Centre for Environment Fisheries & Aquaculture Science

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Annex 2: Assessing the economic impact of CHART programme: The skipper survey 2022

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Key Findings

- A survey was distributed to the 25 skippers enrolled in CHART 2022 to assess the economic viability of the CHART programme for the sector and the economic impact it generates from a producer perspective. Of the 25 skippers taking part in CHART 2022, 11 completed the survey (40% response rate) which provided data for 54% of the trips taken under CHART 2022.
- CHART skippers were mainly charter businesses offering recreational fishing trips in South West or South East of England who wanted to increase business resilience and viability, engage with scientists, develop professionally, and increase their customer base.
- All of these opportunities were realised by skippers, with the largest difference between expected and derived benefits being personal development; business resilience and viability was not as strong a benefit as expected.
- Spend by the CHART skippers had a total economic impact of £1.8million that directly supported 11 Full Time Equivalent jobs (FTEs). A total of 18 FTEs were generated by skippers' spend in addition to 17 FTEs hired as crew, alongside a gross value added (GVA) of £466k.
- About 43% of the economic impact generated by CHART through the skippers' spending was estimated to benefit the local economy.
- If CHART did not exist, not all the income would be lost as charter boats would offer other trips, so the benefit induced by CHART and not by any other activity (counterfactual) was estimated. CHART generated a total economic impact of £892k, a GVA of £228k and directly supported 6 FTEs and a further 9 FTEs in addition to the crew additionally hired for CHART (approx. 14 FTEs).
- Operating profitability decreased from 46% to 32% from 2021 to 2022 while at the same time spending on fees and investment increased.
- The results show a positive effect of the CHART programme for the charter businesses involved in the CHART programme, as well as for the local economy as a result of spend incurred by those charter businesses.
- The results of this analysis were based on only a proportion of the businesses involved, and the CHART programme is subject to change driven by environmental and policy conditions, therefore, the predictive power of these results for future programmes is unclear. Caution is therefore needed in the application of these results to future CHART programme, and surveys of skippers should be continued to generate robust estimates of economic impact and viability of the programme.
- Estimates from the skipper survey measured producer surplus and estimated the economic impact the skippers had by investing to take part in the programme. In contrast, the angler survey measured consumer surplus and assessed the economic impact the anglers had by visiting the area to spend time on a CHART day trip. As such, these estimates are not directly comparable and reflect different aspects of CHART's economic impact. Furthermore, the estimates cannot be summed to generate a full economic picture for CHART because some of the economic impacts overlap, and would therefore double-account.

1. Introduction

In recent years, the number of sightings of Atlantic Bluefin Tuna (BFT) in UK waters has been increasing (Horton et al., 2021). This has led to a growing interest in the species from the science community, the recreational fishing community, and the commercial fishing sector. It has been suggested by representatives from the recreational fishing sector that a CatcH And Release Tagging programme (CHART) could contribute to international BFT research in addition to the potential social and economic benefits it would bring to coastal communities. The CHART programme conducted a pilot study for BFT from August to November 2021 on 15 vessels in the South West of England. This was continued in 2022 with 25 vessels from August to December.

The economic impact of CHART was assessed in 2021 using two approaches; one based on the spend of anglers and the second through understanding the income and expenditure of skippers (Defra, 2022; Edwards et al., 2022). A survey was done of anglers fishing under CHART to ascertain the amount spent on their visit, reasons for wanting to fish for BFT, and angling experience (Edwards et al., 2022). This showed that in 2021, spending from anglers generated a total direct expenditure of approximately £343,000 from CHART with a total economic impact from CHART anglers of £742,000, providing £157,000 of Gross Value Added (GVA) and supporting approximately 9 FTEs. This spend was considerably higher than would be generated without the CHART programme, as the counterfactual showed that 83% of spend was directly attributed to CHART (Edwards et al., 2022). There were many social benefits including: mental and physical health and social interactions (Edwards et al., 2022).

The skipper survey aimed to understand the income, expenditure and social benefits of charter boats operating within CHART. In 2021, 14 out of the 15 boats responded. The total investment by skippers was £850,410, reduced to £267,860 once larger investments such as boats and engines were removed (Defra, 2022). Most of this spend was nationally, although skippers also purchased goods both internationally and locally. Profit was generally limited, with an average profit of around £9,000 per skipper. There were a variety of social benefits to skippers, including enhanced fishing knowledge, business relationships within their local economies, and a new client base (Defra, 2022).

While these studies have demonstrated positive social and economic effects from CHART, the programme is evolving, so may not be representative of the potential benefits of CHART in future years. To address this, a similar social and economic programme was implemented for the 2022 CHART programme, with surveys distributed to both anglers and skippers. The wider economic impact generated by anglers taking part in CHART in 2022 is reported separately (Edwards et al, 2023). In this report, we present the outcomes from the survey of skippers enrolled in CHART 2022 to assess whether the programme is economically viable and provides long-term economic benefits and opportunities to the local area or instead is replacing economic activities in the local economy. This report contains a short summary of the methods and presentation of the results from the skipper survey. This includes identification of the general business profile of skippers, their costs

and benefits generated from the programme alongside the overall economic impact generated from CHART for the local economy.

2. Methods

To evaluate the economic benefits of the CHART programme provided to local charter business, a survey was designed using Qualtrics (https://www.qualtrics.com/uk/). The survey followed a similar structure to the 2021 survey (Defra, 2022), but questions were updated to remove sections that were not used and questions were added where information was missing that was needed for the analysis. Skippers were asked to complete the survey after the end of the season on 23 January 2023 with the survey closing on 6 February 2021, and reminders were distributed to skippers twice using a WhatsApp group. The skippers were asked about their business characteristics, expenses to take part in CHART, and how CHART impacted their business. Questions were included on the business benefits for the skippers and any negative feedback experienced. The responses of the skippers were analysed to estimate the total economic impact, local economic benefits of CHART in 2022, the CHART induced economic impacts (i.e. counterfactual), as well as economic viability of the programme. This study followed a similar analytical approach to the angler survey (Figure 1; Edwards et al., 2023), but also included economic viability considerations and local economic impact into the analysis.

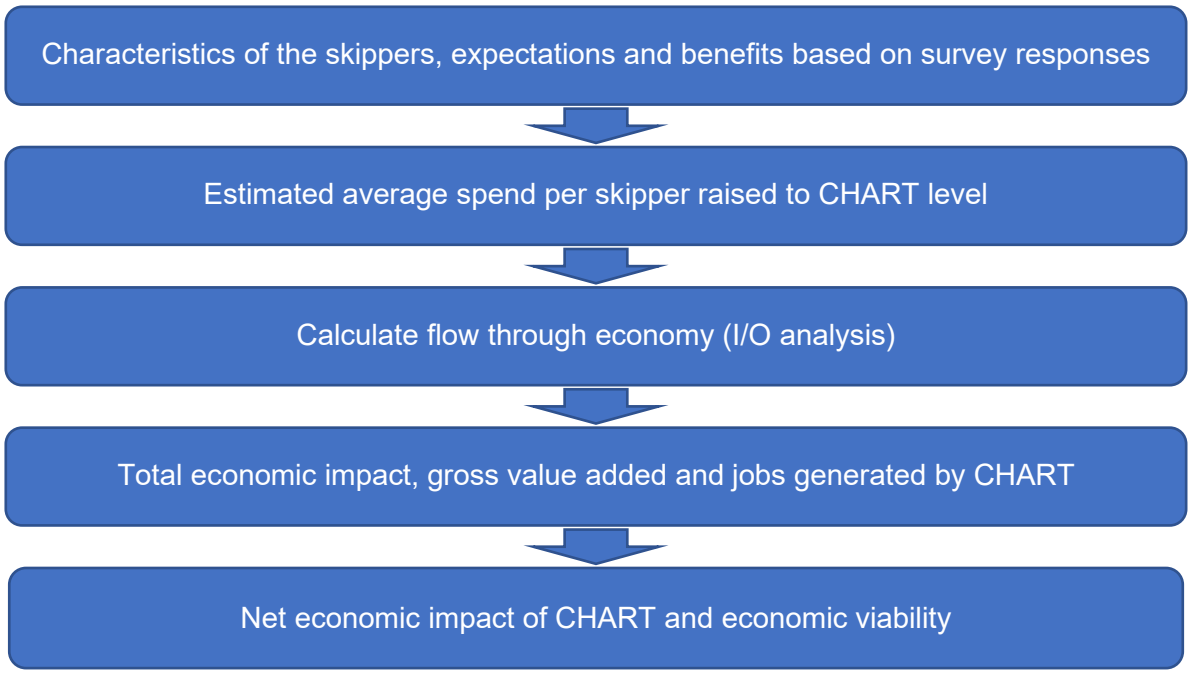

Figure 1: Analytical approach for estimating the producer surplus of CHART 2022.

To characterise the charter boat fishery, skippers' responses were summarised and the average spending for each category calculated. It was assumed that skippers responding

to the survey were representative of the total sample of 25 skippers taking part in CHART in 2022. The assumption seems to be justified as no bias in the response could be detected with regards to skipper specific-characteristics. The trip expenditures for each skipper were related to the number of trips from logbook entries. Trip expenditures were raised to total expenditure based on the total number of trips, while average investments and fees were raised to total expenditure based on the number of boats. The estimated total expenditure generated the baseline for an Input-Output (I-O) analysis to estimate the total economic impact created by the skippers spend (see Hyder et al., 2020 for detailed description of method used). Therefore, the expenditure of the skippers were assigned to industrial sectors. Leontieff multipliers (type II) were generated based on supply and use tables (SUT) for 2020, the latest published by the Office for National Statistics (ONS)[1]. The total economic impact, gross-value added (GVA) and employment effect were assessed by applying the Leontieff multipliers to the expenditure estimates by sector.

Skippers were further asked to specify the geographic location of their investments and fees. It was assumed that trip expenditures were made locally. Based on these assumptions, an additional I-O analysis was conducted to assess specifically the economic impacts of CHART on the local port area.

The net impact of CHART from a business perspective was estimated. To determine the benefit induced by CHART and not by any other activity (counterfactual), the spendings of the skipper were disaggregated into CHART specific and general business-related activities. For example, the labour cost induced by CHART was calculated by using the staff cost from the survey, divided by the number of staff employed for CHART and multiplied by the number of days the staff was employed specifically for CHART. Previous year's investment for CHART was deflated into 2022 values using the Consumer Price Inflation Household Index[2].

The economic viability of CHART was calculated to assess further whether the additional investment needed to take part in CHART can be offset by the charter fee premium of CHART. As comparison, the economic viability of the skippers' business in a world without CHART was estimated. CHART revenues were the number of CHART trips multiplied by the average CHART fee while revenues without CHART were the raised revenues from the activity previous to CHART (e.g. wildlife-watching, recreational angling) multiplied by the number of trips in this activity according to survey responses. For activity such as commercial fishing, an average trip income of £800 was assumed based on survey responses. Any other revenues from other activities could not be further accounted for. As such, the respective revenue without CHART is likely to be an underestimation of the actual revenues generated by the businesses taking part in CHART but should serve as benchmark to assess the economic benefits of CHART. To estimate the economic viability, the CHART induced cost were used as well as the cost irrespective of CHART for the estimates without CHART.

[1] https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/inputoutputsupplyandusetables

[2] https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/l522/mm23

3. Results

3.1. Skipper characteristics

Eleven out of the 25 skippers who took part in the CHART programme in 2022 responded to the survey, which represented a response rate of 44% and covered 54% of the activity. While this was a reasonable response rate and could be considered representative, the total number of vessels in the programme was 25; information from the remaining 14 skippers would have removed constraints on how the data could be interpreted.

From the 11 skippers responding to our survey, six moved their vessels to a port in order to take part in CHART. These six skippers moved their vessel on average 138 miles, with two vessels relocating from the South-East to South West of England. Out of the 11 skippers that responded, five took part in CHART 2021. Two skippers did not provide details of their activity at this time of year before CHART, most skippers (nine out of 11 respondents) normally offered sea angling trips, two skippers offered wildlife watching, three skippers stated that they were previously involved in commercial fishing trips, and one skipper was engaged in other activity involving the use of the boat. None of the skippers conducted diving trips at this time of the year. Five out of the 11 skippers stated that CHART extended their normal charter season in average for 7.3 weeks. This also applied to the skippers that took part in CHART 2021, with 4 out of 5 skippers reporting an extended season.

The skippers were asked to rank their top-3 main reasons for taking part in CHART and to indicate the benefits they experienced by taking part in CHART. With regards to the top-3 reason to take part in CHART (apart from catching BFT), skippers responded that they expected to increase their business resilience and viability, but also to engage with scientists, develop professionally, and increase their customer base (Figure 2). Considering the benefits that were realised by taking part in CHART, skippers responded most often that the benefits they received were professional development, engagement with science, increased customer base, and personal development (Figure 3). Hence, while skippers were mostly motivated to take part in CHART to increase their business resilience and viability, personal development was more often experienced than expected.

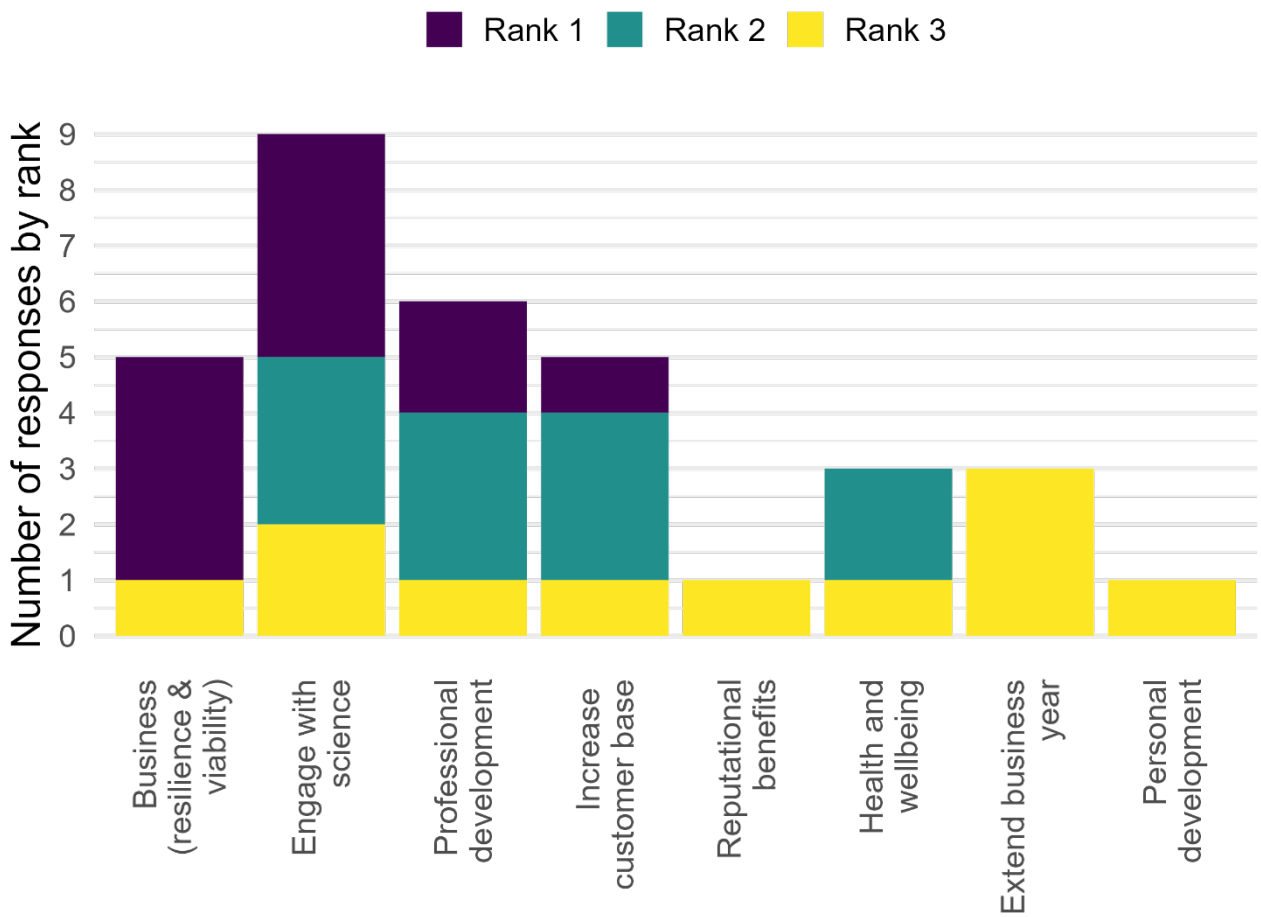

Figure 2: Ranked reasons for taking part in CHART, except catching BFT

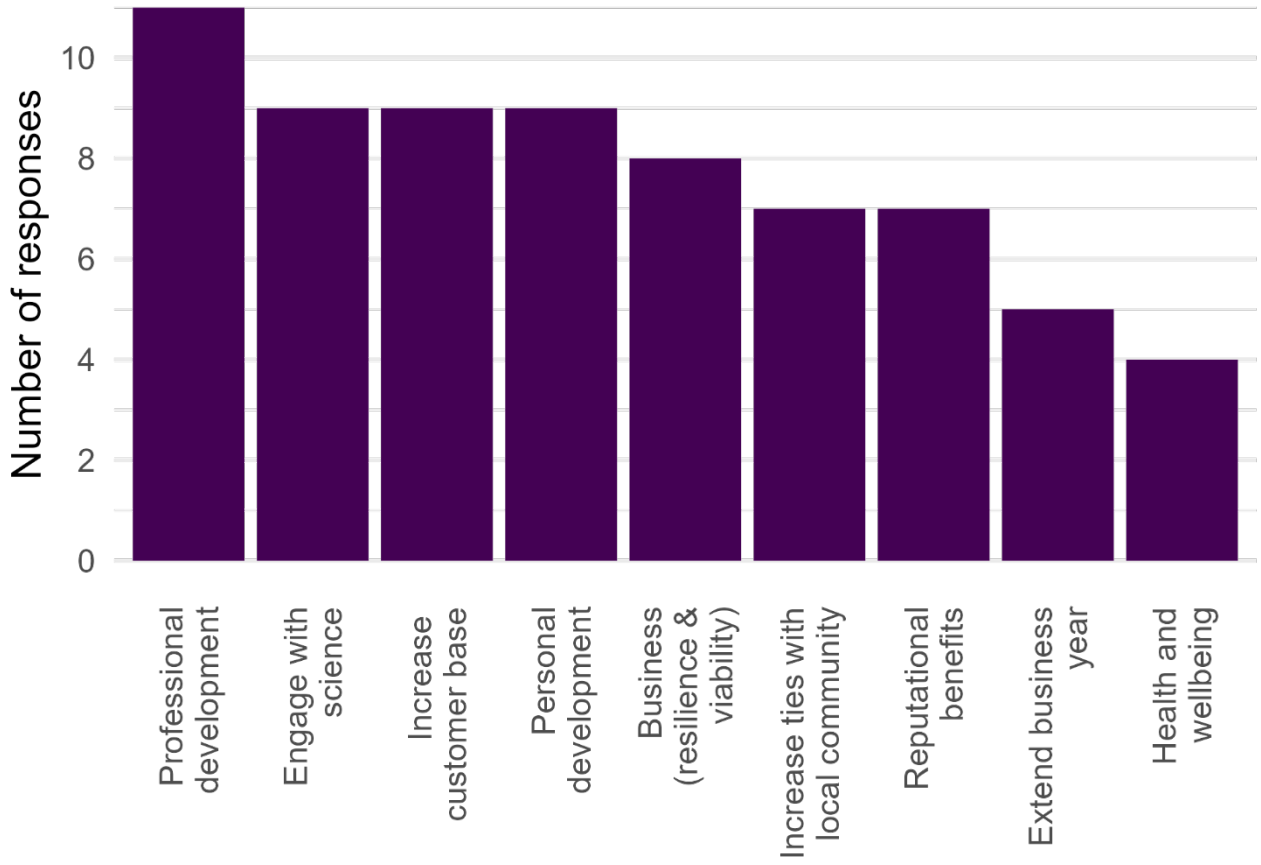

Figure 3: Benefits of taking part in CHART as stated by skippers

3.2. Economic impact generated by skippers activity

We assumed that the 11 skippers responding to our survey were representative of all skippers taking part in the CHART programme as no bias based on the available skipper specific information could be detected. Based on this assumption, we estimated the economic impact of the full CHART programme (i.e. all 25 charter businesses). CHART skippers reported highest average expenditure for day trips on fuel, followed by wages for staff (Table 1). Raising the average trip expenditure to the full population of CHART trips (631 trips in total, including trips without anglers), about £370,000 was spent by skippers to operate in CHART. With regards to investments and fees, skippers invested most in rod/reel/mainline (£9,743), tackle (£7,074), and mooring fees (£7,847). However, significant investments and fees were made in many other areas such as new boats and engines (Table 2). To include investments in new boats and engines into this analysis, a depreciation approach was used. In addition, the investment was only raised proportionally from the respondent to full sample of skippers instead of assuming average spending by skippers as it was done for the other spending categories. It was estimated that about 48% of skippers' investment and fees were conducted locally, 31% in the UK and the rest internationally.

Table 1: Average trip expenditure by skippers participating in CHART.

Category	Average daily expenditure	Total trip-related expenditure
Fuel	£301	£190,177
Food	£26	£16,658
Staff	£151	£95,439
Other trip expenditure	£108	£68,211
Total raised trip expenditure		**£370,485**

Table 2: Average investment and fees by category and location.

	Average spending by location			Total spending
Category	Local (port)	UK	International	by skipper
Rods/Reels/Mainlines	£1,530	£2,880	£5,333	**£9,743**
Clothing	£213	£520	-	**£733**
Other Equipment	£890	£900	£2,217	**£4,007**
Tackle	£2,020	£1,267	£3,788	**£7,074**
New boats*	-	£4,952	-	**£4,952**
New engines*	-	£3,048	-	**£3,048**
Engine repair	£2,333	-	-	**£2,333**
Maintenance & other repairs	£719	£5,100	-	**£5,819**
Mooring fees	£2,847	£5,000	-	**£7,847**
Other spend	£75	-	-	**£75**
Average investment & fees				**£45,631**

*Approximated by annual depreciation value assuming a fixed asset life of 20 years and resale value of 20% (following generally accepted accounting principles).

The average trip expenditure, investment and fees paid were used to estimate the economic impact of the spending of the CHART skippers. Using the I-O approach, it was calculated that the average trip expenditure, investment and fees paid conducted by CHART skippers resulted in a total spend after tax and imports of £896,000 (Table 3). This

generated a total economic impact of £1.8million, which directly supported 11 FTEs. In total (including indirect and induced employment effects) 18 FTEs were supported by skippers' spend additional to the 17 FTEs employed by the CHART skippers, as well as a gross value added (GVA) of £466k (Table 3).

The I-O approach was also used to assess the local economic impact. All trip expenditures were assumed to have been local and were combined with the average local investments and fees. It was estimated that the local spending after imports and tax of the skippers was £394k which had a total local economic impact of £801k, GVA of £203k, and supported 5 local FTEs directly and a further 8 local FTEs due to indirect and induced effects of skippers local spend additionally to the crew hired (Table 3). Thus, it was estimated that about 44% of the economic impact generated by skippers taking part in CHART was retained locally.

Table 3: Overall and local economic impact of CHART skippers' expenditures.

Category	Local	Overall
Spending (after tax and imports)	£394,069	£896,344
Total Economic Impact	£800,636	£1,812,415
GVA	£202,569	£466,344
Direct FTEs	5	11
Total FTEs (direct, indirect and induced)	8	18

3.3. Net economic impact of CHART

Although CHART provided a considerable economic impact to the local area through the spend by skippers, some of the spending would arguably happen irrespective of CHART. Similarly, although CHART skippers ask for higher charter fees to take anglers out to fish for BFT and therewith earn a price premium, substantial investment was required to take part in CHART. To understand the net economic impact, the spending and revenues of the skippers were adjusted, with only spending directly related to CHART and changes in economic viability estimated.

Most skippers offered recreational fishing or wildlife watching trips before taking part in CHART, and some were engaged in commercial fishing or passenger transport. However, based on skippers' responses, all were involved in activities using a vessel before joining the programme. In addition, skippers' responses in the survey indicated that CHART increased the number of day trips conducted in 2022 on average by 12% compared before CHART. Under the assumption that trip expenditures are directly linked to the number of trips and no economy of scale was achieved, it was calculated that 12% of the trip expenditure were caused by CHART, with the exception of staff cost. The CHART staff cost was estimated based on the survey response on how much additional staff was employed solely for CHART and the average cost that CHART skippers paid staff. Extra training needs for CHART and therewith higher hourly wages were not further considered.

It was further assumed that most investment, for example, into new boats and engines or repairs and maintenance would have taken place irrespective of CHART, as the boat was used for previous activities, so only the investments directly related to CHART were

considered to be CHART induced. Spend on rods/reels/mainlines, clothing, tackle and other equipment was specifically conducted for CHART, so was CHART induced. It was reported that, on average, 82.8% of previous investment in CHART could be used again. This roughly translates into a 5-year use of the gear bought as an investment into CHART. A depreciation approach is therefore used to include investments from CHART 2021 (inflated to 2022 values) and CHART 2022. Similar to previous estimates, the total economic impact of the Chart induced estimates were assessed with help of an I-O analysis.

Table 4: CHART induced trip expenditure and investment.

Category	Expenditure/ investments
Fuel	£22,821
Food	£1,999
Staff - CHART	£24,380
Other trip spend	£8,185
Equipment value **	£486,384
Clothing	£18,313
Total CHART induced spend	**£562,082**

* based on depreciation approach of investment in CHART 2021 and CHART 2022 with values inflated to 2022 values.

It was estimated that the CHART 2022 induced spend of £562,082 translates into CHART induced total spend after tax and imports of £419,031, which generated a total economic CHART induced impact of £846,354, a GVA of £216,168 and the skippers spend on CHART directly supported 6 FTEs and in total 9 FTEs (Table 5), additionally to the 14 FTEs employed specifically for CHART 2022. Thus, the total economic impact induced by skippers' spending specifically related to CHART 2022 was about 47% of the total economic impact generated by CHART's skippers' spending.

Table 5: Overall and CHART induced economic impact of CHART skippers' expenditures.

Category	CHART induced	Overall
Spending (after tax and imports)	£419,031	£896,344
Total Economic Impact	£846,354	£1,812,415
GVA	£216,168	£466,344
Direct FTEs	6	11
Total FTEs (direct, indirect and induced)	9	18

3.4. Economic viability over the years

Although in previous years the skipper spend induced economic impact of CHART was not calculated, the profitability of CHART for skippers was (Defra, 2022). Following the same approach, we can compare the operating profits generated by CHART for skippers. While CHART skippers were able to increase the price premium for CHART trips about 13%, variable costs were also increasing about 43% at the same time. As such, profitability of CHART reduced from 46% to 32% with regards to operating profits (Table 6).

Table 6: Estimated operating profits of CHART skippers in 2021 and 2022.

Item	Defra (2022)	CHART 2021 (inflation corrected values)	CHART 2022
Average cost to skippers per trip	£379	£411	£587
Total variable costs to skippers	£154,234	£167,193	£365,201
Average revenue per trip	£704	£763	£865
Estimated average operating profit per trip	£325	£352	£278
Estimated revenue from CHART	£286,528	£310,603	£538,030
Estimated total operating profits	£132,294	£143,410	£172,829
Estimated average operating profit per skipper	£9,450	£10,244	£6,913
Estimated operating profitability	46%	46%	32%

Moreover in 2021, the total investment by skippers in CHART was £850,410, reduced to £267,860 once larger investments such as boats and engines were removed (Defra, 2022). In 2022, skippers increased their investment on average by 58% in CHART. Using the depreciation approach to estimate the value of equipment used by skippers in CHART 2022 was estimated to be £486,000. Hence, the extension of the programme from 15 to 25 skippers (+67%) led to an increase in the value of equipment used in CHART of about 71%.

Table 7: Average skipper's investment by category into CHART in 2021 and 2022, excluding new buy and repair of engines and boats

	Average investment		Change (in %)
Category	2022	2021**	
Rods/Reels/Mainlines	£9,743	£7,720	+26
Clothing	£733	£386	+90
Other Equipment	£4,007	£3,755	+7
Tackle	£7,074	£3,937	+80
Mooring fees	£7,847	£2,311	+240
Other spend	£75	£2,631	-97

**Average values for 2021 are estimations based on total values given in Defra (2022) and corrected for inflation.

4. Discussion

A survey was distributed to the 25 skippers to assess the economic impact generated by the spend of CHART skippers and the economic viability of the programme in 2022. Eleven of the 25 skippers completed the survey representing a 44% response rate that provided data for 54% of trips. Spend by the CHART skippers had a total economic impact of £1.8million that directly supported 11 Full Time Equivalent jobs (FTEs). A total of 18 FTEs were generated in addition to the 17 FTEs hired alongside a gross value added (GVA) of £466k. Around 44% of this was retained locally, generating benefits for coastal communities. The benefit induced by CHART and not by any other activity (counterfactual) was an estimated total economic impact of £846k, GVA of £216k, and 6 FTEs in addition to the 14 FTEs hired as crew specifically for CHART 2022. Besides economic benefits for

local communities, long-lasting benefits realised by skippers taking part in CHART included professional and personal development, business resilience and viability, engagement with scientists, and increased customer bases.

There were a number of issues with the collection and analysis of skipper data that generated uncertainty in the robustness of the results. Firstly, only 11 out of the 25 boats responded with the small numbers of respondents limiting the potential analysis despite reasonable response rates. In future years, it would be good to trial different approaches (e.g. codesign, structured interviews) to improve response rates. Secondly, we used national multipliers to estimate both national and local economic impact. This may not be relevant for local impact as the structures and flows through local industries could be different to the national picture. However, established local I-O tables were not available, so national tables had to be used. Finally, differences in the numbers of trips in 2021 and 2022 may have been driven by many factors unrelated to the fishery (e.g. covid, weather), but were assumed to be all linked to the fishery.

In 2021, respondents stated that they intend to use about 81% of their investment in 2021 (Defra 2022). Respondents in this year's survey, stated that about 83% of last year's investment was used again in this year's CHART. This consistency increases the confidence in the estimation of the net economic benefits of charts which included previous and future investments. However, it should be noted that 10 of the 25 CHART skippers took part in CHART for the first time and therefore did not have the advantage of reusing the previous year's investment, therefore the investment value can be assumed to be not equally distributed between skippers.

In 2021, the total investment by skippers in CHART was £850,410, reduced to £267,860 once larger investments such as boats and engines were removed (Defra, 2022). For the economic assessment of this year's CHART, boats and engines (new and repaired) were included into the analysis by using a depreciation approach, as such differences in total economic impact between the years can be expected. However, similar assumptions were made with regards to analysing CHART induced benefits and economic viability.

However, it was estimated that only 8% of the investment benefitted the local economy in 2021. In 2022, it was estimated about 48% of the investment was conducted locally. This difference in results could have been driven by changes in the survey questions but also by changes in spending patterns of skippers. The latter could be caused if supplying businesses were able to meet the additional or changing needs of skippers, therefore negating the need to source from further away or abroad.

In a crude estimation, it was calculated that operating profitability of CHART decreased between 2021 and 2022. However, some variation in profitability is to be expected, in particular, in the first years of a programme until it is established. A full assessment of profitability is restricted due to the low number of responses in CHART in 2022 and limited amount of information available for CHART in 2021.

In general, the scaling up of CHART from the first year to the second year and the resulting increases in the economic impact as well as the high proportion of the spending

likely to stay within the local community indicates the positive effect that CHART is likely to have. While the study indicated positive effects of potential future CHART programmes, the absolute economic impact of CHART in future years may change from the impacts estimated in 2021 and 2022. For example, future years may result in a change to the skipper profile alongside different fishing opportunities that in combination are likely to affect levels of expenditure. As such, while generally positive, caution should be taken when extrapolating results to any future CHART programme. Socio-economic analysis of future CHART programmes will therefore be needed to accurately assess their economic impact.

Estimates from the skipper survey measure producer surplus and estimates the economic impact the skippers are having by investing to take part in the programme. In contrast, the angler survey measures consumer surplus and assesses the economic impact the anglers are having by visiting the area to spend time on a CHART day trip (Edwards et al., 2022; 2023). As such, these estimates are not directly comparable and reflect different parts of the economic flow that CHART generates (EFTEC, 2015). Furthermore, elements of these different economic estimates overlap, and therefore they cannot be summed to generate a full economic picture for CHART without also correcting for double accounting.

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Appendix 1. CHART Angler Questionnaire

This survey collects information from the perspective of skippers involved in the CHART project. It includes financial aspects (costs and spending, revenues) and social aspects (your motivation and benefits of being part of CHART).

We appreciate your help in completing this survey which will take 15-20 minutes.

This information is incredibly important in us understanding the social and economic aspects of the project and will inform future Atlantic bluefin tuna policy. The data will be used to produce a publicly available report to inform officials and policymakers on the benefits that the CHART project provided to yourselves and local/national economy. No personal data will be shared outside of those involved in work on Atlantic bluefin tuna.

The CHART Team is aware of the potentially sensitive nature of the information requested. We use your data and match them with the responses to the trip and catch information collected throughout the CHART program. Responses will then be anonymised, and all identifiable information will be removed. We therefore will not share any information that could be used to identify you.

You can withdraw your data at any time and do not need to specify a reason for your withdrawal.

You can find out more about how we process your information in our Personal Information Charter here:
https://www.gov.uk/government/organisations/centre-for-environment-fisheries-and-aquaculture-science/about/personal-information-charter

You can find out how we process you personal information within the privacy notice here: CHART Skipper Survey Privacy Notice

CHART (www.cefas.co.uk/impact/programmes/chart) is run by Centre for Environment, Fisheries and Aquaculture Science (www.cefas.co.uk) and funded by the Department for Environment, Food & Rural Affairs (Defra). For questions about this research, and your participation in it, please e-mail: CHART@cefas.co.uk

Informed consent

Please indicate whether you agree with the following:

- You have read and understood the information provided.
- You have been given the opportunity to ask questions regarding your participation in this study.
- You understand that your participation is voluntary and that you can withdraw from the study at any time, without giving a reason.You understand that information you provide will be used for research purposes including reports and scientific publications.
- You understand that the research data may be accessed by those working at, or in collaboration with, the Centre for Environment Fisheries and Aquaculture, but that at all times your personal data will handled in accordance with General Data Protection Regulation (GDPR).
- You are aged 18 years or older.

If you do not wish to participate in this research, please decline participation by selecting "disagree". By selecting “agree” you are consenting to your participation in the study.

Skipper characteristics:

Q1. Skipper Name: _____

Q2. Vessel Name: _____

Q3. Port Location:

a. Home Port: _____

b. Port During CHART: _____

Q4. Did you take part in CHART last year in 2021? Yes/No

Business characteristic

The following questions will focus on the financial implications that the CHART programme has had on your business.

Please provide approximate figures.

Q5. How many day trips did you do in the following categories from August to December in the year before you took part in CHART and in the year of CHART (2022)?

If you didn't have any trips in a category, please put '0'.

	Number of trips:	
	Year before CHART (August-December)	During CHART (August-December 2022)
CHART		
Recreational fishing for species other than Atlantic Bluefin Tuna		
Diving		
Wildlife tours		
Commercial fishing		
Other, please specify: _____		

Chart Economic activity

Q6. How much do you charge in the following categories in 2022 for an average day trip? (£)

a. CHART
b. Recreational fishing for species other than Atlantic Bluefin Tuna
c. Diving
d. Wildlife tours
e. Commercial fishing
f. Other, please specify: _____

The following questions will focus on the financial implications that the CHART programme has had on your business.

Please provide approximate figures.

Q7. Please state your total cost (£) for CHART 2022 for the following categories:

a. Fuel

b. Staff costs

c. Food/snacks

d. Other trip spend

Q8. Approximately, how much did you invest in each of these categories to take part in the CHART programme for 2022?

Please split the following expenditure by geographical scale.

	Local (within area of port during CHART)	UK	International (Outside the UK)
Rods/Reels/Mainlines			
Clothing			
Other Equipment			
Tackle			
New Boats			
New Engines			
Engine Repair			
Maintenance and Other Repairs			
Mooring Fees			
Any Other Spend			

Q9. How many people did you employ during the CHART season in 2022?

Q10. How many of these were additional staff employed specifically for CHART in 2022?

Q11. How many days, on average, did you employ staff specifically for CHART in 2022?

Q12. If you took part in 2021, how much did you invest to take part in CHART programme last year?

Q13. What proportion of this investment were you able to continue to use this year?

Q14. Did taking part in CHART extend your normal charter season?

a. If yes, How many weeks did CHART extend your season by?

Social questions

Chart experience

Q15. What were your main initial reasons for taking part in the CHART programme, other than catching Bluefin Tuna? (rank top three)

- Business (resilience & viability)
- Engage with Science
- Reputational benefits
- Extend business year
- Increase customer base
- Increase ties with local community
- Health and wellbeing
- Personal Development
- Professional Development
- Other:
- Other
- Other:

Q16. What have you found to be the key benefits from taking part in the programme? Tick all that apply.

- Business (resilience & viability)
- Engage with Science
- Reputational benefits
- Extending business year
- Increased customer base
- Increased ties with local community
- Health and wellbeing
- Personal Development
- Professional Development

- Other:
- Other
- Other:

Q17. How has your fishing behaviour changed in light of taking part in CHART? Select all that apply:

- Targeted differing species (i.e. spent less time on another species in comparison to previous years)
- Travelled to differing areas (i.e. spent more time in Lyme Bay)
- Changed your effort profile (fished later than normal in the season?)
- CHART replaced a previous activity (Please specify):_____
- Other:
- My fishing behaviour has not changed

Q18. If your fishing behaviour has changed, compared to your previous fishing behaviour, what, if any, social or economic benefits have you experienced through CHART?

Q19. If you normally ran a charter vessel, has your client base changed due to CHART in comparison to a normal year?

Feedback and local communities

Q20. What, if any, experiences have you had of positive feedback or comments due to taking part in CHART (e.g. through social media, email or in person)?

Q21. What, if any, experiences have you had of negative feedback or comments due to taking part in CHART (e.g. through social media, email or in person)?

Q22. Have you noticed the local community incorporating Tuna to promote the region as a result of the CHART programme (e.g. souvenirs, tourism)?

Q23. Do you have any further comments or thoughts on the CHART programme?

We thank you for your time spent taking this survey.

Your response has been recorded.

Centre for Environment Fisheries & Aquaculture Science

Cefas

World Class Science for the Marine and Freshwater Environment

We are the government's marine and freshwater science experts. We help keep our seas, oceans and rivers healthy and productive and our seafood safe and sustainable by providing data and advice to the UK Government and our overseas partners. We are passionate about what we do because our work helps tackle the serious global problems of climate change, marine litter, over-fishing and pollution in support of the UK's commitments to a better future (for example the UN Sustainable Development Goals and Defra's 25 year Environment Plan).

We work in partnership with our colleagues in Defra and across UK government, and with international governments, business, maritime and fishing industry, non-governmental organisations, research institutes, universities, civil society and schools to collate and share knowledge. Together we can understand and value our seas to secure a sustainable blue future for us all, and help create a greater place for living.

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