Improvement on the implementation of the new Malaysia e-Logbook for tuna Fisheries in Indian Ocean.

Sallehudin, J[1], Noor Hanis A.H[1], and Tengku Balkis T. S[2]. Nor_Azlin, M.[2]

[1]Capture Fisheries Division FRI Kg Acheh 3200, Sitiawan Perak, MALAYSIA
[2]Captured Fisheries and Licensing Division, Department of Fisheries, MALAYSIA

Abstract

As the need for conservation of the national marine resources increases, the need for more and better-quality data on how these resources are utilized also increases. One of the most crucial data is the data for catch per unit effort. To meet these needs, Department of Fisheries Malaysia (DOFM) will be implementing e-logbook programmes starting year 2020 and these programs were initiated for deep sea and tuna fisheries. Fishermen are required to report the numbers of each species caught, the numbers of animals retained or discarded alive or discarded dead (longline gear is non-selective and unwanted or prohibited species such as, billfishes, sea turtles, etc., must be returned to the water), the location of the set, the types and size of gear, and the duration of the set. Previously all of those data were recorded in the manual logbook form provided by DOFM. Starting year 2020, a system called e-logbook will be implement and all recorded data will be updated in the online system. This include data recording by vessel's captain, reporting and monitoring of data by vessels owner, Fisheries Development Authority of Malaysia (LKIM) and Department of Fisheries (DOFM). All those data that will be recorded using the new e-logbook comply to the IOTC requirement and regulation.

1.0 Introduction

In geographical terms, Malaysian fisheries is divided into three regions; 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)

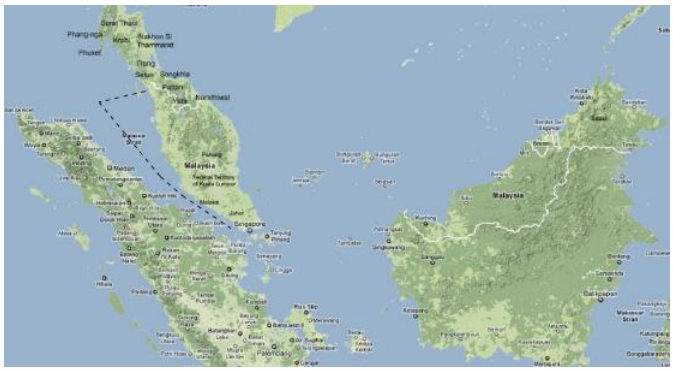

Figure 1: Malaysian fishing areas including the Straits of Malacca

1.1 Fisheries Sector Overview

Basically, the fisheries sector has three main subsectors, namely marine capture fisheries, aquaculture, and inland fisheries. The fisheries sector is an important sub-sector in Malaysia and plays a significant role towards the national economy. The fisheries sector contributed 1.07- 1.73% to GDP with more than 85% come from marine capture, and it provides employment for more than 79 000 fishermen and 20 000 fish farmers. Apart from contributing to the national Gross Domestic Product (GDP), it is also a source of employment, foreign exchange and a main and cheap source of protein supply, especially for the rural population in the country. Fish constitutes 60-70% of the national animal protein intake, with per caput consumption of 47.8 kg per year. The rate of demand for fish as the main source of protein is expected to increase from the current annual consumption of 630 000 tonne to over 1 579 800 tonne by 2020 (using an estimated population of 26 330 000 with a per caput consumption of 60 kg/year).

Total estimate catches of marine fish from Malaysian waters in 2018 were 1.45 million mt, a slide increased 1% compared to 1.46 million in 2017. The total landing in 2018 were attributed to the catch from 52,556 registered vessels with trawlers, purse seines, drift nets contributed large percentage of the catches. In 2018, marine fish production from

the west coast of Peninsular Malaysia (Malacca Straits) contribute 787,738 mt, which account for 54.3% 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 76% (1,195,359 mt) and the rest were from offshore fisheries.

It is generally well accepted that the coastal fishery resources have been fully exploited. There is possibly some extent of overfishing. Over the years, the DOFM has tried various measures in an attempt to reduce the coastal fishing effort.

Data Collection System.

2.1 Fisheries Statistics Data

The DOFM is responsible for the collection of national fisheries statistics. Administratively, the DOFM has set up offices at district and state levels in the country. District offices are responsible for collecting data of marine capture fisheries, aquaculture and inland capture fisheries. Each district office reports to the state office who then compile and submit to the headquarters where the data are processed and published in the Annual Fisheries Statistics (Volume 1) and uploaded in the DOFM website (www.dof.gov.my). These statistical data can be utilized to determine the status and trend of the fisheries. Furthermore, the information will be used to plan and create new policies and planning strategies for the development of the country's fisheries industry.

2 Tuna Landing sites

For the purpose of collection of marine fishes landing statistics, the DOFM divides the coastal belts into fisheries districts. There are 41 fisheries districts on the West Coast of Peninsular Malaysia, 18 on the East Coast, 15 in Sarawak and 12 in Sabah, giving a total of 68 fisheries districts. Landings data are gathered from all these districts, but the details are left out in the compilation of the Annual Fisheries Statistic published annually by the DOFM. Within each fisheries district, there can be several landing sites, so there are

hundreds of landing sites throughout the country. Information on the quantity of fish landed at each of these landing sites is not available.

Tuna catches by Malaysian flag tuna vessels operating in Indian Ocean were landed at the port of Penang. Designated Tuna Port at Dermaga Dalam, Butterworth, Penang was opened to the tuna vessels starting in 2016. Since the opening of the Penang Port as a hub of tuna landing, port inspection of tuna vessel, catch landings and sampling of tuna measurements was performed by the Port Inspector (staffs) of DOFM.

Total catch and effort data collected from various tuna vessels are recorded in the computer system at the State Office and these data are then sent 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. DOFM Headquarters 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.

E-logbook Programme

This e-logbook programme comprises of two part which is the mobile application of e-logbook and e-logbook controlling module. The first part which is the mobile application will be used by vessels captain, whereas e-logbook controlling module will be used by vessels owner, Fisheries Development Authority of Malaysia (LKIM) and Department of Fisheries (DOFM) authorities for data monitoring purpose.

E-LOGBOOK MOBILE APPLICATION

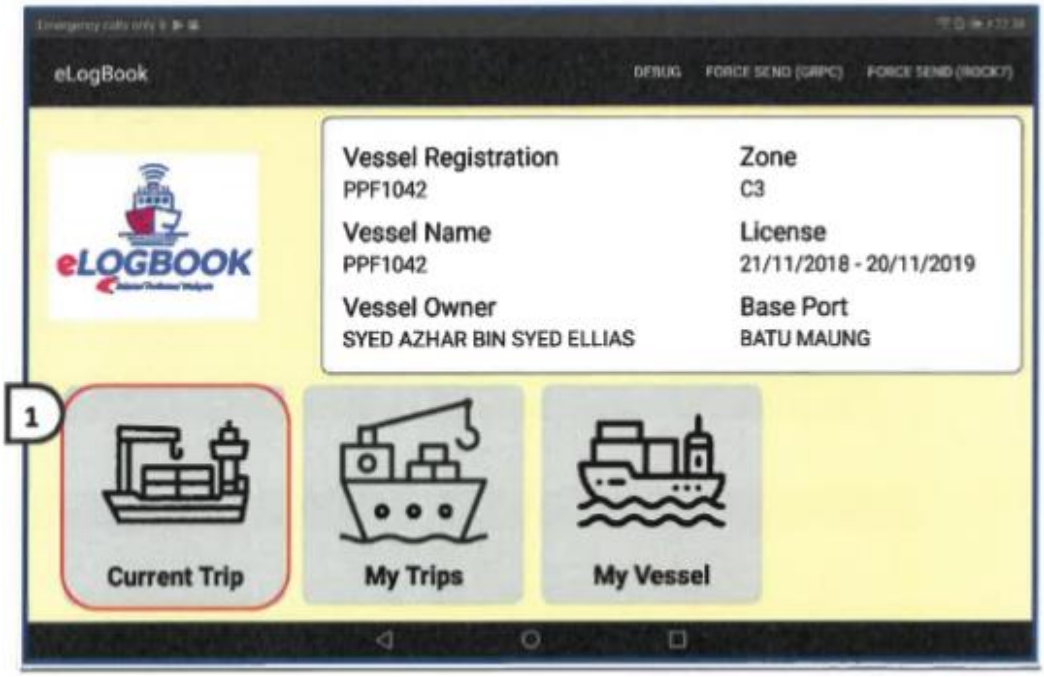

Figure 2: show the interface of e-logbook mobile application.

This mobile application consists of 8 data recording sections; Add new trip, add catch, add sample catch*, search fish, add processed fish*, add release fish* submit ETA and arrival. (*applicable to C3 vessel's captain)

i. ADD NEW TRIP – New trip registration by captain must be done before starting fishing operation and before sailing. Data recorded include quantity of resources on board and vessels crew profile.

ii, ADD CATCH, ADD SAMPLE CATCH* – Users can record fish catch according to catch location. This will ensure real time data recording of fish catch location. Weight and quantity of catch will be recorded, and every 0.8 tonne of fish catch, one fish will be sampled for length measurement.

iii. SEARCH FISH – Users can search fish library based on picture samples, name of fish or type of gear.

iv. ADD PROCESSED FISH* – For fishing activity of C3 vessels, captain need to state the type of fish storage based on listed categories. (i.e. whole/headed/gutted/processed)

v. ADD RELEASE FISH* – This function allow user to record any fish released after catch, either dead or alive.

vi. SUBMIT ETA – Before going back to port, captain must report on estimated time and date of arrival.

vii. ARRIVAL - Captain need to record information on arriving at port for the system to estimate the expense of fuel and others.

2. E-LOGBOOK CONTROLLING MANUAL

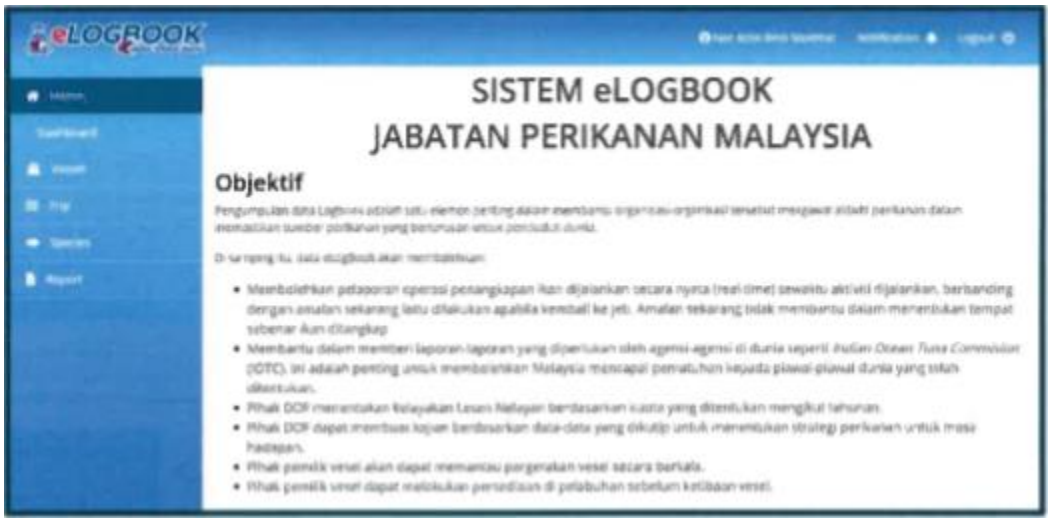

Figure 3: show the display menu of e-logbook controlling manual.

Registered users will be using the e-logbook system to monitor and check the information recorded; task list, vessel information, trip information and fish species information. Display menu on the system will be based on role of users determined by admin. After approval by vessel owner on catch information, Department of Fisheries authorities will be signed to check the vessel list registered in the system. Authorities can monitor all the vessels registered under the e-License either it is still active or inactive. Further details

on each vessel can also be viewed under the system such as type of gear, fishing operation history, retrieve Landing of Vessels (LOV) form information, trip details, crew information and logbook for each vessel.

E-logbook comprise of easier way to record weight and number of catch for each operation. Vessel's captain need to choose the species using pictures or can search the species using the species codes (YFT,BET,ALB). All records of catch and operation by the vessel's captain from the e-logbook mobile application will be sent using satellite and will be approved by the vessel's owner by using e-logbook controlling module. All reports of e-logbook can be exported into excell and pdf version for record purposed.

Conclusions

The DOFM is always working to improve our data collecting process by the implementation of e-logbook to meet IOTC compliance. Data collection through e-logbook seems to have positive impact in the data collection process especially more precise data collection of tuna length frequency data. Data on the fish catch location can be recorded in real-time event and weight and length of fish landed will be directly recorded.