Scottish Salmon Farming

Consumer survey results

March 2022

Contents

Executive summary

Introduction

Salmon farming can have significant environmental impacts, and the scale of the industry in Scotland means it merits close attention, to protect Scottish marine and freshwater bodies as much as possible. As part of the Best Fishes project[1], Fidra is aiming to work with industry leaders, retailers, NGOs, certification schemes and government bodies to ensure the Scottish salmon farming industry is operating in a manner that ensures minimal impact on the environment.

Fidra acknowledges that much work has been conducted between government, industry, and retailers in the UK to establish sustainable processes. However, consumers are often left out of this conversation. Fidra conducted surveys with UK consumers in 2019 and 2021 to understand what influences the choices made by consumers when purchasing Scottish salmon products and identify any changes in consumer opinions over the two years.

Methodology

A questionnaire was hosted by Survey Monkey[2] and sent to a sample of the UK population (n=710) on 20/12/21 and was live for 24 hours. The results from this survey have been compared to the 2019 survey (also hosted by Survey Monkey, n=674). The majority of survey respondents in 2019 and 2021 were age 50 and below, in employment with an annual income of £45,000 or less, identify as white and just over half identify as female.

The surveys asked multiple questions to learn more about consumer preferences for buying Scottish salmon in the UK, consumer knowledge of salmon farming and preferences for information. Additionally, the 2021 survey asked consumers about certification schemes.

Results

Preferences for salmon products

Freshness, price and colour/look of salmon were the most important factors to consumers in 2021 when buying salmon, consistent with 2019 respondents. However, a higher proportion of consumers in 2021 think information on the source and the sustainability of a product is important (27% in 2021 compared to 17% in 2019).

Additionally, the majority of consumer respondents would be happy to pay more for a salmon product that claimed it was responsibly sourced (69% agreed or strongly agreed) and produced in an environmentally sustainable way (68% agreed or strongly agreed) in 2021. For both years approximately 50% of consumers had no preference between wild or farmed salmon. For the remainder of the respondents, a higher proportion (twice as many respondents) expressed a preference for wild caught over farmed in 2021.

Consumer knowledge of salmon farming

Consumers are lacking knowledge on the environmental impacts of Scottish salmon farming. Less than half of all survey respondents in 2021 (ranging from 34% to 46%) felt they had enough information on specific environmental factors related to Scottish salmon. Additionally, consumer knowledge is still

[1] https://www.bestfishes.org.uk/

[2] www.surveymonkey.com

lacking on how salmon is sourced by supermarkets, only 6% of consumers know that Scottish salmon is farmed in the UK, consistent with 2019 survey results (5%).

Just over half of all survey respondents would like to know more about Scottish salmon farming (52%). This is consistent with 2019 survey respondents (51%). Consumers have a stronger preference for information to be on the packaging of salmon products in 2021 (69% compared to 64% in 2019). This is further supported by 83% of consumers think it would be interesting to have the name of the Scottish salmon farm on the label of products in 2021.

Certification

Most consumers in 2021 looked for the supermarket's own 'responsibly sourced' labels/certification logos when considering which salmon product to purchase (43%). Two possible reasons for this include (a) the consumers not only trust but believe the responsibility of certification lies with the retailer, or/and (b) the consumer is not aware of what the other certification schemes mean.

Supermarket preference for buying salmon

The majority of consumer respondents buy Scottish salmon from major retailers in 2021 (99%), consistent with 2019 consumers (100%).

Fidra's key asks

Based on this analysis, Fidra makes the following asks to retailers in order to improve traceability, transparency and reduce the environmental impacts of Scottish salmon farming:

1. **Retailers label all own brand Scottish salmon products with the name of the source farm**. Having the name of the source farm on the label and/or a QR code, barcode or similar to link through to more information about on an individual farm level will show true accountability.
2. **Retailers support the development of a sustainability dashboard or equivalent database.** Accessible, transparent, real-time information on environmental and sustainability issues available on a farm-by-farm basis online, would enable consumers to make informed choices[3].
3. **Retailers ensure they source their salmon from producers that meet the strictest regulatory and certification standards.** Salmon should at minimum have an Excellent regulatory compliance record including Good or Excellent benthic survey results. Retailers should also be striving to source products that meet all the strictest criteria available through certification as specified by the ASC, Global GAP, Soil Association and RSPCA Assured[4].
4. **Retailers support calls for the Scottish salmon farming industry to reduce its environmental impacts.** Environmental sustainability issues are clearly important to consumers, which needs to be reflected by farming practices. Central to this is reducing chemical treatments known to impact wildlife[5] and antibiotics, moving towards more enclosed structures for treatment and waste capture, closing or moving poorly performing farms, and using more sustainable feed (including alternatives to marine ingredients).

[3] Read Fidra's environmental criteria for a sustainability dashboard.
[4] Read Fidra's position paper on certification.
[5] Read Fidra's blogs on emamectin benzoate, chemical bath treatments and formaldehyde use in salmon farming

Introduction

Salmon farming in Scotland has significant environmental impacts due to the scale and use of open net pens and chemicals[6]. Scotland was the largest producer of farmed Atlantic salmon in Europe before leaving and is the third largest in the world. By 2030, the Scottish aquaculture sector is aiming to double in value to over £3 billion. Without intervention the environmental impacts will worsen in Scotland with the expansion of the industry. Fidra believes the industry should not expand until it can ensure it is operating in a manner that has minimal impact on the environment.

As part of the Best Fishes project[7], Fidra is aiming to work with industry leaders, retailers, NGOs, certification schemes and government bodies to ensure the continued operation and any growth of the industry does not compromise the environmental integrity of Scotland's unique habitats.

Fidra acknowledges that much work has been conducted between government, industry and retailers in the UK to establish sustainable processes. However, from engagement with retailers, Fidra recognises that consumers are often left out of this conversation with few consumers truly aware of the nature of salmon farming in Scotland.

To understand this knowledge and information gap better, Fidra conducted a survey on the preference and buying habits of consumers purchasing Scottish salmon in the UK in December 2021. This follows a similar survey conducted in 2019, with the intention of identifying any changes in consumer opinions, which could in turn reflect changes in retailer practices. This report seeks to explain and analyse the responses to the 2021 survey alongside the 2019 results.

Aims of the consumer survey

1) To gather data on the relative importance of environmental sustainability for customers and determine whether this has changed from 2019 to 2021.
2) To find out whether consumer knowledge of Scottish salmon production and environmental impacts has changed from 2019 to 2021.
3) To establish whether consumers consider certification labels/logos when purchasing Scottish Salmon.
4) To establish whether considerations that influence consumer choices when purchasing Scottish salmon have changed from 2019 to 2021.
5) To find out what additional information customers want to help inform their choices when buying Scottish salmon, and whether this has changed from 2019 to 2021.
6) To understand where participants purchase their salmon.

[6] Read more about the environmental impacts of salmon farming: [Environmental Impacts + benthic details - Best Fishes]
[7] https://www.bestfishes.org.uk/

Methodology

Consumer survey

A survey was sent out to a sample of the UK population (n=710) on 20/12/21 and data was collected for 24 hours. The survey was hosted by the Survey Monkey platform[8] (SurveyMonkey Inc.; San Mateo, California, USA; www.surveymonkey.com).

The results from the 2021 survey have been compared to a similar survey carried out by Fidra in 2019 (n=674). This survey was also hosted by Survey Monkey from 11am to 12pm on 18th December 2019. Sample sizes of the two surveys have been compared below.

Both surveys asked a range of questions to learn more about consumer preferences for buying Scottish salmon, consumer knowledge of salmon farming and consumer preferences for information. Additionally, the 2021 survey asked consumers about certification schemes. Where possible, answers from 2019 and 2021 have been analysed and presented together to identify any trends or changes in consumer opinion.

Sample size

Whilst the reach of the questionnaire in 2021 was far greater there was an increase in the proportion of participants who did not eat or buy Scottish salmon. Figure 1 shows 494 survey participants in 2021 buy and eat Scottish salmon compared to 531 participants in 2019. These consumers went on to complete the rest of the survey. A total of 216 people stated they do not buy and eat Scottish salmon in 2021 compared to 143 people in 2019, these participants did not go on to complete the rest of the survey.

Figure 1: Proportion of participants who buy and eat Scottish salmon in 2019 and 2021

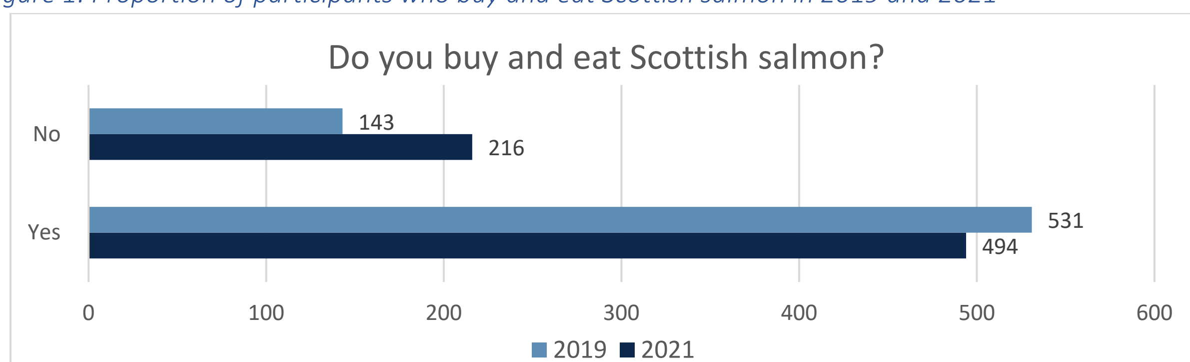

Figure 1: 2019 (n=674), 2021 (n=710)

Demographics

The majority of survey respondents in 2021 were aged 50 and below (60%), in employment (64%) with an annual income of £45,000 or less (75%), identify as white (63%) and just over half identify as female (52%). The majority of survey respondents in 2019 were age 40 or below (61%), in employment (68%) with an annual income of £40,000 or less (72%) and identified as female (56%). The 2019 survey did not ask about ethnicity. Graphs comparing the demographic survey data can be found in the Appendix.

[8] Information on how respondents are recruited to SurveyMonkey is available here: www.surveymonkey.com/mp/audience.

Results

Where results are comparable, the answers from the 2019 consumers and 2021 consumers have been analysed and presented together to identify any trends or changes in consumer opinions.

Preferences for salmon products

Freshness, price and colour/look of salmon were the most important factors to consumers in 2021 when buying salmon, consistent with 2019 survey respondents. Figure 2 shows 53% of respondents in 2021 selected freshness when asked what is most important when buying salmon, followed by price (45%), and colour and look of salmon (45%). These are similar proportions to 2019, however, a higher proportion of consumers think colour and look of salmon is important (45% in 2021 compared to 30% in 2019).

Additionally, a higher proportion of respondents in 2021 think information on the source and sustainability of the product is important. For example, in 2021 the percentage of consumers that considered that most important factors to be country of origin was 22%, certification logo was 21%, fish welfare was 19% and information about sustainability of the product was 13%, these are all higher proportions compared to 2019 respondents (figure 2).

Figure 2: Factors that are most important to consumers when buying salmon in 2019 and 2021

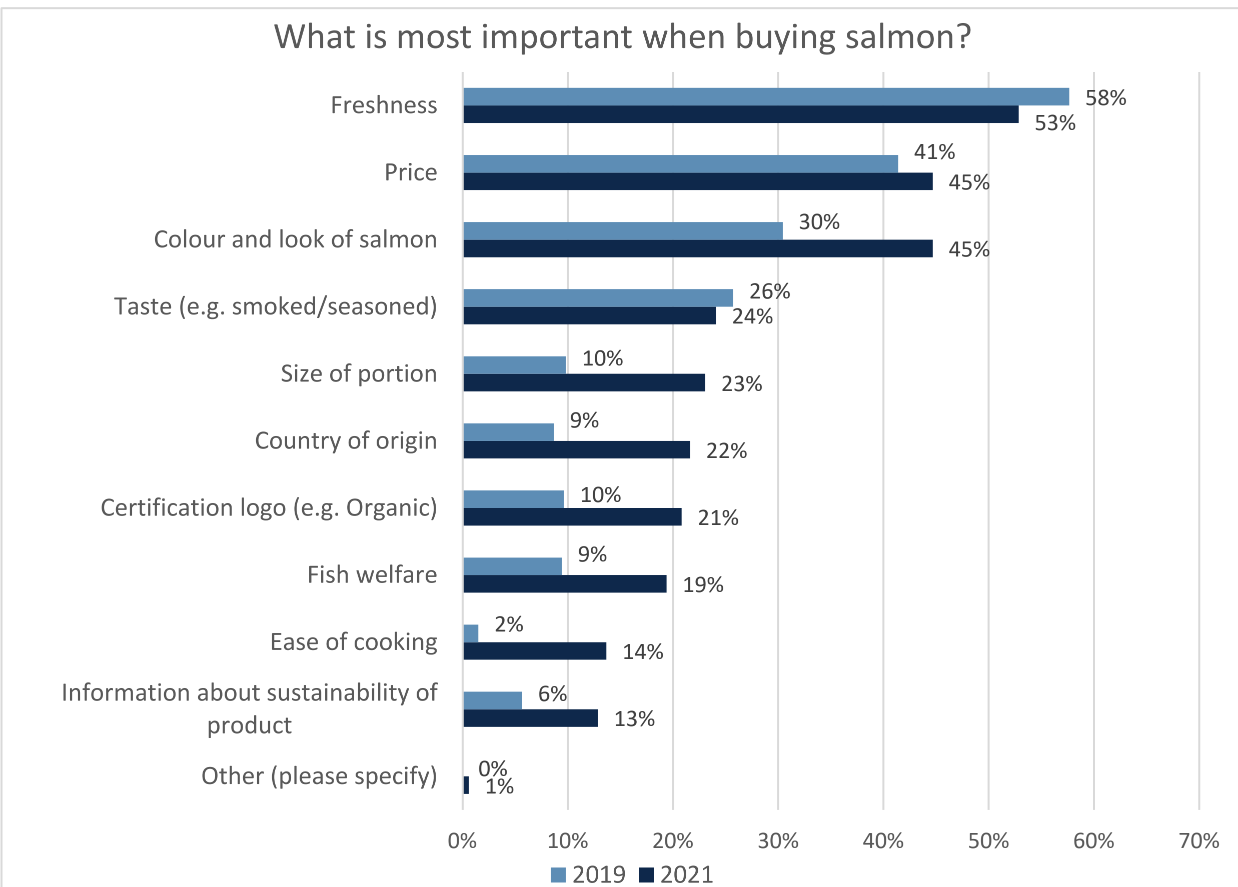

Figure 2: 2019 (n=529), 2021 (n=490)

When recategorizing these factors by price, information about how a product was sourced/how sustainable it is, and information about how the product/looks/tastes/cooks, the data shows a change in the consumers preferences between 2019 and 2021. A higher proportion of consumers in 2021 think information about how sustainable a product is and how it is sourced is important compared to 2019 (27% in 2021 compared to 17% in 2019). Fewer consumers think price is important (16% in 2021 compared to 21% in 2019) and fewer think information about how the product looks, tastes and cooks is important (57% in 2021, down from 63% in 2019).

The majority of consumer respondents would be happy to pay more for a salmon product that claimed it was responsibly sourced and produced in an environmentally sustainable way. Figure 3 shows 69% of 2021 survey respondents agree or strongly agree they would pay more for salmon that was sourced responsibly and 68% strongly agree or agree they would pay more for salmon that was produced in an environmentally sustainable way. This also indicates consumers in 2021 think sustainability of a product and how a product is sourced are important factors when buying salmon.

Figure 3: Consumer opinions on paying more for a salmon product that is sourced responsibly and sustainably

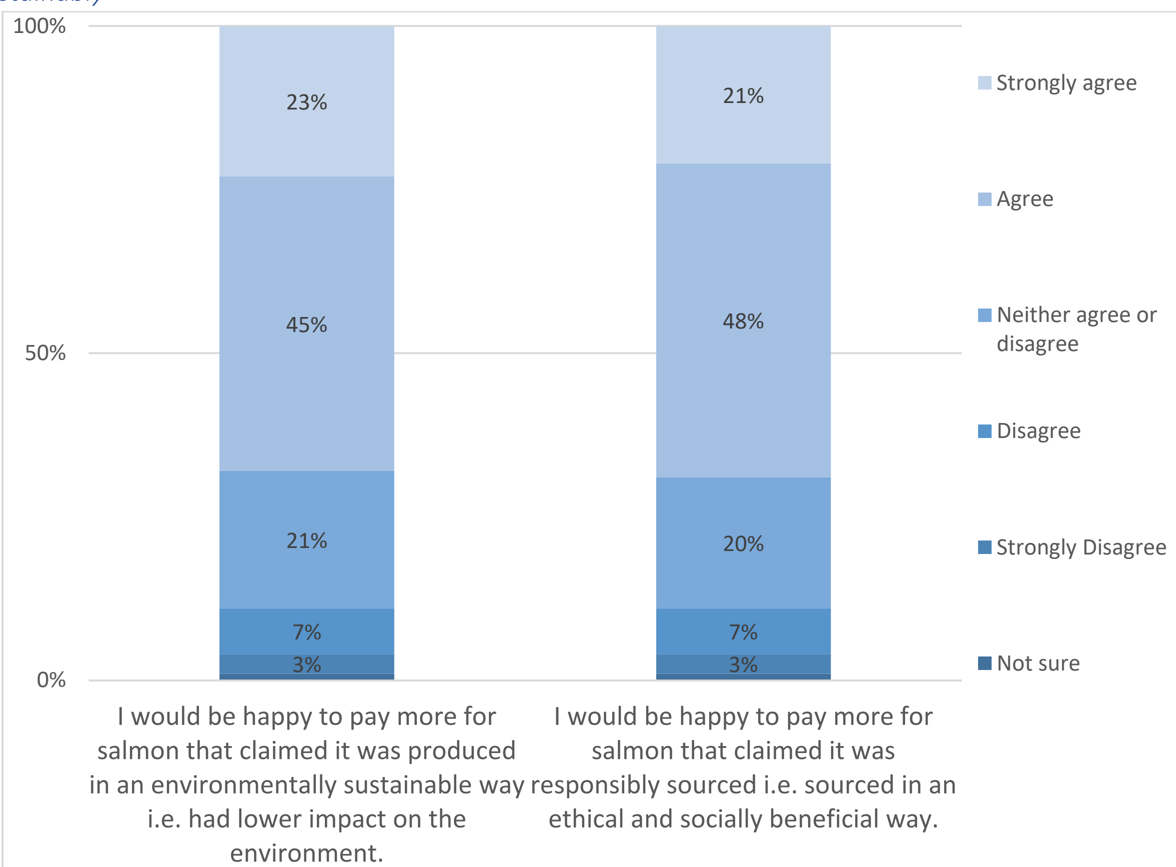

Figure 3: 2021 (n=484 and n=483)

Half of survey respondents in 2021 have no preference for farmed or wild-caught salmon. Figure 4 shows 50% of respondents in 2021 have no preference increasing slightly from 45% of respondents in 2019. The proportion of consumers who prefer wild-caught salmon has remained the same from 2019 to 2021 at 35%. Slightly fewer respondents prefer farmed salmon in 2021 (15% down from 18% in 2019).

Figure 4: Consumer preference on farmed or wild-caught salmon in 2019 and 2021

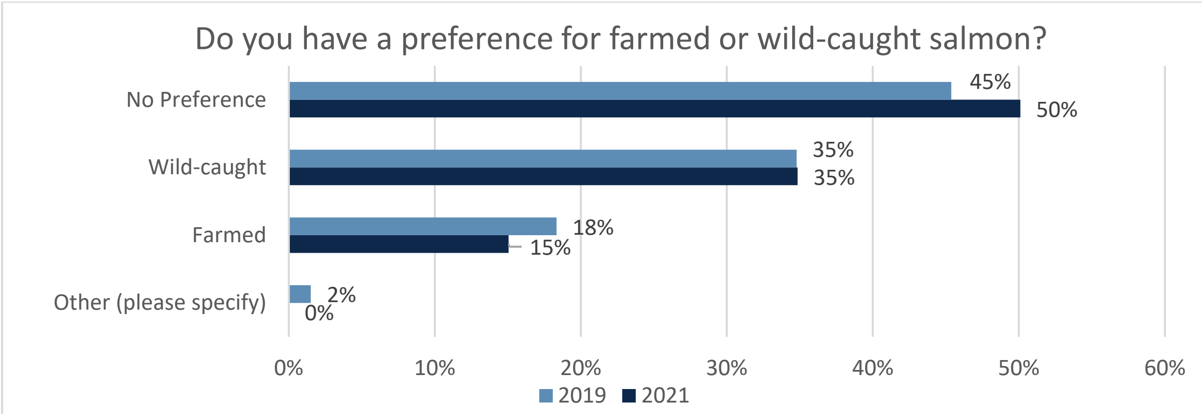

Figure 4: 2019 (n= 529), 2021 (n=485)

Consumer knowledge of salmon farming

More consumers in 2021 thought a higher percentage of Scottish salmon sold in UK supermarkets is farmed compared to 2019. Figure 5 shows 47% of survey respondents think 70% is farmed, compared to 43% in 2019. Slightly more consumers answered correctly stating 100% of salmon is farmed (6% in 2021 compared to 5% in 2019). This shows that consumer knowledge is still lacking on how salmon is sourced by supermarkets.

Figure 5: Consumer awareness of farmed Scottish salmon sold in UK

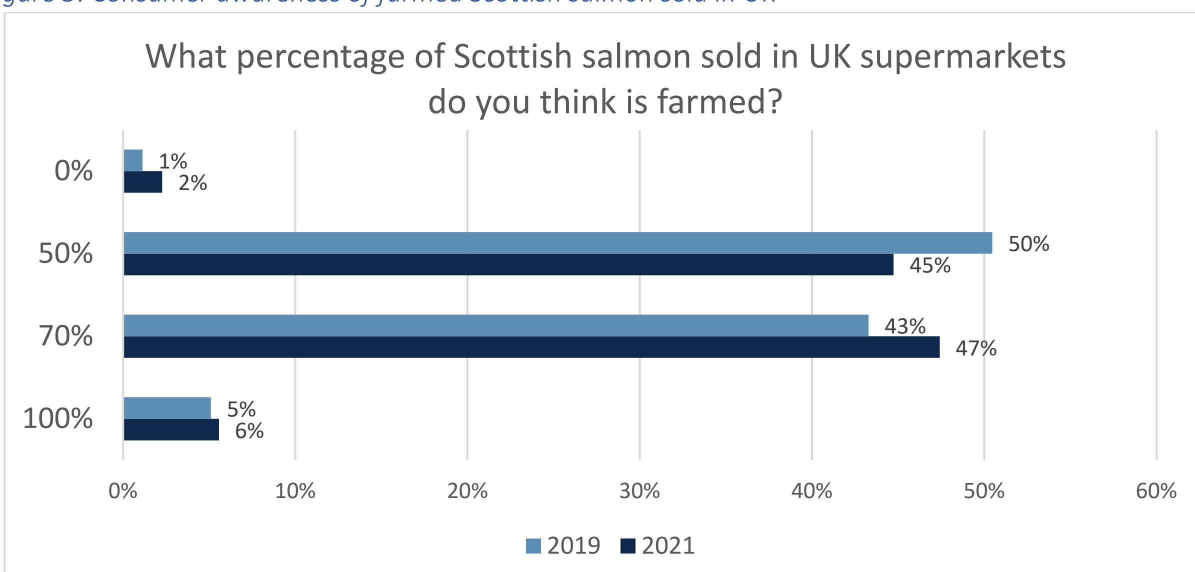

Figure 5: 2019 (n=529), 2021 (n=485)

Figure 6 also suggests consumers are lacking knowledge when it comes to the environmental impacts of Scottish salmon farming. Less than half of all the survey respondents felt they had enough information on specific environmental factors related to Scottish salmon. For example, only 40% of survey respondents agreed or strongly agreed that they had enough information on the impacts on the wider environment from fish and feed waste. Similarly, only 34% agreed or strongly agreed they had enough information on the levels and types of pesticides used and their impacts on local ecosystems and 36%

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felt they had enough information on the levels and types of medicines used on salmon and their impacts on human health (figure 6). However, slightly more respondents (46%) felt they had enough information on fish welfare.

Figure 6: Consumer opinions on whether they have enough information on environmental factors when buying Scottish salmon

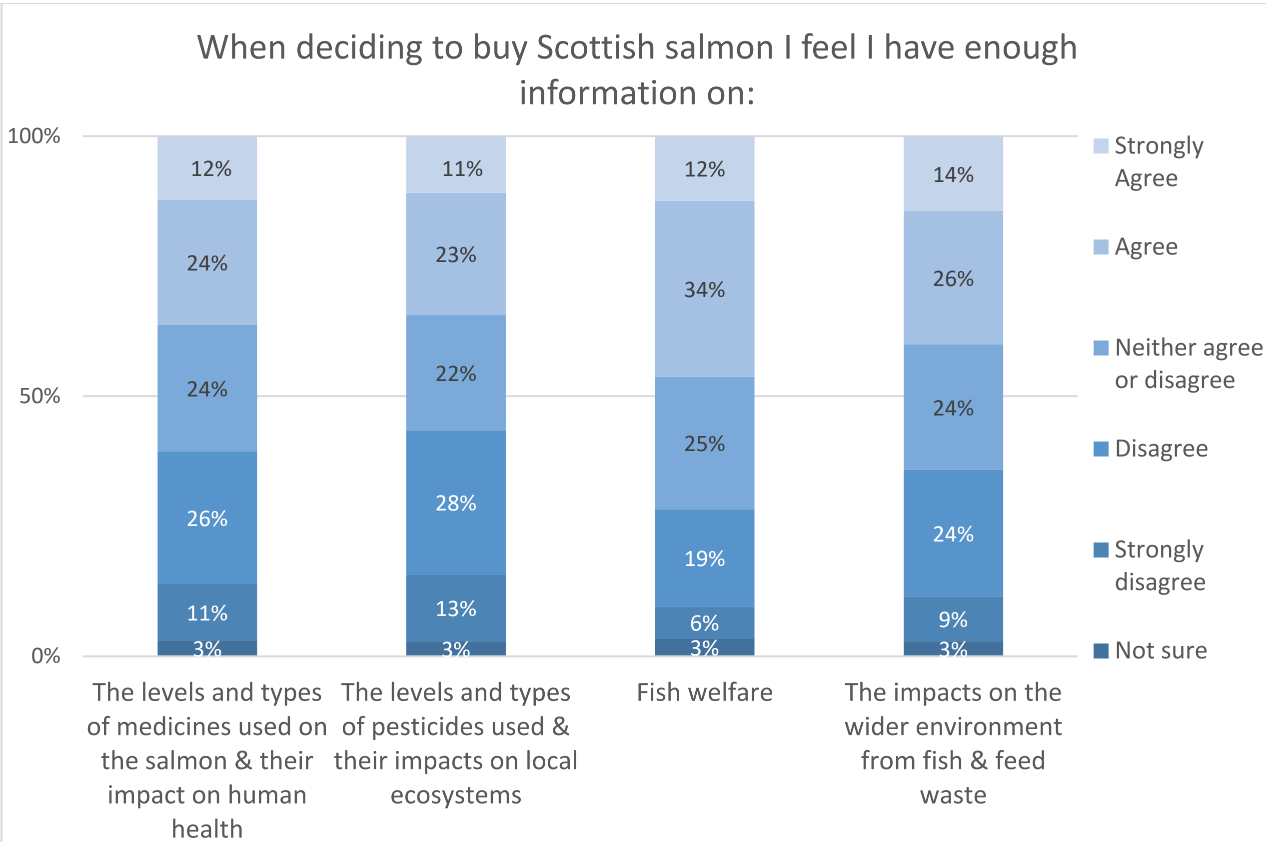


Figure 6: The levels and types of medicines used on the salmon & their impact on human health (n=482), The levels and types of pesticides used & their impacts on local ecosystems (n=477), Fish welfare (n=467), The impacts on the wider environment from fish & feed waste (n=480)

Overall, there is a consistent desire among consumers to know more about Scottish Salmon farming. When asked 'Would you like to know more about Scottish salmon farming?' Just over half of all survey respondents selected 'Yes' in both 2021 (52%) and 2019 (51%). Over a third or participants selected 'Maybe' in 2021 (34%) and 2019 (35%), with the lowest percentage of respondents selecting 'No' in both 2021 (14%) and 2019 (15%). This indicates that the majority of consumers would like more information on Scottish salmon farming practices.

This is further supported by responses to the question 'How would you like to find out more information about the Scottish salmon you buy?' (Figure 7). Respondents showed a strong preference for information about the Scottish salmon they buy to be on the packaging of the products in 2021 (69%), closely aligned with and slightly higher than in 2019 (64%). More respondents in 2021 would also like to find out information on the internet via the retailer/brand's website (36% compared to 30% in 2019), through information in store (29% compared to 17% in 2019), and via an app/QR code or the barcode on the product (22% compared to 20% in 2019).

Figure 7: Consumer preferences on how they find out more information about Scottish salmon in 2019 and 2021

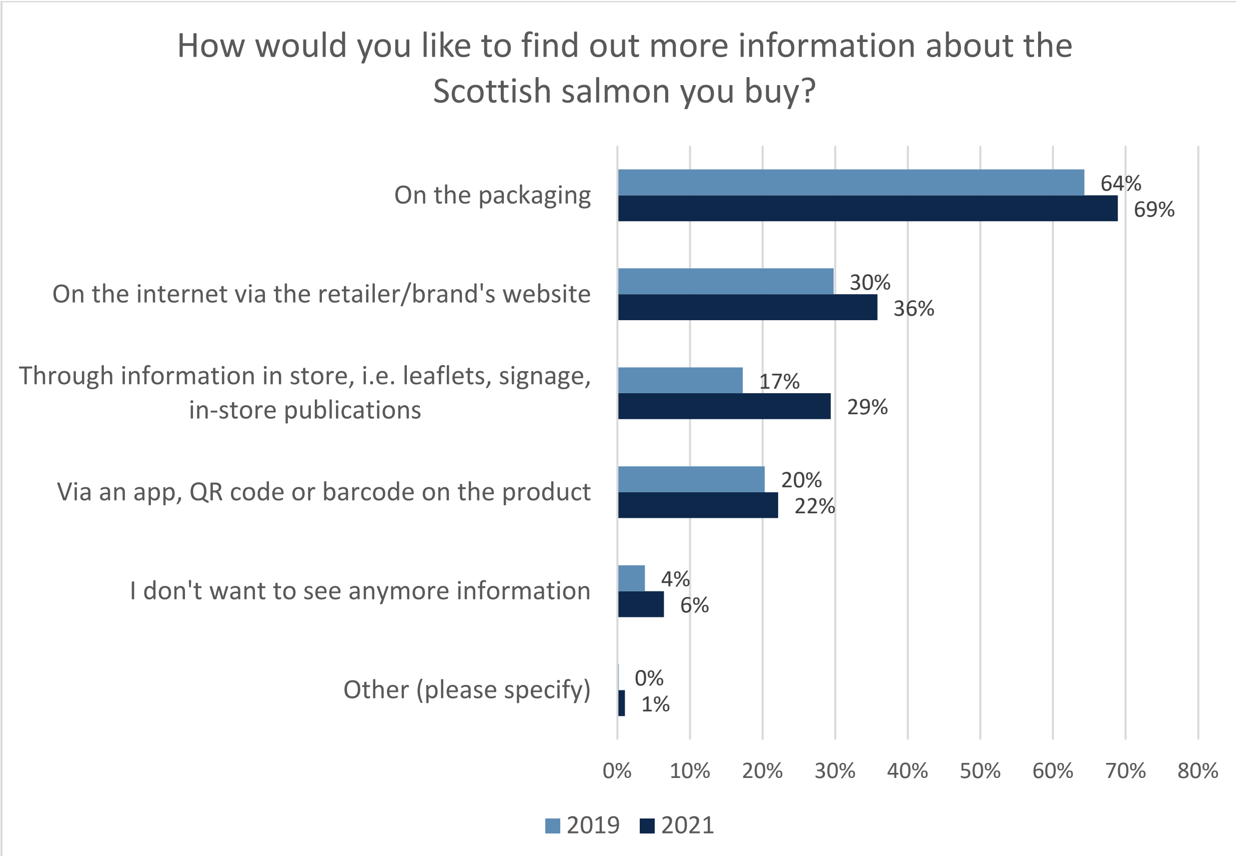


Figure 7: 2019 (n=527), 2021 (n=483)

Consumer demand for information is further demonstrated when consumers are asked about the label of a Scottish salmon product displaying the name of the farm where the salmon was raised (Figure 8). Almost half of the survey respondents in 2021 (48%) and 2019 (46%) thought having the name of the farm where the Scottish salmon was produced on the label of the product would be 'interesting, as it shows where the salmon is from'. Additionally, over a third of consumers thought it is 'interesting, but only if I can easily find out more information about the farm e.g., online' (2021, 35% and 2019, 40%). Overall, this shows there is still appetite from consumers to have the name of the Scottish salmon farm on the label with more than three-quarters of consumers agreeing it would be interesting in 2021 (83%).

Figure 8: Consumer opinions on whether the name of the farm where the Scottish salmon was produced should be on the label on the product from 2019 to 2021

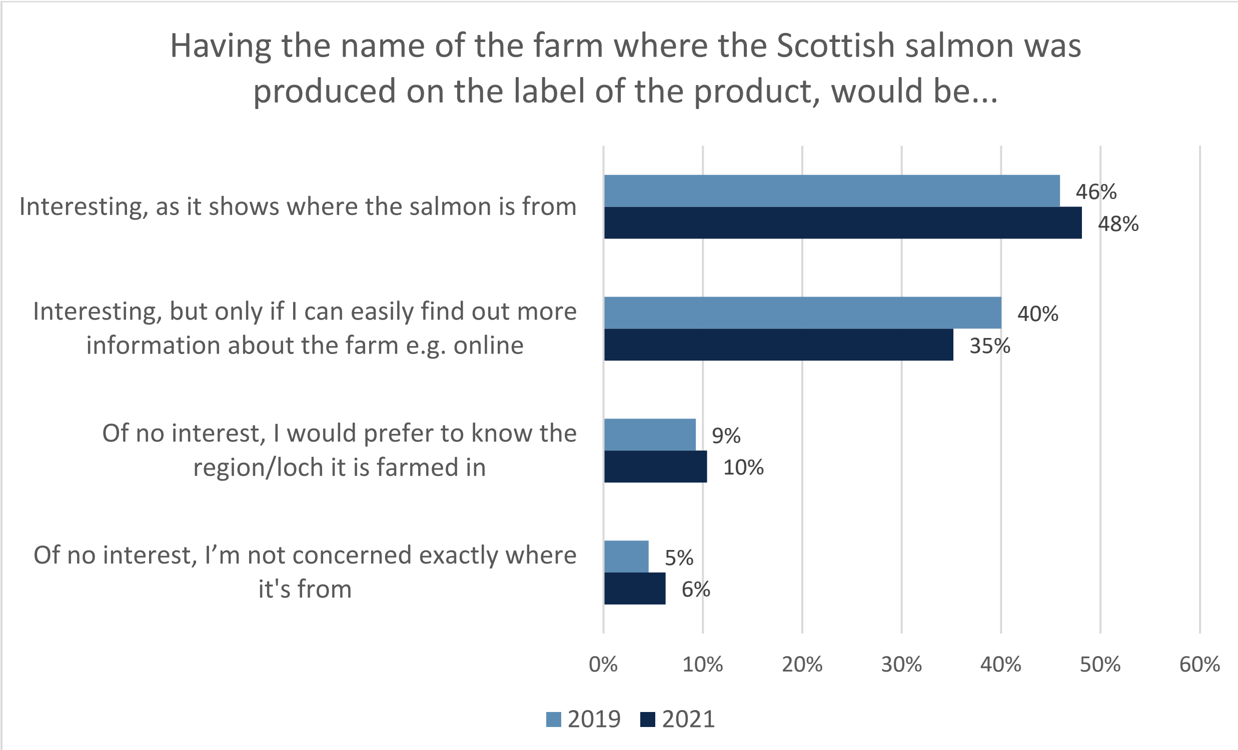


Figure 7: 2019 (n=527), 2021 (n= 480)

Certification

Figure 9 shows the majority of consumers looked for the supermarket's own labels/certification logos when considering which salmon product to purchase (43%). The next most popular logo consumers look for is the RSPCA Assured logo (31%), followed by Friend of the Sea (20%). Even fewer survey participants (14% to 5%) looked for the remaining 7 certification logos. Two possible reasons for this include (a) the consumers not only trust but believe the responsibility of certification relies with the retailer, or/and (b) the consumer is not aware of what the other certification schemes mean.

Figure 9: Certification logos consumers look for when buying salmon in 2021

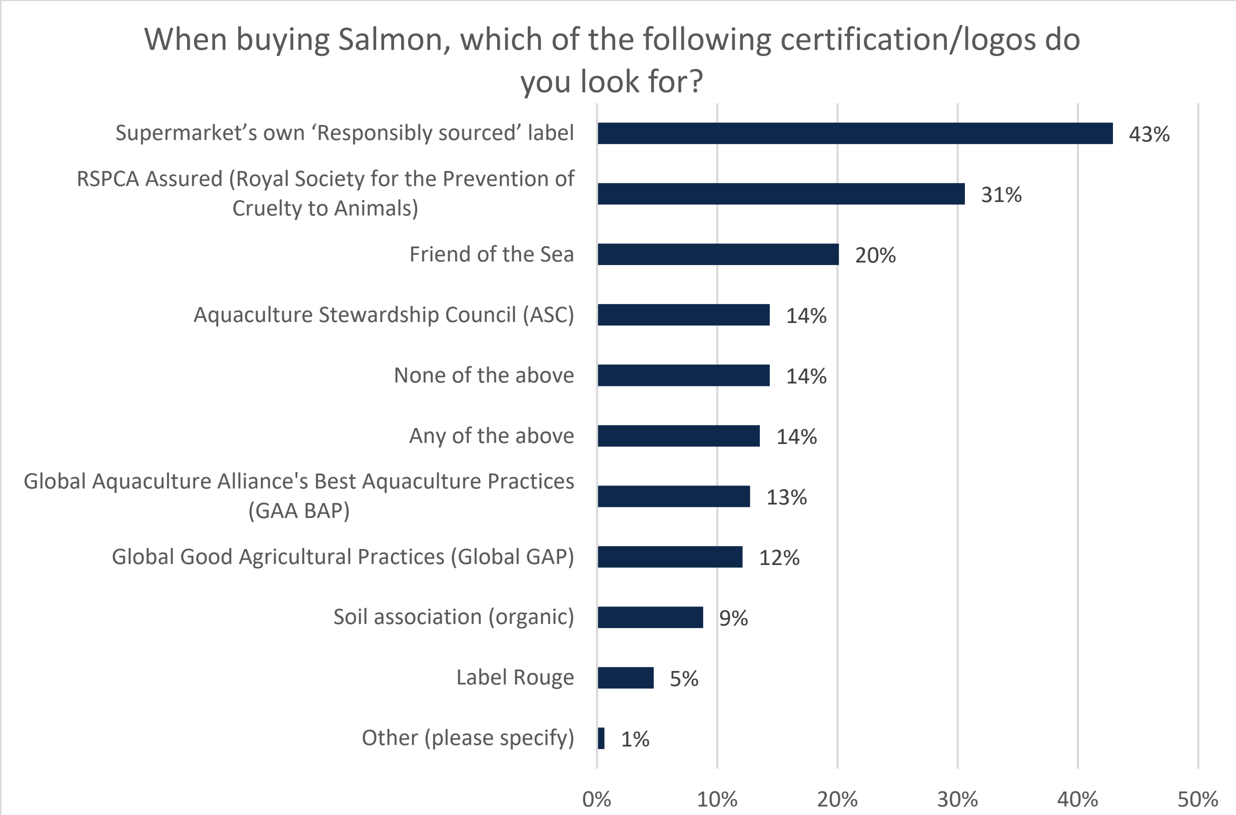


Figure 9: 2021 (n=487)

Supermarket preferences for buying salmon

Tesco and Asda remain the two most popular supermarkets for buying Scottish salmon in 2021. Figure 10 shows that Tesco was the most selected supermarket for purchasing Scottish salmon (22%) amongst 2021 survey respondents, followed by Asda (14%), Aldi (13%), Sainsbury's (13%) and Morrisons (11%). This is a similar trend to consumer preference for supermarkets in 2019. However, respondent's preferences are more distributed between supermarkets in 2021.

Figure 10: Participant supermarket preference for buying Scottish salmon in 2019 and 2021

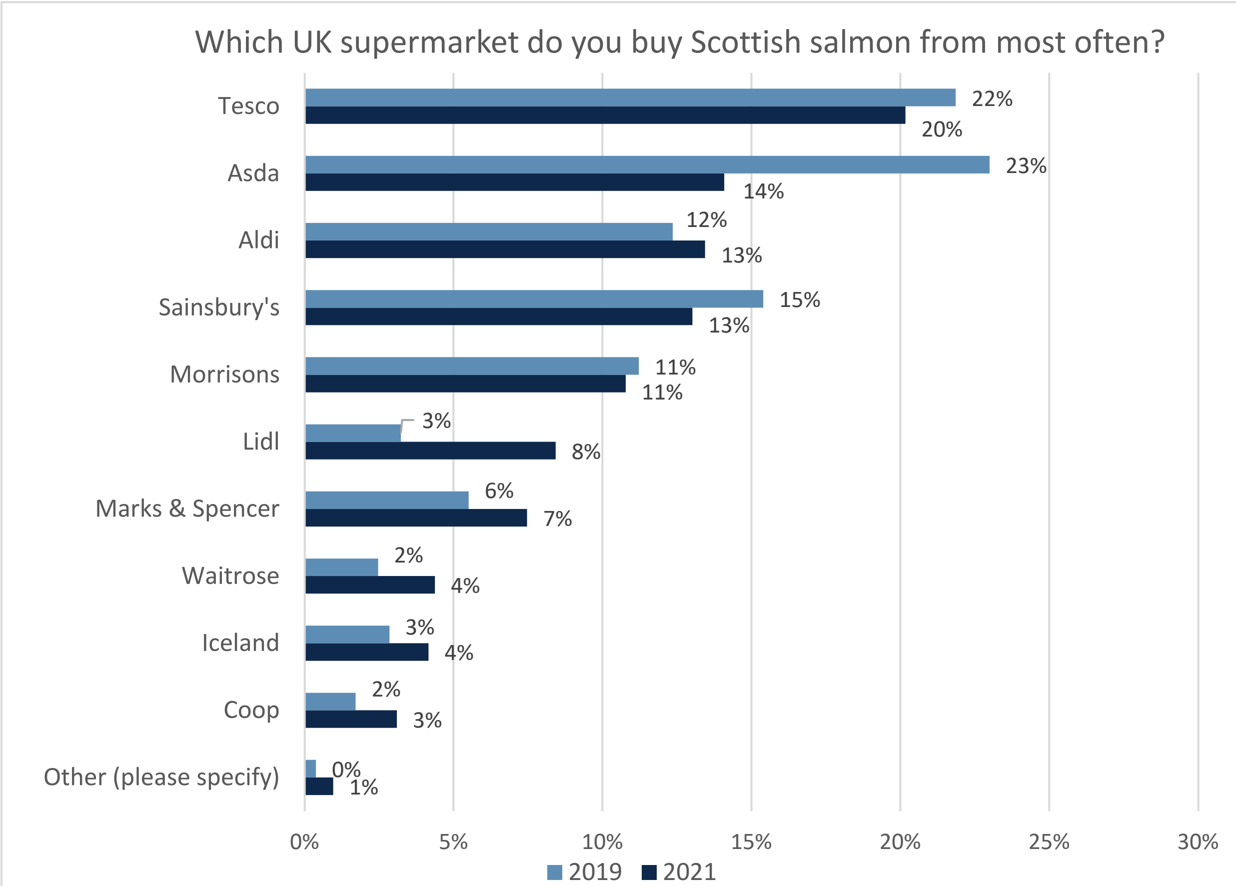


Figure 10: 2019 (n=526), 2021 (n=492)

Summary and Recommendations

Overall, more respondents in 2021 think information on the source and sustainability of salmon products is important, compared to those surveyed in 2019. Supporting this, the majority of consumers would be happy to pay more for a salmon product that claimed it was responsibly sourced and produced in an environmentally sustainable way. However, freshness, price and colour/look of salmon are still the most important factors to consumers when buying salmon. Additionally, when comparing the cohort of respondents from 2019 to 2021, the proportion of people that buy and eat Scottish salmon had decreased. Those who ate Scottish salmon continued to mainly purchase from major supermarkets.

This survey clearly showed consumer knowledge is still lacking on how Scottish salmon is sourced by supermarkets, including the fact that it is farmed, and the environmental impacts of the industry. Respondents wanted to find out more information and showed a strong preference for information about the Scottish salmon they buy to be on the packaging of the products, including the name of the individual farm (i.e. site) on the label.

The majority of consumers looked for the supermarket's own labels/certification logos when considering which salmon product to purchase, followed by RSPCA assured and Friends of the Sea. Two possible reasons for this include (a) the consumers not only trust but believe the responsibility of certification relies with the retailer, or/and (b) the consumer is not aware of what the other certification schemes mean.

For example, **Friends of the Sea scored lowest on Fidra's analysis** of certification schemes that appear to offer the greatest level of environmental protection, but many respondents in this survey still chose Friends of the Sea. This could be because the scheme has a clear and simple name which respondents may see as a good choice without any knowledge of what it meant. Secondly, the **RSPCA is a widely recognised organisation** and association with it would be assumed to be good. It should be noted that RSPCA Assured is a subsidiary of the RSPCA and a charity in its own right[9]. The other certification schemes have quite technical names which are not as familiar to the general public and therefore not consumer friendly.

Finally, Asda and Tesco were the most popular supermarkets for purchasing Scottish salmon amongst survey respondents in 2019 and 2021. **Fidra's analysis of traceability and transparency of major retailers'** information on Scottish salmon found both Tesco and Asda could do a lot more to increase traceability of their salmon products, through putting farm names on all of their Scottish salmon products and giving more information on the suppliers and sources of their salmon. Additionally, Fidra found that Tesco and Asda should source their salmon through certification schemes that have the strictest criteria for environmental protection available e.g. as specified by the ASC, Global GAP, Soil Association and RSPCA Assured.

Based on this analysis, Fidra has several recommendations to retailers in order to improve the traceability, transparency and environmental impacts of Scottish salmon farming. These are outlined as four key asks below.

[9] https://www.rspcaassured.org.uk/about-us/our-governance/

Fidra's key asks

1. **Retailers label all own brand Scottish salmon products with the name of the source farm.** Having the name of the source farm on the label and/or a QR code, barcode or similar to link through to more information about on an individual farm level will show true accountability.
2. **Retailers support the development of a sustainability dashboard or equivalent database.** Accessible, transparent, real-time information on environmental and sustainability issues available on a farm-by-farm basis online, would enable consumers to make informed choices[10].
3. **Retailers ensure they source their salmon from producers that meet the strictest regulatory and certification standards.** Salmon should at minimum have an Excellent regulatory compliance record including Good or Excellent benthic survey results. Retailers should also be striving to source products that meet all the strictest criteria available through certification as specified by the ASC, Global GAP, Soil Association and RSPCA Assured[11].
4. **Retailers support calls for the Scottish salmon farming industry to reduce its environmental impacts.** Environmental sustainability issues are clearly important to consumers, which needs to be reflected by farming practices. Central to this is reducing chemical treatments known to impact wildlife[12] and antibiotics, moving towards more enclosed structures for treatment and waste capture, closing or moving poorly performing farms, and using more sustainable feed (including alternatives to marine ingredients).

There are several ways in which the name of the source farm on the label and/or a QR code, barcode or similar can link through to more information about on an individual farm level (Box 1).

Box 1: Examples of supply chain information in use and in development

a) In Norway the Barents Watch website[13] and Nofima portal[14] have been developed and continue to be reviewed, giving detailed information on individual farms and about the industry.
b) GLOBALG.A.P. use a GGN code that at present leads to website pages for individual companies[15], and is being developed to lead to website pages for individual farming companies, already developed for horticulture[16].
c) IBM has a blockchain platform[17] for food production companies, where a QR code leads to data on a product. It is used by French retailer Carrefour[18] for its Atlantic salmon products from Norwegian producer Lerøy.
d) Retailers display name of farm on product packaging, with corresponding data available on Scotland Aquaculture database[19] and Scotland Environment website[20].

[10] Read Fidra's environmental criteria for a sustainability dashboard.
[11] Read Fidra's position paper on certification.
[12] Read Fidra's blogs on emamectin benzoate, chemical bath treatments and formaldehyde use in salmon farming
[13] https://www.barentswatch.no/en/
[14] https://www.barentswatch.no/en/havbruk
[15] https://aquaculture.ggn.org/en/meet-your-farm.html
[16] https://floriculture.ggn.org/Flori/Index
[17] https://www.ibm.com/blockchain/solutions/food-trust
[18] https://www.intrafish.com/technology/leroy-carrefour-turn-to-blockchain-tech-for-fresh-salmon-line/2-1-747736
[19] http://aquaculture.scotland.gov.uk/
[20] https://www.environment.gov.scot/data/data-analysis/marine-fish-farm/

Support from retailers for the development of a sustainability dashboard (Box 2) or equivalent database would lead to improved transparency by enabling consumers to access information on the salmon they are buying and make decisions based on that information [21].

Box 2: Sustainability dashboard concept

The concept of a 'sustainability dashboard' refers to a fully web-based solution for calculating and displaying real-time data on environmental criteria to provide at-a-glance views of key performance indicators directly on computer screens and mobile devices of stakeholders. Where stakeholders include consumers, retailers, processors, producers, regulators, Scottish Government departments, certification bodies, NGOs, local (to salmon farm) communities.

Concluding statement

There is a responsibility from every part of the supply chain to ensure the Scottish salmon farming industry operates without compromising the environmental integrity of some of Scotland's most remote communities and unique habitats. Our latest survey shows that the majority of consumers trust their retailers with this responsibility, and to be fully accountable the retailers must be transparent about the source of their products. This can be done by having the name of the farm on packaging, ensuring that a product is fully traceable.

The Scottish Government's states in its current Programme for Government that it 'will take forward an immediate programme of work to better protect wildlife and the environment'[22]. With the government's Vision for Aquaculture in Scotland in development, this is an opportunity to develop a comprehensive database to display regulatory and additional information on salmon farms in a public-facing manner. If accessible on a farm-by-farm basis, this then tarries up with the products that display the farm name on the label, enabling consumers to access information fully and easily on how their Scottish salmon is being produced.

With the dual impacts of the climate emergency and biodiversity crisis that we find ourselves in, it is more important than ever that our farming industries operate transparently in a manner that ensures minimal impact on the environment. To support this retailers must also be held accountable for sourcing responsibly, and consumers given the ability to make informed choices about the food they eat by knowing where it came from and how it was produced.

[21] Read Fidra's environmental criteria for a sustainability dashboard.
[22] https://www.gov.scot/programme-for-government/

Appendix

Demographics

Figure 11: Age of consumer survey respondents 2019 and 2021

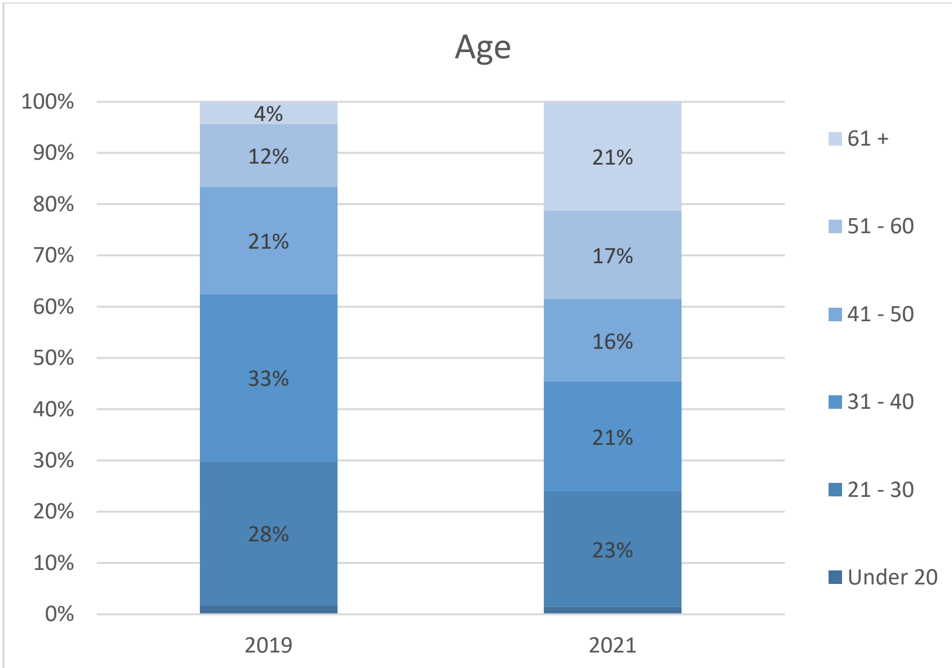


Figure 21: 2019 n=674, 2021 n=710

Figure 12: gender of consumer survey respondents 2019 and 2021

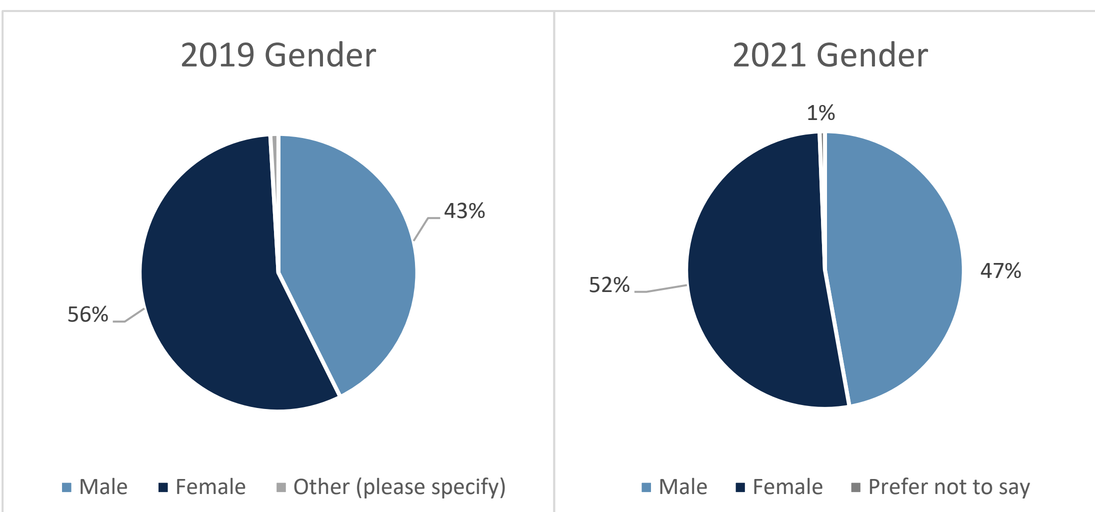


Figure 32: 2019 n=674, 2021 n=710

Figure 13: Employment status of consumer survey respondents 2019 and 2021

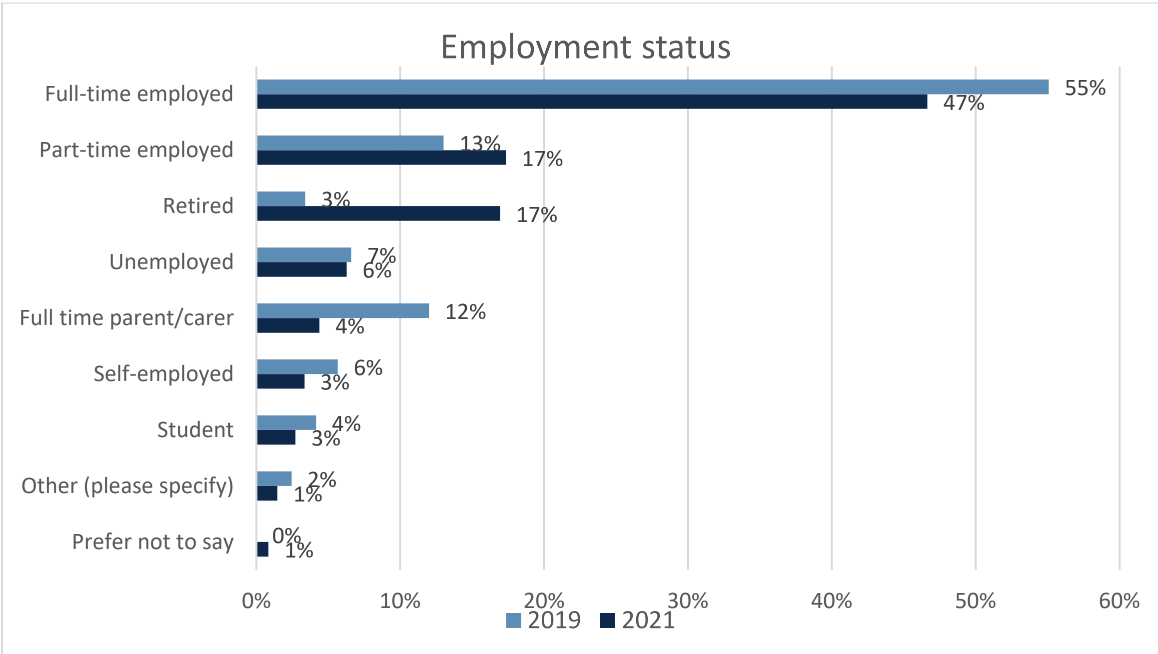
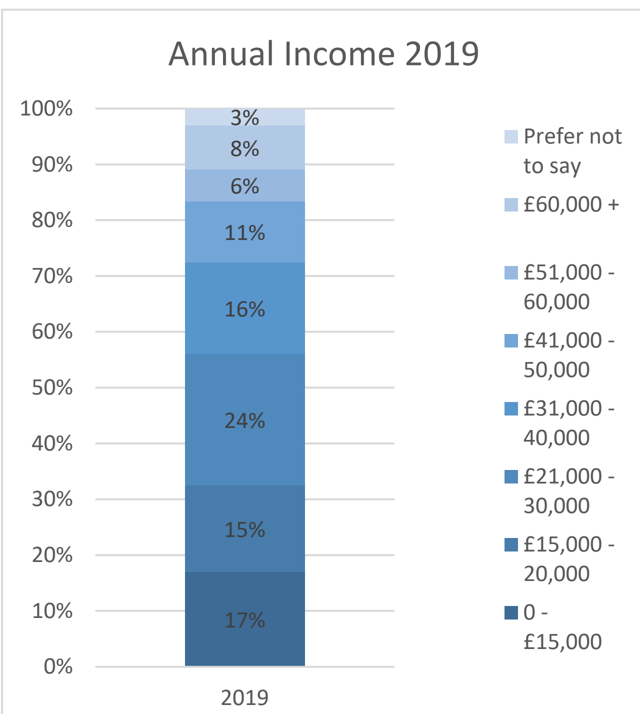


Figure 13: 2019 n=674, 2021 n=710

Figure 14: Annual income of consumer survey respondents 2019 and 2021



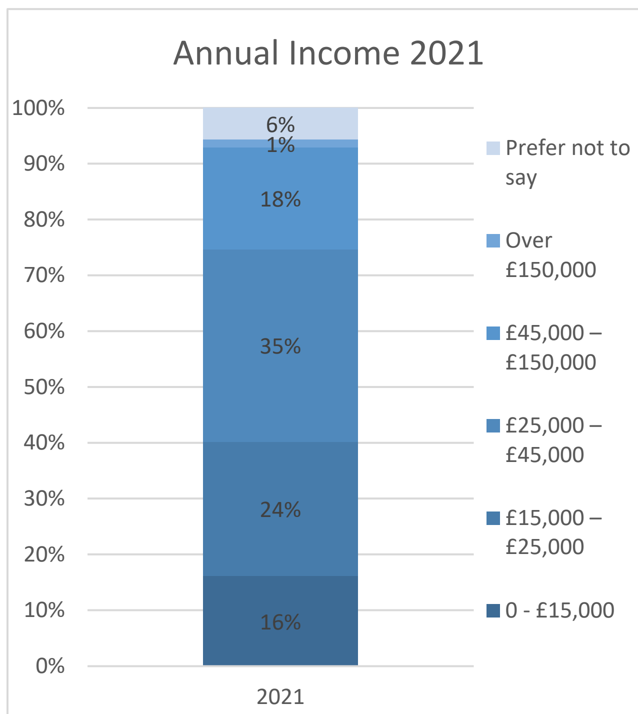


Figure 14: 2019 n=674, 2021 n=710

Figure 15: Ethnicity of consumer survey respondents in 2021

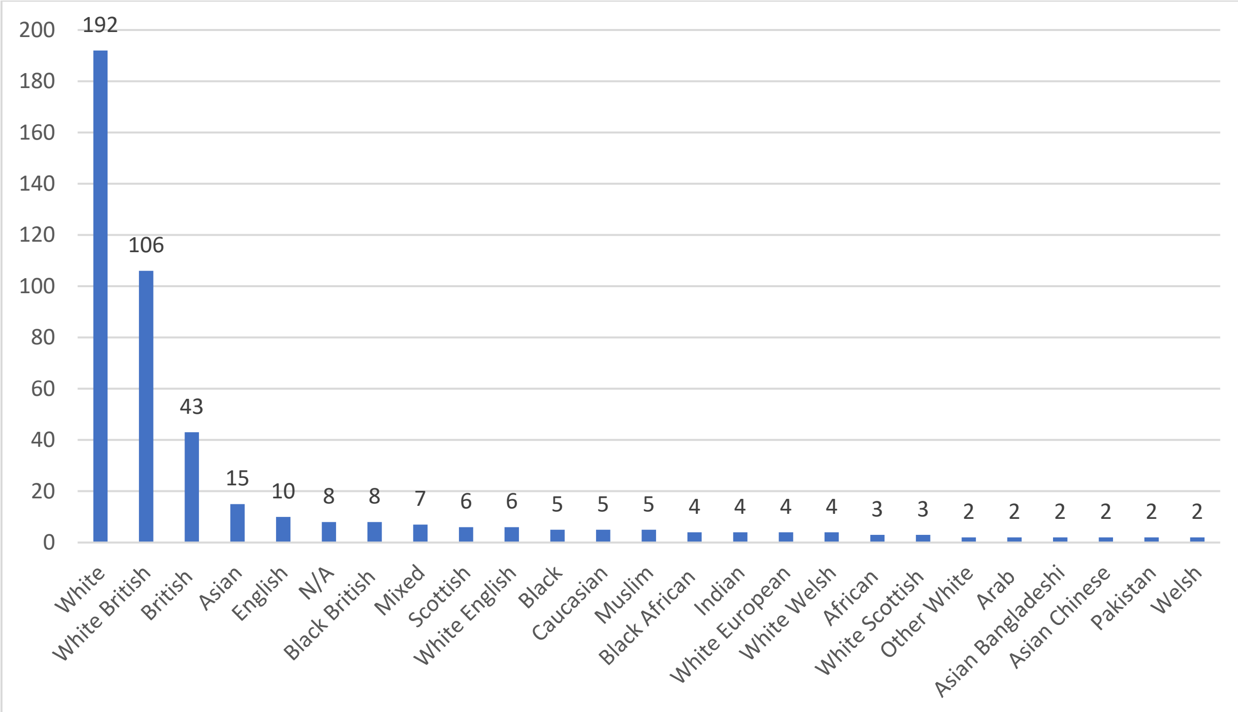


Figure 15: n=474. In addition, 1 respondent identified as each of the following ethnic groups: African Asian, Asian Indian, Asian Pakistan, Asian Bengali, Black and White Caribbean, Black British Caribbean, Bosch, Asian British, Catalic, East African Asian, Egyptian, Eurasian, European, Hindu, Indian British, Irish, Lithuanian, Other, Nigerian, Persian, Saxonswiss, Slovak, South East Asian, and Turkish.