

OVERVIEW OF THE BLUEFIN TUNA DATA RECOVERED BY GBYP IN THE FIRST PART OF PHASE 8

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SUMMARY

The Atlantic-wide research programme on Bluefin tuna (GBYP) has as one of its main objectives to improve the quality of the bluefin tuna data through mining and recovery from any potential data source and included these data in the ICCAT bluefin tuna data base for enhancing the assessment and increasing the scientific knowledge. The results of the data recovery activities in the first part of Phase 8 are presented, for its discussion prior to its incorporation into the ICCAT BFT data base. The work carried out in this period includes the recovery of Bluefin tuna landings published in 1960s and 1970s in the ICES Bluefin Tuna Species Group report, including details on period, flag, fishing gear, biological data and the catch location. Additionally, the GBYP recovered historical and recent BFT catch data from several traps which cover areas and time periods not previously available. Those files also include additional data concerning other species that will be analysed in detail. Electronic tags data sets are also under recovery process.

RÉSUMÉ

Le Programme de recherche sur le thon rouge englobant tout l'Atlantique (GBYP) vise, entre autres, à améliorer la qualité des données sur le thon rouge grâce à l'exploration et à la récupération de toute source de données potentielle, afin de les inclure dans la base de données de l'ICCAT sur le thon rouge dans le but d'améliorer l'évaluation et d'accroître les connaissances scientifiques. Les résultats des activités de récupération de données de la première partie de la phase 8 sont présentés afin d'être discutés avant leur incorporation dans la base de données sur le thon rouge de l'ICCAT. Les travaux effectués au cours de cette période comprennent la récupération des débarquements de thon rouge publiés dans les années 1960 et 1970 dans le rapport du groupe d'espèces sur le thon rouge du CIEM, y compris des détails sur la période, le pavillon, l'engin de pêche, les données biologiques et le lieu de capture. En outre, le GBYP a récupéré des données historiques et récentes sur les captures de thon rouge provenant de plusieurs madragues couvrant des zones et des périodes non disponibles auparavant. Ces fichiers comprennent également des données additionnelles concernant d'autres espèces qui seront analysées dans le détail. Les jeux de données de marques électroniques sont également en cours de récupération.

RESUMEN

El Programa ICCAT de investigación sobre atún rojo para todo el Atlántico (GBYP) tiene como uno de sus principales objetivos mejorar la calidad de los datos de atún rojo a través de la minería y recuperación de cualquier posible fuente de datos, incluirlos en la base de datos de atún rojo de ICCAT, para mejorar la evaluación y aumentar los conocimientos científicos. Se presentan los resultados de las actividades de recuperación de datos en la primera parte de la fase 8 para su discusión antes de su incorporación a la base de datos de atún rojo de ICCAT. El trabajo realizado en este periodo incluye la recuperación de los desembarques de atún rojo publicados en los 60 y los 70 en el Informe del Grupo de especies de atún rojo de ICES, incluidos detalles sobre el periodo, el pabellón, el arte pesquero, los datos biológicos y la localización de la captura. Además, el GBYP recuperó datos de captura de atún rojo históricos y recientes de varias almadrabas que cubren áreas y periodos que antes no estaban disponibles. Estos archivos incluyen también datos adicionales sobre otras especies que se analizarán en detalle. Se están recuperando también conjuntos de datos de marcas electrónicas.

KEYWORDS

Bluefin tuna, Large pelagic species, Trap catches, Data recovery

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1. Introduction

Since the beginning of the GBYP, one of the main objectives of the programme is the data mining and recovery of any type of data potentially useful for improving the species knowledge and for assessment. The data sets accomplishing these criteria are selected every year by the GBYP Steering Committee according to the SCRS needs. Up to the present, this item of the programme has provided data from many fisheries over a wide range of years, including also data from genetic and biological samples, has carried out analyses for several data sets and worked together with the SCRS BFT Species Group for recovering the data from electronic tags deployed so far by various institutions.

In Phase 8, the GBYP has maintained the goal of recovering, analysing and validating data, both historical and recent, which are not yet included in the ICCAT BFT data base, providing them to the ICCAT Department of Research and Statistics, and hence making them available to the Species Group. The activities aiming at the achievement of this objective in Phase 8 have included the digitalization of the BFT data (specially biological information) from the ICES reports published in 1960s and 1970s, apparently never reported to ICCAT; the recovery of additional historical and recent trap catch data, both data from traps not identified yet and new data from already known traps which cover some data gaps in the time series available up to now.

Additionally, a plan to recover electronic tag data from Stanford University was approved, and an ad hoc contract have been already signed, but the work is still in progress. This data set includes data from 41 electronic tags deployed between 2016 and 2017 in Canadian and Irish waters, with a mean duration on fish of 190 days. These data are going to be used for the determination of the level of mixing between Eastern and Western bluefin tuna stocks and by the MSE operating model.

2. Data recovered from ICES Bluefin tuna Working Group

During the Bluefin tuna Data Preparatory Meeting in March 2017, it was recommended to recover the data from the reports elaborated the ICES Bluefin tuna Working Group in the '60s and '70s and apparently never reported to ICCAT. The information from these reports had a use restriction till the permission to get these data was obtained from ICES on September 2017. Then it was planned to cross check these data with the statistics recorded in ICCAT database.

The copies of the reports were found in ICCAT library, as part of the Rodriguez-Roda personal library. The preliminary results of a comparison of these ICES data sets with those already included in ICCAT Task II database, have allowed to conclude that a large number of BFT landings data (158.556 tunas gathered in 4.653 registers) and related information, as flag, location, fishing gear and biological data (weight and/or size frequencies) represents new information that could be included in the ICCAT data bases. A summary of these results is shown on **Table 1**.

3. Data recovered from Italian traps

In the last Phase 7 GBYP received an offer of access to the original data (owner's diaries) on BFT and other species catches from several Italian traps, that haven't been included yet in the ICCAT database. In Phase 8, with the Steering Committee conformity, the GBYP started to examine the real content on the available data, such us the trap locations and the time series for which the catches were available. Once it was confirmed that these data would cover several gaps in the database, or would increase the accuracy of some catches estimations from recovery activities carried out in previous Phases, a contract invitation was submitted to Ph.D. Antonia Mangano.

The activity was carried out along summer 2018 and the draft final report was submitted at the end of August 2018. Finally, data on daily or annual catches from 5 Italian tuna traps have been transcribed from original hand written registers and transferred to electronic Excel forms. The recovered data consist specifically in:

- Daily catch data of tuna trap "Tonnara del Secco", near San Vito Lo Capo (Trapani, Sicily), from twenty years between 1912 and 1965. Data are referred to all species captured by the trap, which operated for many years as a mixed trap between a "Tonnara" and a "Tonnarella", targeting also smaller tuna species.
- Annual catches of tuna trap "Tonnara del Secco" between 1880 and 1979, with few missing years.
- Daily catch data of tuna traps located in Magazzinazzi and Scopello for the year 1918.
- Annual catches of tuna trap Flumentorgiu (Sardinia), for 35 years between 1755 and 1900.
- Annual catches of tuna trap Baratti (Tuscany), for the periods 1879-1893; 1901-1905 and 1912-1921.

During the diaries digitalization, tuna weight categories were found as notes. The definition of these weight groups (**Table 2**) was used to convert number of tunas to weight.

Thanks to this new more precise set of data the previously available catch time series of the Flumentorgiu and Secco traps have been completed and improved (**Figure 1**).

The historical and recent trap data recovered in Phase 8 cover the period between 1755 and 1965, with 141 years having data; representing a total of 102328 Bluefin tuna, along with 15034 tons of catches. The summary results of this item of the data recovery activity are shown on **Table 3**. All data will be provided to the ICCAT Secretariat, in the format used by the ICCAT Statistical Department.

4. Electronic tags data recovered in Phase 8

GBYP also received a direct offer for providing datasets on electronic tags from Dr. Barbara Block, who had already provided a similar service, under an ad hoc contract, in Phase 6. Following the recommendation of the GBYP Steering Committee, ICCAT GBYP signed a contract on August 2018 with Stanford University for the data from 41 electronic tags deployed in 2016-2017 off Canada and in 2017 off Ireland, with a mean duration on fish of 190 days.

These data will be made available at the end of December 2018 and will be send to the expert in charge for elaborating the electronic tag data SCRS Bluefin Tuna Species Group (Dr. Matt Laretta) and also to the GBYP Expert for supporting the bluefin tuna stock assessment and MSE process (Dr. Tom Carruthers).

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Table 1. Data recovered from ICES BFT Working Group reports. In number of tunas by country, year and gear.

Country	Gear	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	Total
CANADA	PS										4714	794		2689	1412	1409			11018
	RR							274	163	132	219	593	687	958	933	842	440	437	5678
	TRAP													122		456			578
DENMARK	MWT			112															112
DENMARK-SWEDEN	MWT															16	6	9	31
PORTUGAL	TROL				363														363
LIBYA	TRAP			14912															14912
USA	HAND												62		128	667	1062		1919
	HARP												86		139				225
	PS	3087	11192	6019		3738	1471	920	811	8768				66739	5562	1460	4408	2748	116923
	RR												269		301		206	3694	4470
	UNCL														87			2240	2327
Total		3087	11192	21043	363	3738	1471	1194	974	8900	4933	1387	1104	70508	8562	4850	6122	9128	158556

Table 2. Weight categories found in the original trap owner diaries.

Very Small	<10kg
Small	10-30kg
Medium	30-100kg
<i>Cantarigni*</i>	100-150kg
Big	150-300kg
Very Big	>300kg

*Dialectal term.

Table 3. Summary of trap data recovery in Phase 8.

Fishing period	Fishing area	Trap Name	BFT total catch (n)	BFT total catch (tons)
1880-1965	Tyrrhenian Sea	Secco	42699	5071
1918	Tyrrhenian Sea	Magazzinazzi	2175	369
1918	Tyrrhenian Sea	Scopello	1184	249
1755-1900	West Mediterranean	Flumentorgiu	54766	9310
1879-1921	Tyrrhenian Sea	Baratti	1504	35
Total			102328	15034

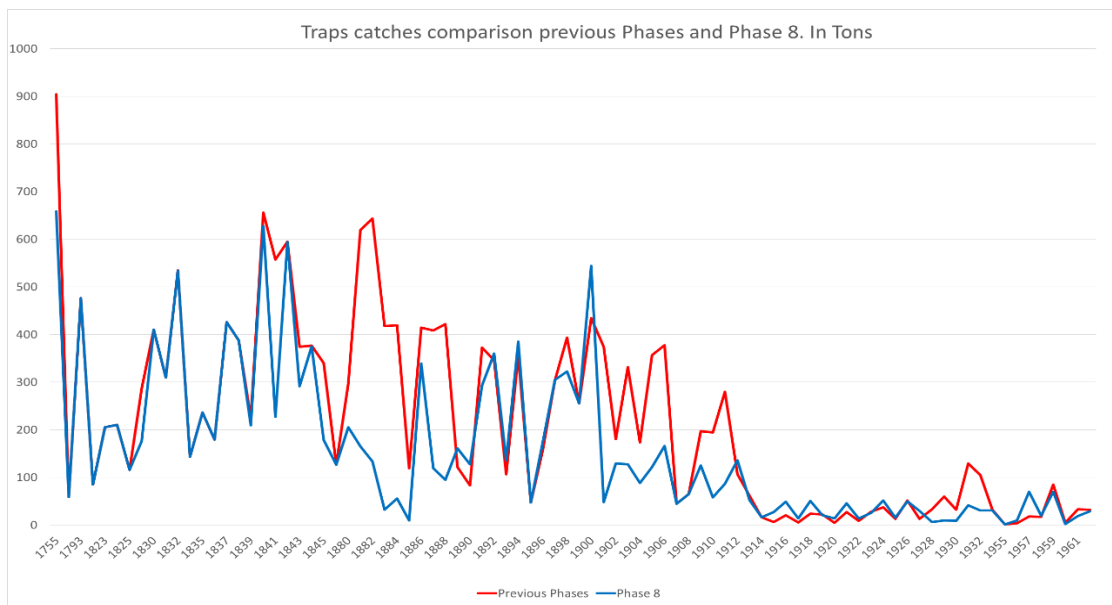


Figure 1. Comparison of Flumentorgiu and Secco trap catches (in tons) between official reports (red) and original data from owner diaries (blue).