SCRS/2015/060 Collect. Vol. Sci. Pap. ICCAT, 72(1): 184-189 (2016)

BIGEYE (*THUNNUS OBESUS*) BY-CATCH ESTIMATES FROM THE ALBACORE SPANISH SURFACE FISHERY IN THE NORTH EAST ATLANTIC, 2014

V. Ortiz de Zárate[1] and B. Perez[1]

SUMMARY

*Data on by-catch of bigeye tuna (*Thunnus obesus*) landed by the Spanish surface fleets, both troll and baitboats, targeting albacore (*Thunnus alalunga*) in the Cantabrian Sea and North eastern Atlantic fishing grounds are presented. Monthly catch statistics and samples on length distribution have been collected in the main fishing ports along the north Spanish coast during the summer season fishery for the year of 2014. Based on the monitoring of the albacore fishing activity estimates of Task I and Task II-size data from catch were obtained and are presented.*

RÉSUMÉ

*Le présent document fait état des données de prises accessoires de thon obèse (*Thunnus obesus*) débarquées par les flottilles espagnoles de surface (ligneurs et canneurs), qui ciblent de germon (*Thunnus alalunga*) dans les zones de pêche de la mer de Cantabrie et de l'Atlantique Nord-Est. Les statistiques de capture mensuelles et les échantillons sur la distribution des tailles ont été recueillis dans les principaux ports de pêche le long de la côte espagnole septentrionale au cours de la saison de pêche estivale au titre d´ année 2014. Sur la base du suivi de l'activité de pêche du germon, les estimations des données de la Tâche I et de la Tâche II –longeur du captures ont été obtenues et sont présentées.*

RESUMEN

*Se presentan datos sobre captura fortuita de patudo (*Thunnus obesus*) desembarcada por las flotas de superficie españolas, tanto de curricaneros como de buques de cebo vivo, que se dirigen al atún blanco (*Thunnus alalunga*) en los caladeros del Cantábrico y del Atlántico nororiental. Las estadísticas de captura mensuales y las muestras de distribución de tallas se han recopilado en los principales puertos pesqueros a lo largo de la costa septentrional española durante la pesquería de la temporada de verano para el año 2014. Basándose en el seguimiento de la actividad pesquera dirigida al atún blanco se obtuvieron y se presentan las estimaciones de los datos de Tarea I y Tarea II de tallas de las capturas.*

KEYWORDS

Albacore surface fishery, Size composition,
Bigeye tuna by-catch, North Eastern Atlantic, Thunnus obesus

[1] Instituto Español de Oceanografía. Apdo. 240. 39080 Santander. Spain. victoria.zarate@st.ieo.es

1. Introduction

The Spanish albacore fishery develops during summer months in the Cantabrian Sea and adjacent waters of Northeastern Atlantic. Two fleets target albacore in this area: trollers and baitboats. The activity of these fleets is being monitored in the main landing fishing ports where information on trips is recorded and length measurement samples of the landed fish are collected. During 2014 fishing season, of 23 fishing ports reported in an uneven way some landings of bigeye along the northern coast of Spain which were monitored as a by-catch species of the targeted albacore fishery during summer and autumn seasons in the Cantabrian Sea (Ortiz de Zárate *et al*., 2015).

The time series of annual nominal catch by fleet and the size distribution for the bigeye by-catch landed by the above mentioned fleets had been monitored for last years (Ortiz de Zárate *et al*., 2011). During 2014 albacore fishing season, incidental catch information on bigeye was recorded. Data observed were processed according to Task I and Task II (biological information) statistical requirements of ICCAT (ICCAT, 2006- 2009).

The aim of this paper is to present an overall description of the characteristics of the bigeye incidental catch obtained by the Spanish albacore surface fishery in 2014. The main statistics collected from the monitoring of the fishery, were monthly nominal catch by gear and monthly length samples collected. Likewise the spatial distribution of incidental bigeye catch was recorded. Moreover, a brief description of the evolution of bigeye nominal catch and the geographical distribution of the observed location of trips.

2. Material and Methods

The monitoring of the Spanish bait boat and troll fleets activity in 2014 was done by means of collecting information through interviews to skippers at main fishing ports located along North western coast and the Cantabrian coast. The information, based on individual trip samples by fleet, that was collected included: number of days at sea, number of fishing days, catch in number of fish and weight (kg) and an approximate location of catch by 1ºx1º degrees latitude and longitude, recording at least one position per trip.

Smaller number of trips was also sampled to obtain the length frequency of the catch by applying random sampling stratified according to commercial categories of catches landed in the main fishing markets which were monitored. The following information was recorded: date of landing, gear, number of days at sea, number of fishing days, number of lines, approximation of the fishing area in 1º x 1º degree, catch in number, catch in weight (kg) and fish length. In this manner, the incidental catch of bigeye was monitored, as well. When a specimen of bigeye was landed, fish were measured to the fork length (FL) and to the nearest centimeter and the weight (kg) was recorded.

The catch, were processed by gear on monthly basis following raising procedures to estimate the Task I and the length frequency of samples named Task II (biological information) statistics of ICCAT (ICCAT, 2006-2010). Thus, the monthly nominal catch distribution by gear was estimated in 2014 fishing season.

Based on the monitoring of fleets activity, position of trips was allocated to a 1º x 1º latitude and longitude square in 2014. Additionally, the monthly percentage of catch in weight by gear was calculated to describe the temporal evolution of bigeye catch according to the fleets fishing activity in 2014.

When the catch by trip was not recorded, the length-weight relationship (Parks *et al.* 1981) was used to estimate the weight of the length sample.

3. Results and Discussion

The annual catch in weight (kg) by fleet was processed for the 2014 fishing season and was represented in **Table 1**. A total of 251.1 t (Task I) was obtained by the two fleets aggregated. The monthly distribution by fleet is also included. It shows that the largest catch was obtained in September, and the majority of catch (96%) was taken by the baitboat fleet. The higher catches for the troll fleet were recorded in September and October.

The locations of trips with by-catch of bigeye monitored in 2014 fishing season are shown in **Figure 1.** Bigeye was caught both in the Bay of Biscay area and in the eastern Atlantic waters. Particularly, a dense concentration area (43º-45º N/ 8º-10º W) was encountered in the offshore waters of Galician coast in the North western peninsula coast.

The length distribution of samples catch (Task II-size) was obtained by month and gear. A total of 523 fish were measured in the troll fleet landings and a total of 946 in the case of the bait boat fleet. A monthly distribution by gear is shown in **Figure 2**. Clear modes can be observed in September and October, when more bigeye fish were measured.

Within the period of last 5 years, the catch recorded in 2014 represents the highest amount , followed by 2011, when similar bigeye catch was registered (**Figure 3**). As overall, can be inferred that bigeye incidental catch varies between years independently of albacore fishing effort (Ortiz de Zárate *et al.*, 2015).

In comparison with previous fishing seasons, the bigeye length distribution of samples corresponds well with the length distribution recorded for years 2010 to 2013 aggregated. As shown in **Figure 4**, the shape of length distribution for the period from 2010 to 2013, shows similarity with the length distribution obtained in 2014 (**Figure 2**).

The geographical distribution of the bait boat and troll vessels taking incidental bigeye catches, changes between years. In **Figure 5**, was included the annual spatial distribution of trips that were sampled related to bigeye presence, from 2010 to 2013. Each year represents a different pattern. Some years (2011, 2013) a higher concentration was observed in the Bay of Biscay area, while distribution in the off shore waters of Eastern Atlantic varies in latitude distance. In this regard, the 2014 fishing season represented the highest latitude range in the Eastern Atlantic waters (**Figure 1)**.

Aknowledgements

The authors would like to thank all the network sampling staff involved in the collection of fisheries data at main fishing ports in Galicia and Cantabrian coast. The work related to this document was partly supported by the IEO project PNDB 2014 funded by DG MARE of European Union.

References

ICCAT. 2006-2009. *ICCAT Manual. International Commission for the Conservation of Atlantic Tuna. In: ICCAT Publications* [on-line]. Updated 2009. [Cited 01/27/]. ISBN (Electronic Edition): 978-92-990055-0-7

Ortiz de Zárate, V., B. Perez and M. Ruiz.2011**.**Bigeye (*Thunnus obesus*) bycatch estimates from the albacore Spanish surface fishery in the north east Atlantic, from 2007 to 2009. Collect. Vol. Sci. Pap. ICCAT, 66(1):285-292.

Ortiz de Zárate, V., B. Perez and M. Ruiz. 2015**.** Statistics from the Spanish albacore (Thunnus alalunga) surface fishery in the North eastern Atlantic; years: 2012-2013. Collect. Vol. Sci. Pap. ICCAT, *in press.*

Parks, W. F., X. Bard, P. Cayre, S. Kume, A. Santos Guerra. 1982. Length-Weight relations for bigeye tuna captured in the Eastern Atlantic Ocean. Vol. Sci. Pap. ICCAT, 17 (1): 214-225.

Table 1. Nominal catch of bigeye taken by albacore surface fleets in 2014.

	May	*Jun*	*Jul*	*Ago*	*Sep*	*Oct*	*Nov*	*2014*
% Sampling	0	73	70	64	99	93	93	
% by gear TR	100	100	100	88	4	75	100	
% by gear BB		0	0	12	96	25	0	
Catch TR (kg)	394	2087	510	1388	9402	9162	1577	24518
Catch BB (kg)		0	0	187	223272	3129	0	226589
Total Catch (kg)	394	2087	510	1575	232674	12291	1577	251107

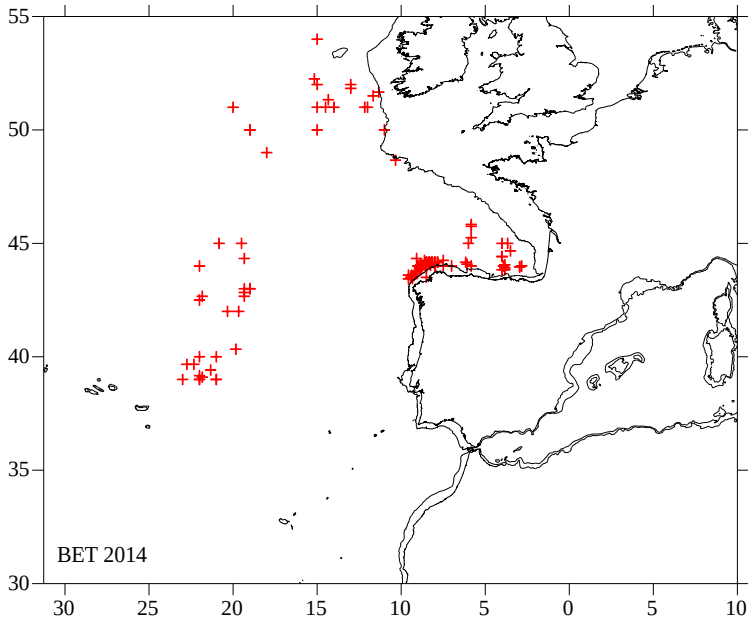

Figure 1. Spatial distribution of bigeye catches taken by surface fleets in 2014.

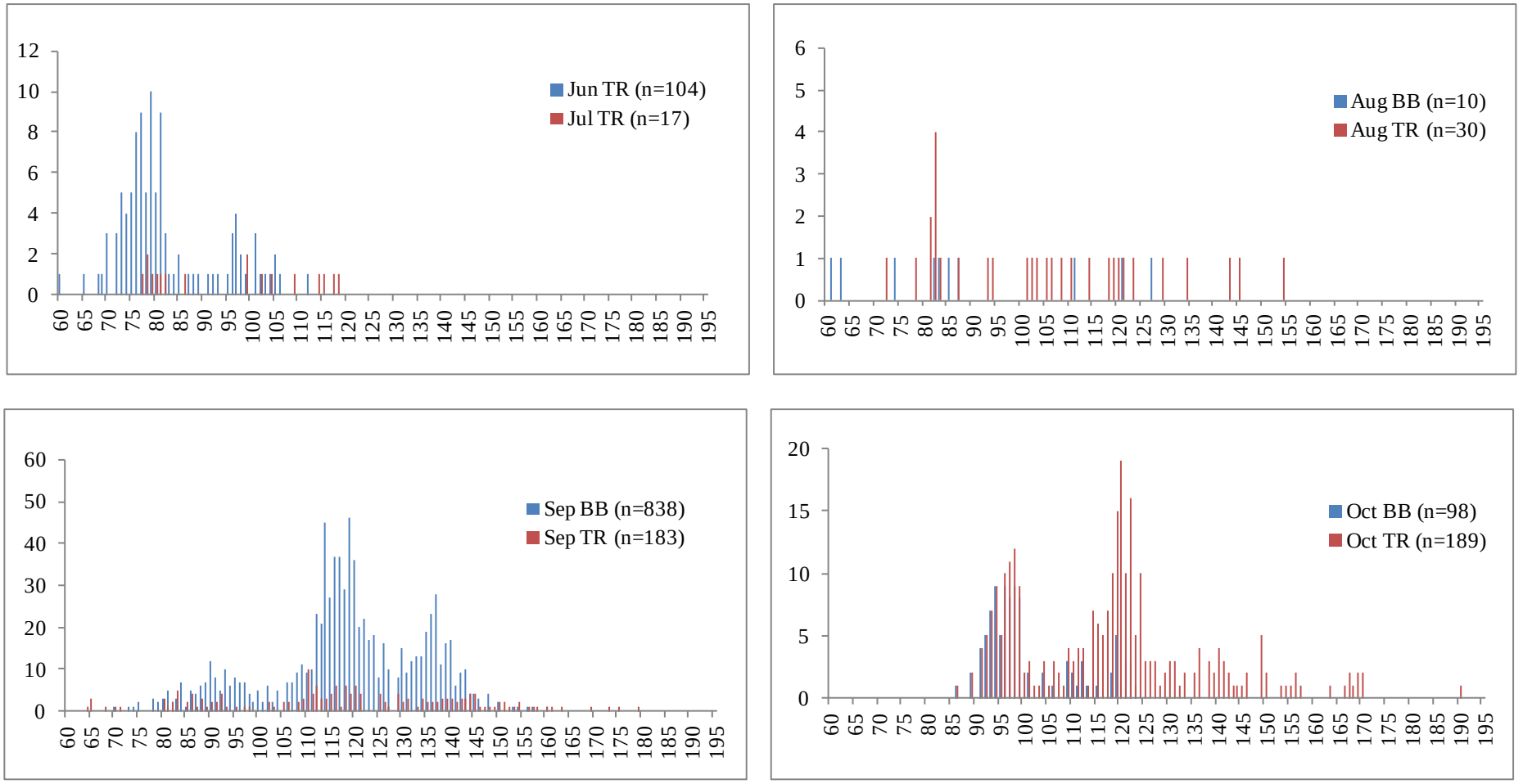

Figure 2. Monthly length (FL cm) distribution of bigeye sampled in 2014 fishing season.

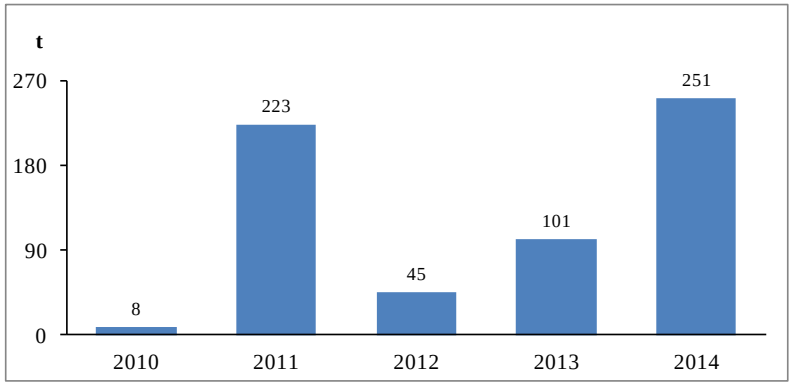

Figure 3. Bigeye annual nominal catches: 2010 to 2014.

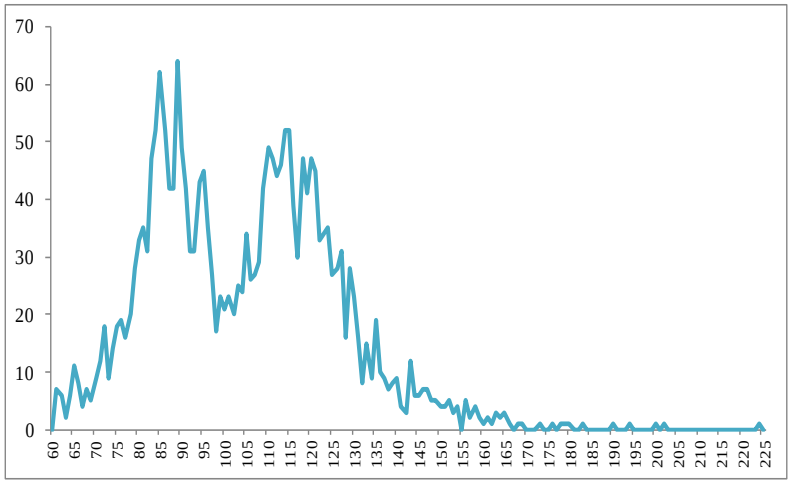

Figure 4. Aggregated bigeye length distribution for years 2010 to 2013.

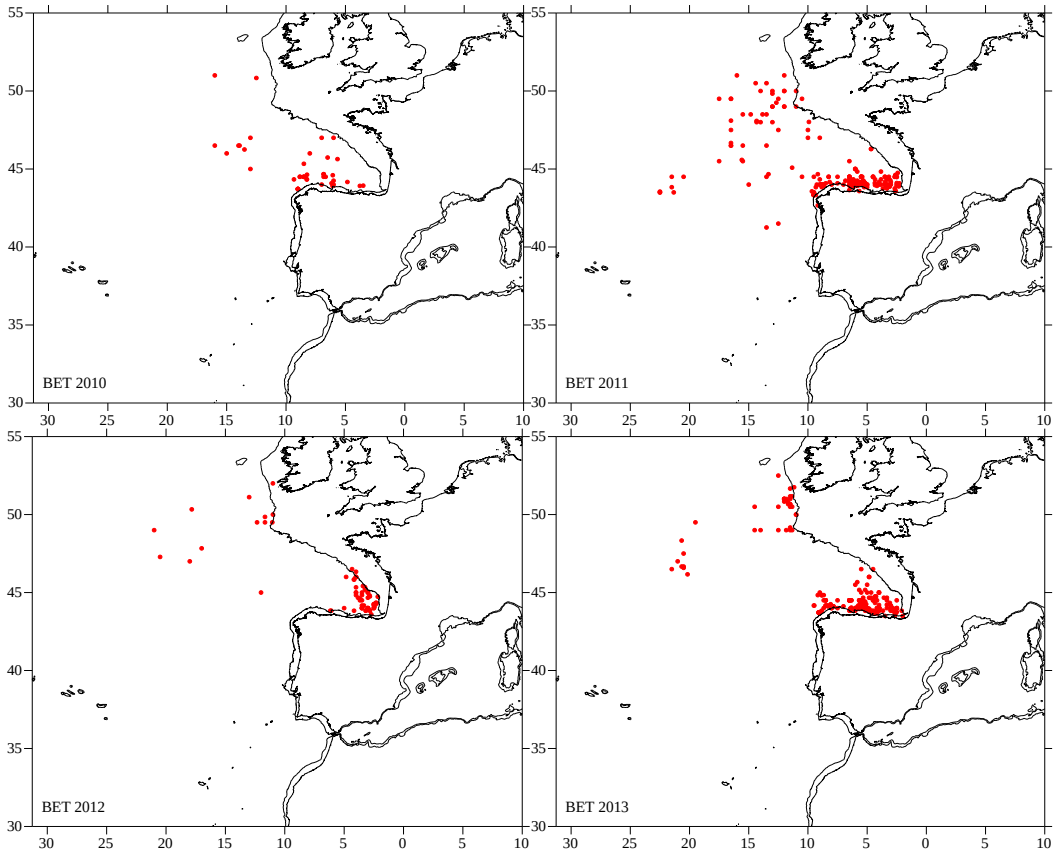

Figure 5. Spatial distribution of bigeye catches by surface fleets: 2010-2013.