation of Taiwanese purse seine fleet

Fig.1 shows the process of bigeye tuna catch composition estimation. The total catch is compiled from logbook data collected from individual purse seiner, the catch of skipjack is the aggregated amount of logbook data, and the catches of bigeye and yellowfin tuna are adjusted according to the composition estimated of sizing reports collected from canneries. The sizing reports has been filtered before compiling, retaining the sizing reports of Thailand canneries for about 80% catch of Taiwanese purse seine fishery sold to them, and excluding the ones with no bigeye tuna or small amount trading.

The composition ratio of bigeye tuna calculated form logbook data and sizing reports is shown in Table 1. It is observed (see Fig.2) that the ratio of logbook data ranges

from 2.83% to 10.61% and the ratio of revised data ranges from 8% to 14.26%.

Result and discussion

The bigeye tuna catch estimation of Taiwanese purse seine fishery, which uses the sizing data collected from canneries of Thailand, is the most informative statistics at this stage without observer data to verify the robustness. If the observer data is available, it will be very helpful to conduct comparison analysis on the accuracy of the bigeye tuna catch estimation.
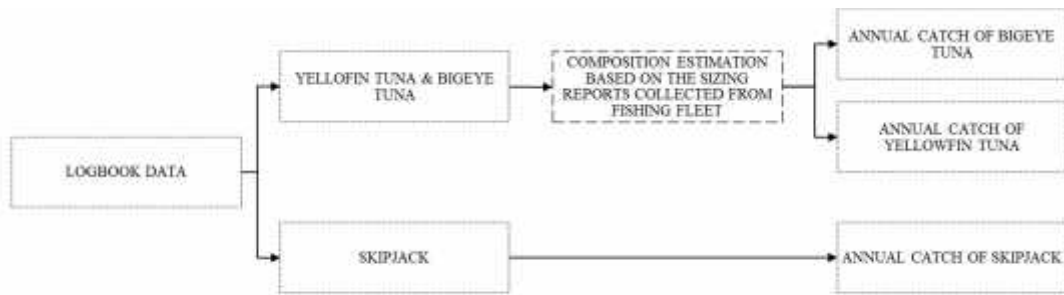
Fig 1. The flow chart of bigeye tuna catch estimation of Taiwanese purse seine fishery
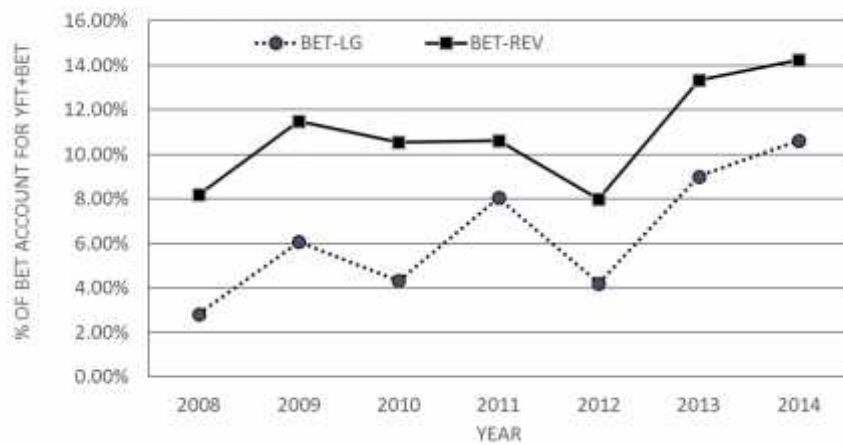

Fig.2 Comparison of BET catch accounting for BET+YFT of logbook data V.S revised data from 2008 to 2014

Table 1 Comparison of yellowfin tuna and bigeye tuna composition of logbook data
V.S revised data from 2008 to 2014

YEAR	LOGBOOK DATA		REVISED DATA	
	YFT	BET	YFT	BET
2008	97.17%	2.83%	91.80%	8.20%
2009	93.94%	6.06%	88.51%	11.49%
2010	95.67%	4.33%	89.47%	10.53%
2011	91.95%	8.05%	89.40%	10.60%
2012	95.80%	4.20%	92.00%	8.00%
2013	91.00%	9.00%	86.65%	13.35%
2014	89.39%	10.61%	85.76%	14.24%