Toward Improving Data Collection on Tuna Landings in Malaysia:

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Abstract

Fisheries data collection system undertaken by the Department of Fisheries Malaysia is one of the important program for the purpose of fisheries management. Currently the fisheries statistical data collection Section is under the Development and Planning Division in the DoF Headquarter. Recording of catch data for tuna is similar as other fish species, collected according the sampling program established by the Department of Fisheries. Major challenges faced in data collection program are limited number of ground staff and species identification. Implementation of mandatory submission of catch data by bigger vessels (above 70 GRT) is one of action taken by the Fisheries Department to get the quality landing data from the vessels' owners. Under the 11th Malaysian Plan, one of the project activity is to improve data collection on tuna landings from selected fishing ports (for both neritic and oceanic tuna). Apart from catch effort data collection, size data for major neritic tuna species and oceanic tuna are also collected. To further improve quality of tuna catch data, Department of Fisheries plans to implement observer onboard (OBB) for purse seine vessels fishing in the domestic waters. This will practically be implemented early 2017 after the chosen fisheries personals complete their 'Observer Onboard' training program. To tackle problem of species identification, DoF has conducted series of workshops on "Species Identification for Marine Fishes" for ground staff. Regional training program for staff working at sampling sites, are also being carried out by SEAFDEC for member countries under the SEAFDEC-Sweden Trust Fund specifically for neritic tuna fisheries.

Keywords: Data collection, Oceanic tuna, Neritic tuna, Length Frequency, Landing

Contents

1.0 Introduction

In geographical terms, Malaysian fisheries is divided into three; Peninsular Malaysia, Sabah and Sarawak. Peninsular Malaysia consists of two major fishing areas; the Strait of Malacca as part of Indian Ocean off the west coast of Peninsular and South China Sea in eastern coast, which together with Sarawak and Sabah. While Sabah fisheries include Sulu and Celebes Sea in the east coast Sabah. (Figure 1)

Figure 1: Malaysian fishing areas including the Straits of Malacca

Total estimate catch of marine fish from Malaysian waters in 2015 were 1.48 million mt, a slide increased compared to 1.45 million in 2014. The total landing in 2015 were attributed to the catch from 56,111 registered vessels with trawlers, purse seines, drift nets contributed large percentage of the catches. In 2015, marine fish production from the west coast of Peninsular Malaysia (Malacca Straits) contribute 759,744 mt (51.1%) out of the total catch. The remaining catches were from the South China Sea and Sulu Celebes Seas, east coast of Sabah. Coastal fisheries produced 91% (1,354,123 mt) and the rest from offshore fisheries.

In Malaysia, the Department of Fisheries Malaysia (DoF) is responsible agency for fisheries data collection. The fishery data collected consist of landing, value, fishing vessels, fishing effort and employment. Other relevant agencies that also involve in related fisheries data collection are, Marketing Authorities, Department of Customs and Statistical Department.

2.0 Data Collection System.

2.1 Design data collection and flow information

Each state in Malaysia was divided into fisheries administrative districts (Figure 2). Each fisheries administrative district was assigned at least one Fisheries Officer or Fisheries Assistant as a full time enumerator collecting mainly catch and effort data. Effort data collection was helped by licensing Fisheries Assistance who kept a 'Punch Card' System'. Where Licensing Fisheries Assistance records all licensing transaction such as issuance of new license for vessels, cancellation, renewal, change owner, state, gear-type etc. Frame surveys were conducted every two years for every state and this is fine tuned every month to include illegal fishing activities and exclude inactive vessels or fishing vessel that do not go out fishing for the month. The total number of vessel operating, information on active licensing and operating illegal vessel were than gathered. These figures will be the multiplying factors to estimate the total landings in the end.

Important to note, in the most cases the log book system is not used as the data collected by such method is highly unreliable except for high-seas vessel such as tuna longline vessel. However, there is alternative scheme in place known as the "Vessel Operation report (LOV)" which contains all the relevant information almost similar to content of the logbook. Difference of LOV from the convention logbook scheme is that, LOV forms filled out by Fisheries staff through interviews and observation basis. In principle, LOV data is more reliable than typical logbook data. Data from the LOV can be cross check with VMS data recording. Figure 3 show the flow chart on the LOV scheme.

Apart from marine capture fisheries data, Malaysian Fisheries Department is also planning to collect catch data from marine recreational fisheries activities. The catches from marine recreational fisheries contributed over a thousands metric tons annually but until now no proper recording is in place. From 2017, the recreational fishing activities need to get official permit from the DoF. They are required to record their catch and effort using log book. Confirmation of the catch data will be verify by fisheries officers to

ensure the validity of the data. In future, the recreational data will be used also as a source of catch data.

Raw catch and effort data collected from various landing sites are recorded in the computer system at the State Office and these data are then send to the main database server in Fisheries Headquarters in Putrajaya. Recently the system has been upgraded where the data are keyed in from the district office computer system with direct network to the database server in the State office via a Wide-Area network. Data from the state database are then forwarded to the main server in Putrajaya also through the leased line. DoF Headquaters in Putrajaya uses a RISK UNIX based machine with Oracle data Base management System. Data processing is basically done using fixed application program to convert the data to structure report. The final product is the Annual Fisheries Statistical Bulletin. (Figure 4)

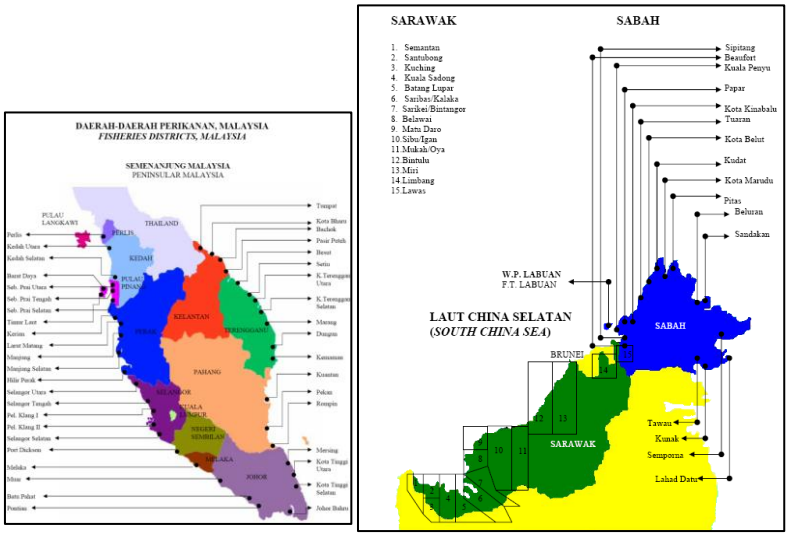

Figure 2 . Fisheries administrative district in Malaysia

Flow Chart LOV

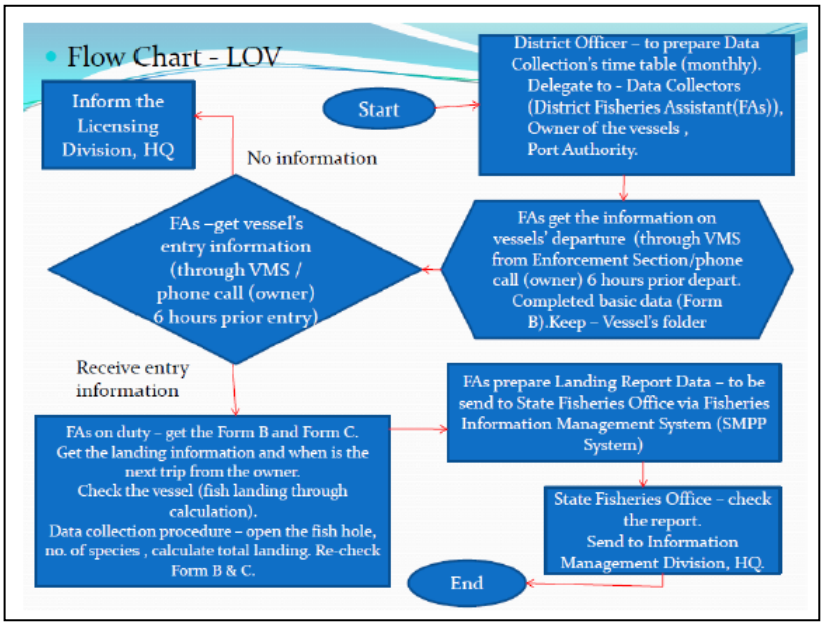

Figure 3: Flow chart concerning the Vessel Operating Report (LOV) scheme.

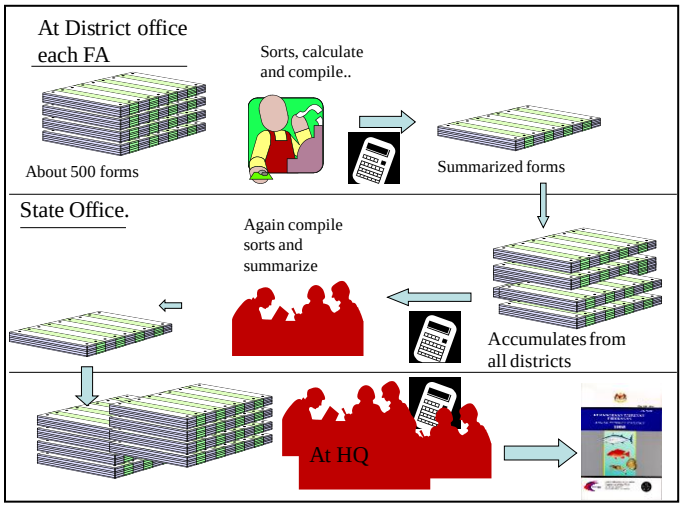

Figure 4: Schematic illustration of processing fisheries data from district level to publish in Annual Fisheries Statistical book.

2.2 Additional data

For the research purposes, Fisheries Research Institute (FRI) also engage in catch and effort and biological data collection activities in selected areas. These activities are carried out as part of the research projects. The activities mostly depending on the specific funding with limited time and it difficult to sustain long term monitoring of for example the state of resources. Recently, Fisheries Research Institute conducted the resources survey in the EEZ by using the MV SEAFDEC 2 belong SEAFDEC Training Department. These survey were conducted in Malaysian water funding by Economic Plan Unit (2013-2015).

Under the 11th Malaysia Plan (2016-2020), the Department of Fisheries has provided an allocation for conducting and improving data collection on tuna landing (neritic and oceanic tuna) from selected fishing ports. One of the study site is Kuala Perlis which is one of the important fishing port for large purse seines operating the major fishing areas in the northwest of Peninsular Malaysia. Two enumerators were stationed at the Kuala Perlis fishing port to record daily catch effort data including size data of neritic tuna species such as kawakawa, longtail and frigate tuna.

To further improve quality of tuna catch data, Department of Fisheries plans to implement observer onboard (OBB) for purse seine vessels fishing in the domestic waters. This will practically be implemented early 2017 after the chosen fisheries personals complete their 'Observer Onboard' training program. In the early stages, the fisheries department has done translate of observer onboard program manual adopted by IOTC as a guide to the observer who will be trained.

3.0 The constraints and improving data information quality

3.1 Constrains

i. Lack of awareness on the importance of catch data information for fisheries management by field staff.

ii. Low priority given to this activity,

iii. Most of the newly appointed enumerators for data collection duty lack of capability on identification of fish species

iv. Lack of cooperation of fishermen to provide fishery information

3.2 Plans and actions to improve information

i. Awareness program to be regularly conducted at all levels.
ii. Domestic and regional training for field staff and fisheries officers in charge on species identification of species.
iii. To conduct a regular meetings with state fisheries to increase awareness and to get full support on data collection activities
iv. To make in mandatory for all owners of the fishing to provided catch and effort data and other relevant information to the Fisheries Office.

4.0 Reporting

The main output is the Annual fisheries Statistical bulletin for public use and as a important source of information in implementing fisheries management. Currently, this annual report is produced in digital format and department homepage display the summarize of fisheries statistic.

5.0 Conclusions

There is some improvement on understanding the importance of quality fisheries data collection system toward efficient management of marine fisheries. Some efforts have be in place to tackle the problem of less reliable data recording by the current system. Technical awareness input from ongoing capacity building programs conducted by various regional fisheries bodies including IOTC will expedite improvement of future data collection program.

6.0 References

Anon. 2010. Annual Fisheries Statistic, Department of Fisheries, Malaysia

Nor Aisyah A.B 2010. NATIONAL INITIATIVES CONCERNING TUNA INFORMATION COLLECTION / REPORTING. Department of Fisheries Malaysia. Unpublished.

Nor Aisyah.A.B. 2009. LESSON LEARNED IN IMPLEMENTING FISHING LOGBOOK AND/OR OBSERVER PROGRAM. Department of Fisheries Malaysia. Unpublished

Teo S.W. 2000. Malaysia Fisheries Statistic. Department of Fisheries Malaysia. Malaysian Technical Cooperation Program. Unpublished.