Size of Pacific bluefin tuna catches in the Eastern Pacific by Mexican purse seiners, estimated from Catch Document System (CDS)

K. Oshima, P. M. Miyake, and Y. Takeuchi
National Research Institute of Far Seas Fisheries
5-7-1 Orido, Shimizu, Shizuoka, 424-8633, Japan

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Summary

Catch document system has been in effect by ICCAT for all bluefin tunas (Pacific and Atlantic), since 2008. All the bluefin tuna caught are immediately registered and traced with serial number throughout the move of fish. The documents include information on catch in number of fish and weight. Such information are gathered from the catch documents attached to bluefin imported to Japan from Mexico and average size frequencies are presented in this paper.

There are some reservations in interpreting the results but it gives some good indications on size of the majority of fish caught by the Mexican purse seiners in recent years. It appears that the majority of catches by this fishery is consisted of ages 1 and 2 fish in most recent years.

1. Catch document system (CDS)

International Commission for the Conservation of Atlantic Tunas (ICCAT) adopted Statistical Document System (SDS) since 1997 in order to monitor all trade flows of bluefin tunas (both Pacific and Atlantic) (http://www.iccat.int/en/RecsRegsresults.asp?cajaYear=checkbox&cajaKey=checkbox&selectType=Rec&cajaGroup=checkbox&cajaAct=checkbox&selectidioma=en&textidioma=Statistical+Document&Submit=Search)

This system requested all the importing countries of bluefin tuna to permit bluefin tuna products, only if they are accompanied with SDS certified with official seals of exporting country authorities.

This system was useful to identify the amount of trade of Illegal, Unreported and Unregulated (IUU) catches but did not cover the fish sold to the market which are not enforcing the system. Accordingly the ICCAT expanded SDS to the Catch Document System (CDS), where all the catches have to be registered immediately upon the capture with flag country government. At the same time, more information is required, such as catch in weight and number of fish, which were not available in SDS. Upon the registration of catches, the fish are given serial numbers.

Whenever the fish are subject of any transactions (e.g. being landed, transferred to farming pens, harvested, exported, imported) they must accompany the serial numbers of the CDS. This system became into effect in 2008 to all the ICCAT contracting and cooperating parties (MMCs). Therefore any ICCAT MMCs have to implement this system for their catches, farming products, exports and imports.

2. Data used and processing

Japan import very important part of Mexican catches (wild and farmed). Therefore, all the fish imported to Japan are accompanied with catch documents which have been available.

CDS is applied in various ways depending on the catches. For example, longline catches are individually registered and a serial number is given per fish, while purse seine catches are generally registered per set. Therefore weights of individual fish are

available for longline catch but not for the purse seine caught fish. Instead, average weight of fish is available per set (or day/vessel) for purse seine fishery.

Fish caught in one set have been often imported to Japan in several lots (particularly when farmed). Therefore, CDSs are repeatedly received for each lot. Those were identified with the name of vessels and date of capture and with serial numbers and were eliminated. Then total weight was divided by the total number of fish in the catch to obtain the average weight of fish per set.

Those fish are classified by mean weight classes of 1 kg intervals. The results are shown in Figure 1.

3. Discussions and potential problems

1. The CDSs which Japan had obtained covers only fish imported. Therefore, they only represent a part of the total catch and there could be a bias. Majority of farmed tuna is exported to Japan. Table 1 gives the amount of fish covered with these CDSs compared with the total PBF catches reported by Mexico. Also the coverage rates are included in the table. Although the coverage is substantial, there could be some systematic bias. Generally it is known that larger wild fish are exported to Japan. Therefore, if there is any bias, it is expected that the size is over-estimated and real size of fish captured are smaller than given here.
2. The registrations are based on the radio reports from captains. The governments are requested to check the accuracy of these catch figures at the time of landings by actual weighing. When the fish are entered into pens, this would be difficult but the harvested fish have to be sold at the market and there is a possibility to check the accuracy of catch information. Nonetheless, the procedures of checking the accuracy of catch information are very complicated, since growth of fish and mortality during the farming are not very well known and not all the fish in the same lot of catch are sold at the same country.
3. Frequencies given in this paper is not real frequencies but the mean weight frequencies. Naturally real fish are distributed near the mean weight and hence the real distributions would be more widely spread. However, it is hard to believe that the spread is very wide; particularly each record involves fish caught in one purse seine vessel per boat.
4. Unfortunately the statistical documents which were applied in years 1997 through 2008 did not contain information for size of fish but only total weight. Therefore, they cannot be used for this purpose. Therefore the period covered by this paper is only for 2008 through 2011. The documents include much more information on farming and trade and they might be indicative of fish involved. However, at this time, no further complicated analyses were made.

4. Conclusions

This paper does not include real size samplings but give some good indications on size of the majority of fish caught by the Mexican purse seiners in recent years. From the information given in this paper, it appears that the majority of catches by this fishery is consisted of ages 1 and 2 fish.

Table 1. Total weight of fish covered by this paper vs. total reported catch.

	2008	2009	2010	2011
Weight covered by this paper	3,948	1,778	3,113	1,352
Reported annual catches	4,392	3,019	7,745	2,730
Coverage rate	90%	59%	40%	50%

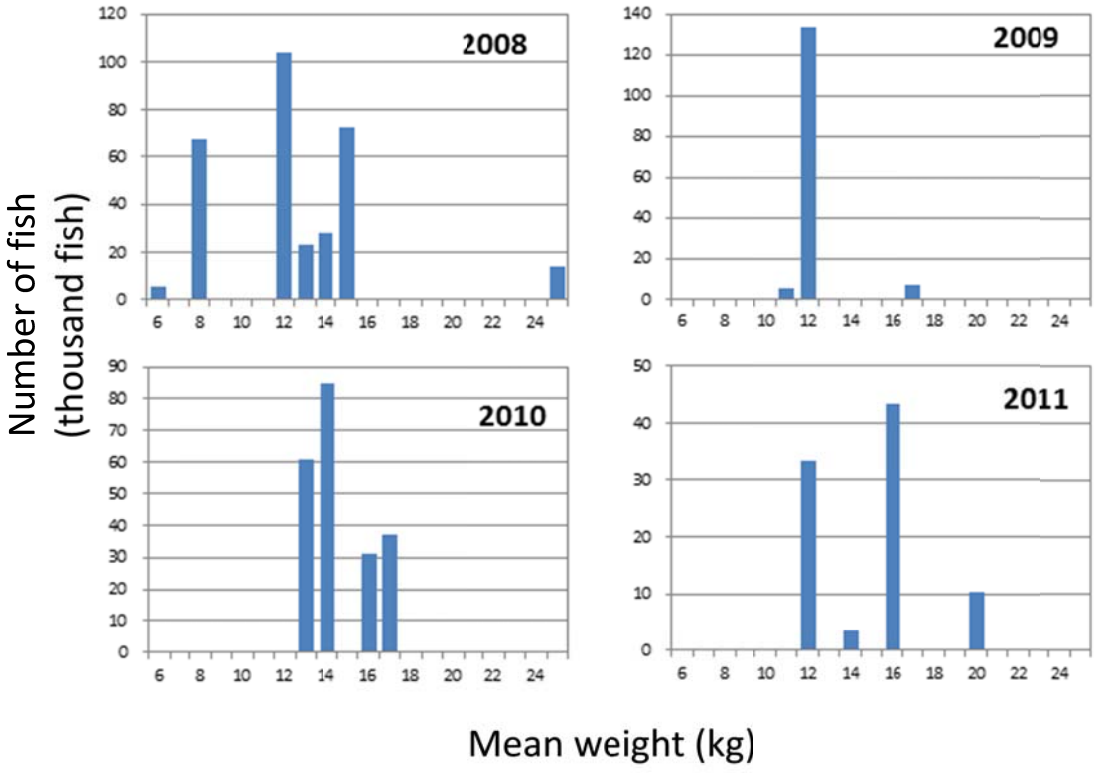

Figure 1. Number of fish with average size classes (in kg) caught by Mexican purse seine fishery.