

# Tuna CHART 2022 Report



Ireland's Atlantic bluefin tuna catch, tag and release data collection programme report 2022.



Iascach Iníre Éireann  
Inland Fisheries Ireland



*Foras na Mara*  
*Marine Institute*



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Cover Picture: Images taken by authorised skippers as part of the Tuna CHART data collection programme.

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## 1. Introduction

In 2018, the International Commission for the Conservation of Atlantic Tunas (ICCAT) permitted countries in the North-East Atlantic without an Atlantic bluefin tuna quota to authorise a limited number of sport vessels to target bluefin tuna with the purpose of “tag and release” without the need to allocate a country-specific quota. Tuna CHART is Ireland's conventional tagging programme designed to implement, co-ordinate and oversee “tag and release” of ABFT by authorised angling charter skippers.

The aim of the programme is to collect data on the spatial and temporal distribution of Atlantic bluefin tuna in Irish waters. Another function is to record biometric data such as length and condition to report for Ireland to ICCAT and improve our understanding of the Atlantic bluefin tuna visiting Irelands coastal waters.

Atlantic bluefin tuna (*Thunnus thynnus*), the largest tuna in the world, frequent Irish coastal waters from mid-summer to mid-winter to feed following annual spawning migrations in the Mediterranean and possibly even the Gulf of Mexico. The bluefin tuna is prized by sea anglers for its power and fighting ability and is a highly valuable commercial species.

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is an inter-governmental fishery organisation responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas. ICCAT compiles fishery statistics from its members and from all entities fishing for these species in the Atlantic Ocean, coordinates research, including stock assessment, on behalf of its members, develops scientific-based management advice, provides a mechanism for Contracting Parties to agree on management measures, and produces relevant publications.

ICCAT manage Atlantic bluefin stocks under a two-stock hypothesis for management and assessment i.e.

- Eastern Atlantic Ocean and Mediterranean Sea stock, that spawns in the Mediterranean Sea
- Western Atlantic Ocean stock, that spawns in the Gulf of Mexico, with a boundary line dividing the stocks at 45 W longitude.

The Mediterranean and Eastern Atlantic bluefin tuna (considered a single stock) is a highly regulated species with annual catch limits set by ICCAT based on scientific advice.

The EC became a Contracting Party to ICCAT in 1997. EU TACs and quotas for Bluefin Tuna were set by Council for the first time at the December 1997 meeting in order to implement ICCAT catch limits/TACs for these species. Ireland did not have a track record of targeting

bluefin tuna and does not have a quota. Ireland has access to a by-catch “others” quota for member states without a quota share to cover by-catches of BFT in commercial fisheries subject to certain conditions. Ireland has no quota to cover recreational fishing for BFT and has had no such quota since 1997.

The ocean waters off south Donegal are currently regarded by ICCAT as an important area for Atlantic bluefin tuna and indications are that significant numbers arrive in the area over the period August to November each year.

The Tuna CHART programme is a collaborative scientific programme between Inland Fisheries Ireland and the Marine Institute in partnership with the Sea Fisheries Protection Authority, the Department of Agriculture, Food and the Marine (DAFM) and the Department of Environment, Climate and Communications (DECC).

This is a recreational catch and release fishery operated by authorised, trained charter skippers. Training of skippers in tagging procedures and reporting of the fish caught and fishing activities are requirements of the programme. Mortalities must be reported to ICCAT.

The Tuna CHART programme commenced in 2019. This report presents a summary overview of the 2022 programme results.

## **2. Methods**

This section provides an overview of the methods relating to various elements of the programme and the changes made in 2022. The methods relate mainly to the process of enabling the charter skippers to capture and report data on individual tuna and to effect safe tagging and release. Tuna welfare is central to this process. A methods manual was compiled separately and provides an overview of the requirements of the programme - such as gear specifications and the requirement for all bluefin to be retained in the water at all times. Additionally, recommendations are included for handling, recovery and release of the fish (Wögerbauer et al. 2019)

The Tuna CHART technical group manage the skipper authorisations, the training course, the methodologies used to tag, determine which data to collect and coordinate the data collection by skippers, measure and handle the bluefin, and oversee the observers.

### **2.1 Skipper authorisation and training**

In 2022, following an application process, 22 experienced charter skippers were authorised under a DCCAE Section 14 authorisation to operate a catch, tag and release bluefin charter fishery. 21 skippers returned from previous Tuna CHART years; one new skipper was approved for the programme along the south coast.

Anglers are permitted to participate in the fishery as paying customers onboard vessels of authorised skippers. Anglers participate in the fishery by hiring the charter skippers and their vessels for angling trips. Anglers hook and play the bluefin to the side of the boat using angling gear, applying methods approved by the wider Tuna CHART group but this is strictly monitored. The angling methods and bluefin tuna handling guidelines for the programme are detailed in the method manual (Wögerbauer *et al.* 2019) which is in-part based on the ICCAT Tagging manual (Cort *et al.* 2010). Authorised skippers were based in ports along the Northwest, West and South coasts (Fig.1).

As training must be undertaken by authorised skippers as a condition of the data collection fishery, a detailed online training course was developed in 2020 by IFI and the Marine Institute in collaboration with DAFM, DCCAE and the SFPA. This course was expanded in 2021 to include information on the regulations regarding angling near cetaceans. New skippers are required to pass a short test on each module to pass the course. The training course encompasses an introduction to ICCAT and bluefin tagging research, bluefin welfare, required angling gear and best practice, bluefin handling and tagging techniques, legislation, and data collection.

In addition, a live interactive on-line training session for all skippers was held in mid-June 2022 with contributions from IFI, MI and DECC. The live session emphasised good handling and the best possible recovery of the bluefin prior to release and advised that after tagging the fish should be recovered by a moving vessel for a minimum of 5 minutes recovery time prior to release to maximise post-release survival. A short video of a bluefin being recovered in Tuna CHART 2021 was screened to discuss improvements and facilitate learning. Skippers were encouraged to minimise fight times wherever possible; skipper discretion was permitted. We recommended that skippers should take over from anglers if the fish was not alongside the vessel after 30 minutes. The skipper should then bring the fish alongside as quickly as possible.

Section 14 authorisations were limited to the open season only (1st July - 12<sup>th</sup> November 2022).

All skippers/vessels were required to have suitably rated angling equipment, including 80-130lb class (or greater) bent butt rods and reels, and swivel rod holders. These provisions were required to minimise risk to tuna from lengthy playing bouts, and to allow for best management of fish welfare. Gear checks were undertaken by IFI staff prior to authorisation.

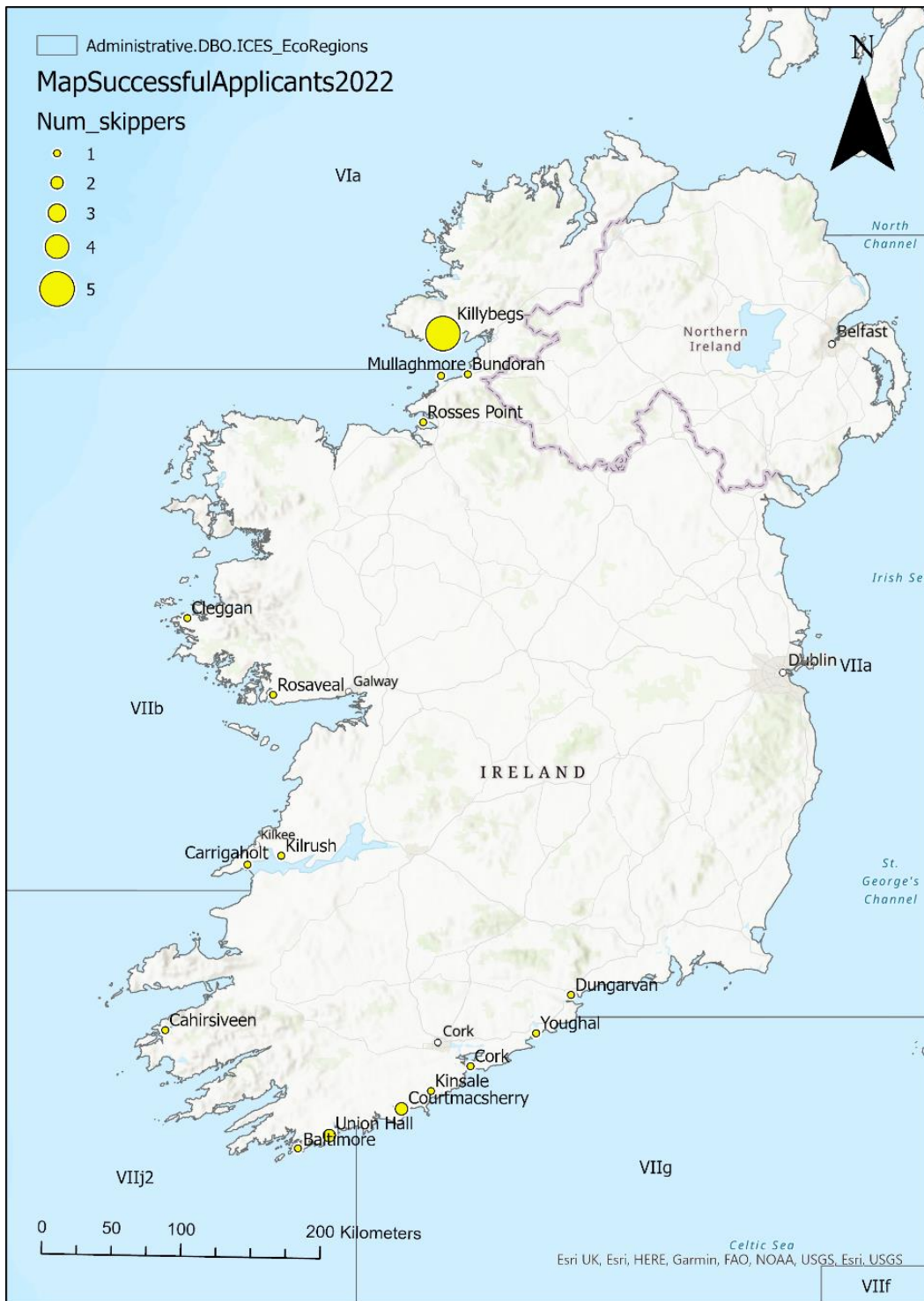


Fig. 1 Spatial Distribution of Authorised Skippers in 2022



Fig. 2 Measuring and Tagging Atlantic bluefin tuna as part of Tuna CHART

Skippers were provided with standardised equipment including measuring kits, lip hooks, and double-barbed tags in 2022, the same tag types used since 2020. These tags were a more robust tag compared to the spaghetti tags used in 2019. The double-barb tag was once again supplied by ICCAT. Fifteen Lip Grips were purchased by DECC and distributed by IFI's Tuna CHART team.

## 2.2 Additional Control Measure

The Department of Environment, Climate and Communications introduced a bye-law in 2020. Bye-law 981 of 2020 Control of sea angling methods for certain species of fish prohibits the use of surface trolling for catching any species of tuna, shark or billfish and prohibits retaining gear or equipment on board capable of trolling fishing lines for these species. This bye-law provided additional powers to protection officers to ensure that no unauthorised persons could target Atlantic bluefin tuna.

## 2.3. Protection

Inland Fisheries Ireland (IFI) and the Sea Fisheries Protection Authority (SFPA) have joint responsibility for the protection of the bluefin tuna fishery. IFI undertakes RIB patrols and coastal surveillance to monitor for unauthorised fishing of bluefin. RIB patrols engage with authorised skippers at sea to ensure handling and release methods are in keeping with Tuna CHART requirements.



SFPA has responsibility for port inspections to ensure no bluefin tuna are landed by authorised or unauthorised vessels.

## **2.4 Data**

All skippers were required to permit onboard installation of a vessel monitoring system (VMS) for the duration of the open season. The VMS was provided by CLS, a provider of satellite systems, which support monitoring and tracking of vessels at sea. Vessel positions were monitored by the Sea Fisheries Protection Authority (SFPA) and IFI.

Skippers submitted a digital report of their bluefin angling trips to IFI and Tuna CHART using the Tuna CHART form on Survey123, an ArcGIS application developed by IFI on ruggedised Samsung tablets. Paper copies of the data were also recorded. Screenshots of the data collection are available from the 2021 report (Wögerbauer et al. 2022).

Data collected from the programme was subsequently cross-checked. The quality assured data will be collated and submitted to ICCAT in the form of the conventional tagging report (TG02-CnvTReRc). The tagging data forwarded to ICCAT is processed regularly and included in the international tagging database according to the relevant Species Group needs (in this case the ABFT) and is updated every year. A summary of these data is then published and made available publicly at <https://www.iccat.int/en/accesingdb.html> under the “Tagging” toggle.

## **3. Results**

### **3.1 Overview**

235 bluefin fishing trips (boat days) were undertaken and 364 Atlantic bluefin tuna were tagged during the open season (Table 1). A further 41 tuna were lost before being brought alongside and therefore were not tagged. On two occasions, bluefin tuna were brought alongside and measured but the fish were not tagged due to technical reasons. No other species were caught as by-catch. Zero mortalities were recorded in 2022.

One previously tagged tuna was recaptured in 2022, the first of the programme. However, the tag was damaged, and the tag number was lost. The recaptured tag type was different to those used for the Tuna CHART programme. Unfortunately, the authorised skipper who reported the tag did not take a photo of the recaptured tag before retagging and releasing the fish.

Table 1 Summary of 2022 fishing effort, bluefin encounters and catch per unit effort (CPUE = no. bluefin per angling trip)

Fishing Region	No. Authorised Skippers	No. Active Authorised Skippers	No. Trips	No. Angler Days	No. BFT measured	No. BFT Tagged	CPUE
<b>Northwest</b> (Donegal -Sligo)	9	7	171	487	338	336	1.96
<b>South</b> (Kerry, Cork, Waterford)	10	8	52	93	28	28	0.53
<b>West</b> (Clare- Galway)	3	2	12	44	0	0	n/a
<b>Total</b>	<b>22</b>	<b>17</b>	<b>235</b>	<b>624</b>	<b>366</b>	<b>364</b>	<b>1.55</b>

### 3.2 Fishing Effort

Authorised skippers undertook bluefin angling trips in Donegal Bay and along the west and southwest Irish coasts (Fig. 3). Peak angling activity was recorded in August and September (Fig. 4). Five authorised skippers did not undertake any bluefin tuna angling trips during the season. Reasons included engine breakdown (1), illness (1), retirement (1), poor weather (2).

Similar to previous years, fishing effort was highest in the northwest, low in the south and rare in the west.

In the west, although bluefin were sighted south of Kilkee Bay by skippers and divers, however there was only marginal interest in bluefin tuna angling from anglers undertaking charter trips in the area, therefore authorised skippers undertook only a small number of Tuna CHART angling trips.

Along the south coast fishing activity was hampered by poor weather conditions in September, October and November which are peak angling months for the south coast.

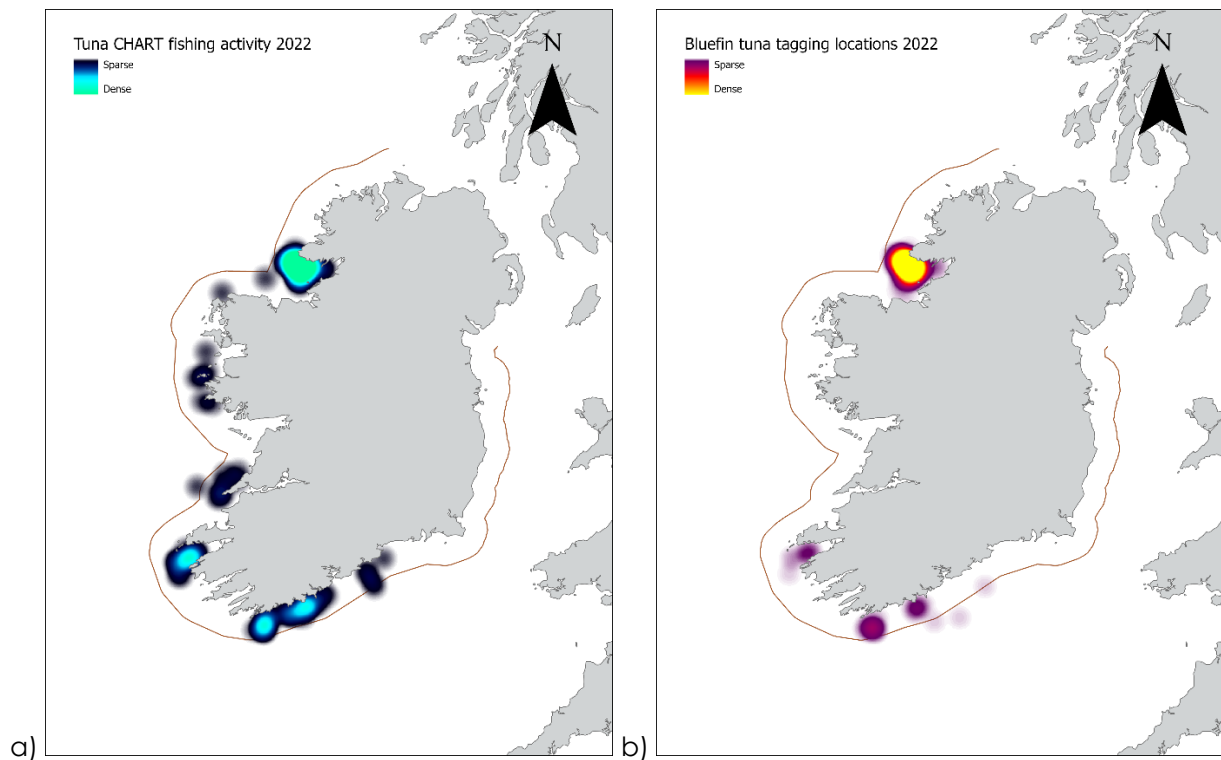


Fig. 3 a) Fishing locations by authorised skippers and b) Bluefin tuna tagging heat map Tuna CHART 2022

### 3.3 Tagging results

A weekly comparison of fishing effort and catch rates is presented in Fig. 4. The first bluefin angling trip of the season was on the 12th of July and the first fish was caught and tagged shortly after off the Kerry coast on the 16th of July; eleven more bluefin were tagged in that area. This is the first year bluefin were targeted off the Kerry coast and this is the earliest in the season a bluefin has been tagged anywhere in Ireland since the start of the Tuna CHART programme in 2019.

Seven skippers undertook bluefin tuna angling trips in the Northwest. In this area, 365 bluefin were hooked up and 336 of these tagged over the course of 171 trips in the area during the open season. All authorised skippers who undertook bluefin angling trips in the Northwest successfully tagged at least one bluefin.

Ten skippers were based along the south coast, eight skippers undertook bluefin tuna charter angling trips and 41 bluefin were hooked up. 28 of these were successfully tagged by six different skippers. Figures on the south coast were an improvement on 2021 results but only 15% of the 2020 tagging count. Bluefin busts were also observed by the public from the shore at Hook Head, Co. Wexford (pers. comm), however no fish were hooked in the vicinity as there was no fishing effort in that area.

The last bluefin tagged off the South coast was on the 14<sup>th</sup> October and off the Northwest coast on the last day of the open season on the 12<sup>th</sup> November (Fig. 4).

### **3.4 Size distribution of Bluefin tuna**

Measured Bluefin fell within a similar size range to previous years; 151cm to 270cm Straight Fork Length (SFL median length value of 211cm) A smaller-sized cohort of bluefin, from 139 to 154cm were recorded in 2020 but not reported since (Fig. 5).

There were regional size differences recorded in 2022; the size distribution of bluefin measured on the south coast was skewed towards more larger fish, while Northwest measured bluefin had a normal length distribution (Figs. 6 and 7).

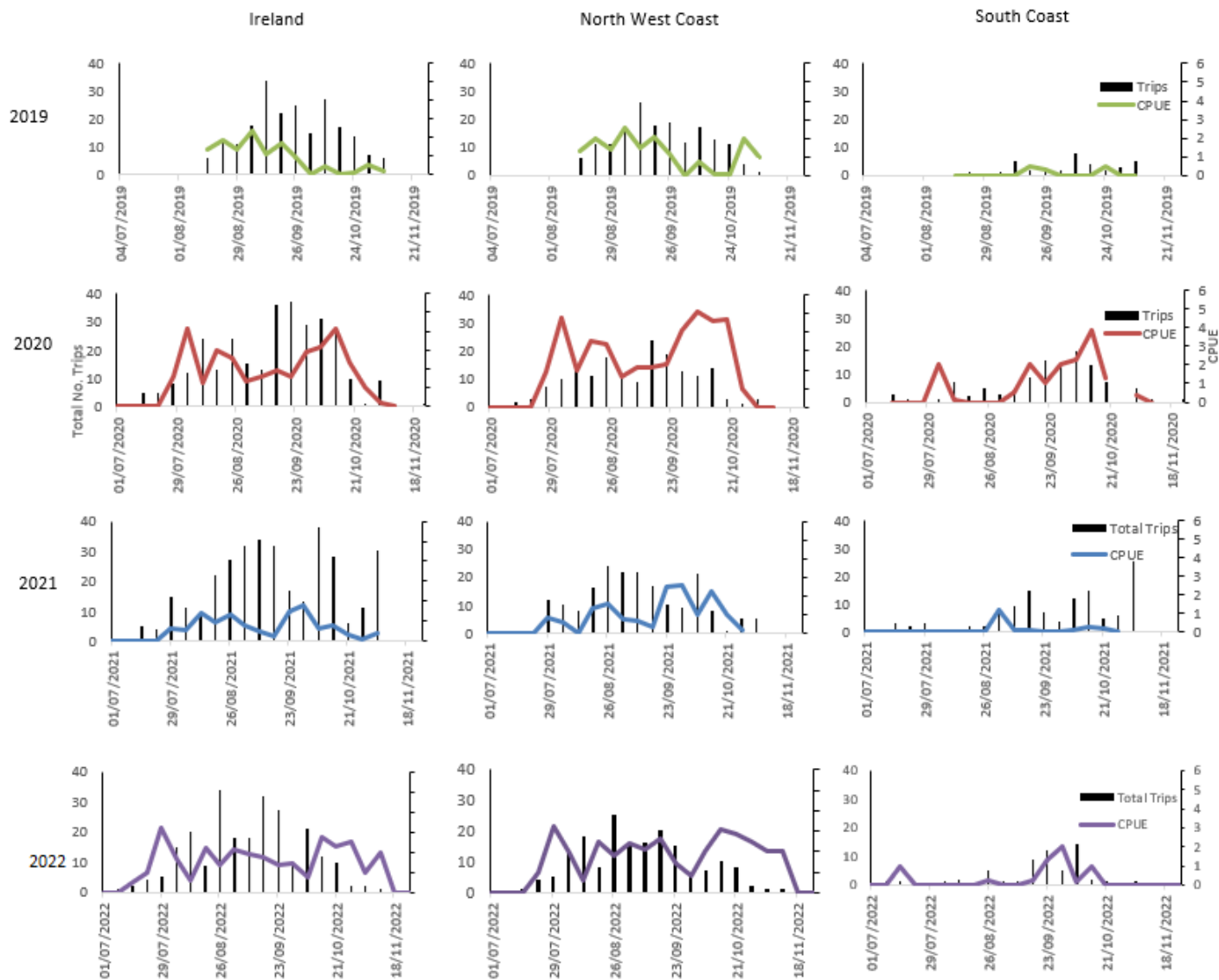


Fig. 4 Fishing effort presented as number of fishing trips and Catch Per Unit Effort (CPUE Total Tagged Bluefin/ Total Trips per week). Data is presented for the entire country and for the Northwest and South Coasts by year.

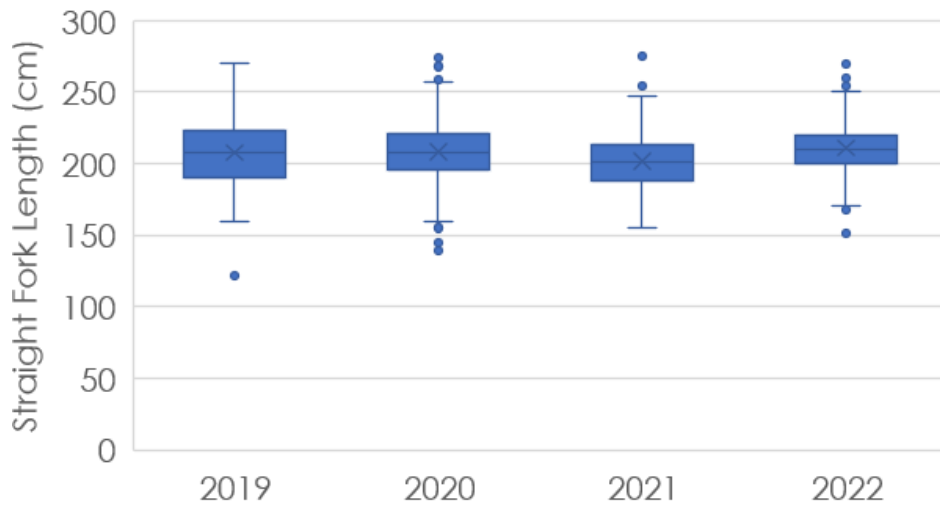


Fig. 5 Length distributions of measured bluefin tuna 2019-2022

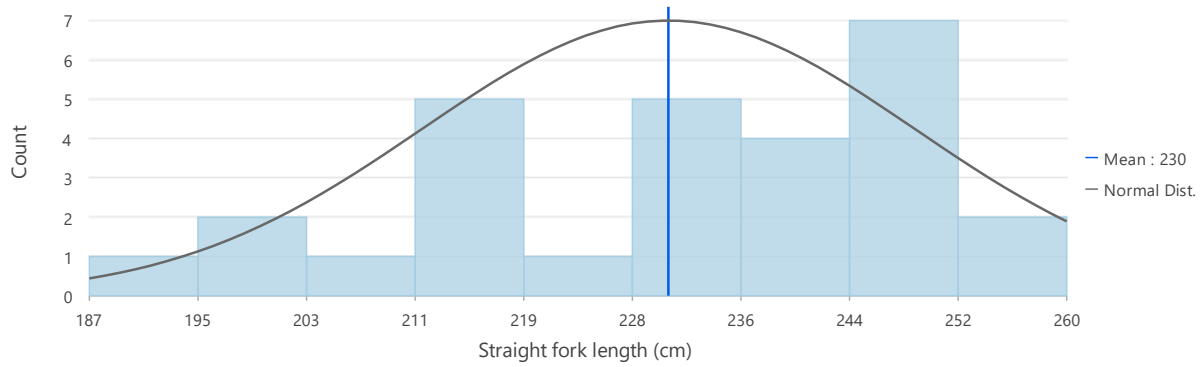


Fig. 6 Histogram of South coast (Cork and Kerry) measured Atlantic bluefin tuna length distribution (cm) (Straight fork length) 2022 (n=28)

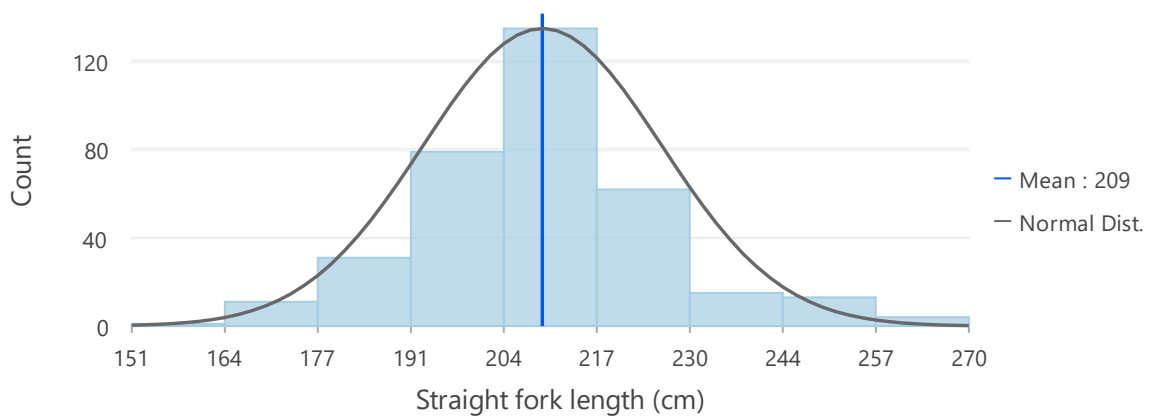


Fig. 7 Histogram of Northwest (Donegal Bay) measured Atlantic bluefin tuna length distribution (cm) (Straight fork length) 2022 (n=338)

### 3.5 Satellite tagged Atlantic bluefin tuna

The Marine Institute (MI) undertook satellite tagging of 18 bluefin tuna as part of a separate study under Health Products Regulatory Authority (HPRA) Licence No. AE19121/P003. These fish were caught on rod and line by anglers on authorised skipper vessels, but usually brought on board the vessel for application of a satellite tag. The length and distribution of these bluefin are not included in the tagging and length data provide here.

### 3.6 Observer programme

A total of four observer days were undertaken in 2022 by IFI staff, onboard the vessels of four different skippers. Five bluefin were caught, tagged and released during the observer trips (Table 2).

**Table 2. Observer days and fishery coverage by Tuna CHART observers**

Fishing Area	No. Skippers observed	No. Observer trips	% Trip Coverage	No. BFT Hooked during observer trips
Northwest	2	2	1.0%	3
South	2	2	3.5%	2
Total	4	4	1.6%	5

It was noted by the observer that all skippers communicated well with anglers onboard and maintained good control of the situation when bluefin were hooked. Bluefin were recovered correctly, with gills fully submerged as recommended by the training (Fig. 8). Lip hooks and/or lip grips were used to maintain control the fish alongside the vessel. Lip grips are less invasive and relatively new to the programme and were successful when in use.



Fig. 8 Bluefin recovering full submerged alongside vessel during Observer trip 18<sup>th</sup> August 2022 in-line with recommendations from the Tuna CHART Technical Group.

One issue arose where lures were caught at the edge of the vessel when bringing a bluefin alongside. The skipper quickly cut the lures to avoid tail-wrapping or injuring the fish, in line with recommended methods and training. The fish was also recovered for longer than usual alongside the vessel to ensure it was in good condition. It was observed beating its tail upon release, an indication of recovery.

### 3.7 Comparisons of angling and handling over time

The Tuna CHART Technical team recommended minimising fight times wherever possible, however skipper discretion was permitted. We recommended that skippers should take over from anglers if the fish was not alongside the vessel after 30 minutes. A review of fight times over the life of the programme indicates that the number of minutes that the fish is on the line has remained largely unchanged, with a slight reduction over time. The average fight time in 2022 was 20 minutes, this is slightly reduced from 23 in 2019 (Fig. 9a). However, there was one extreme outlier in 2022. This fish was close to the boat three times, but not close enough allow the skipper to bring the fish alongside the vessel. Eventually the fish broke the line and was lost.

The Tuna CHART technical group also promoted longer recovery times within training in 2022 in order to maximise post-release survival. A minimum of 5 minutes recovery alongside the vessel with head and gills fully submerged was recommended. The 2022 data identifies that marginally longer handling - recovery times were reported (Fig. 9b). Average handling and handling times reported increased by 1 minute in 2022 to 8.9 minutes.

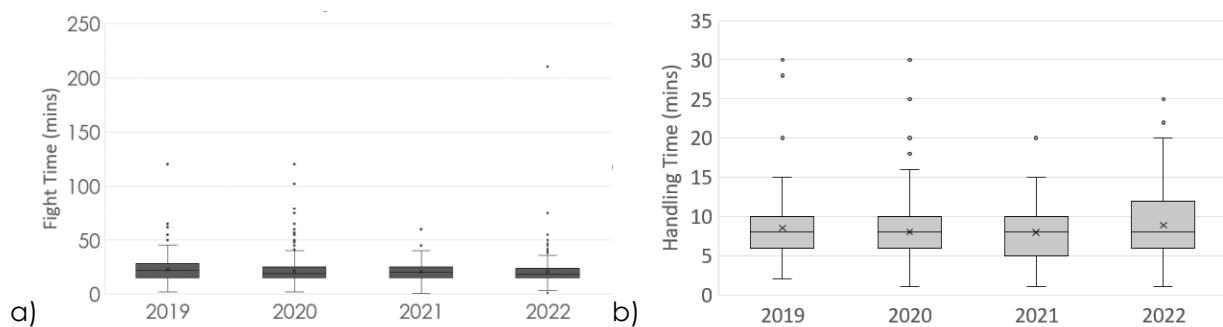


Fig. 9 a) Fight time Tuna CHART 2022 and b) handling-recovery time

### 3.8 Unauthorised bluefin tuna angling

There are two prosecutions pending for unauthorised Bluefin tuna angling in 2022.



## 4. Discussion

Ireland's Tuna CHART programme is extensive involving many different elements (governance, administration, research, technical, protection and the angling sector) working together for a common goal. The high level of co-operation amongst the various partner agencies has allowed this programme to operate efficiently and effectively.

Fishing effort was low in 2022, in part due to five authorised skippers who did not undertake any tuna angling trips, due to low interest in bluefin tuna angling on the west coast, and also due to poor weather conditions the south coast during peak tuna angling months. Despite this low angling effort, CPUE was high compared to other years (Table 3) and bluefin were tagged in large numbers in the Northwest. Overall, 67% of trips successfully tagged at least one bluefin.

Table 3 Tuna CHART CPUE summary data 2019-2022

Year	No. Skippers	Total Trips	No. Tagged	No. Successful Trips	CPUE (Tags/Trips)	Max. CPUE in any week	% Successful Trips
2019	15	204	209	99	1.02	2.4	49
2020	22	302	685	219	2.27	4.0	73
2021	22	336	242	129	0.72	1.8	38
2022	22	235	364	158	1.55	3.2	67

A comparison of weekly CPUE (Fig. 8) demonstrates that the Northwest, in particular, Donegal Bay, continues to produce the most consistent bluefin tuna angling around the Irish coast. The other regions, particularly the south coast could possibly produce improved angling outcomes if weather conditions facilitated more angling effort.

The shoulder months of the programme, July and November have been relatively unproductive in previous years, however in 2022 bluefin appeared in July in the south and continued to be caught in Donegal Bay into the end of the season in mid-November.

The English Tuna CHART season extended to the 12<sup>th</sup> December in 2022 and continued to catch, tag and release until the end. 1,090 bluefin were tagged giving a CPUE 1.7, comparable to Ireland's 2022 CPUE.

High levels of skipper compliance were observed in relation to Bluefin tuna regulations, Section 14 authorisation and angling, handling and measuring guidelines.

High quality spatial, temporal and size data were recorded in 2022 which will be shared with ICCAT in 2023 to satisfy reporting requirements. This builds on the dataset from Tuna CHART activity in 2019-2021 previously submitted to ICCAT and provides a basis for more in-depth study of the characteristics of Bluefin tuna in Irish waters.

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