



INnovative fishing Gear for Ocean



STUDY OF ACCEPTABILITY OF A BIODEGRADABLE FISHING GEAR

WP4

English version



EUROPEAN UNION

Interreg 
France (Channel
Manche) England
European Regional Development Fund



WP 4	Study of the acceptability of biodegradable fishing gear	Pilote : UBS Partenaires : SMEL, CEFAS
T4.1.1	Surveys and interviews on the study of the acceptability of more sustainable fishing practices	Pilote : UBS Partenaires : SMEL, CEFAS
	Deliverable 4.1a: Method for constructing and carrying out pilot questionnaire	UBS

Version tracking			
Version	Date	Authors	Validation
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Reminder of the objectives of work package 4

The aim of this document is to present the method used for the construction and implementation of the pilot questionnaire for WP1 and WP4. This document was used as a methodology for the pre-questionnaire. The application of an identical delivery protocol for all "interviewers" was intended to ensure the comparability of the results obtained.

It is important to note that the T1.1 and T4.1 have been the subject of an ongoing collaboration between SMEL (WP1), UBS (WP4) and CEFAS (WP1 and 4). To meet the project's objectives and optimize the response rate of stakeholders in the fishing industry, the choice was made to combine certain aspects of WP1 and WP4. Indeed, the research themes for tasks 1.1 and 4.1, specific to each partner, were merged into the same questionnaire. This was notably to avoid over questioning fishermen (whose access is a major challenge) and avoid a significant disparity of the sample between each questionnaire completed. Overall, all the questionnaire surveys (pilot and final questionnaires) relating to usage on each side of the Channel and acceptability will be co-constructed by the English and French partners (strong connections between MTT1 and MTT4). Access to the panel of respondents will be carried out by SMEL and CEFAS. The issues investigated by each partner are described below.

UBS

The themes covered by UBS in this study relate to the psycho-ergonomic dimension of the project and more specifically, to the realization of the first activity of the WP4 (study of the acceptability of a biodegradable fishing gear). As part of this work, the objective was to compile useful information for the study of the acceptability of a biodegradable fishing gear. Indeed, the creation of a new fishing net may be associated with the perception of constraints by fishermen due, for example, to the perception of changes in the work of daily fishing practices. Within the framework of the WP4, UBS oversees studying the acceptability of biodegradable fishing gear. The first step will be to develop, in collaboration with SMEL and CEFAS, a questionnaire to study the acceptability of the innovation and to draw up an initial set of recommendations to encourage the creation of a favourable environment for the appropriation of the net. The objective is to identify the first sticking points that could ultimately lead to the rejection of the new net even before its implementation. At this level, it is also a question of being able to detect the perceived levers (benefits, values, motivations, etc.). The recommendations may take the form of communication recommendations or dimensions to be considered to encourage the adoption of the new gear, for example. The second activity will focus on the appropriation of the new fishing gear after implementation.

SMEL

The SMEL, for WP1, is responsible for assessing the importance and impact of plastics released into the marine environment, including an inventory of plastics used in the fishing and aquaculture industry, and identifying the recycling and disposal routes for fishing gear. These activities will help identify which product will be to be redesigned as a priority and will help to establish the specifications of the latter.

In this context, the questionnaire from WP1 will provide data on the profiles of the various fishing activities, the costs associated with these activities, the management of used fishing gear and fishing gear lost, abandoned or lost at sea. The project partners will thus be able to assess the current situation of the presence of plastic in the fishing and aquaculture sectors.

Cefas

As part of WP1, Cefas is in charge of developing, in collaboration with SMEL and UBS, a technical questionnaire to carry out an inventory of plastics used in the fishing and aquaculture industry, and to identify the recycling and disposal route for fishing gear in the UK. The data collected will inform the project on the various fishing activities, the associated costs, the management of used fishing gear and fishing gear lost at sea. These activities will help identify which product will be to be redesigned as a priority and will help to establish the specifications of the latter. The data will then be compared to data on the French side for harmonization of technical specifications. Cefas is responsible for distributing this technical questionnaire from the UK side.

As part of WP4, Cefas oversees developing, in collaboration with UBS and SMEL, a questionnaire on the study of the acceptability of the biodegradable fishing gear for stakeholders. The data will enable project partners to identify barriers (for example economic or behavioural). Cefas oversees distributing this questionnaire for the UK side.

Introduction

The main objective of this document is to present the method used for the construction and the creation of the pilot questionnaire within the framework of WP1 by CEFAS and SMEL. This document will serve as a guide for carrying out the interviews by the partners. The application of an identical procurement protocol is needed to ensure comparable results are obtained.

Objectives of the pilot questionnaire

This preliminary study is part of WP1 of the INdIGO project on the identification of barriers and incentives for the adoption of biodegradable fishing gear. This study is scheduled to take place during 2020.

The objective of the pilot questionnaire (see Appendix 1) is to obtain information to develop the final questionnaire on the acceptability of new biodegradable fishing gear. The results of this first study will be used to refine the outputs from the questions which will be formulated during the final questionnaire. This study should also make it possible to collect the terminology to address the link between fishing activity, the environment and the preservation of resources.

Proposal of a research method

Targeted sample

CEFAS and SMEL with their stakeholder contacts will deliver the questionnaire. The proposed interview is a qualitative survey method that relies on few individuals. These individuals are

chosen based on their characteristics and types of fishing activity. The objective is to obtain a representative sample of different fishing activities and to study the attitudes towards the objectives of study (Michelat, 1975). Each individual is considered to be representative of their fishery. This sample is not representative of the overall population.

SMEL and CEFAS will oversee selecting the fishing professionals in each fishing sector (gillnetters, potters, etc...) according to their networks. Fishermen will be contacted by telephone to collect their interest in participating in the study. The appointment will be made during this contact.

In total, it is expected that the sample size for this study will be made up of 30 fishermen, including 15 in the French and 15 (12 for fishermen and 3 for the aquaculture sector) in the English side.

Materials

Pilot questionnaire

The pilot questionnaire involves 31 questions, 9 of which stem from the dimensions proposed by Ajzen and Fishbein (1991) in its pilot questionnaire. These dimensions were adapted for our study subject following the recommendations of Chauvin, Letirant, Delhomme (2007). Among the other questions, 3 relate to the effect of the COVID-19 pandemic on fishing activity, 2 address the management of fishing gear waste by fishermen, 4 on the environment and 1 question on socio-technical system. Three questions should make it possible to collect elements of language from the environment in order to address the link between fishing activity and environmental preservation. The other questions relate to socio-demographic data. The content of the questionnaire is detailed as follows

Psycho-ergonomics dimensions

The measurement of attitudes is generally based on the theory of planned behaviour of Ajzen and Fishbein (1991). The pilot questionnaire proposed as part of this theory has also been translated, validated, and used by Chauvin, Letirant, Delhomme (2007) in the maritime sector. In the INdIGO study, we have selected the questions proposed by this theory. These are grouped into 3 categories:

- Behavioural standards (3 questions)
- Perceived control (2 questions)
- Social norms (4 questions).

COVID-19 dimensions

Given the situation caused by the COVID-19 pandemic, questions were added to measure its possible impact on fishing activity. For example, it is possible that the concerns of fishing professionals are focused on the survival of their business and that the subject of biodegradable fishing nets is secondary or even unwelcome during this period.

Environmental dimensions

The questions on the working environment relate to 1) knowledge of waste reception plans; 2) end-of-life management of fishing gear; 3) structures present or missing for the disposal of used fishing gear (2 questions); and 4) the important qualities of a net (2 questions).

Dimensions relating to the socio-technical system:

One question addresses the socio-technical system. It concerns the modifications that may occur in the practice of the activity when adopting the biodegradable net.

All these dimensions and the associated questions should make it possible to understand, from the fisherman's point of view, what is involved when a change in fishing equipment occurs. These data should make it possible to predict what is involved and to better target questions on social influence and perceived control (that is to say, the perceived ease or difficulty for the adoption of fishing gear) in the final questionnaire.

Vocabulary questions:

A final set of questions (3 questions) is designed to bring out vocabulary elements on the link between fishing and the environment. Indeed, the use of words such as "reduction of the effect of fishing activity", "preservation of the resource" or even "reduction of plastics linked to professional fishing" could be perceived by the fisherman as incriminating. . This could lead to an attitude of mistrust, or even disengagement, vis-à-vis the study or to conformity or social desirability bias in the answers provided. These proposed questions might lead to the emergence of the relevant vocabulary This can be used to write the questions for the final questionnaire and more generally to communicate about the project.

The general interview guide, including an introduction, the pilot questionnaire, and acknowledgments, is available in Appendix 1 (translated into both languages, annexe 1).

The questions were written and validated in French by all the partners before being translated as detailed in the following paragraph.

Translation of the interview guide: method applied

The project, carried out in England and France, required a translation of the pilot questionnaire. The translation of the pilot questionnaire was carried out according to the following steps:

- Translation from French to English by an English teacher (native English - university cycle 1)
- Validation by the English partners of the project
- Back-translation from English to French by an English teacher (native French - university cycle 2)
- Validation of reverse translation

Online survey software: Lime Survey proposal (UBS)

For note taking, one solution could be to use - the online software LimeSurvey (License South Brittany University, UBS). The pilot questionnaire will thus be written on this software by UBS English and French versions. It can be used to record information for each question during the interview. UBS will centralize the data stored by Lime Survey. At the end of the interview campaign, UBS will send each partner the data it needs. It is also possible that CEFAS and SMEL subscribe to the Lime Survey software (around 350 euros / year).

Protocol

In the context of this study, it was decided to use phone interviews to deliver the pilot questionnaire. The exchanges carried out with people who are experts in the fishing industry (Mr. Morandeau-IFREMER, Mr. Cousin-BlueFish & Payote, Mr. Le Sann, collective fishing and development) underline that the response rate by the professionals of the Fishing for online questionnaires that requires copywriting would be very low. The explanations provided relate to the significant commitment to work of fishing professionals, staggered hours, and the level of study. CEFAS also indicated that administering the pilot questionnaire online would reduce the representativeness of the results obtained. Additionally, not all fishermen are comfortable with using computers, so using only an online based questionnaire would segregate a portion of the industry (Cefas, personal communication). In addition, since the context linked to COVID-19 did not allow for face-to-face interviews, the choice to conduct the interviews by telephone became an appropriate solution. The protocol, built by all the partners, was reinforced by methodologies substantiated by the literature (Cf. Appendices 2 and 3).

The interview will be structured which means it will be guided by the open questions defined in the pilot questionnaire.

The delivery of the pilot questionnaire will take place in 3 stages:

1. 1st contact (objectives presentation and appointment): telephone? mail?
2. Follow-up phone call
3. Interview

These steps are detailed below

First contact

Sending of an email by the SMEL proposing to participate in the pilot questionnaire. Mail sent to 25 Norman fishermen (return of sending failure for two addresses) (Cf. Annex 6). In the email two options were offered:

- A telephone interview, as agreed in this document.
- Direct access to the pilot questionnaire, by decision of the SMEL.

The addition of the second proposition was discussed by the two SMEL procurement officers and was chosen for the likelihood of increasing the chances of responses.

It was agreed to wait a week after sending the first email. The latency allowed professionals to consult the document, and potentially respond to it. Following this week and in view of the very low returns, it was decided to contact the professionals who received the email by phone. Telephone contacts were drawn from a database created during the various missions carried out by the SMEL.

When making telephone contact, two options were offered by SMEL agents: setting up a subsequent telephone meeting or making an immediate appointment if the interlocutor was available.

Phone interview

Interviews will be carried out by two people within CEFAS or one within SMEL (a person who conducts the interview and a note taker) with direct access to fishing professionals.

Consent to take notes and participate in the study is obtained orally, by agreement of the investigators, before the start of the examination.

Interview schedule

a) Interviewers (2 people)

These people will conduct the interview by telephone (ENQ 1 & ENQ 2).

- ENQ 1 conducts the interview over the loudspeaker (see Annex 1)
- ENQ 2 records with a voice recorder (or other - smartphone for example) and types the discussion elements directly in the online questionnaire (on Lime Survey software) to obtain clear, readable and orderly notes in preparation for the analysis. ENQ 2 does not interact with the interviewee.

The SMEL immediately opted for not recording the interviews; their fear being to see the professional's steer. Note taking, considered by the investigators to be fluid and without loss of information, was carried out via the software.

b) The interviewee

The respondent did not need any documents to limit the interview constraints.

c) Course of the interview

The interview lasts a maximum of thirty minutes so as not to tire and solicit respondents for too long.

It goes as follows:

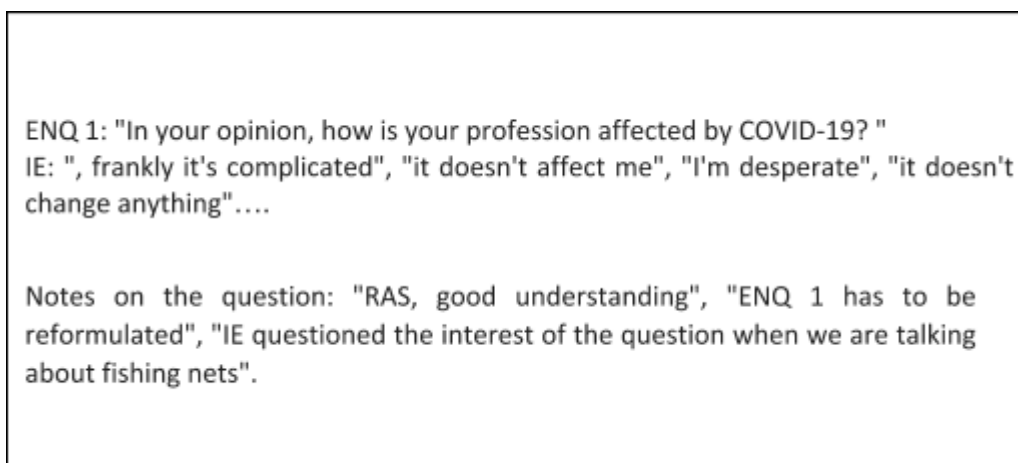
ENQ 1 presents itself (service, function, role in the project and level of knowledge of fishing) and presents the study. ENQ 1 indicates to the respondent the reason for the survey, the importance of their participation, reiterates anonymity and verifies that their consent to be recorded. It will be indicated at this time that ENQ 2 takes note of the information and makes an audio recording of the interview. ENQ1 explains to the interviewee the importance of spontaneous responses and that the objective is to have his opinion. The extract presented below is a proposal of the support that each ENQ 1 must use to introduce the subject (Cf. Figure 1).

"Thank you for your time. Have you received and read the email in which the scope of the study was presented to you? I will summarise it in a few words: [...] If you don't mind, your answers will be transcribed by the person assisting me (ENQ 2) so that your comments are correctly collected. Everything you are telling me will be anonymous and confidential. What interests me is what you think, there are no right or wrong answers. Do you have any questions for me before we start? "

Figure 1 : Example of presentation for the structured interview

Then, ENQ1 reads the questions one by one according to the pilot established order and ENQ2 writes down the statements on the questionnaire on the on-line platform.

ENQ 1 ensures that the answers are well understood by rephrasing ("If I have understood correctly ...") and relaunches the interviewee if he considers that his answer must be developed. ENQ 2 notes the questions not included or vocabulary elements not suitable for each question. An example is



*Figure 2: Example of a note-taking presentation for each question
N.B. The above example is an invention serving exclusively as a presentation illustration.*

At the end of the questionnaire, ENQ 1 thanks the interviewee for their participation, offers to communicate the survey results to them by email after analysis. A request to participate in the final survey is made to the interviewee.

The pilot questionnaire

The pilot questionnaire has been completed and available in French and English. They are accessible via the following links:

<https://enquete.univ-ubs.fr/index.php/416439/lang-fr> for the questionnaire in French and <https://enquete.univ-ubs.fr/index.php/795999/lang-en> for the questionnaire in English.

These two questionnaires are presented in detail in Appendix 1.

To date, data collection has been completed on the French side, the fifteen planned questionnaires have been completed. On the British side, all questionnaires were completed by the targeted fishermen (12 respondents out of 12). No replies were received from the targeted recipients from the aquaculture sector (3 individuals targeted)

Following the acquisition of a license on the textual data processing software (NIVIVO software) and a training received by RITME (software distributor) at the beginning of July, data analysis has been completed.

The results and associated analyzes are presented in appendix 7.

The final questionnaire is under construction. It is built based on data analyzes from the pilot questionnaire. This questionnaire already includes questions relating to the dimensions necessary to identify the brakes and levers. It will integrate the questions of SMEL and CEFAS.

The construction methods and the finalized questionnaire will be the subject of a next deliverable.

Appendix

Appendix 1 : Pilot-questionnaire - English version

Dimensions	Questions
Introduction	<p>Thank you for your time. Before we begin our interview, I'm going to give you a quick presentation of the INdIGO project. Its objective is to develop new fishing gear with the particularity of being biodegradable. To carry out this project, we are 10 partners, French and English, who have joined forces. The objective is to design a fishing gear adapted to the future users by integrating them from the beginning in the design process. It is for this reason that we address ourselves to you and thank you for having responded to our request. In order to facilitate our exchange and if you agree, a colleague who is with me will transcribe your answers (ENQ 2). Anything you tell me will be anonymous and confidential. What interests me is what you think. So there are no right or wrong answers. Do you have any questions for me before we begin?</p>
Impact of COVID-19	<p>1. Do you think that COVID-19 can change society's perception of your profession? If yes, How?</p> <p>2. Would you be willing to adopt new fishing gear in the current situation?</p>
Behaviour	<p>1. Thank you for your answers to questions concerning the current context. The following questions will now look at your fishing activity your opinion, what are the advantages of adopting a biodegradable fishing gear?</p> <p>2. In your opinion, what are the disadvantages of adopting a biodegradable fishing gear?</p> <p>3. What else comes to mind when you consider biodegradable fishing gear?</p>
Standard	<p><i>When it comes to your fishing practice, there may be individuals or groups who approve/disapprove of this practice.1.</i></p> <p>1. Who do you think would approve of you using a biodegradable fishing gear?</p> <p>2. Who do you think would disapprove of you using a biodegradable fishing gear?</p> <p>3. Could you list the people or groups of people who would be most in favour of incorporating biodegradable fishing nets into their activity?</p> <p>4. Could you list the people or groups of people who would be least in favour of incorporating biodegradable fishing nets into their activity?</p>
Control factors	<p>1. What do you think would encourage you or make it easier for you to adopt biodegradable fishing gear?</p>

	2. What do you think would prevent you from adopting the use of biodegradable fishing gear?
Waste Management	1. Do you know the waste reception plan in your home port? 2. Do you know how end-of-life fishing gear waste is then treated?
Work environment	1. Could you list any structures or facilities that would assist you in the management of your used fishing gear? 2. Could you list any structures or facilities that would interfere with the management of your used fishing gear? 3. In your opinion, what are the 3 main qualities of a fishing net, naming them in order of importance, from the most important to the least important? 4. Would you see any other qualities?
Socio-Technical System	1. Could you explain what changes may to occur in your work if you decided to change to a biodegradable fishing gear?
Vocabulary	1. In your opinion, how is it possible today to add value to your professional activity in society? 2. What words or expressions come to mind when I say "fishing activity and sustainable development"? 3. What words or phrases come to mind when I say "fishing activity and biodegradable gears"?
Socio-demographic data	1. Your Name and Surname 2. Sex3. Age4. Statusof the position held 5. Type o fishing currently practised 6. Number of years of practice 7. Type of vessel 8. Ship size Vessel length 9. Your eail Thank you: We thank you for your participation in this major project. If you are interested in knowing the results of the survey, we can take your email address to let you know as soon as we get them.

Appendix 2 : Types of interviews and choice of structured interview

Interviews, such as questionnaires or observations, are commonly used methods when it comes to collecting data. The interview, whether face-to-face or by phone, creates direct contact, interactions and exchanges more personalised than the questionnaire method. The quality of the interview depends on the relationship that is built between the person conducting the interview and the interviewee . This relationship must be asymmetrical: the first actor leads the interview and the second holds the knowledge. The investigator seeks to record the knowledge of the interviewee which depends on the individual, his experiences, his knowledge and his background.

There are different types of interviews, the most common of which are structured interview, semi-structured interview and non-structured interview. The data collected after an interview will be different depending on the type of interview. The non-structured interview " seeks to understand and account for the systems of values, standards, representations, symbols specific to a culture or a subculture " (Michelat, 1975). This freedom of expression allows the interviewee to speak about anything that comes to mind. The analysis is long and rich and allows the important issues from the

participant to emerge. In contrast, is the structured interview. This interview is based on open questions structuring the exchanges on a programmed design. The semi-structured interview is positioned between the two approaches and is structured by themes in which the interviewee is free to talk about the subjects that matter to him.

In our study, the interview will be structured as it is based on the pilot questionnaire.

To carry out an interview, it is essential to introduce the scope of the research before focusing on the research object with themes or questions, to deepen these questions and to conclude. Introducing the subject of the interview aims at presenting the project, what we are trying to study, obtaining consent, explaining how the data will be stored. The introduction should allow the interviewee to know the progress of the interview and establish a climate of trust.

The second step is to ask questions provided by the questionnaire (same questions for everyone and in the same order regardless of the interviewers) and providing details on some parts needing precision or clarification to verify the correct understanding on the part of the interviewer (e.g.: " You said that the COVID-19 situation is disastrous for your activity. Why ? " ; " What do you mean by the term ? ", " If I have well understood.... ? "). During these precisions, one should not induce answers in order not to influence the responses of the IEs. Echo reformulations - repeating the words of the interviewee to encourage him to develop his ideas - are good ways to deepen without influencing. Finally, check that all the points have been addressed and come back to concrete elements for the interviewee (eg current life) thanking him for his participation.

Appendix 3: see French version

Appendix 4: Consent agreement (email)

Dear Sir, Madam

,

You have agreed to participate in the INdIGO (INnovative fishing Gear for Ocean) project study. The objective of this project is to develop new fishing gear whose novelty is being biodegradable. To carry out this project, 10 French and English academic and industrial partners have joined forces. The objective is to design a fishing gear suitable for future users by integrating them from the start into the design process.

It is in this context that we would like to ask your opinion.

By answering this questionnaire, you certify that you have given your consent to participate in the study. You certify that you have taken note of the progress of your participation and accept it voluntarily. You know that you can stop your participation at any time without having to justify yourself or incur any responsibility. Your consent does not relieve the organisers of their responsibilities and you retain all your rights guaranteed by law.

During this phone interview, you agree that the data on your responses will be collected by audio recording; this information is strictly confidential and for the exclusive use of the investigators concerned.

You know that your identity will not appear in any report or publication and that any information about you will be treated confidentially. You agree that the data recorded during this study may be saved in a database and be subject to anonymous computerised processing by the research laboratory. You have noted that the right of access provided for by the "General Data Protection Regulation (EU) 2016/679 (GDPR) is exercised at all times with the research unit.

Appendix 5 : Interview process

Interview process for interviewers (ENQ 1) :

Introduction	
<p>"Thank you for giving me time. Did you read the email in which you were introduced to the study topic? I will remind you in a few words: the INdIGO project is to develop new fishing gear with the particularity of being biodegradable. To carry out this project, we are 10 partners, French and English, to join forces. The objective is to design a fishing gear suitable for future users by integrating them from the start into the design process. That is why we are turning to you and thank you for responding to our request. If you don't mind, your answers will be transcribed by my colleague (ENQ 2) so that your comments are correctly collected. Everything you tell me will be anonymous and confidential. What interests me is what you think, so there are no right or wrong answers. Do you have any questions for me before we begin? "</p>	
Themes (not to read)	Questions to ask
<p style="text-align: center;">Thanks</p> <p style="text-align: center;">We thank you for your participation in this large-scale project. If you are interested in knowing the results of the survey, we can take your email address to communicate them to you as soon as they are obtained.</p>	

Appendix 6 : Project presentation email

Email sent by SMEL to propose the pilot questionnaire to professionals (26.05.20).

Object : Participation to a survey for the INdIGO project

Project leads : Solveig Larssonneur & Laurence Hégron Macé

lhegronmace@smel.fr / 06.73.64.14.03

slarssonneur@smel.fr / 06.86.43.97.02

Dear Sir, Madam,

We are contacting you regarding the INdIGO project (INnovative fishing Gear for Ocean), led by the University of South Brittany (UBS), which aims to develop a biomaterial for fishing and shellfish farming.

The main aim is to develop, in collaboration with the stakeholders, a new fishing gear that is both resistant and has a controlled lifespan.

We would propose a phone interview with two representatives from SMEL, requiring a maximum of 20 minutes, or we would invite you to click on the following link to complete the survey: <https://enquete.univ-ubs.fr/index.php/416439/lang-fr>

The aim is to collect information on your current practices as well as your perception of biodegradable material.

If you would prefer a phone interview, your consent will be obtained during the call and recorded on the final report. If you change your mind, you have the right to withdraw from the survey at any time.

In any case, your anonymity and the privacy of your replies are guaranteed.

The data collected will be solely used by SMEL and UBS in order to compile results from these surveys.

We would seek your collaboration so that the prototype is produced according to your needs and expectations so you can be the first to test this new gear.

Thank you for your participation

Regards,

INdIGO team

Appendix 7: Pre questionnaire results overview (produced by CEFAS - UK):

Sample size: 12 respondents

Impact of Covid – 19

How do you think your profession is affected by COVID-19?

Figure 1 shows that the majority of the sampled population think that **Covid 19 had a negative impact** (61%), especially on the fish demand and supply (47%) followed by a decrease in prices (37%)

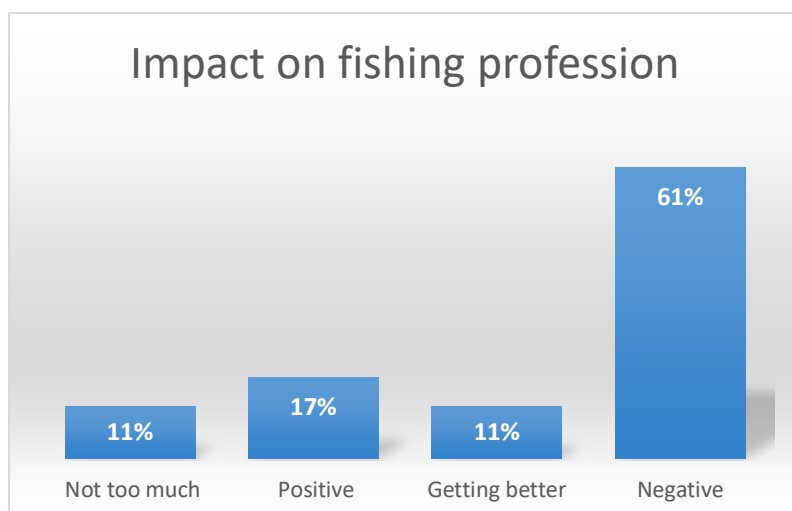


Figure 1: Impact of Covid 19 on fishing profession



Figure 2: Impact of Covid-19 – break down by positive and negative impact

Do you think that COVID-19 may change society's perception of your profession?

Figure 3 shows that 50% of respondents hope that covid -19 has changed societal perception about fishers profession

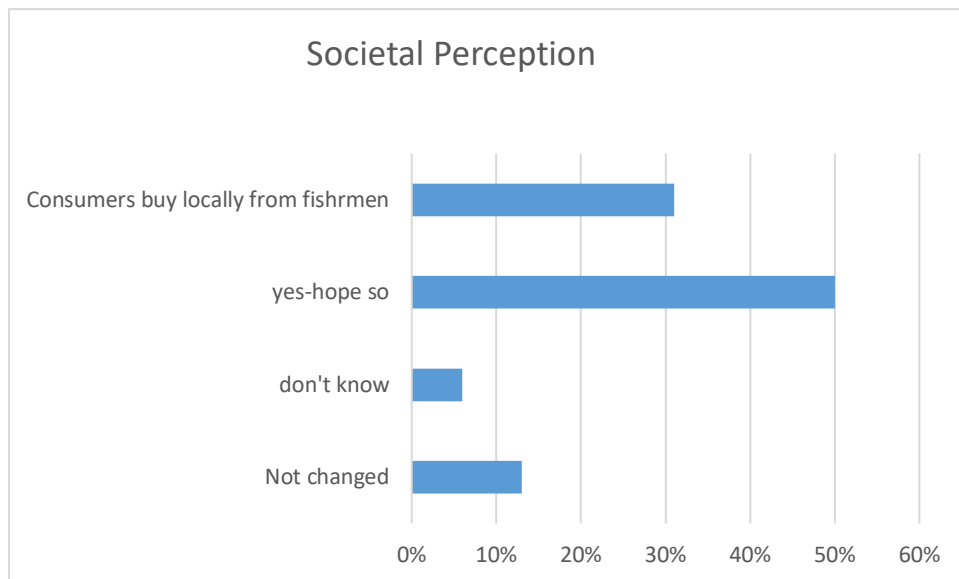


Figure 3: How has Covid 19 changed society's perception of fisheries profession

Figure 4 below indicates that the majority of fishers interviewed (over 60%) would be willing to adopt new fishing gear in the current situation

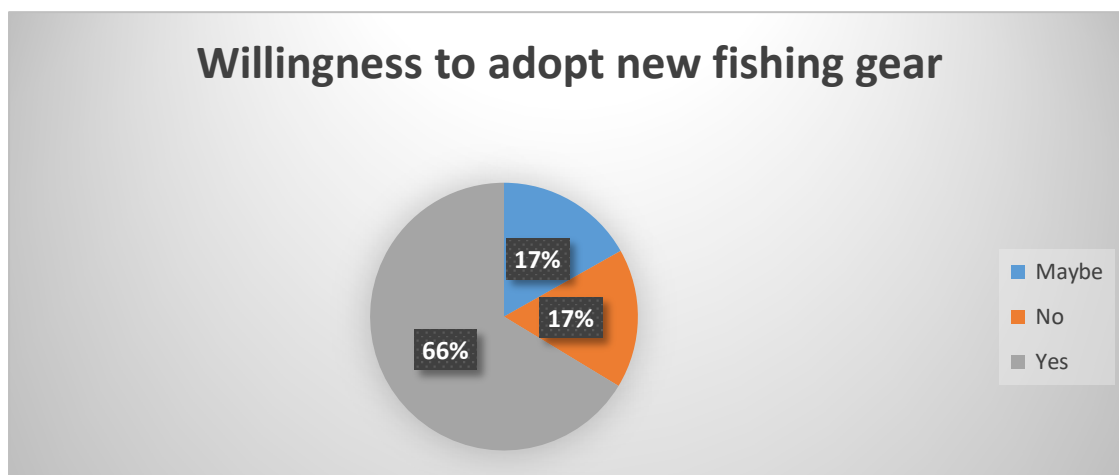


Figure 4: Willingness to adopt new fishing gear in the current situation

The results on issues related to COVID-19 overall show that:

- 1) the current context has had negative effects on fishing activity mainly due its effects on the demand and supply of fish.
- 2) However, respondents are open to the possibility to adopt new fishing gear in large part

Attitudes:

In your opinion, what are the advantages and disadvantages of adopting a biodegradable fishing net?

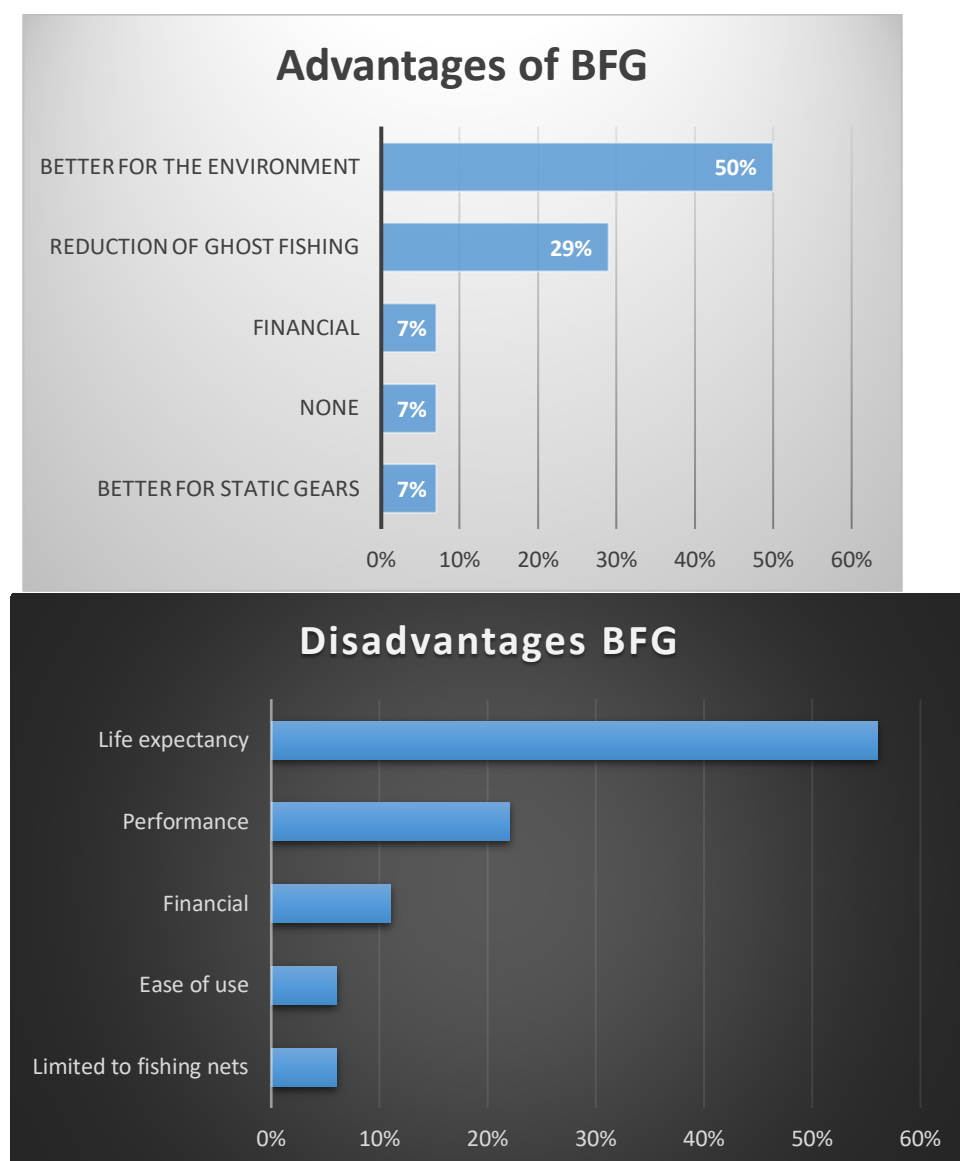


Figure 5: Advantages and Disadvantages of Biodegradable fishing gears

Majority of the sample (figure 5), mentioned BFGs would be **better for the environment** 50% of times followed by those who responded that BFGs would lead towards the **reduction of ghost fishing** (29% of times).

On the contrary, the great majority of people surveyed indicate that **life expectancy** of BFGs would represent an obstacle for them to use them (56% of mentions). Performance of the new gear which includes aspects such as **catchability and reduction in the standards** (e.g. strength) of the new gear are seen as advantages (22% of mentions), (see figure 5). Other factors to be considered according to the fishers interviewed when it comes to BFGs relates to **costs** (22%), **storability of the new gear** (22%) and **consumers' response** - whether or not people would pay more money for fish caught using biodegradable gear (11%).

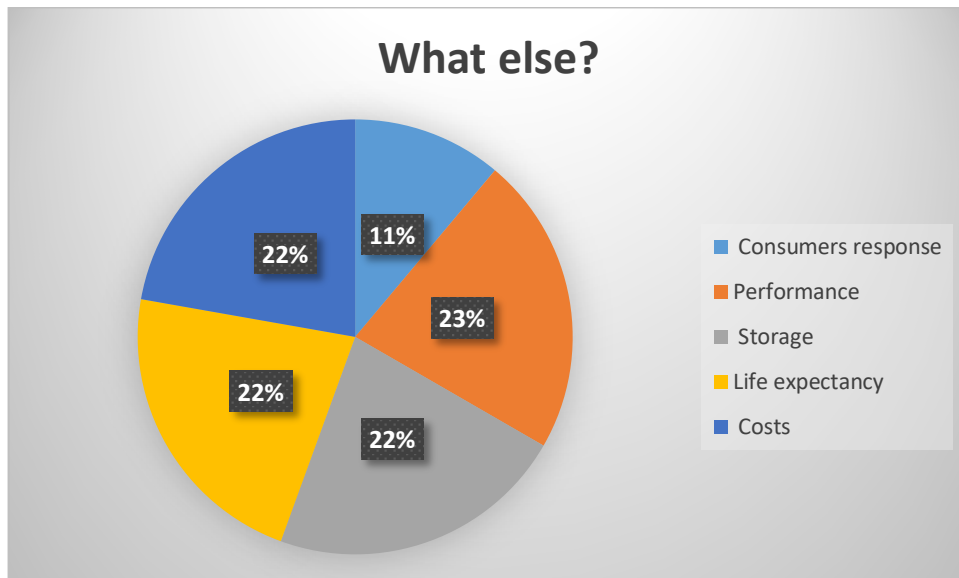
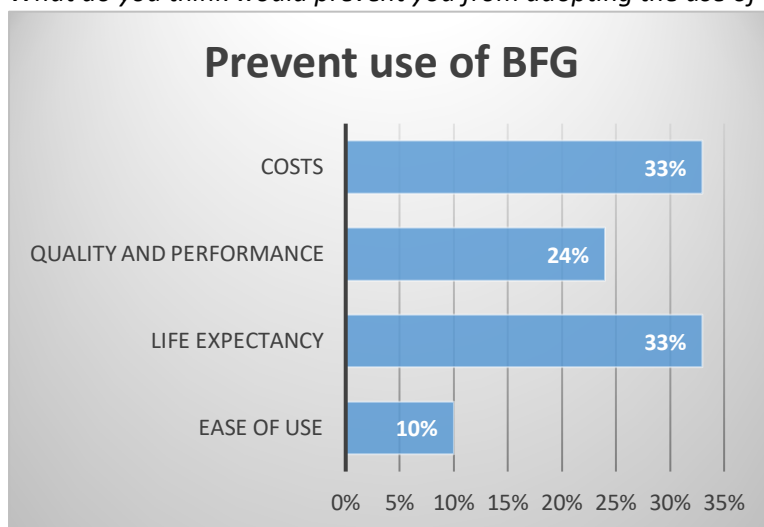


Figure 6: What else comes to your mind about biodegradable fishing gears?

Control:

What do you think would encourage you or make it easier for you to adopt biodegradable fishing gear?

What do you think would prevent you from adopting the use of biodegradable fishing gear?



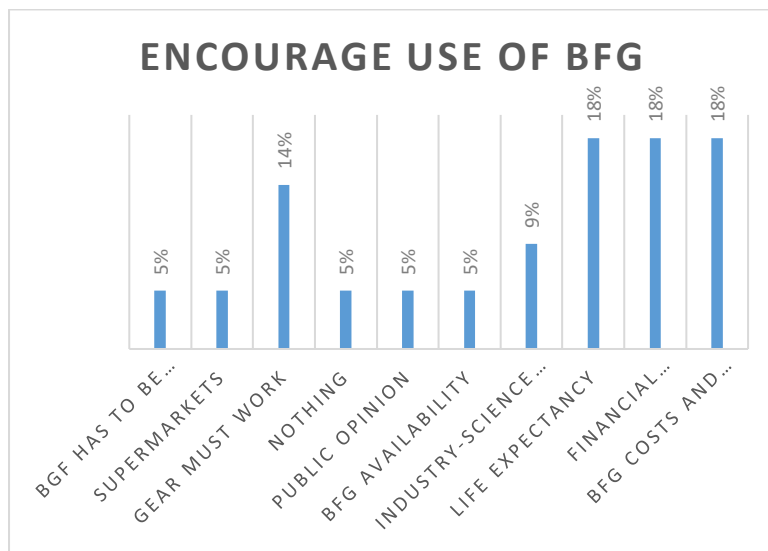


Figure 7: factors preventing/ encouraging the adoption biodegradable fishing gear

Main outputs:

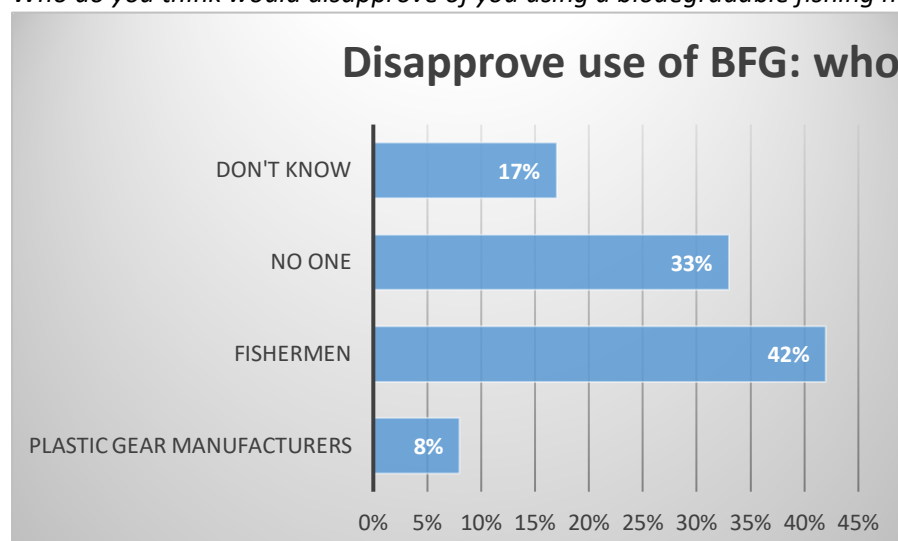
Amongst the factors (fig. 7) which have been reported to prevent fishermen from adopting/using BFGs, **costs and life expectancy/durability of the new net** (33%) have been both reported as main elements to limit BFGs adoption, followed by **quality and performance** of the new gear (24%) and **“ease of use”** of the new gear (10%)

The principal factors (fig. 7) instead which would encourage fishers to adopt BFGs are **costs and effectiveness** (quantity of catches) of the new product, **life expectancy and financial incentives** (in the form of grants or subsidies) with 18% of mentions respectively. Respondents also think that the gear has proven to work or it has been demonstrated to be fit for purpose (14%) which it is assumed means that it should guarantee the same performance catch wise as the plastic gears.

Norms:

Who do you think would approve of you using a biodegradable fishing net?

Who do you think would disapprove of you using a biodegradable fishing net?



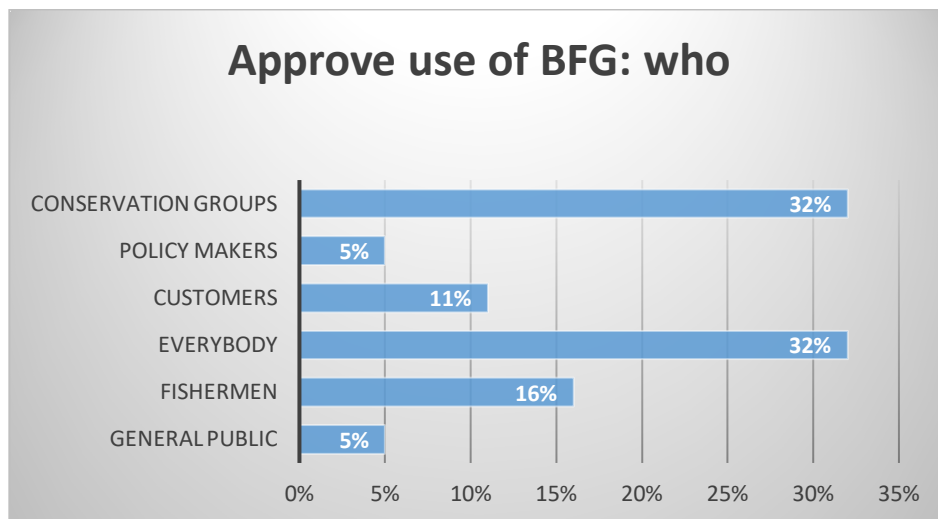
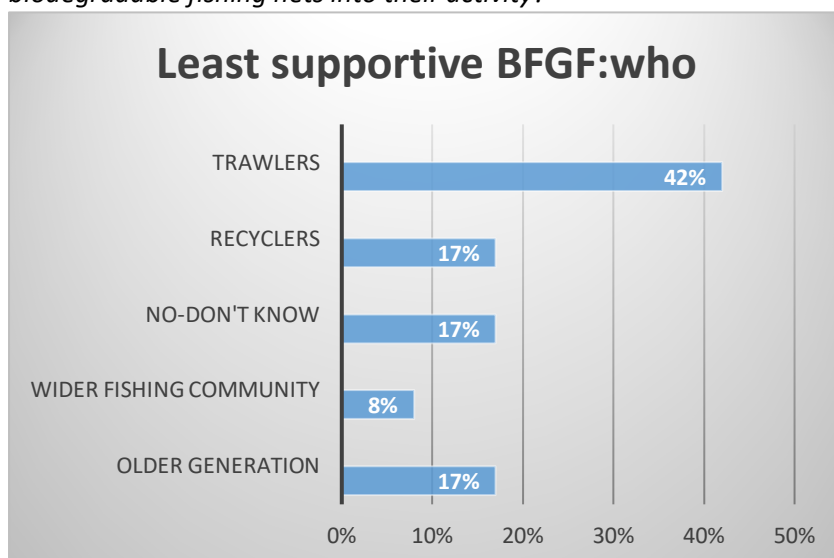


Figure 8: disapprove/approve e of respondents' use of biodegradable fishing gear: WHO?

The category which has been reported to disapprove the most the use of BFGs is “other fishermen” (42%) followed by “no one” (33%). Those instead which have received most mentions regarding approval of the use of BFGs are the categories labelled “Conservation groups” (e.g. green party or the “greens”) and “Everybody” which have been mentioned 32% of the times respectively by the sample surveyed (Fig. 8)

Could you list the people or groups of people who would be least in favour of incorporating biodegradable fishing nets into their activity?

Could you list the people or groups of people who would be most in favour of incorporating biodegradable fishing nets into their activity?



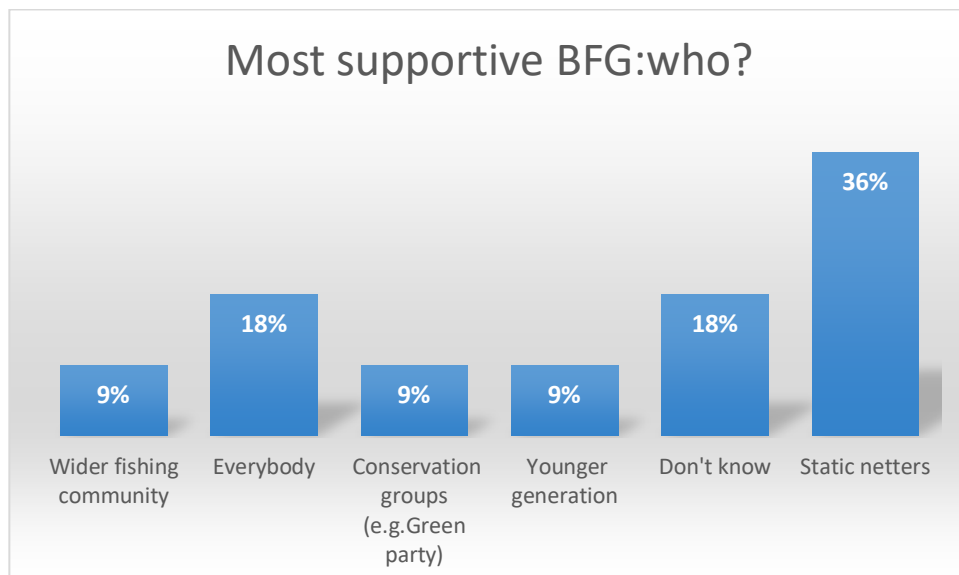


Figure 9: *least supportive/most supportive* of respondents' adoption of biodegradable fishing gear: WHO?

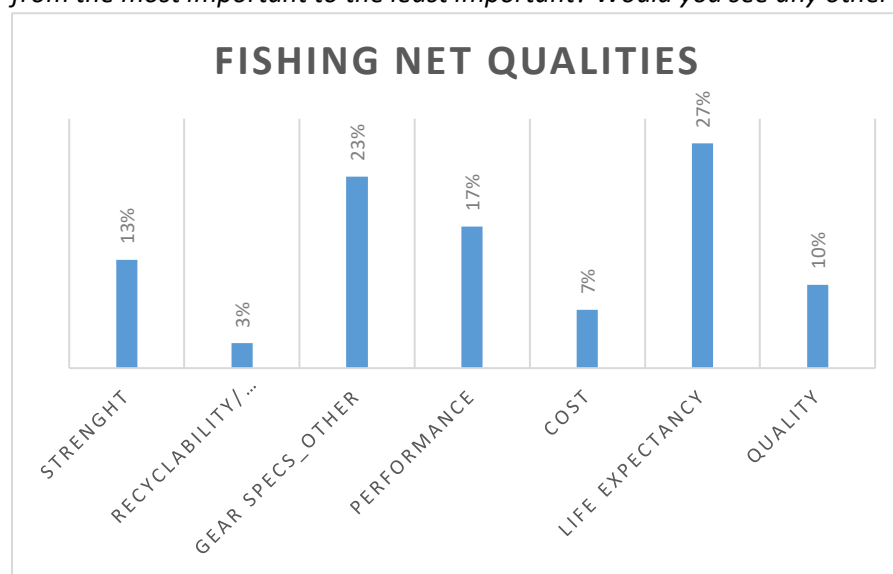
Trawlers appear to be the category which received the great majority of mentions when it comes to the group or category which would be the least supportive of the use of BFGs (42% of mentions). Interestingly, recyclers and older generation have been also reported to be amongst those groups that would not be in favour of the new gear technology.

Static netters on the contrary have been reported to by the category most supportive (36% of total mentions) of the adoption of the BFGs. According to the respondent this is due to the fact that static gears require regular replacement.

It also interested that the younger generation is considered to be in favour to the use of newer technologies as opposed to what emerged in the previous question about the older generation which is perceived to be more hostile towards the use of new materials.

Work environment:

In your opinion, what are the 3 main qualities of a fishing net, naming them in order of importance, from the most important to the least important? Would you see any other qualities?



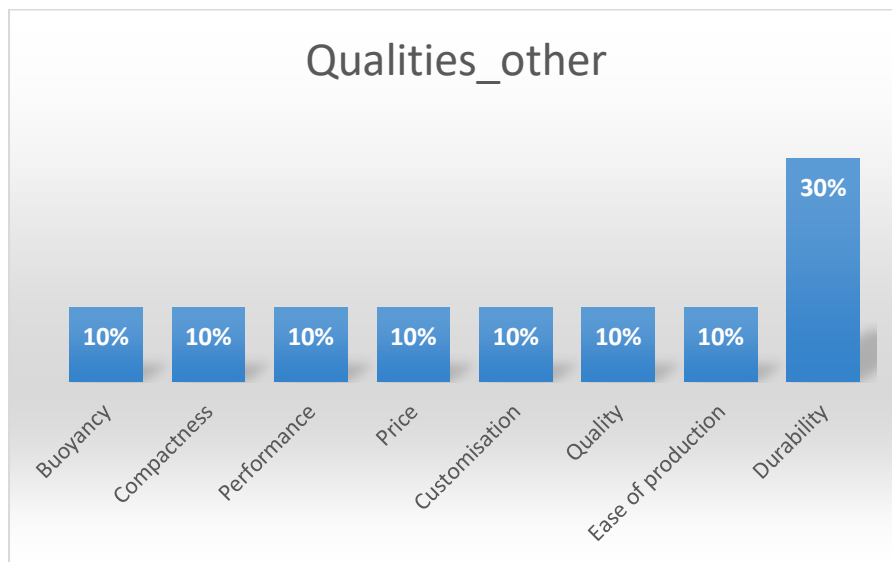


Figure 10: Fishing net qualities and list of other qualities

Results indicates that the qualities considered most important for fishing gears are:

- Life expectancy (27%)
- Other gear specifications (23%) which include: compactness, flexibility, reparability and weight
- Performance in terms of fish catches (17%)

Other qualities include durability (30%) which can be linked to life expectancy. It is expected indeed that the new material/s will guarantee that the net will last at least as long as the monofilament fishing line

A small part of the sample (3%) mentioned as desirable qualities for fishing nets either recyclability or biodegradability

Q: Do you know the waste reception plan in your home port?

As shown in figure 11, majority of respondents included "NO" (27%) in the answer to the question about waste reception, followed closely by those included "Yes" in the answer to the same question (26%). Some respondents who said "yes" specified that they use either dump bags or bins to dispose of gears (25% of mentions) or dispose of waste by using skips (25% of mentions)

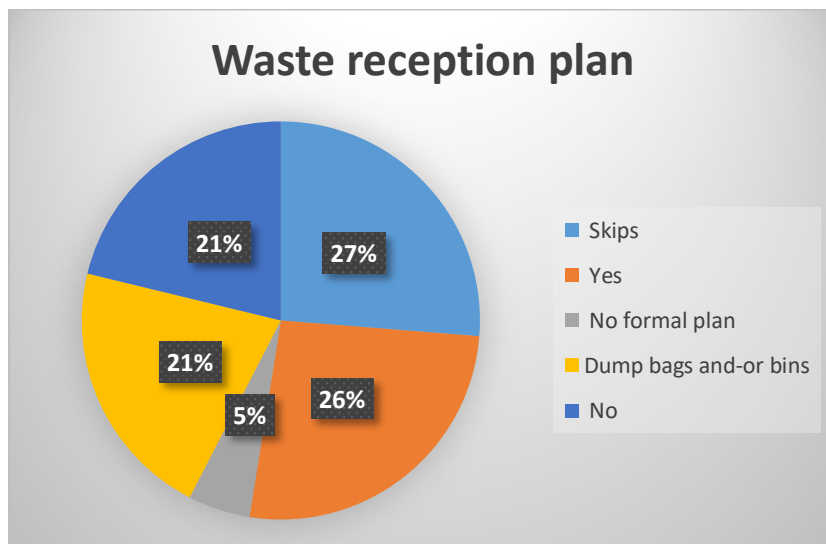


Figure 11: Waste reception plan

Do you know how end-of-life fishing gear waste is then treated?

Figure 12 below shows that when it comes about knowledge of end of life fishing gears treatment there seems that most of respondents indicated that gears are either re used or recycled (67% of mentions) whereas no-do know has been coded 33% of times.

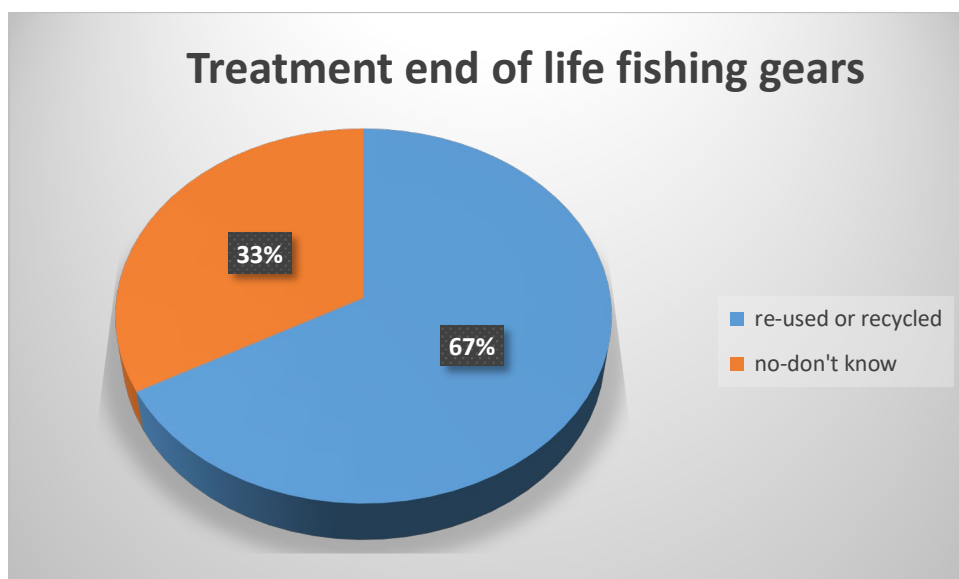


Figure 12: Treatment of end of life fishing gears

Could you list any structures or facilities that would help you manage your used fishing gear?

Could you list any structures or facilities that would hinder you in the management of your used fishing gear?

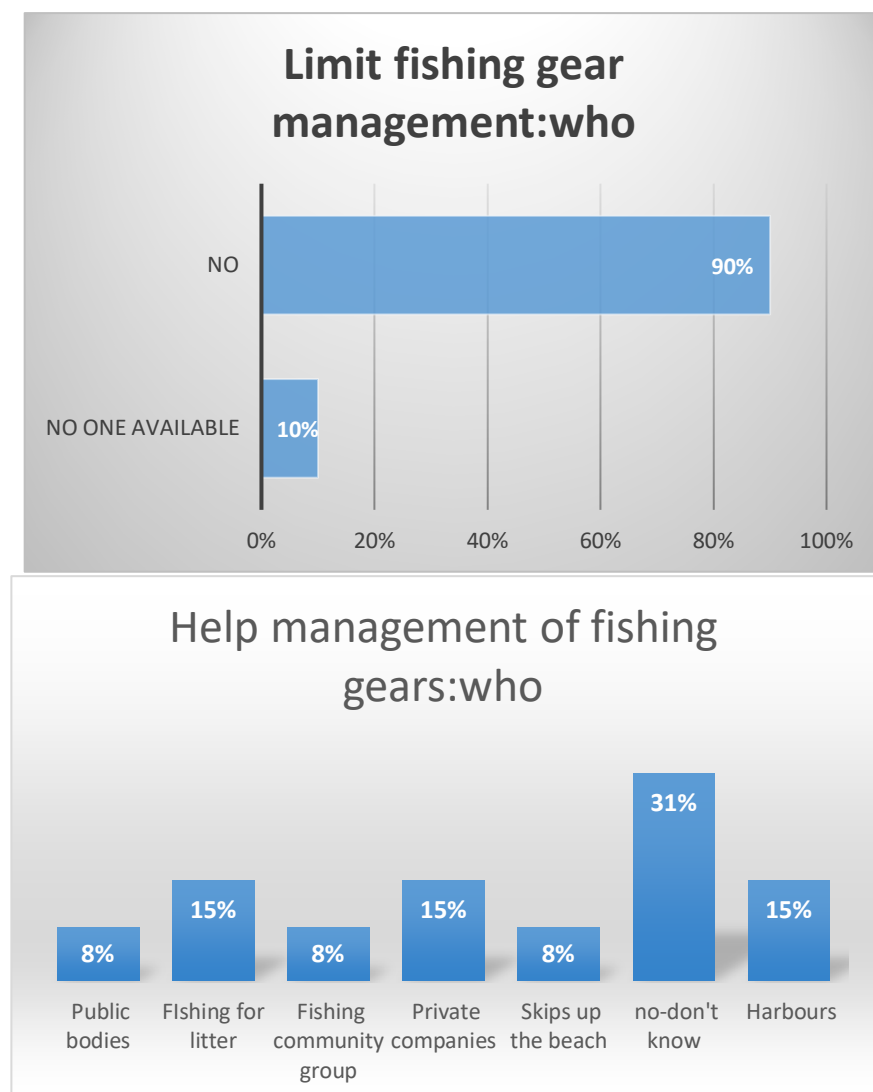


Figure 13: **limit/help** the management of respondents' used fishing gear: WHO?

Lack of knowledge with regards to structures or facilities to assist or hinder the management of used fishing gears is reflected in the answers to both questions. 31% of responses contain in the answer the words "no" or "do not know" to the question about structures of facilities helping to sort out used fishing gears (fig 12 right hand side). One respondent (fig. 12) said that there is no one available to manage used fishing gears whereas the vast majority answered "no" (fig. 12 left hand side) to the question "Could you list any structures or facilities that would hinder you in the management of your used fishing gear"

Harbors and private companies have been reported 15% of times as structure/ facilities assisting in the management of used gears. Likewise, initiatives like Fishing for litter have been reported to be of assistance.

→ Overall and in line with what emerged from the France results, lack of knowledge regarding treatment of used gears and waste management plan seems to prevail across the sampled population.

Vocabulary:

What words or phrases come to mind when I say "fishing activity and biodegradable gears"

What words or expressions come to mind when I say "fishing activity and sustainable development"

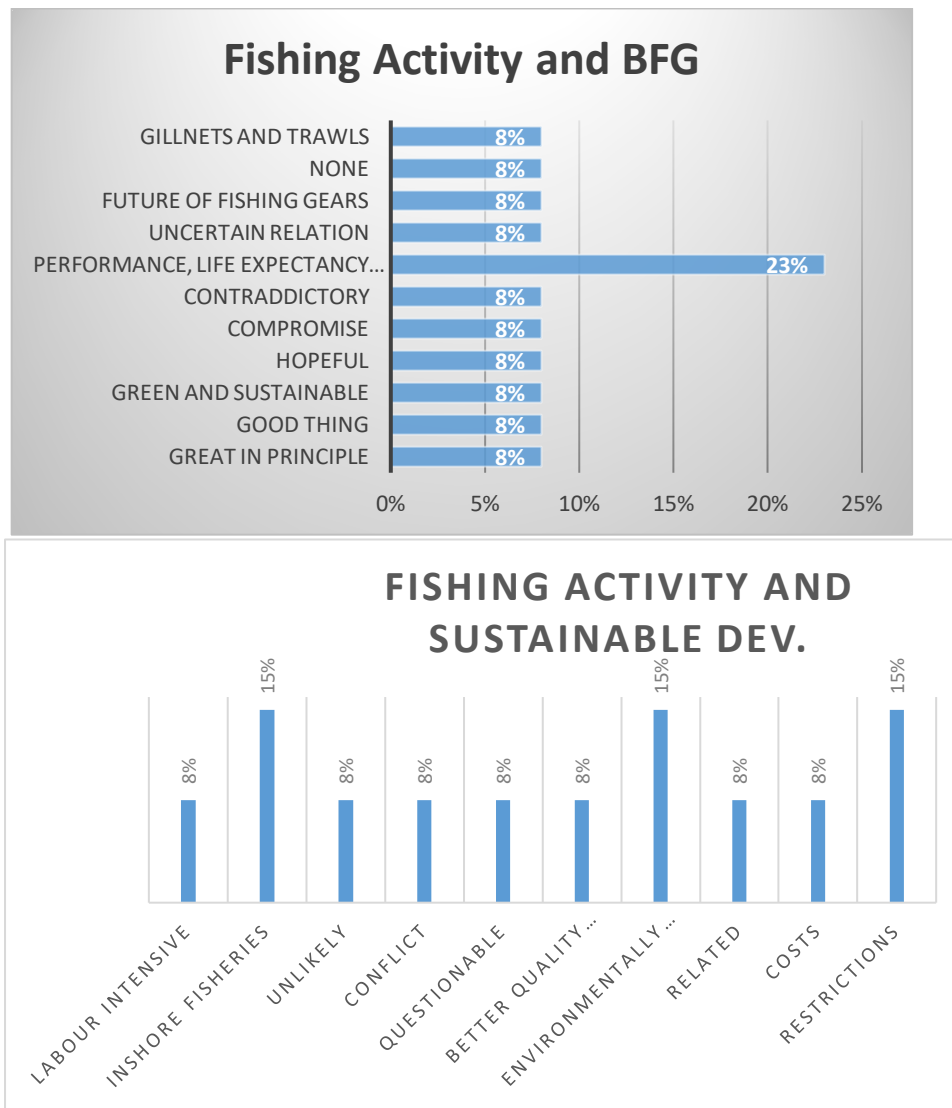


Figure 14: *Fishing activity and BFG and Fishing activity and Sustainable development*

Most respondents associate fishing activity and BFGs to performance, life expectancy and costs (figure 14).

When it comes to fishing activity and sustainable development interestingly the words the respondents used the most were (see figure 14 on the right-hand side):

-Inshore fisheries

- Environmentally friendly

-Restrictions

Socio-technical system:

Could you explain what changes may occur in your work if you decided to change to a biodegradable fishing gear?

The majority of the answers indicate that fishers do **not see much difference or no difference at all** in their work if they were to move from current gears to BFGs (**67%** of mentions). 22% of changes are associated to life expectancy (durability) of the new material.

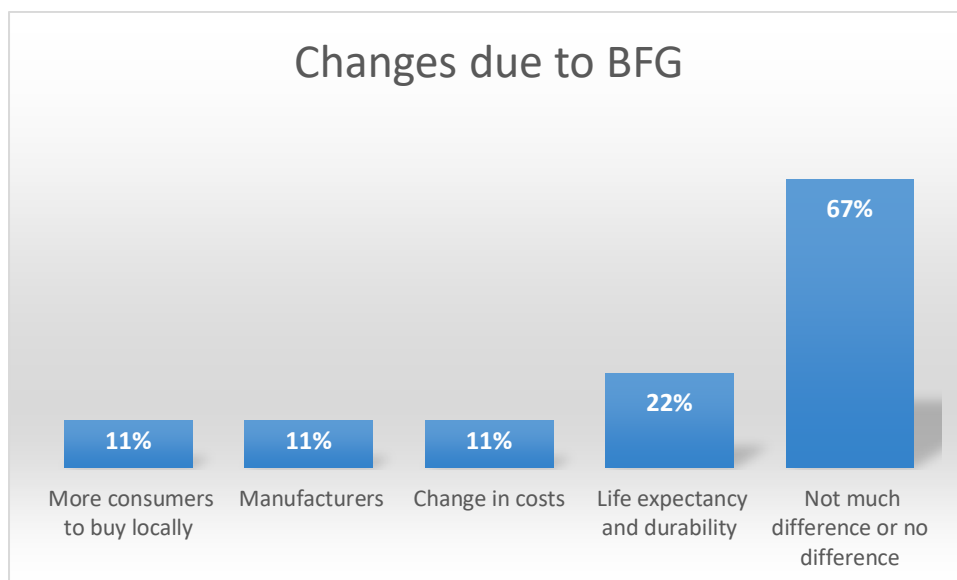


Figure 15: changes are more likely to occur at work due to biodegradable fishing gear

In your opinion, how is it possible today to add value to your professional activity in society

Respondents seem to think (figure 16) that in order to add value to their profession a more sustainable and responsible way of fishing is the pathway to follow (45% of mentions) followed by direct sell to consumers (36% of mentions)

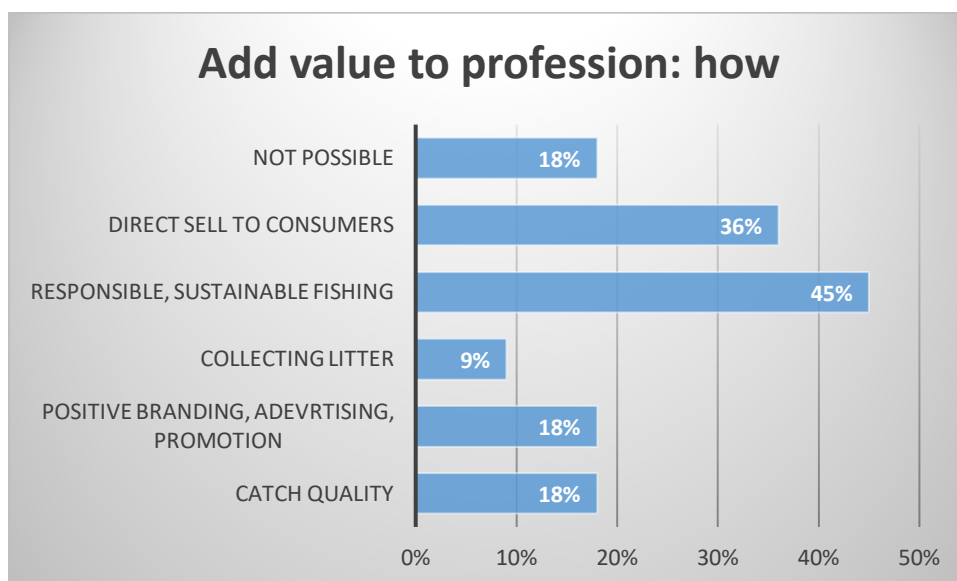


Figure 16: add value to your professional activity in society: **How?**