INdIGO

INnovative fIshing Gear for Ocean

T2.3.1 - The role of the consumer in biodegradable fishing gear development in the Channel fishery

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Contents

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Executive summary

Interest in sustainable production, consumption and the role of the consumer in adopting a sustainable lifestyle has grown in recent decades. There is evidence that consumers elicit preferences for sustainability (Menozzi et al., 2020; Roheim, Asche and Santos, 2011). MSC (2022) report that "while ocean anxiety is high, British seafood consumers are feeling more empowered and increasingly believe the choices they make can have a positive impact on the health of our oceans". Relevant for biodegradable fishing gear (BFG) use in the Channel fishery, consumers (90%) are worried about the state of the world's oceans, with 66% stating that this concern had grown in the last two years. However, making decisions around sustainability is not always straightforward, with MSC (2022) noting that the majority of consumers think supermarket/brand claims about sustainability need to be clearly labelled by an independent organisation (MSC, 2022) – in other words adding independent credibility to sustainability claims is important. Nonetheless, as noted by Pieters et al., (2022), price is one the main factors in consumer decisions around sustainability.

MSC certified products amounted to £1.26 billion in value and around 152,000 tonnes in volume in 2022, with MSC products accounting for 54% of the value of all wild caught fish and seafood sold in the UK retail (MSC, 2022). This suggests consumers are willing to pay for sustainability and indeed link sustainability with certification schemes – in particular MSC. In addition, other studies suggest consumers are willing to pay price premiums for a product different in some way from its typical equivalent (e.g. Asche and Bronnmann, 2017; Vitale et al., 2020).

However, few studies that have focussed specifically on BFG as a mitigation to the negative externalities created by abandoned, lost or otherwise discarded fishing gear (ALDFG) have considered the role of the consumer. Brown et al., (2005) found that BFG ranked low as a management response to reduce the various impacts of ALDFG, but the role of consumer awareness and acceptance was suggested by fishers as a potential benefit of using BFG. Albeit not focussing on the Channel fishery, other studies (Asche and Bronnmann, 2017; Jaffry et al., 2004; Menozzi et al., 2020; Whitmarsh and Wattage, 2006) demonstrate the role of consumer awareness, acceptance and willingness to pay higher prices for sustainably produced fish. Drinkwin (2022) reports on the improvement in public image as a driving force for fishers recovering ALDFG – further demonstrating the perceived role (by fishers) of sustainable production in consumer decisions.

Outputs from the economic impacts task (T1.1.3) demonstrated that the impact of fishing efficiency (under various scenarios) was the main cost barrier to fishers using BFG. However, under the different scenarios modelled, small increases in the price level led to relatively larger increases in offsetting the impacts of reduced fishing efficiency. In the absence of a regulation (and anticipation of such in the short-medium term), coupled with prohibitive levels of financial assistance (we found this to be as high as £90,000 for some vessels in T1.1.3), we address the role of BFG in sustainable fisheries by considering the role of the consumer in assisting the developmental phase of BFG, by assessing their willingness to pay higher prices for BFG fish in the Channel fishery. To do this, we interviewed those engaged in the fish supply chain (wholesalers,

fishmongers, buyers and restaurateurs) to understand their views of the potential for achieving higher market prices for BFG fish and the perceived opportunities and challenges. Given the MSC is the most well-known certification scheme globally, we also consider the potential for higher market prices through linking with BFG fish.

For the most part, we find that an increase in price achieved for the fish caught with BFG would be unlikely and even if achieved at a modest level (5%) would still necessitate subsidies to preserve the current economics of the fishery. The most important factor governing this is the fishing efficiency of BFG and as a result the highest barrier to overcome is the technical challenge of ensuring that it closely mirrors the performance of traditional gear. The research conducted within the small-scale fishery suggests that the adoption of BFG is not a commercially viable proposition and as such would need to attract significant levels of financial assistance. This would have to remain in place while the significant technological barrier of mirroring the performance of traditional fishing gear is overcome. However, the benefits of conducting a vessel level analysis (T1.1.3) enable us to show the vessels that should be targeted for engagement in the development phase of BFG i.e. those where a combination of small increases in price and lower levels of financial assistance are needed to breakeven (e.g. a 5% price increase would reduce the subsidy to breakeven from £7,606 to £804 for an <10m static gear vessel in our analysis).

1. Introduction

Early research into marine litter in the 1960s, 70s and 80s was followed by a subsequent lull in the 1990s (Ryan, 2015). However, confirmation in the last two decades that microplastics are a ubiquitous marine pollutant, coupled with the publicity around the formation of garbage patches in oceans, led to increased public awareness and renewed interest into marine litter (focussing on amounts and sources, ingestion, entanglement, transport, microplastics and policy) (Ryan, 2015). Abandoned, lost or otherwise discarded fishing gear (ALDFG) is one of the driving forces behind the increase in plastics in the marine environment. The European Commission (2018) estimate that 27% of all marine litter in EU sea basins is ALDFG[1][2], with waste from the fishing industry noted as a significant source of beach litter. Further, it is estimated that 46% of the great Pacific garbage patch is waste from the fishing industry (Lebreton et al., 2018). Part of the problem lies with poor port reception facilities and commercial ability to recycle end of life fishing gear, which can lead to abandoned and purposely discarded fishing gear. For example, it is estimated by the European Commission (2018) that only 1.5% of fishing gear is recycled. While extended producer responsibility (EPR) has been put forward as a potential solution and is currently being adopted in some EU countries (and has been put forward in the UK as a potential policy option to address ALDFG (Resource Futures, 2021)), recycling supply chains (required for EPR) for fishing gear will not be developed overnight. The recycling of fishing gear remains limited due to the complexity and variety of materials used to make fishing gear, rendering dismantling for recycling difficult. Currently, this is known to generate a value gap, whereby the recycled raw material is worth less the cost of producing it.

Much of the research that focuses on the potential and the practicalities of using biodegradable fishing gear (BFG) is found in the last two decades, (e.g. Glaukos[3], E-REDES[4] - largely concentrated on fisheries in Norway (e.g. Grimaldo et al., 2018; Cerbule et al., 2022), South Korea (e.g. Bae et al., 2012; Kim, Park & Lee, 2014) and the USA (e.g. Bilkovic et al., 2012)). In particular, research into the technical development of BFG has grown rapidly, progressing from studies that determined the technical shortcomings of BFG (relative to traditional fishing gear) to research focussed on overcoming the challenges. Nevertheless, progress has been limited on issues that culminate in reduced fishing efficiency (e.g. Grimaldo et al., 2018; Cerbule et al., 2022). Our earlier work (see Drakeford, Forse and Failler, 2022) identified the majority of economic cost to fishers arises from reductions in fishing efficiency and the level of financial incentive required for fishers to engage with BFG (as a result) would be prohibitive. Moreover, much of the research conducted into BFG has concluded issues (e.g. strength, flexibility) that have ranked BFG low against alternatives. However, most studies conclude the need for further research into BFG to harness the potential as a mitigation to the various environmental and socioeconomic impacts of ALDFG (Gilman et al., 2021; Gilman et al., 2022).

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018PC0340&rid=9

[2] https://www.europarl.europa.eu/news/en/press-room/20210322IPR00525/parliament-urges-eu-to-take-drastic-action-to-reduce-marine-litter

[3] https://www.b4plastics.com/projects/glaukos/

[4] https://www.e-redes.esposende.pt/en/#about

Indeed, prior to commencing work on INdIGO tasks, we identified that the potential of biodegradability in addressing the impact of ALDFG (in the Channel area and further afield) was ranked low compared to alternatives (e.g. Brown et al., 2005, MRAG, 2020). Research that had engaged industry (albeit limited) highlighted that fishers were not (in general) supportive of BFG as a mitigation measure. These studies tended to conclude that the views of fishers, such as "no faith in the concept", "not a like for like", may result from a lack of understanding of biodegradability and compatibility e.g. a gear that degrades in seawater against gear that is strong and durable (the latter representing highly desirable characteristics sought by fishers and is found in current gear). However, the lack of interest may be related to the magnitude of change required for BFG implementation, compared to the other mitigation measures being discussed at the time (Brown et al., 2005). In short, BFG is a major change, as opposed to alternatives such as better gear marking, GPS buoys, making efforts to not lose or return old gear to the quayside etc. This, coupled with a lack of understanding of the various environmental, economic and social impacts of ALDFG, may have put BFG into a 'radical change' category that was not seen as either necessary or desirable.

BFG is not an all-encompassing solution to the myriad of impacts caused by ALDFG and marine litter (Wilcox and Hardesty, 2016). However, BFG may provide mitigation for some impacts of ALDFG and marine litter. For example, there are some impacts BFG has potential to address e.g. to reduce the ghost catch of fish (which is in direct competition with commercial fishers) and other marine life, and to prevent the degradation of gear into the arguably more damaging microplastic. As the marine litter problem continues to worsen[5], it can be concluded that BFG has a potential role in developing sustainable fisheries – particularly as ALDFG is a significant contributor to marine litter. However, given the technical challenges around fishing efficiency, alternatives to financial assistance should be addressed to engage fishers in the developmental phase of BFG in the Channel fishery. In this report, we address the role of the consumer in the developmental phase of BFG.

1.1 Context

The rationale for the work tasks completed to date in INdIGO was centred on providing a resource base to help fishers in their decision to engage with BFG during the development stage (i.e. during our project but also to contribute to the legacy of INdIGO and contribute to setting the agenda for further research addressing the role and development of BFG).

The market analysis, which first considered the composition of the fisheries in the study area (e.g. fleet, landings, economic factors and management frameworks) and then the alternatives (e.g. competition in the market for BFG, such as gear recycling and EPR). This was followed by a review of the opportunities and barriers for BFG implementation (including fisher's views on BFG) and the role of incentives to facilitate interest in the developmental phase of BFG. The market analysis concluded that the 'target market[6]' for BFG was represented by the small-scale static gear vessels (gill type nets and trap type gear).

[5] https://www.bbc.co.uk/news/science-environment-64889284
[6] See T1.3.2 Market Analysis.

The outputs of the market analysis were used to inform the economic impacts study and provided the next layer of the resource base. Overall, there are limited studies that address the economic impacts of marine litter (with those that do largely focussing on economic regions e.g. Mcllgorm, Raubenheimer & Mcllgorm, (2020) for the Asia Pacific Economic Cooperation region). While focus on regions and global policy development are required to frame and scale the marine litter problem, and to foster international cooperation (given that it is a global problem that straddles oceans), actions to address marine litter are likely to be delivered at the country, regional and local levels. Some studies e.g. Mouat et al (2010) have addressed marine litter and the fishing industry at a national level, but from the aspect of the economic costs to fishers from marine litter – for instance entanglements, navigational risks. We considered the economic cost to fishers generated largely from their own contribution to marine litter (ghost fishing resulting from ALDFG), while at the same time considering BFG as a mitigation to ALDFG. As such, the economic impacts task was designed to address the potential role of BFG in mitigating the ghost fishing impact of ALDFG, while at the same time addressing the costs and benefits of fishers using BFG to replace traditional gear.

Given that it is established that ALDFG has (amongst other impacts) a ghost fishing impact (Gilman,2015), with plastic-based fishing gear persisting in the marine environment for decades (Napper and Thompson, 2020), we developed a vessel level analysis of the financial costs associated with BFG use (as well as the costs and benefits of mitigating ghost fishing – which is in direct competition with commercial fishers). We developed the analysis at the vessel level given that vessels that appear to be similar e.g. size, gear type, target species etc. may be operating under different business models (which may have significant impact on their ability to engage in BFG development work). This is supported by NEF (2018), who show variability among fleets and that some fleet segments are even operating with negative profits – reflecting the fact that for some smaller scale fishers, fishing is as much a recreational activity as a commercial one.

The vessel level analysis (i.e. disaggregated to the vessel level) was then aggregated to vessel type (fleet) and gear types to demonstrate the wider costs/benefits of BFG implementation. This enabled an original contribution to the marine litter debate on addressing ALDFG. We found that under most scenarios modelled, the use of financial incentives would be essential to facilitate the uptake of BFG in the fishery we studied. The vessel level analysis provides value as it demonstrates the impacts of ALDFG, ghost fishing and that the role of BFG is affected by vessel characteristics. For example, in one scenario modelled, the level of financial incentive required to maintain profitability was £90,000 for an over 10m gillnetter, while it was £30,000 for an under 10m potter. In another scenario modelled, we demonstrate an increase in profitability from BFG use (albeit with caveats e.g. the actual level of ghost fishing that occurs in the Channel, fishing efficiency decrease etc.). On the whole, as the majority of the incentive is required to offset declines in fishing efficiency (i.e. BFG catches less fish per unit of effort), we demonstrate that integrating BFG into a circular economy for fishing gear is a technical problem and not an economic one. Given the majority of the cost of BFG relates to technical issues (that culminate in reduced catch per unit of effort) if fishing efficiency cannot be addressed, all other things remaining constant, then BFG is not a viable solution (if a fishing industry is to be maintained).

However, as demonstrated in the stakeholder engagement[7] conducted throughout INdIGO, there is strong interest from fishers to develop sustainable practice and willingness to use BFG. Fishers see a clear link between BFG and sustainable practice. In general, the respondents were in favour of BFG and preserving the environment but believed that financial assistance was essential for it to be adopted (Q9). They believed that it would enhance the public's view of fishers and be personally rewarding as well as it being an aspect that could be used to promote the catch and fulfil customer's expectations (Q11 response 3 and 6, Q16 response 1, Q14 r4). Many responses related to BFG product knowledge received a response of 'Neither agree nor disagree' (Q12 r1 &4, Q13 r3, Q18 r1-4) while those related to enthusiasm for adoption received a positive response (Q12 r2,3&5, Q13 r2, Q15 1,3&4, Q16 r3,4,5&6). This suggests that while not much is known about BFG this is not a barrier to its adoption with the majority of respondents wanting to adopt it. The impact of adoption on profitability was central to many responses with lifespan and cost as the most pressing concerns (Q19). Over 50% of respondents would accept between a 5 and 20% decrease in lifespan with two thirds accepting some decrease (Q20). 50% would also accept some increase in cost although only four of the 34 respondents would accept an increase above 10% (Q21).

Top five factors that would influence the uptake of BFG are (Q22):

1. Financial incentives to purchase BFG

2. Efficiency and catchability

=3. Cost

=3. Consumer's willingness to pay more for fish caught by BFG

5. Lifespan

Furthermore, the behavioural questionnaire (24/03/2021 - Q22) upon asking the question - What would influence your decision to invest in or adopt biodegradable fishing gear (BFG)? Consumers' willingness to pay more to buy fish caught using BFG recorded the following responses from fishers - 38.24% Very influential, 38.24% Extremely influential. Therefore, the view of the important role of consumers paying more for fish caught using BFG is held by around 75% of fishers.

1.2 The rationale for the role of the consumer in paying higher market prices for BFG fish

The main outputs from the market analysis and economic impact tasks demonstrated that (all else remaining constant), if the technical shortcomings of BFG, which culminate in reduced fishing efficiency, cannot be overcome, BFG is not a like-for-like replacement to traditional gear (and will not be accepted by the fishing industry). However, it is not uncommon for a new innovation to require rounds of development in order to achieve better performance (for BFG, this means buy in from fishers to engage in the development process) than a current product or performance that is similar or at

[7] This section is largely taken from INdIGO deliverable 4.2 Acceptability Results: http://indigo-interregproject.eu/wp-content/uploads/2022/10/Livrable-MT4.2-Acceptability-results-EN.pdf

least comparable. Therefore, it is likely that the costs of using BFG would decline overtime (both costs of production and costs to fishers e.g. fishing efficiency issues may be addressed with greater levels of commercial use). However, in the absence of a regulation to mandate use, but with willingness from industry to engage in the developmental stages, we propose that one of two options are available to offset the costs of fishers engaging with experimental work (allowing for further development of BFG).

1. Financial incentives (of some kind)
2. Higher market prices

We consider that the other options (that essentially rely on enabling fishers to set more gear to catch more fish, or some increasing days at sea or additional quota etc.) are not compatible with sustainable fisheries management. Further, for some fishers, neither would it be desirable (as the additional costs of fishing e.g. fuel and time may not be offset with additional catch). Moreover, the use of incentives in fisheries has been controversial for a number of reasons (mostly ones that either result in increased effort or perversely result in increased effort), so a subsidy to enable fishers to use BFG may not be desirable for society as a whole. Our stakeholder engagement went beyond earlier INdIGO surveys on whether financial assistance would be required (which is not unlikely to result in a positive response), to discuss the use and level of subsidies. While various reasoning was provided for the dislike of subsidies, in short, this can be summed as the potential for subsidies "being as easily withdrawn as they are given" and issues around subsidies actually serving their purpose i.e. not impacting on profitability.

However, some level of financial assistance will be needed for fishers to engage in BFG development, due to the technical shortcomings of current BFG offerings. This is supported by the main conclusions of INdIGO "Research into biodegradable plastics is in its early stages and needs to be continued as it may be one of the important solutions to reducing plastic at sea" coupled with "financial support will be required for the continuation of these important initiatives". Nevertheless, we are not talking about a subsidy for the commercial use of BFG as a replacement to traditional gear, rather a subsidy to inform the development of BFG (e.g. commercial trials) to determine if BFG really has potential to replace traditional gear and mitigate for the impacts of ALDFG. This is an important differentiation.

Outputs from the economic impacts task show that various levels of financial assistance would be needed for fishers to breakeven (ranging from a few hundred pounds to tens of thousands of pounds depending on vessel type. However, our economic impact study suggests that the level of financial assistance will be prohibitive (for most vessels), although we also identified that small changes in the price level have a relatively larger impact on offsetting the fishing efficiency impacts on vessel level profitability. We found that the price level to achieve breakeven varied from a modest amount of around 6% to a more prohibitive amount of around 23% (depending on vessel type). Therefore, if consumers are willing to pay higher prices for BFG fish then this will help offset economic impacts during the developmental phase of BFG. Given most food producers are price takers (rather than price setters), then the positioning of

BFG as a sustainable fishing method (certification schemes, eco-labelling etc.) would be important to achieve higher market prices. However, we also found that the price level required to reach breakeven (for most vessels) may also be prohibitive, although we did not explicitly test this.

The final layer of the resource base is to test whether the consumer is willing to pay a higher price for fish caught in the Channel using BFG. We also consider the potential for BFG fish combining with certification schemes i.e. labelling as an extra level of sustainability (or to independently verify the role of BFG in sustainable fisheries) to achieve higher prices. Finally, we then look at combinations of financial assistance and market price increases to provide a better understanding on the role of both in BFG implementation in the Channel fishery - and the extent to which they can offset the impacts of BFG on profitability.

The remainder of the report is laid out as follows. The next section (Section 2) reviews sustainability, consumer awareness and acceptance, as well as the potential for linking sustainability with higher market prices. We then consider the role of labelling, sustainable fisheries and the potential for higher prices and linking with BFG. The method is presented in Section 3. The results and discussion follow in Section 4. Finally, Section 5 concludes and discusses areas of future research for BFG.

2.0 Sustainability and consumer awareness and acceptance

2.1 Introduction

Few studies that have focussed specifically on BFG as a mitigation to the negative externalities created by ALDFG have considered the role of the consumer in BFG implementation. Brown et al., (2005) was one such study that had an indirect link to the role of consumers in BFG use as a mitigation to ALDFG in the Channel fishery. In fact, this is the only study that has addressed such in the Channel fishery. While BFG ranked low as a management response to reduce the impact of ALDFG, the role of consumer awareness and acceptance was suggested by fishers as a potential benefit of using BFG. While not focussing on the Channel fishery, other studies (Whitmarsh and Wattage, 2006) also demonstrate the role of consumer awareness, acceptance and also willingness to pay higher prices for sustainably produced fish. Drinkwin (2022) reports on the improvement in public image as a driving force for fishers recovering ALDFG. Taking into consideration the current challenges around developing BFG (e.g. strength, durability), the role of consumer awareness and consumer acceptance is perhaps one of the greatest opportunities for BFG implementation. Studies (e.g. Kershaw, 2015; Tsai, Lin and Chang, 2019) have shown that a variety of factors are responsible for differing attitudes towards the marine environment (e.g. age, education, gender, cultural background). Kershaw, (2015), conducted a study on attitudes of European populations and found governments and policy were considered responsible for the reduction of marine litter. There is also some evidence to suggest that human perceptions influence behaviour and that some people are attracted to technological solutions as an alternative to changing behaviour (Klockner, 2013). While this could be seen as positive for BFG – e.g. a new technology that reduces the need for behavioural change to correct an environmental externality caused by ALDFG, it may also be seen as negative, as a

perceived lower responsibility could result in a reluctance to act e.g. BFG that become ALDFG also has environmental impacts.

The economic impacts task highlighted that relatively small increases in market price have a relatively larger impact on offsetting the increased costs associated with BFG use. Therefore, if increased market prices can be achieved for BFG fish, the consumer would have an important role in the developmental phase of BFG.

The next section considers sustainability, the consumer and the potential for higher market prices.

2.2 Consumers, sustainability and higher market prices for BFG fish – is there a link?

Interest in sustainable production and consumption and the role of the consumer in adopting a sustainable lifestyle have grown in recent decades. There is evidence that consumers elicit preferences for sustainability (Roheim, Asche and Santos, 2011; Menozzi et al., 2020) and that price is the main factor in consumer decisions around sustainability (Pieters et al., 2022). However, the assertion that preferences are strongly driven by products and price is challenged by a number of studies for food products. For example, Stemle, Uchia and Roheim (2016) found ambiguous results across a variety of fisheries regarding the willingness of consumers to pay higher prices for sustainable fish. Asche and Bronnmann (2017) note that consumers are willing to pay high premiums for some fish species (30% for cod), moderate premiums of 9% for trout and 6% for tilapia and no premium for saithe. Vitale et al., (2020) found that seafood eco-labels could increase consumer willingness to pay between 16% and 24%.

Further, other studies reveal differences in perceptions of sustainability and the factors that drive it. For example, one study[8] found that producers/retailers are disconnected in their perceptions on the preferences and role of consumers in sustainability. Some large-scale market research studies[9] show consumers are willing to pay for sustainability, others show some are and some are not[10], some compare pandemic and post pandemic and the expectation that changes in consumer behaviour in the pandemic will be lasting changes. One study[11] in the UK found 33% of UK consumers are prepared to pay more and they would on average pay 25% more for more sustainable options. A further study[12] shows a disconnect between large retailers and consumers when it comes to sustainability. For example, 65% of consumers say they will pay more, but 65% of retailers say they think consumers will not pay more. Some studies report that cost is the main driver of sustainable choices i.e. consumer readiness to pay more for variant of a typical product e.g. BFG caught vs. non-BFG caught fish. Pieters et al., (2022) note consumers face a trade-off between what is sustainable for the planet and what is sustainable for their wallets, noting a general

[8] https://www.firstinsight.com/white-papers-posts/the-sustainability-disconnect-between-consumers-and-retail-executives
[9] https://www.consultancy.uk/news/29424/third-of-consumers-willing-to-pay-more-for-sustainable-products
[10] https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html
[11] https://www.consultancy.uk/news/29424/third-of-consumers-willing-to-pay-more-for-sustainable-products
[12] https://www.forbes.com/sites/gregpetro/2022/03/11/consumers-demand-sustainable-products-and-shopping-formats/?sh=3c84bf046a06

decline (across a survey of 21,304 participants) of sustainability purchases with consumers citing cost as the main reason.

For the past three years, Deloitte has conducted a survey into consumer attitudes and behaviours around sustainability[13]. While not linked directly with fish consumption, the study showed that since 2020 consumers are increasingly making conscious decisions with sustainability and the environment in mind. In general, consumers are taking actions to lead a more sustainable life and there is some carry over from (including forced) decisions during the pandemic (e.g. shopping locally, sourcing food in season, buying from different channels e.g. directly from fishers as opposed to supermarkets). Further, during the same period, 64% have reduced their consumption of single use plastic – this could be indirectly linked to preference for a reduction in the use of plastic (and given the majority of marine litter is from land-based sources an indirect link can be drawn to a preference for reducing marine litter). This is positive for BFG development, sustainability, consumer approval and the potential for higher market prices, as BFG tackles one of the major sources of marine litter – fishing gear. Moreover, consumer decisions around sustainability are most likely to be driven around purchases deemed as essential and/or frequent purchases, which manifests strongly with food purchases. In addition, while not linked directly with fishing gear, consumers indicated most strongly that sustainability and biodegradability, or recyclability (as well as being responsibly sourced or harvested and supporting biodiversity) were important sustainability considerations. Deloitte (2022) found that 65% linked biodegradability with sustainability, higher than the 60% who ranked recyclability with sustainability. Further, 52% ranked durability over recyclability.

All of these elements can be strongly linked to potential support from consumers for the use of BFG – and a link with the potential for higher market prices.

2.2.1 Labelling, sustainability and higher prices

While previous studies (discussed above) outline there appears to be a link between labelling and sustainability (for purchases in general), it is not as strong as attributes such as biodegradability, durability and recyclability. In fact, only 25% perceive a link between labelling and the product being sustainable (e.g. sustainably sourced or manufactured labels) and only 20% rating labelling as very important when considering a purchase (Deloitte, 2022). However, these large market research studies, which address the driving factors of sustainable consumption decisions, focus on consumer purchases in general (e.g. clothing, food, cleaning products etc.) and not specifically fish. This is an important distinction, because eco-labelling is a long-established mark of sustainability in fisheries accounting for a growing number of species and fisheries each year[14]. However, given an era of increasing prices, caused by global events (pandemic, the Russian invasion), Deloitte (2022) found that 52% cite cost as the main barrier to sustainable choices, although lack of interest in sustainability and lack of information on sustainability score similarly. The is supported by the Marine

[13] https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html

[14] AS one interviewee put it “MSC is seen as the gold standard for sustainability in fisheries”.

Stewardship Council (MSC), who found that the majority of consumers think supermarket/brand claims about sustainability need to be clearly labelled by an independent organisation (MSC, 2022) – in other words adding independent credibility to sustainability claims is important. This may be important for achieving higher prices for BFG fish (especially as consumers are likely to be unaware of the benefits of BFG use in fisheries). Therefore, education on sustainable production and consumption may help in shaping consumer decisions, particularly for new innovations like BFG.

As well as linking sustainability to labelling, issues relating to reducing plastic use and understanding how to dispose of used products for recycling came a close second (54%) and third (46%) to affordability (Deloitte, 2022). Nevertheless, 24% cite that they would pay a higher price for sustainability labelling and packaging (including biodegradability). Therefore, an indirect link can be made with the 24% who revealed a preference to pay price premiums for sustainability as willing to pay more for BFG if it is perceived as delivering sustainable fish.

In terms of sustainability accreditation in fisheries, the MSC was one of the first global schemes to link labelling with sustainability, based against a broad set of principles and criteria for sustainable fisheries (Deere, 1999). Given that the majority of fish production is destined for international markets, schemes that focus on global fisheries have the potential to create market-based incentives for sustainable fisheries management - as consumers of labelled fish in the UK, for example, have the ability to influence sustainable fisheries in the country of origin. While other initiatives and schemes are in place around the world e.g. the Global Seafood Alliance[15], the Marine Aquarium Council[16], the Aquaculture Stewardship Council[17] among others[18], the MSC is a globally recognised standard for sustainable fisheries. The MSC was officially launched in 1997[19], with the Australian rock lobster being the first certified fishery in 2000. By 2015 more than 25,000 products carrying the MSC blue fish label were available worldwide, growing to 30,000 products in more than 100 countries by 2022, which accounts for 15% of all wild marine catch. The ethos of the MSC is to support and reward efforts to protect the oceans and safeguard seafood supplies for the future.

In the UK, the majority of retail sales is covered by five species: salmon, tuna, cod, prawns and haddock (Uberoi et al 2021), which account for up to 80% of consumption despite the number of available MSC species almost doubling from 2011 to 2021. However, the pandemic brought about changes to consumer shopping behaviour. The impact of self-isolation and economic uncertainty, along with the availability of products and choice has changed the way that consumers buy products and the products that they buy, with suggestions that changes may be permanent (Kohli et al., 2021). Anecdotal evidence[20] in the south west suggests that consumers changed

[15] https://www.globalseafood.org/
[16] https://www.aquariumcouncil.org/
[17] https://www.asc-aqua.org/what-we-do/
[18] See https://www.ourgssi.org/gssi-recognized-certifcation/ for a description of certification schemes in place around the world
[19] https://www.msc.org/uk/about-the-msc/what-is-the-msc
[20] From informal discussions with the Corish Fish Producers Organisation.

purchasing behaviour for fish during lockdowns when the main fish markets were closed and the larger vessels tied up. Smaller vessels were able to develop a business model that allowed them to develop a customer base through direct delivery (to the door) from fish caught locally during each fishing trip. It was noted, however, that this type of business model was only appropriate for small day fishing vessels who tend to land low volumes, as opposed to larger vessels who landed vast quantities (and require a fish market to deal with the volume). In addition, there are other examples, pre-pandemic where small-scale fishers have developed fishing practices to develop local markets for direct sale. For example, the Blue Marine Foundation's Lyme Bay project has demonstrated that for over a decade, fishers have been able to sell their catch through the 'Reserve Seafood' by following a voluntary code of conduct ensuring fishing is within environmental limits. The market uplift associated with their sustainable catch rewards the fisher's dedication for sustainable practice[21]. The linking of labelling and sustainability and increasing profitability is supported by Luna, Garcia-Olalla and Sanchez (2021) who found that it pays for businesses to be MSC certified, dispelling myths that schemes like MSC impacts profits negatively.

MSC certified products amounted to £1.26 billion in value and around 152,000 tonnes in volume in 2022[22]. While there has been a slight decline in both volume and value of MSC labelled fish (since highs in 2019-2020), neither have fallen below 2018-2019 levels (i.e. catches and sales have returned to pre-pandemic levels). It is anticipated that growth (in both volume and value) will increase at a similar rate as economies re-open and re-stabilise following the pandemic (MSC, 2022). This supports research (e.g. Deloitte, 2022) that indicates that consumers want to adopt a sustainable lifestyle and that they are willing to pay price premiums for sustainable fish (Asche and Bronnmann, 2017).

In the Channel, there is only one MSC fishery for static gear - MSC hake. The fishery achieved MSC status in 2015 and has seen an increasing price trend (relative to hake caught in other UK fisheries) since then. The latest data[23] (2022) reveals a price premium of 80%.

2.2.2 BFG, sustainable fisheries and labelling – is there potential to link objectives and achieve higher market prices?

Evidence suggests that sustainable fisheries return higher yields in the long term (MSC, 2021; OECD, 2022), thus suggesting that if properly managed wild fisheries can contribute sustainable food to feed the world's expected population growth. However, in order to achieve sustainable and resilient aquatic food systems, a blue transformation in required (FAO, 2021). In fact, according to the FAO's Blue Transformation initiative[24], the sustainable management of the world's wild capture fisheries is imperative in feeding a growing global population.

[21] https://www.bluemarinefoundation.com/projects/lyme-bay/
[22] https://www.msc.org/docs/default-source/uk-files/uk-ireland_marketreport2022.pdf?Status=Master&sfvrsn=27b410de_5/%20UK-Ireland-Market-Report-2022
[23] https://fisheries.msc.org/en/fisheries/cornish-hake-gill-net/
[24] https://www.fao.org/3/cc0458en/cc0458en.pdf

This is further supported by the 'UK consumers insights' consumer research survey conducted on behalf of the MSC. The overall finding "while ocean anxiety is high, British seafood consumers are feeling more empowered and increasingly believe the choices they make can have a positive impact on the health of our oceans" (MSC, 2022). Relevant for BFG, consumers (90%) are worried about the state of the world's oceans, with 66% stating that this concern had grown in the last two years. While no direct evidence is noted, this may be linked with the rapid increase in attention paid to marine litter in the last couple of years. Motivators for purchasing labelled seafoods are largely centred around sustainability e.g. 'by buying ecolabelled fish and seafood I am helping ensure there will be plenty of fish left in the sea for future generations" (MSC, 2022).

A global assessment of marine litter and plastic pollution was published by the United Nations Environment Programme in 2021[25], which suggests that without meaningful action the amount of marine litter and plastic pollution in the marine environment will nearly triple by 2040. Given that lost or abandoned fishing gear is a significant source of marine litter, a fishing gear with a controlled lifespan in the marine environment has the potential to improve on the current situation – and thus contribute to improved sustainability. A clear picture emerges on the relationship between the consumer and sustainability, especially that cost (what is affordable to the consumer) is one of the main driving factors. It is also clear that in general consumers want to make sustainable decisions (Deloitte, 2022; MSC, 2022). Given that MSC labelled fish products are seen a sign of sustainability in global fisheries, linking of BFG fisheries and fish with MSC or some other mark of sustainable fisheries (e.g. the Lyme Bay Reserve Seafood) could enhance the role of BFG in sustainable fisheries. Evidence suggests that some consumers are willing to pay price premiums for sustainable fish (e.g. Asche and Bronnmann, 2017). Further, studies (e.g. Jaffry et al., 2014; Asche and Bronnmann, 2017; Maesano et al., 2020; Whitmarsh and Wattage, 2006, Vitale et al., 2020) found that consumers attribute a preference for sustainable (e.g. labelled) fish, which creates an economic incentive for environmental improvements. However, there is only one example (Korean fisheries) of consumers being willing to pay higher prices for BFG fish. Park, Park and Kwon (2010) conducted a WTP study. Park, Park and Kwon (2010), estimated the economic benefits to the fishing industry adopting BFG using a contingent valuation technique. The study looked at the role of consumer willingness to pay for BFG to address marine litter. While the average willingness to pay (household level) was less than £5 (currency equivalent), extrapolating to the national level gives a willingness to pay of around £52 million for biodegradable fishing net development and supply. This could be translated as consumers' willingness to pay higher prices for sustainable low impact fisheries – and thus has relevance for BFG implementation.

2.3 Section summary

In our previous tasks, we identified that BFG implementation has significant potential in addressing environmental, social and economic costs associated with

[25] https://www.unep.org/news-and-stories/press-release/comprehensive-assessment-marine-litter-and-plastic-pollution

ALDFG, but for this potential to be realised, we concluded that incentives are needed for fishers to engage in the development of BFG. As outlined in section 1.2, we found that the financial incentive[26] required would be prohibitive. In the absence of a regulation – coupled with potentially prohibitive financial assistance – we test the relationship between consumer willingness to pay price premiums for BFG fish, as an indirect incentive for fishers to engage with BFG development. As a well-known mark of certified sustainability – we also consider the role of BFG within a labelling scheme to see if this affects the willingness of consumers to pay price premiums. Following Asche and Bronnman, (2017) we define the role of the consumer in BFG development as "consumer readiness to pay a higher price for a product different in some way from its typical equivalent".

3.0 Method

The behavioural survey conducted in WP1 found that Consumers' willingness to pay more to buy fish caught using BFG was noted by 38.24% of respondents as Very influential, and by 38.24% of respondents as Extremely influential. Therefore, it is clear that fishers view this as important in helping them make their decision but what is not known is whether the consumer will pay more for fish caught using BFG. Our research will examine this at two different levels:

- Buyers/ wholesalers
- Fishmongers/ restaurants

This will allow fishers to see whether the importance that they place on this is mirrored by the willingness of these groups to pay more for fish caught with BFG. And, ultimately, if the key to unlocking the development of BFG is the willingness of the consumer to pay more for sustainable BFG fish. This can then be tested against the increase in market price determined in the economic impacts task to enable breakeven.

3.1 Stakeholder engagement

Those engaged in fish supply chain (Wholesalers, fishmongers, buyers and restaurateurs) were contacted and invited to take part in the research.

In total there were 19 respondents along the channel coast from Newlyn to Rye representing catch from the four largest English fishing ports along the Channel coast (Newlyn, Brixham, Plymouth and Shoreham) as well as smaller ports e.g. Rye, Southampton and Portsmouth. Respondents were interviewed for 5-10 minutes on their awareness and perceptions of marine litter, BFG, environmental concerns in the

[26] Outputs from the Behavioural Survey conducted in the INdIGO project, provide further support for addressing the need for financial incentive for fishers to engage in BFG development, which found that the financial aspect is central in the intention of adoption. It appears to be both a brake and a lever. It is a brake if the new net generates additional costs, whereas it is a lever if the acquisition of an BFG is accompanied by financial aid."

supply chain and the impact of the introduction of BFG on prices that could be achieved for fish in the supply chain.

4.0 Results and discussion

4.1 Awareness of marine litter, impacts and BFG

Across the respondent's awareness of the issue of marine litter (18 of 18 where a response was recorded) and the adverse impacts on the environment (17 of 17 where a response was recorded) was high. Within the responses they ranged from the detailed such as "Does cause a problem. Damage to seafans and seahorse habitat" from one respond to the broader "Fairly aware from news".

The awareness of BFG was almost as uniform, but in the negative with only two of the 19 respondent's having any awareness of BFG. Of the two that were aware one responded "Aware of latches on USA lobster pots" and the other said that they were "Quite aware" but did not provide any additional detail.

While the respondent's awareness of BFG was low, the belief that BFG could address the impacts of marine litter was high with 14 believing it could, only one believing it wouldn't with one 'Don't know' and three where no response was recorded.

It should be noted that seven of those who answered yes introduced caveats into their answer regarding the performance and cost of BFG. Two quotes that sum up the response are "Yes, with concerns over financial viability and lifespan" and "Yes but will it be as good as plastic? On environment it will certainly help."

4.1.1 Awareness and importance of MSC labelling, eco-labelling and provenance

13 of the respondents had heard of some form of ecolabelling with four saying they had not and two where no response was recorded. Nine of the respondents referenced the MSC label with two also highlighting the Marine Conservation Society's Good Seafood guide that is linked to the Cornish Good Seafood guide. These were the only two labelling/ identification schemes that were mentioned by the respondents. One of the respondents who was aware of MSC but did not regard it as worthwhile said, somewhat sarcastically, "MSC is the finest certificate money can buy. It's rubbish. On a large boat the cost is minimal compared to the revenue. Smaller boats of the same or greater sustainability cannot afford it."

Regarding the purchase of fish, 12 of the respondents responded positively to the idea that the consideration that the fish was environmentally friendly was important to them. Four respondents said that it wasn't with three no response. Those who considered it an important factor talked less about eco-labelling and more about local, sustainable fisheries. One respondent summed up their ethos as "Buy from small artisanal, local family boats. No large trawlers." And another who said "Yes. Local, straight from the boat or market"

Those who did not consider it as important believed that quality and price were the two purchasing drivers with sustainability a less impactful factor with one respondent saying "Try to buy from day boats. Customers driven by quality, price and reputation for good fish." and another "Price is the main driver. MSC seen as gold standard. Other ways to prove sustainability but case by case."

4.1.2 Price

Table 1 – Data characteristics

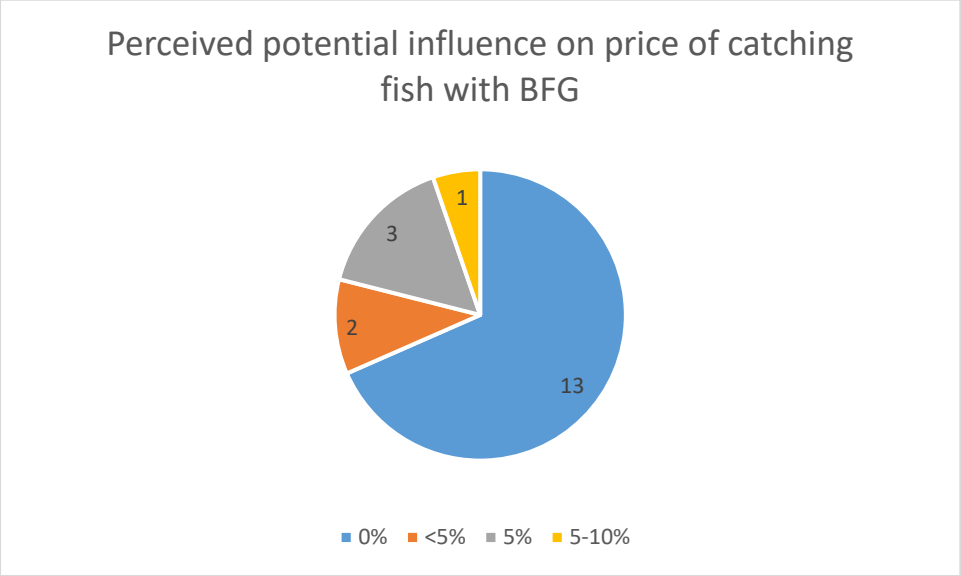
Respondent	Restaurateur	Fishmonger	Wholesaler	Buyer	Impact on price
1		x			5%
2		x	x		0%
3		x	x	x	0%
4		x	x		0%
5		x		x	0%
6		x	x		0%
7		x			0%
8		x	x		0%
9	x				5%
10	x				5%
11	x				0%
12		x			0%
13		x	x		<5%
14	x				<5%
15			x		0%
16		x	x	x	0%
17		x	x		0%
18	x				5-10%
19		x	x		0%

Some of the respondents represented multiple business types. In total the respondents covered five restaurants, 13 fishmongers, 10 wholesalers and 3 buyers.

13 of the 19 respondents believed that fish caught with BFG, if advertised as such to the customer, would likely have no impact on the price that fish would achieve. The main reason given was that while customers may be interested and it may help as an advertisement, it would not lead to them being willing to pay more. Two respondents outlined this view "Customers would be interested but unsure if that would translate into price." and "Some would appreciate it but not sure if it would drive price. Keeps the prices relatively static because of the internet business. Would likely drive demand as good advert.".

Another reason given is that volume and price dictate the market and any change would have to come from regulatory intervention with one respondent saying "80% is exported to EU. Any driver would be from regulation not commercial".

Fig 1 – Price influence of BFG fish



Source: author's own creation.

Of the 6 that did believe it could have an effect, two thought this was minimal (<5%), three thought 5% and one between 5 and 10%. Four of the six respondents who saw that it would have a positive influence on price were restaurateurs. Of the other two respondents, one a wholesaler and fishmonger and the other a fishmonger, the first saw a likely increase in price that was minimal (<5%) with the second seeing potential for a 5% increase. One restaurateur, who gave the range of 5-10% highlighted that while they believed they could sell the fish for this increase it would not flow down the supply chain to the fisherman as the market price is set for each species regardless of the catching method and is driven by volume caught and the demand.

4.1.3 Scenarios

The results show that over two-thirds of the respondents (68.4%) do not view the introduction of BFG as likely to have an impact on price.

The following scenarios, developed from the sensitivity analysis in T1.1.3 - The Economic Impacts of ALDFG and Ghost Fishing: the Role of Biodegradable Fishing Gear as a Mitigation Measure, allow for the size of the subsidy required to bridge the economic gap for the introduction of BFG to be calculated, based on the level of price increase that can be achieved.

The scenarios both assume 5% impact from ghost fishing. The Low impact scenario then assesses a 5% increase in cost and a 5% decline in fishing efficiency with the High impact assessing a 20% increase in cost and a 20% decline in fishing efficiency.

These two scenarios are then adjusted to remove the benefit of the absence of ghost fishing as this benefit would only be achieved by the adoption of BFG for the whole fishery, not an individual vessel.

A range of subsidies required to breakeven can then be produced against a rise in price achieved for fish caught from 0% to 25%.

Table 2 – Static gear <10m

Static gear u10	*This assumes immediate ghost fishing benefit							**Approx.**
	0%	**1%**	**5%**	**10%**	**15%**	**20%**	**25%**	**breakeven**
Low impact	£461	£1,848	£7,394	£14,327	£21,260	£28,193	£35,126	c.0%
High impact	-£22,635	-£21,248	-£15,702	-£8,769	-£1,836	£5,097	£12,030	c.16%
Static gear u10	*Adjusted to remove ghost fishing benefit							
	0%	**1%**	**5%**	**10%**	**15%**	**20%**	**25%**	
Low impact	-£7,606	-£6,245	-£804	£5,998	£12,799	£19,601	£26,402	c.6%
High impact	-£30,423	-£29,063	-£23,621	-£16,820	-£10,018	-£3,216	£3,585	c.23%

Table 3 – Static gear >10m

Static gear o10	*This assumes immediate ghost fishing benefit							**Approx.**
	0%	**1%**	**5%**	**10%**	**15%**	**20%**	**25%**	**breakeven**
Low impact	-£10,828	-£6,909	£8,766	£28,360	£47,953	£67,547	£87,141	c.3%
High impact	-£74,786	-£70,867	-£55,192	-£35,598	-£16,005	£3,589	£23,183	c.19%
Static gear o10	*Adjusted to remove ghost fishing benefit							
	0%	**1%**	**5%**	**10%**	**15%**	**20%**	**25%**	
Low impact	-£20,990	-£17,137	-£1,725	£17,541	£36,806	£56,072	£75,338	c.6%
High impact	-£83,962	-£80,109	-£64,696	-£45,431	-£26,165	-£6,899	£12,366	c.22%

The output is such that for an under 10m vessel the range of price increase required to reach a breakeven point, with no benefit from reduced ghost fishing, is c.6% in the Low impact scenario and c.23% in the High impact scenario. For a 10m and over vessel the range is c.6% and c.22%.

The results from the fieldwork demonstrate that an increase in price is unlikely across the supply chain but that an upper bound of 5% can be assessed.

For an under 10m vessel this would reduce the subsidy required from £7,606 to £804 in the Low impact scenario and £30,423 to £23,621 in the High impact scenario. For a 10m and over vessel this would reduce the subsidy required from £20,990 to £1,725 in the Low impact scenario and £83,962 to £64,696 in the High impact scenario.

4.1.4 Impact of Fishing efficiency and Cost increase changes

Taking the high impact scenario and manipulating the Fishing efficiency and the Cost increase factors to improve them from -20% to -15% and 20% to 15% respectively allows us to view the impact of the factors.

Table 4 - Scenarios

	High impact	Fishing efficiency to -15%	Reduction in Cost increase to 15%
Ghost fishing	0%	0%	0%
Fishing efficiency	-20%	-15%	-20%
Cost increase	20%	20%	15%
Price increase	5%	5%	5%
Static gear u10	**-£23,621**	**-£16,820**	**-£22,817**
Static gear o10	**-£64,696**	**-£45,431**	**-£62,971**

This shows that the improvement in Fishing efficiency by 5% has a reduction of £6,801 in the subsidy required for the under 10m vessel (£19,265 for 10m and over) whereas the improvement in Cost increase by 5% has a reduction of £804 in the subsidy required for the under 10m vessel (£1,725 for 10m and over).

Therefore, any change to fishing efficiency has an eight-fold impact compared to the same change in cost for the under 10m vessel (eleven-fold for 10m and over).

4.2 Summary

An increase in price achieved for the fish caught with BFG would be unlikely and even if achieved at the upper level would still necessitate subsidies to preserve the current economics of the fishery. The most important factor governing this is the fishing efficiency of BFG and as a result the highest barrier to overcome is the technical challenge of ensuring that it closely mirrors the performance of traditional gear. The research conducted within the small-scale fishery suggests that the adoption of BFG is not a commercially viable proposition and as such would need to attract significant levels of subsidy. This would have to remain in place while the significant technological barrier of mirroring the performance of traditional fishing gear is overcome.

5.0 Conclusion and further research

In this report, we have used the outcomes from T1.3.2 Market Analysis, which defined the target market for the developmental phase of BFG in the Channel fishery and T1.1.3 the Economic Impacts of ALDFG Ghost Fishing: the role of BFG as a Mitigation Measure. The former identified the target market for BFG (<10m static gear vessels). The latter identified that BFG is not a like-for-like replacement for fishing gear currently in use. The main issue, declines in fishing efficiency (catch per unit effort), are such that more than 90% of the cost of using BFG are related directly to the reduction in fishing efficiency and less than 10% relates to the cost of investing in BFG. Therefore, all else remaining constant, BFG will not be accepted by the fishing industry. Even it is was, the level of financial assistance to offset the fishing efficiency impact on profitability would be prohibitive.

The most responsive scenario modelled (T1.1.3) in reducing the impacts of declines in fishing efficiency was increases in market prices for fish caught using BFG, with small increases in price having a relatively larger increase in offsetting the costs

associated with reduced fishing efficiency. Addressing this by testing whether the consumer (buyers and sellers of fish at the wholesale, fishmonger, restaurateur level), we found that respondents were more likely to use the tag of 'BFG fish' as a factor to drive demand, but mostly they didn't think they would be able to increase prices. This demonstrates, that while BFG is often considered as a potential mitigation to ALDFG and some impacts like ghost fishing, further research is required to address the issues that culminate in reduced fishing efficiency.

We conclude that BFG implementation is a technical problem and not an economic one. While there appears limited potential for increases in market prices ultimately financial assistance will be critical to engaging fishers in experimental trails in commercial conditions. We found, during the INdIGO project that there is no shortage of fishers willing to engage in BFG trials, which will be essential to addressing the technical challenges – but substantial financial incentives to offset reduced profitability during trials would be needed.

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7.0 Appendices

7.1 Appendix 1

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Background

Provide some context to the project. Briefly about it addressing marine litter that is caused by fishing gear lost or abandoned at sea. Q2&3 then asks specifically to what extent they know about the issue of marine litter and Q4&5 about BFG as a mitigation measure.

Interview questions

1. How would you describe yourself (select all that apply):
    a. Wholesaler
    b. Buyer
    c. Fishmonger
    d. Restaurateur
    e. Other_____
2. Are you aware of marine litter?
3. Are you aware of the damage it can cause in the marine environment? For example, habitats, fish, seabird, turtles etc.?
4. How aware are you (if at all) of biodegradable fishing gear?
5. Do you think biodegradable fishing gear (that if lost at sea naturally biodegrades within a max of two years) could help tackle the environmental impacts fishing gear can have if it is lost or abandoned at sea? (For example, it can continue to catch and kill fish, seabirds and other marine life, cause entanglements and eventually breaks down into microplastic).

Context: It is estimated that 27% of marine litter comprises fishing gear, so fishing gear is a significant problem in the stock of marine litter. More and more fishing waste is found in beach cleans around the country.

6. Have you heard about certification schemes, like the Marine Stewardship Council or what is known as eco labelling?

   Context: Have you heard about scheme like the Marine Stewardship Council for fisheries products, do you think that they contribute to sustainable fisheries management?

7. Are you more inclined to buy fish that are caught in an environmentally friendly method (whether MSC, eco-labelled etc or not)? In other words, would you prefer to eat fish that are certified as caught sustainably?

   Context: BFG could be seen as a complement (rather than substitute) to MSC, eco-labelling with regards to environmentally friendly fishing methods.

8. If yes, would you buy them if they cost more? If so, how much?

   <5%

   5%

   10%

   15%

   20% or more

   If not, do you think it is the government/fishers job to use more sustainable fishing practices to provide sustainable fish at no extra cost to consumers?

9. Would you be more or less likely to buy fish if it is labelled as caught using biodegradable fishing gear (irrespective of price) or would it not make a difference?

10. (For sellers) Do you believe that you could sell fish caught with biodegradable fishing gear at a higher price and if so, how much?

    <5%

    5%

    10%

    15%

    20% or more