**Deliverable Report**

| | | | | |
|---|---|---|---|---|
| **Deliverable No:** | D29.8 | | **Delivery Month:** | 47 |
| **Deliverable Title** | Report on the experimentation with the communication stimulus and evaluation of their effectiveness in changing consumers attitudes and behaviour towards the products coming from the selected fish species | | | |
| **WP No:** | 29 | | **WP Lead beneficiary:** | P11. AU |
| **WP Title:** | Socioeconomics - Consumer value perceptions and behavioural change | | | |
| **Task No:** | 29.4 | | **Task Lead beneficiary:** | P11. AU |
| **Task Title:** | Communication effectiveness in behavioural change | | | |
| **Other beneficiaries:** | P38. HRH | P3. IRTA | | |
| | | | | |
| **Status:** | Delivered | | **Expected month:** | 44 |
| …….. | | | | |

**Lead Scientist preparing the Deliverable:** Banovic, M. (AU)

**Other Scientists participating:** Krystallis, A. (HRH), Guerrero, L. (IRTA)

**Objective:** Report on the experimentation with the communication stimulus and evaluation of their effectiveness in changing consumers attitudes and behaviour towards the products coming from the selected: This report will provide the results from a number of experimental set-ups, where the above-selected single communication parameters and their combinations will be tested in relation to their ability to influence consumer value perceptions (and cause attitudinal change), purchasing intentions, willingness to pay and actual behaviour, thus causing behavioural change. A second round of experimental set-ups after those in D29.6 with samples similar to above in terms of size and structure will be designed and implemented on-line, in order to test for communication effects.

**Description:** D29.8 reports on the communication experiments based on the described procedure in D29.7. The product used in the communication experiments are based on the product prototypes developed in WP28 and tested in deliverables D29.4 and D29.6. Different communication strategies are evaluated in the five target-countries (i.e. France, Germany, Italy, Spain and the UK) with approximately 300 participants per country. This deliverable also contains all results obtained under the different experimental conditions and identifies the main drivers of consumers' attitude and purchase intention change. The deliverable is divided in two main sections, one describing the experimental protocol and a second presenting the results, drawing conclusions and providing practical recommendations.

## Table of Contents

## 1. Introduction

With roughly 90% of the world's fish stocks being fully fished or overfished (FAO, 2016), and most fish stocks used being at or above sustainable levels, there is no room left for non-farmed production. Contemporary fish marketplace reveals the importance of aquaculture (Naylor, et al., 2000; Thurstan & Roberts, 2014), with companies increasingly searching for ways to reply to this quest (World-Bank, 2013). This is already reflected on 2014 figures, where aquaculture production reached a milestone, contributing to human consumption almost half of the total world production, contributing equally to the wild-caught fish (Eurostat, 2016; FAO, 2016). Humanity also consumes more fish proteins, which now represent 17% of all protein consumption; however, we are still taking more than the oceans can naturally replenish. By the end of 2050, there will be approximately 9.5 billion people to feed and provide with drinking water. No matter where the proteins come from, terrestrial plants or animals will still use land, energy and drinking water. Against this background, not only can aquaculture revolutionize protein production and become the next frontier in a sustainable food production, but also protect sea life and contribute in maintaining global fish stocks at a healthy level.

Even though the importance of aquaculture is recognized in industry, scientific or public policy fora, consumer attitudes towards aquaculture products are continuously waved in favour of wild fish (Altintzoglou, Vanhonacker, Verbeke, & Luten, 2011; Schlag & Ystgaard, 2013; Stefani, Scarpa, & Cavicchi, 2012; Verbeke, Sioen, Brunsø, De Henauw, & Van Camp, 2007). Among the possible reasons for this attitude, research views the type of existing communication campaigns, which use generic and often contradictory messages that do not differentiate sufficiently between sustainable and unsustainable fish farming practices, are thus unable to protect aquaculture products against competition (Claret, Guerrero, Gartzia, Garcia-Quiroga, & Ginés, 2016; Kaiser & Stead, 2002). Furthermore, inability to distinguish between and emphasize on the benefits stemming from different production methods, together with negative communication campaigns and warnings about aquaculture's unsustainable malpractices bias the consumer and supress rather than raise public awareness about the importance of aquaculture (EC, 2014).

To date, research on aquaculture products has focused on profiling the typical aquaculture consumer (Banović, Krystallis, Guerrero, & Reinders, 2016; Reinders, et al., 2016), understanding consumer perceptions and preferences towards farmed fish when compared to wild fish (Claret, et al., 2014; Luten, et al., 2002; Schlag & Ystgaard, 2013; Verbeke, et al., 2007), and identifying motivation and willingness to purchase aquaculture products (Banović & Krystallis, 2017; Claret, et al., 2012; Davidson, Pan, Hu, & Poerwanto, 2012; Grimsrud, Nielsen, Navrud, & Olesen, 2013). Form the companies' perspective, the motivation to introduce new aquaculture products and enhance consumer acceptance are less clear, which is also the case with the exact consequences of various types of communication.

In this deliverable, we extend past research by focusing on market communication-specific effects, taking sustainable aquaculture practices as a point of departure. Specifically, we emphasise on communication-specific effects as a response to the ongoing debate on whether specific communication efforts inhibit consumers' attitudes towards aquaculture products rather than excite them (see e.g. EC, 2014; Kaiser & Stead, 2002). This research also addresses a call for new product development and the need to emphasise on communication implications for marketing strategy (Banović, et al., 2016; Claret, et al., 2016; Kaiser & Stead, 2002), by investigating how communication efforts around aquaculture products work in shaping consumer attitudes and behaviour.

Against this background, the goal of this deliverable is to provide and elaborate on the results from a series of communication experiments based on the experimental set-ups and selected parameters in Deliverable 29.7, report on the type of communication efforts that have the ability to excite consumers' attitude change towards new DIVERSIFY aquaculture products and impact consumers' purchasing intention and behaviour. This report refers to the second round of experimental set-ups (after Deliverable 29.6) with product samples selected in D29.7, specifically designed and implemented on-line, in order to test for fish farming process-centred communication effects.

## 2. Methodology

The experimental set-ups for the here reported communication experiments are based on the proposal and conceptual framework reported in D29.7. Specifically, the framework for the communication experiments is carefully built based on the results from the previous studies within DIVERSIFY, namely studies reported in deliverables D28.1, D29.2, D29.4 and D29.6, an analysis of existing secondary data on fish product communication campaigns launched recently (Mintel, 2016a, 2016b), as well as a recent report on EU-driven aquaculture communication campaigns (EC, 2014). The underlying objective of D29.8 is to provide the necessary insights in order to increase public awareness of DIVERSIFY aquaculture products and highlight the most significant and objective benefits that may persuade consumers to buy the newly developed products.

### 2.1 Theoretical framework

Figure 1 provides an overview of the theoretical framework of the research in D29.8. The main assumption behind this framework is that attitude towards aquaculture products is expected to change as a result of an introduction of new aquaculture products with high potential to persuade consumers. Specifically, we expect that the interplay between new DIVERSIFY products (i.e. low / medium / high processing product types), a communication (message) frame (i.e. message goal: traceability / taste / health) and message promoting the benefits and significance of DIVERSIFY production method (i.e. sustainability) would influence the ability of communication about DIVERSIFY products to contribute in a change of consumer attitudes towards aquaculture products. The development of this theoretical framework draws on framing theory.

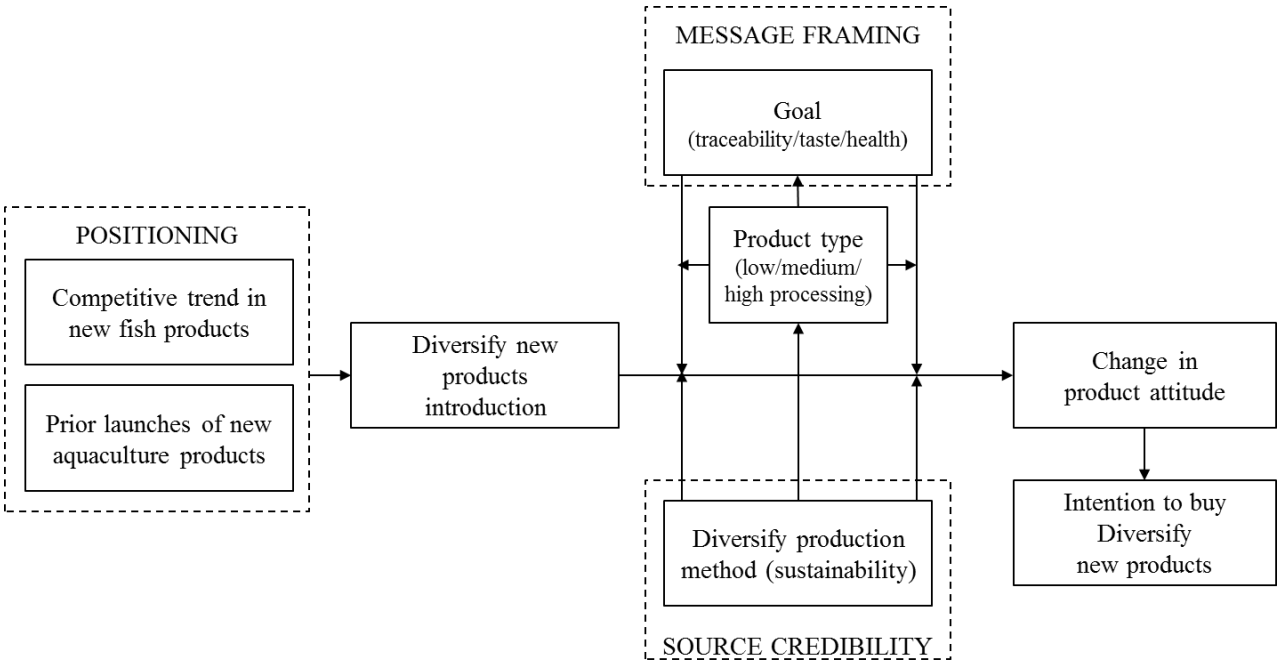



**Figure 1.** Theoretical framework

More specifically, the above theoretical framework postulates that product type (i.e. low / medium / high processing) may moderate the relationship between different communication messages (goal framing, i.e. traceability / taste / health) and general promotion message (i.e. sustainability of DIVERSIFY production

process), as it has been shown that the identifiability of the communicated message through a product image (i.e. prime) impacts the effectiveness of message framing (Small, Cohen, Daniels, & Eyal, 2015). Furthermore, by evoking positive affective reaction to the context of DIVERSIFY aquaculture (and before the product prime), it is expected to induce message effectiveness and more affectively positive responses (Edell & Burke, 1987; Yi, 1990). Thus, communication campaigns in the above framework focus on the interplay between perceptions of DIVERSIFY as a production method and its acceptability, which are compatible with *self-transcendent* – societal goals (e.g. investing in sustainable future) and *self-interest* – personal goals (e.g. healthy lifestyle). Extant research focusses on *self-transcendent and self-interest* goals, showing that people with more societal values' orientation are more likely to engage in pro-environmental behaviour (Evans, et al., 2013) (in our case, sustainable aquaculture and their products) and that they are more persuaded by prevention-focused messages, e.g. health goals (Aaker & Lee, 2001; Lee & Aaker, 2004). We further expect that the product type (i.e. level of processing as a prime) will have a differential impact on message goal framing (i.e. traceability, taste, healthiness goals), and consequently consumers' attitudes and intention to buy DIVERSIFY aquaculture products.

### 2.2 Experimental design

Our experimental design is based on promoting DIVERSIFY production method through an affective appeal of sustainability (i.e. promotion message) and using different product types - levels of processing - as primes and messages as goal frames to assess their effect on the amount of the product attitude change. Thus, we used 1 (framing: promotion) x 3 (product type: low *vs* medium *vs* high processed product) x 3 (goal frame: traceability *vs* health *vs* taste) between-subjects design. The proposed experimental design created in Deliverable D29.7 is presented in Table 1.

Thus, nine experimental groups were deployed with an additional control group. In all groups and in order to **assess the impact of the DIVERSIFY production method-related promotion message** and **understand self-transcendent goals**, participants were asked whether they thought that the adoption of DIVERSIFY production method in the production of fish is *useful for society*, *risky for society*, *morally acceptable* and whether it *should be encouraged* (Gaskell, Allum, & Stares, 2003). Responses were measured on a 7-point intensity scale anchored "not at all" / "extremely".

The dependent variable used to measure **attitude towards the product after exposure to the experimental stimuli** (see below) was based on three sets of bipolar adjectives measured on 7-point scales anchored by "negative" / "positive", "unfavourable" / "favourable" and "bad" / "good" (Aaker & Lee, 2001; Lee & Aaker, 2004). Intention to buy a product was measured with the 11-point Juster probability scale (Juster, 1966).

The **persuasiveness of each goal message** in the experimental groups was measured through the use of bipolar adjectives measured on 7-point scales anchored "unpersuasive" / "persuasive", "uninformative" / "informative", "weak" / "strong" and "unbelievable" / "believable" (Chandran & Menon, 2004). Further, the **affective appeal of the message** was measured by using 8 positive emotions (e.g. contented, hopeful, sentimental, etc.) and 8 negative emotions (e.g. sad, worried, nervous, etc.) adapted from Laros and Steenkamp (2005) and Richins (1997). The **priming effect** was measured by asking the participants how much they like the presented product on a 7-point scale anchored "dislike it extremely" / "like it extremely". **Beliefs about products** were also assessed by using 15 items adopted from D29.6 and D29.4 (e.g. nutritious, trustworthy, familiar, etc.) measured on a 7-point Likert scale anchored "strongly disagree" / "strongly agree".

Finally, with the existence of the control group (showing neither a product image/prime nor a goal message), we controlled for **attitude towards the DIVERSIFY-relevant promotion message** in general, and **liking** of, **attitudes towards** and **probability of purchasing** the DIVERSIFY **products**.

A **manipulation check for both goal messages and primes** was also conducted. **Demographics**, as well as **consumption and buying behaviour** was measured at the end of the survey. By assessing these dependent

variables, the appeal of different goal messages will be better understood and this will ultimately contribute to the more successful launch of newly developed fish products within DIVERSIFY project at the European fish markets. For a complete overview of the questionnaire, see Appendix 1.

**Table 1.** Experimental design

| **Promotion message with Primes and Goal messages** | **Goal messages** | | |
|---|---|---|---|
| | **Traceability** | **Health – wellness** | **Enjoyment while eating - taste** |
| Promotion message on DIVERSIFY aquaculture | | | |
| *Primes* | | | |
| Fish steak – low processed product | Message promoting DIVERSIFY aquaculture production method and its traceability, consumers primed with image of a low processed product | Message promoting DIVERSIFY aquaculture product healthiness, consumers primed with image of a low processed product | Message promoting DIVERSIFY aquaculture product taste, consumers primed with image of a low processed product |
| Smoked fillets – medium processed product | Message promoting DIVERSIFY aquaculture production method and its traceability, consumers primed with image of a medium processed product | Message promoting DIVERSIFY aquaculture product healthiness, consumers primed with image of a medium processed product | Message promoting DIVERSIFY aquaculture product taste, consumers primed with image of a medium processed product |
| Fish burger – high processed product | Message promoting DIVERSIFY aquaculture production method and its traceability, consumers primed with image of a high processed product | Message promoting DIVERSIFY aquaculture product healthiness, consumers primed with image of a high processed product | Message promoting DIVERSIFY aquaculture product taste, consumers primed with image of a high processed product |

### 2.3 Message stimuli

Based on previous findings within DIVERSIFY (i.e. D28.1, D29.2, D29.4, D29.6) and on the review of consumer studies and communication campaigns in D29.7, we concluded that the most important personal (self-interest) goals overlapping throughout DIVERSIFY and consumer studies are traceability (i.e. safety goal in knowing each detail about production method), healthiness (i.e. health goal), and enjoyment while eating (i.e. taste goal). Furthermore, the main discourse behind the new aquaculture products' communication is related to the concerns about sustainability of the DIVERSIFY aquaculture production emphasising its most important values and benefits (i.e. self-transcendent goals) (for more information see D29.7). Table 2 outlines the messages used in the communication experiment.

**Table 2.** Message stimuli used in the communication experiment.

| **Stimuli** | |
|---|---|
| **Main message** | |
| ***Promotion message*** | *"CHOOSE PRODUCTS FROM DIVERSIFY AQUACULTURE!*<br><br>*All products are made with the same attention to quality.*<br><br>*DIVERSIFY aquaculture fish products come from a carefully selected group of finfish species and a production method that allows for both greater diversity of fish species and new value-added products. The fish species, such as Greater Amberjack, is selected based on its growth, size and excellent product quality. Fish are grown in large cylinder-shaped pools that float on the sea surface and reach down up to 20 meters depth. This sustainable method is used for rearing finfish species in coastal and open waters, within areas sheltered from excessive wave action, but with sufficiently deep water and fast current speeds where the water flows freely through the pools, and allows the fish to grow in clean and highly oxygenated water.*<br>*DIVERSIFY aquaculture is renowned for its high quality, sustainability and consumer protection standards.*<br>*With DIVERSIFY aquaculture imagine the benefits for you and your family!"* |
| **Message framing** | |
| ***Traceability goal*** | *"GET TRACEABLE PRODUCTS FROM DIVERSIFY AQUACULTURE!*<br><br>*Transparent journey of product* from DIVERSIFY aquaculture for a responsible tomorrow*<br><br>*DIVERSIFY aquaculture refers to the cultivation of fish species, such as Greater Amberjack, in a production method where is all clear and transparent.*<br>*The product* from DIVERSIFY aquaculture is a traceable meal choice that you can track to its roots, with the carefully selected product's history from the fish species, including the rearing site, the rearing technique and the processing method of the final product. Eating this product is a clear and transparent journey where even the smallest detail is accessible to you. The product* from DIVERSIFY aquaculture that comes to your table has always a calling address, its name and surname!*<br>*We are proud to say that products from DIVERSIFY aquaculture meet the very highest standards of responsible production practices.*<br>*The high standards that you demand and deserve!"* |
| ***Health goal*** | *"GET HEALTHY PRODUCTS FROM DIVERSIFY AQUACULTURE!*<br><br>*Super-healthy product* from DIVERSIFY aquaculture for a healthier-happier day.*<br><br>*DIVERSIFY aquaculture refers to the cultivation of fish species, such as Greater Amberjack, that is beneficial to your everyday health and wellness.*<br>*The product* from DIVERSIFY aquaculture is a healthy meal choice due to the high amount of Omega-3 fatty acids that contributes to the normal function of your heart and maintenance of normal blood cholesterol. Eating this product is an easy way to protect and improve your cardiovascular health. The product* from DIVERSIFY aquaculture that comes to your table always brings wellness!*<br>*We are proud to say that products from DIVERSIFY aquaculture meet the very highest standards of healthiness.*<br>*The high standards that you demand and deserve!"* |
| ***Taste goal*** | *"GET TASTY PRODUCTS FROM DIVERSIFY AQUACULTURE!*<br><br>*Super-tasty product* from DIVERSIFY aquaculture for a great moment.*<br><br>*DIVERSIFY aquaculture refers to the cultivation of fish species, such as Greater Amberjack, that will please your taste buds, whether it is an everyday enjoyment or a special occasion.*<br>*The fish burger [adapt to a product] from DIVERSIFY aquaculture is a tasty meal choice from a carefully chosen fish species that have firm texture and delicious flavour. Eating this product offers original and gourmet experiences for a great moment. The fish burger [adapt to a product] from DIVERSIFY aquaculture that comes to your table is packed-full of goodness!*<br>*We are proud to say that products from DIVERSIFY aquaculture meet the very highest standards for a great taste.*<br>*The high standards that you demand and deserve!"* |

## 2.4 Product stimuli

The product stimuli used in the experiment were selected based on the most significant and objective outcomes found within DIVERSIFY (WP28 and WP29) and particularly after considering the results of D29.4 and D29.6, as well as upon consultation with collaborating DIVERSIFY partners. Accordingly, it was decided that the product types selected for the communication study should reflect all processing stages of the DIVERSIFY production method (i.e. low / medium /high). In terms of fish species, Greater Amberjack was selected to represent all products as it best reflects all the benefits of the DIVERSIFY production method. Thus, three products have been chosen as primes, namely: (i) fresh fish steak – low processed product; (ii) smoked fillet – medium processed product; and (iii) fish burger – high processed product. Figure 2 shows the product stimuli used in the communication experiment.


**Figure 2.** Product stimuli used in the communication experiment.

The new (compared to those in D29.6) product, i.e. fish burger, was chosen to substitute "fish fillets in olive oil" as a product more representative of the high processed fish category. Furthermore, fish burger was also chosen due to the results from the sensory trials, which showed that this product was preferred over fish pate (also high processed product, see D29.4). The labelling on all three products was based on the findings from D29.5 and D29.6.

## 2.5 Pre-test of product stimuli

In order to verify that the picture of each product indeed evokes memory associations relevant to its processing level (used in the experiment as primes) each of the selected products was pre-tested in the UK. This pre-test was necessary in order to understand the real effect the image of the product would have as a prime on the associated message (i.e. goal). Furthermore, product images were also pre-tested for their ability to evoke any of the message goals, i.e. traceability, tastiness and healthiness. All items in the pre-test were accessed on a 7-point Likert agreement scale anchored "strongly disagree" / "strongly agree".

Accordingly, 230 participants in the UK were randomly assigned to each product (i.e. fresh fish steak N = 79; smoked fillet N = 80, and fish burger N = 78). No differences were identified among the groups for age ($M_{age}$= 40.7, $p$ = 0.594), gender (50% males; $p$ = 0.987), education ($p$ = 0.618) and income ($p$ = 0.506), as well as for perceptions about the importance of processing in fish production (all $p > 0.05$).

Results showed that the participants indeed associated each product to its level of processing correctly, (see Figure 3). Specifically, fresh fish steak scored higher than the other two products as unprocessed product ($M_{FS}$ = 4.78, $p$ = 0.002); smoked fillet scored higher than fresh fish steak as medium processed product ($M_{SF}$ = 4.34, $p$ = 0.039); and fish burger scored higher than other two product as highly processed product ($M_{FB}$ = 4.26, $p$ = 0.006).

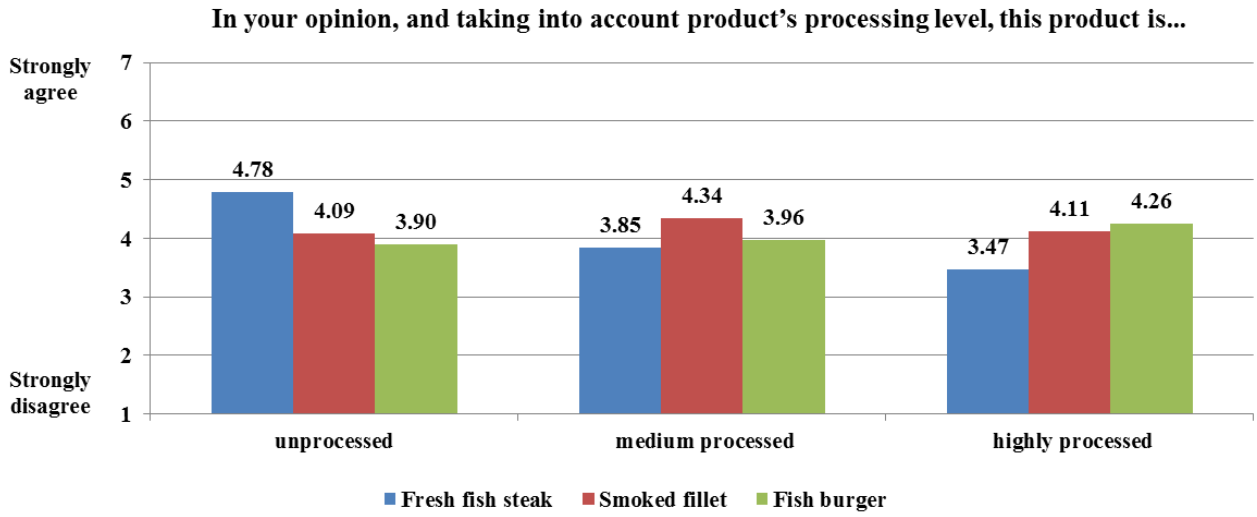



**Figure 3.** Perceived processing level of the new DIVERSIFY products; 7-point Likert scale anchored 1=strongly disagree/7=strongly agree.

In terms of perceptions about traceability, tastiness and healthiness (see Figure 4), fresh fish steak was perceived as healthier than fish burger ($p$ = 0.006), which was also perceived to be less healthy than smoked fillet ($p$ = 0.019). Fresh fish steak was also perceived to be more traceable than fish burger ($p$=0.033), while smoked fillet was perceived to be tastier than fish burger ($p$ = 0.031). Fresh fish steak was additionally seen as being more natural, of higher quality and more familiar than fish burger (all $p < 0.05$).

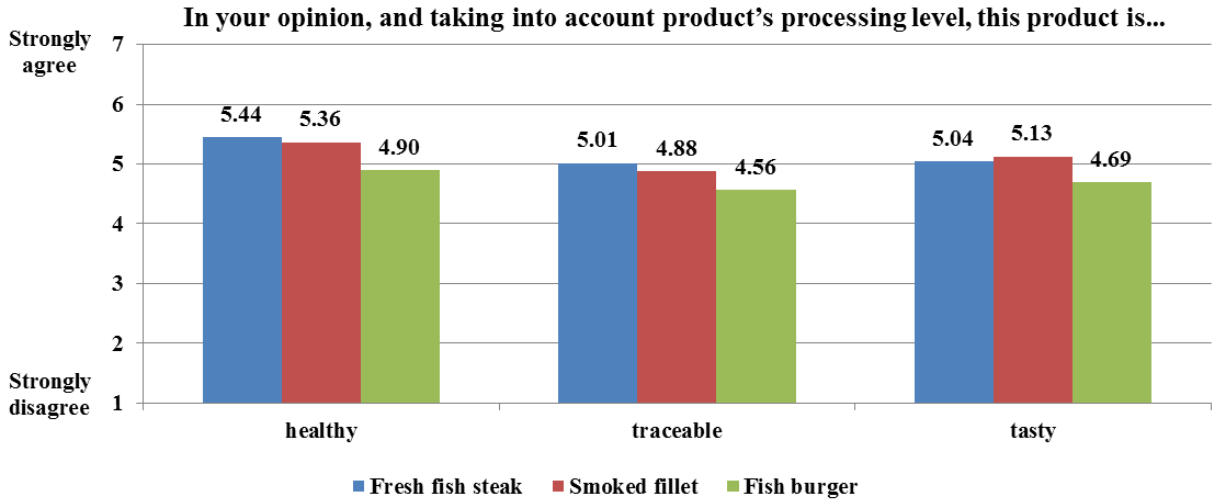



**Figure 4.** Perceived attributes of the new DIVERSIFY products; 7-point Likert scale anchored 1=strongly disagree/7=strongly agree.

## 2.6 Participants

Approximately 1,500 consumers participated in the online communication experiment across the five selected countries. Table 3 shows the main socio-demographic characteristics of the participants. The main selection criterion was that the participants had to buy and consume aquaculture products on a regular basis. More specifically, previously found consumer segments named 'involved innovators' and 'involved traditional' (see D29.2) were collapsed into one segment of 'early adopters' or highly involved consumers. This was decided as the results from previous deliverables have shown that these segments were very similar in terms of their perceptions regarding sensory characteristics and choices of the newly developed products (see D29.4 and D29.6). Furthermore, by using the group of highly involved consumers we could understand better what could be the best way possible to communicate about newly developed product prototypes, as such a consumer type is intrinsically motivated and he/she is expected to have the capacity to elaborate on the communicated message (Petty & Cacioppo, 1986).

## 2.7 Data analysis

All data analyses were performed across the 9 experimental groups and the control group. The experimental groups were collapsed, when necessary, to either 3 groups representing primes (i.e. product types) irrespective of the goal frame, or in 3 groups representing separate message goal frames (i.e., traceability, health, taste) irrespective of the primes, in order to investigate separate interaction effects (see below). Statistical analyses were performed in SPSS v.24 (IBM) and SAS (JMP) v.13.

Quantitative data were analysed by means of ANOVAs with experimental condition and country as fixed factors. Multiple mean comparisons were performed by means of Tukey's or Dunnett's T3 post-hoc tests, depending on equal/not equal variances assumed and the homogeneity of the variance test. To assess scales' internal consistency, reliability analysis was carried out and Cronbach's alpha values reported.

Emotions were analysed by means of Multiple Correspondence Analysis (Greenacre, 2007) to understand and interpret associations among different experimental conditions and continuous response data.

To test different relationships postulated in the theoretical framework (see Figure 1) a simple regression analysis was performed for both product attitudes and purchase probability. Hence, by using separate

regression analyses the impact of promotional message, primes, goal frames as well as emotions was measured first on product attitude change and subsequently on purchase probability of new DIVERSIFY products.

Cross-tabs and chi-square tests were performed on demographics, consumption and buying behaviour of the participants.

**Table 3.** Socio-demographic profile of the participants per product

| **Characteristics** | **Total (N=1566)** | **Fresh fish steak (N=448)** | **Smoked fillet (N=498)** | **Fish burger (N=450)** | **Sig.*** |
|---|---|---|---|---|---|
| Age | | | | | |
| (mean in years) | 40.61 | 40.55 | 40.85 | 40.34 | .907 |
| Gender | | | | | |
| (male) | 48.9 | 49.3 | 48.8 | 48.7 | .995 |
| Marital status | | | | | |
| (Married/co-habiting) | 64.2 | 65.8 | 65.3 | 62.7 | .460 |
| (Single at parents' home) | 10.5 | 11.8 | 9.6 | 10.4 | |
| (Single, living independently) | 18.2 | 17.4 | 16.1 | 20.7 | |
| (Separated/divorced) | 5.9 | 4.2 | 8.0 | 5.1 | |
| (Widowed) | 1.1 | 1.3 | 1.0 | 1.1 | |
| Children | | | | | |
| (yes) | 51.1 | 14.9 | 16.8 | 13.9 | .527 |
| Children at home | | | | | |
| (yes) | 81.3 | 24.0 | 26.3 | 22.4 | .807 |
| Number of children-below 18 | | | | | |
| None | 27.1 | 27.9 | 28.5 | 25.8 | .544 |
| 1-2 children | 63,6 | 65.7 | 62.4 | 61.7 | |
| 3 and more | 9.3 | 6.4 | 9.1 | 12.5 | |
| Number of children-above 18 | | | | | |
| None | 58.5 | 58.4 | 57.4 | 59.9 | .918 |
| 1-2 children | 36.4 | 36.5 | 37.3 | 34.1 | |
| 3 and more | 5.1 | 5.1 | 5.3 | 6.0 | |
| Level of education | | | | | |
| (Primary school) | 4.0 | 3.1 | 4.0 | 4.4 | .166 |
| (Secondary school) | 20.2 | 17.4 | 19.3 | 22.0 | |
| (Higher education-not university) | 29.9 | 32.1 | 31.1 | 27.3 | |
| (University- first degree, BSc) | 28.9 | 30.8 | 30.9 | 26.2 | |
| (University Post graduate, PhD) | 17.0 | 16.5 | 14.7 | 20.0 | |
| Income | | | | | |
| (more than average) | 14.7 | 17.0 | 12.0 | 14.9 | .296 |
| (average) | 63.5 | 62.5 | 63.7 | 65.3 | |
| (less than average) | 21.8 | 20.5 | 24.3 | 19.8 | |

[a] Membership percentage in each column based on the cross-tabulation, except for the age.
*Results from the chi-square test, for age t-test employed.

**Table 4.** Buying and consuming behaviour of the participants per product

| Characteristics | Total (N=1566) | Fresh fish steak (N=448) | Smoked fillet (N=498) | Fish burger (N=450) | Sig.* |
|---|---|---|---|---|---|
| Main decision maker: | 76.1 | 74.6 | 74.7 | 78.7 | .394 |
| Purchase of Farmed fish | | | | | |
| Once a week or more | 25.3 | 25. | 22.7 | 26.2 | .762 |
| 2-3 times a month | 26.1 | 24.1 | 27.1 | 26.9 | |
| Once a month | 18.4 | 20.8 | 18.7 | 16.4 | |
| Less than once a month | 18.5 | 17.6 | 20.1 | 18.2 | |
| Purchase of Wild fish | | | | | |
| Once a week or more | 16.2 | 15.6 | 18.3 | 16.7 | .111 |
| 2-3 times a month | 26.6 | 28.1 | 23.3 | 29.1 | |
| Once a month | 21.1 | 18.5 | 24.1 | 19.1 | |
| Less than once a month | 23.4 | 24.3 | 24.1 | 21.3 | |
| Purchase of Fresh fillets | | | | | |
| Once a week or more | 29.6 | 31.7 | 27.1 | 31.8 | .428 |
| 2-3 times a month | 31.8 | 30.8 | 33.1 | 30.7 | |
| Once a month | 18.2 | 19.4 | 18.5 | 17.3 | |
| Less than one month | 16.3 | 15.0 | 18.1 | 14.9 | |
| Purchase of Fish burger | | | | | |
| Once a week or more | 11.4 | 12.5 | 10.6 | 11.8 | .642 |
| 2-3 times a month | 18.4 | 17.6 | 17.7 | 19.6 | |
| Once a month | 18.3 | 16.3 | 17.3 | 20.7 | |
| Less than one month | 21.1 | 21.4 | 23.1 | 17.8 | |
| Purchase of Smoked fish | | | | | |
| Once a week or more | 14.7 | 16.1 | 13.7 | 15.6 | .889 |
| 2-3 times a month | 25.7 | 23.7 | 25.1 | 27.3 | |
| Once a month | 24.2 | 24.1 | 25.5 | 23.3 | |
| Less than one month | 25.2 | 25.4 | 26.5 | 23.6 | |
| Consumption of Farmed fish | | | | | |
| Once a week or more | 25.1 | 25.7 | 24.5 | 24.9 | .889 |
| 2-3 times a month | 28.7 | 25.0 | 28.9 | 31.8 | |
| Once a month | 18.6 | 20.5 | 18.9 | 16.4 | |
| Less than one month | 19.7 | 20.3 | 19.7 | 19.3 | |
| Consumption of Wild fish | | | | | |
| Once a week or more | 18.5 | 18.5 | 21.1 | 18.7 | .125 |
| 2-3 times a month | 26.8 | 23.7 | 26.7 | 29.3 | |
| Once a month | 23.4 | 24.8 | 22.1 | 23.3 | |
| Less than one month | 23.4 | 24.3 | 24.1 | 20.4 | |
| Consumption of Fresh fillets | | | | | |
| Once a week or more | 28.7 | 32.6 | 27.9 | 28.4 | .342 |
| 2-3 times a month | 30.8 | 29.2 | 32.1 | 30.0 | |
| Once a month | 22.7 | 22.5 | 21.3 | 24.4 | |
| Less than one month | 15.5 | 13.6 | 16.7 | 14.2 | |
| Consumption of Fish burger | | | | | |
| Once a week or more | 11.9 | 11.6 | 12.4 | 12.9 | .552 |
| 2-3 times a month | 19.3 | 21.0 | 16.5 | 18.4 | |
| Once a month | 18.8 | 17.2 | 19.7 | 19.6 | |
| Less than one month | 20.8 | 19.9 | 21.7 | 21.1 | |
| Consumption of Smoked fish | | | | | |
| Once a week or more | 15.5 | 17.2 | 13.7 | 16.9 | .566 |
| 2-3 times a month | 27.2 | 26.3 | 28.1 | 26.2 | |
| Once a month | 22.5 | 21.9 | 21.1 | 24.7 | |
| Less than one month | 25.0 | 26.1 | 26.9 | 22.9 | |

[a] Membership percentage in each column based on the cross-tabulation.
*Results from the chi-square test

# 3. Results

## 3.1 Attitude towards DIVERSIFY promotion message

Generally and across all experimental groups and the control group, the DIVERSIFY aquaculture-related promotion message had a positive impact for all five countries (see Figure 5). Thus, communicating DIVERSIFY aquaculture as a sustainable method for the production of fish that benefits the society had quite a positive effect on consumers in all five countries.

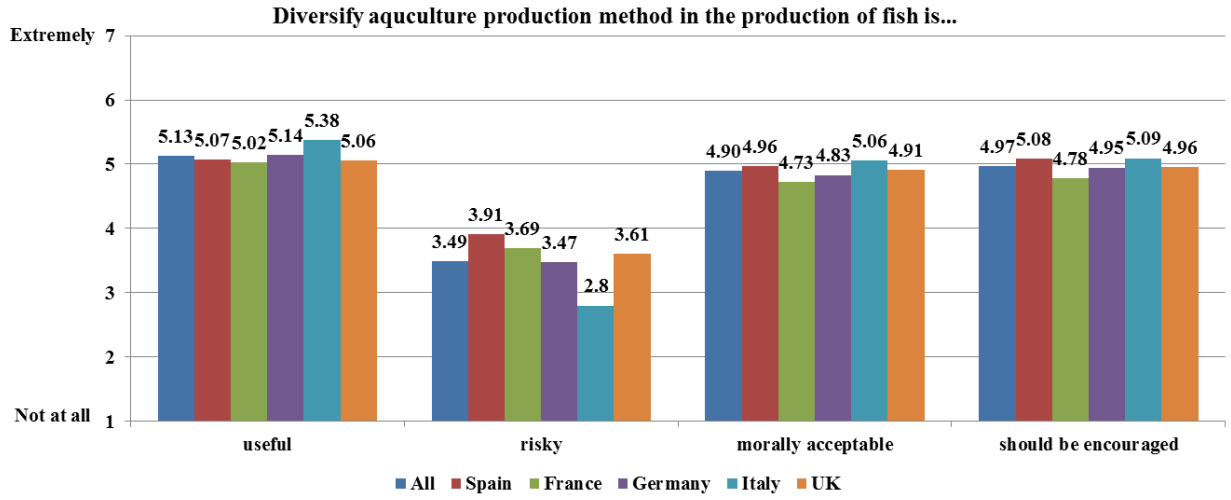



**Figure 5.** Attitude towards DIVERSIFY promotion message; 7-point intensity scale anchored 1=not at all/7=extremely.

However, there were significant differences among countries regarding different items (all $p < 0.05$). Specifically, Italian consumers believed more than the others that using DIVERSIFY aquaculture method could be actually very "useful" for society ($M_{IT} = 5.38$, all $p < 0.05$) and that it is "morally acceptable" ($M_{IT} = 5.38$, $p < 0.05$, post-hoc test for France $M_{FR} = 4.73$ and Germany $M_{GER} = 4.83$). On the other hand, French consumers thought about the moral acceptability of DIVERSIFY aquaculture method at a much lesser extent compared to Italian and Spanish consumers ($M_{FR}$=4.73, post-hoc t-test $p < 0.05$ for Italy and Spain), as well as that aquaculture should be encouraged ($M_{FR}$= 4.78, post-hoc t-test $p < 0.05$ for Italy and Spain). Italian consumers were also the ones who considered DIVERSIFY aquaculture as less risky than consumers in the other countries ($M_{IT} = 2.80$, all $p < 0.05$), while Spanish (mostly) and French consumers were the most ambiguous of all about DIVERSIFY's potential risk for the society ($M_{SP} = 3.91$, all $p < 0.05$).

Further, the four items measuring attitude towards the DIVERSIFY-related promotion message were averaged (Cronbach's $\alpha = 0.697$). As reliability analysis showed better internal consistency if the item "risky" was excluded (Cronbach's $\alpha = 0.894$), this item was removed from further analysis.

Then, the 9 experimental groups were collapsed in 3 sub-groups per product processing level (in a 1: promotion x 3: primes design) in order to investigate the impact of promotional message on product types (i.e. primes). ANOVA tests showed no significant differences between the three experimental groups and the control group on attitude towards DIVERSIFY ($F(3,1562) = 1.407$, $p = 0.239$), showing that the promotional message worked irrespective of the processing level. On the other hand, there were significant differences at the country level ($F(4,1561) = 4.590$, $p = 0.023$). Specifically, Italian consumers ($M_{IT} = 5.18$), and then the Spanish ($M_{SP} = 5.04$) and the UK ones ($M_{UK} = 4.98$) were impacted more than French ($M_{FR} = 4.84$) and German ($M_{GER} = 4.97$) consumers by the DIVERSIFY promotional message (post-hoc t-test all $p < 0.05$).

### 3.2 Perceptions of DIVERSIFY products with low, medium and high processing levels

Again looking at the 3 sub-groups per product processing level (i.e. 1: promotion x 3: primes design) and in terms of overall liking, fresh fish steak and smoked fillet were preferred over fish burger (all $p < 0.05$), except for Italy where the fresh fish steak was preferred over both smoked fillet and fish burger (both $p < 0.05$) (see Figure 6). Nevertheless, fish burger was preferred much more in Spain and Italy than in the other countries ($M_{IT}$=6.22, $M_{SP}$=5.91, all $p < 0.05$).

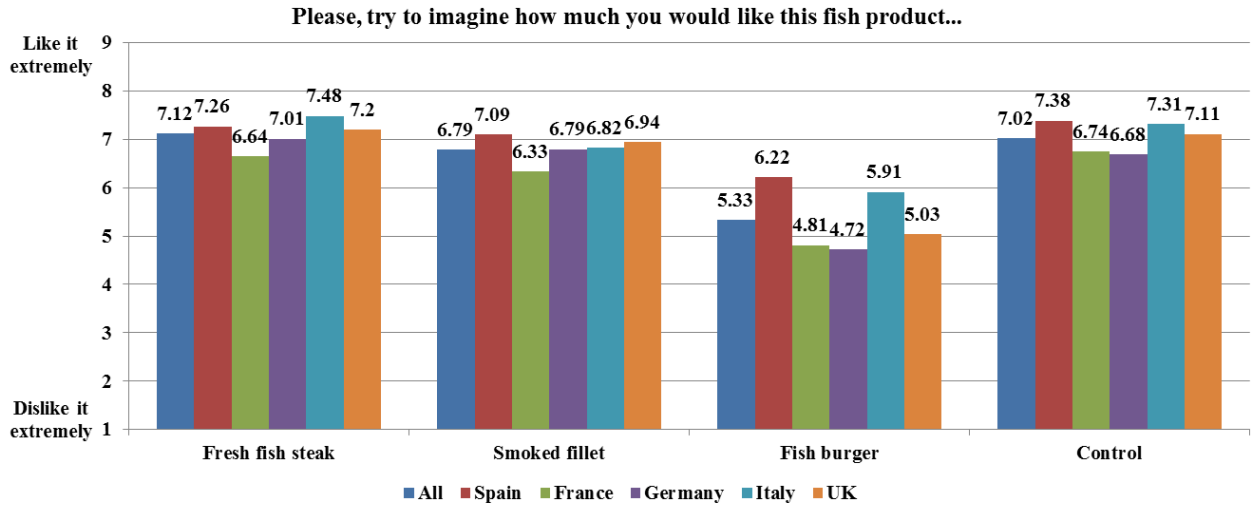



**Figure 6.** Perceptions of products across countries after DIVERSIFY promotion message; 9-point scale anchored 1=dislike it extremely/9=like it extremely.

Using the same 3 sub-groups, the averaged measure of attitude towards the DIVERSIFY aquaculture promotion message (see previous section) and overall liking of the 3 primes (i.e. product types), we further investigated possible inter-correlations in order to assess the impact of "attitude towards DIVERSIFY" on "liking" of the three primes (see Table 5).

**Table 5. Correlations between liking of the products and attitude towards DIVERSIFY aquaculture**

| Correlations | Total (N=1566) | France (N=321) | Germany (N=321) | Italy (N=308) | Spain (N=306) | UK (N=310) |
|---|---|---|---|---|---|---|
| Fresh fish steak | 0.374** | 0.482** | 0.314** | 0.299** | 0.323** | **0.472**** |
| Smoked fillet | 0.383** | 0.556** | 0.266** | 0.224* | **0.444**** | 0.317** |
| Fish burger | 0.378** | **0.567**** | **0.362**** | **0.427**** | *0.069* ns | 0.457** |
| Control | 0.425** | 0.480** | 0.541** | *0.174* ns | *0.185* ns | 0.491** |

**: Significant at 0.01, *: Significant at 0.05.
ns: not significant.

Table 5 shows that there was significant positive correlation between "attitude towards DIVERSIFY" and "liking" of the three products - primes (all correlations above 0.3). Communicating the benefits of aquaculture production method affects liking of the resulting products and creates an *associative learning* effect. This is especially evident for the more processed products. For example, correlations for fish burger in France, Italy and the UK are above 0.4. Nevertheless, results from the control groups show significant impact of the DIVERSIFY message on product liking mainly in France, Germany and UK.

Furthermore, we investigated the perceptions towards the three products across the above-mentioned three sub-groups and the control group (see Figure 7).

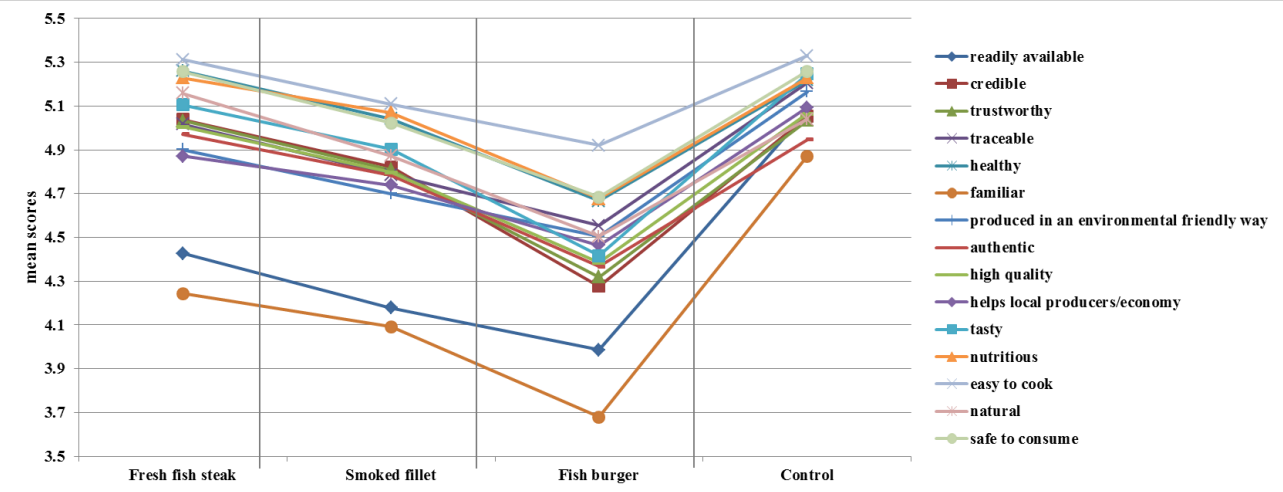



**Figure 7.** Perceptions of the DIVERSIFY products after seeing the image *vs* control group (no image shown); 7-point Likert scale anchored 1=strongly disagree/7=strongly agree.

Figure 7 shows that the perceptions towards the three products differed significantly (all $p < 0.001$). When comparing the three groups to the control group, which did not see any product information (i.e. image), it is obvious that the product image had an important impact on perceptions. On average, fresh fish steak was perceived as more credible, trustworthy, traceable, healthy, tasty, nutritious, easy to cook, natural and safe to consume when compared to smoked fillet and fish burger (all $p < 0.05$). Familiarity and availability was very low in all three products, as expected based on their newness.

There were some differences among the investigated countries regarding product perceptions across the three product sub-groups. For example, fresh fish steak was considered less readily available, less nutritious, less natural and less safe to consume by French consumers when compared to Italian, German and the UK consumers (all $p < 0.05$). Similarly, smoked fillet was considered less readily available, less healthy, less familiar and less tasty in France than in all other countries (all $p < 0.05$). French consumers were also more sceptical than consumers in the other countries when considering fish burger seeing it as less available, less tasty, less natural, less safe to consume and of lower quality (all $p < 0.05$).

### 3.3 Emotional appeal of the goal messages (traceability, health, taste)

Negative and positive emotions are important predictors of message effectiveness (Edell & Burke, 1987). Thus, to better understand the effect of message on attitude and purchase intention towards the three products, the emotions elicited were investigated. First, we have looked at all the emotions across the nine experimental groups using multiple correspondence analysis (see Figure 8.

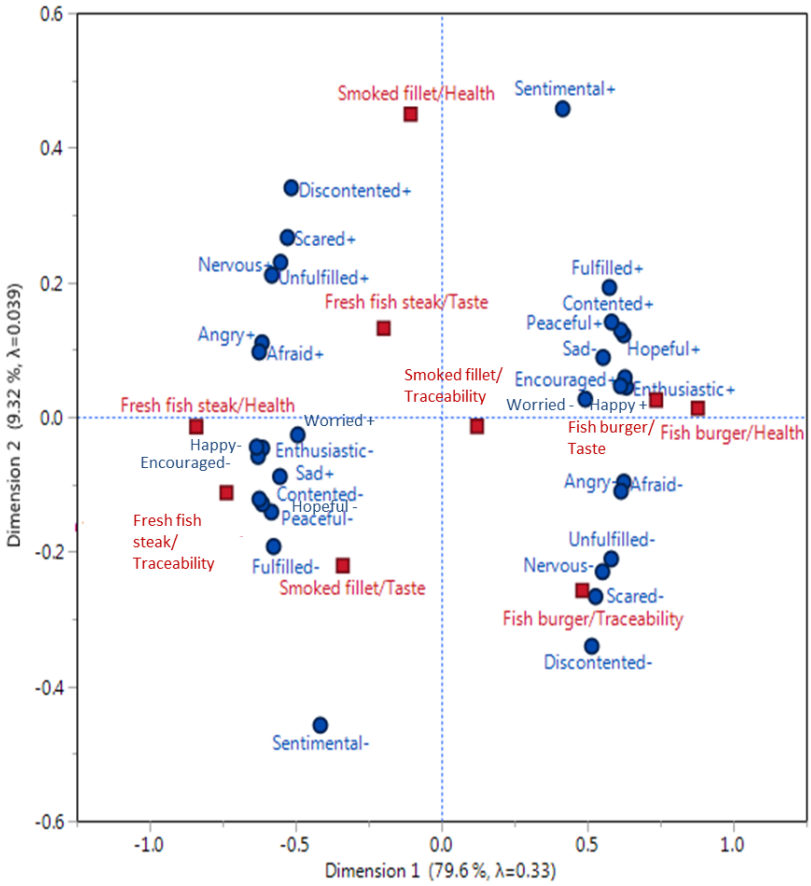



**Figure 8.** Multiple correspondence analysis of different emotions across experimental conditions.

The first dimension in Figure 8 explains almost 80% of variance. Further, all three goal messages (i.e. traceability, health and taste) on fish burger (i.e. high processing level) evoke more negative emotions when compared to their effect on the other two products. This is a case especially for the health message, which evokes the feelings of discontent and worry. The health message connected to smoked fillet evokes sentimental feelings, while the same message in connection to fresh fish steak (i.e. low processing level) evokes positive feelings of being hopeful, peaceful, fulfilled and happy. The taste message in connection to fresh fish steak (i.e. low processing level) evokes emotions of being contented and hopeful.

In order to better understand the effect of three goal messages and their emotional appeal on the three products - primes, the eight positive emotions (PE) and the eight negative emotions (NE) have been averaged (Cronbach's $\alpha$ PE = 0.935 and NE = 0.958 respectively). Averaged means are presented in Figure 9 across different products and messages, i.e. nine experimental conditions.

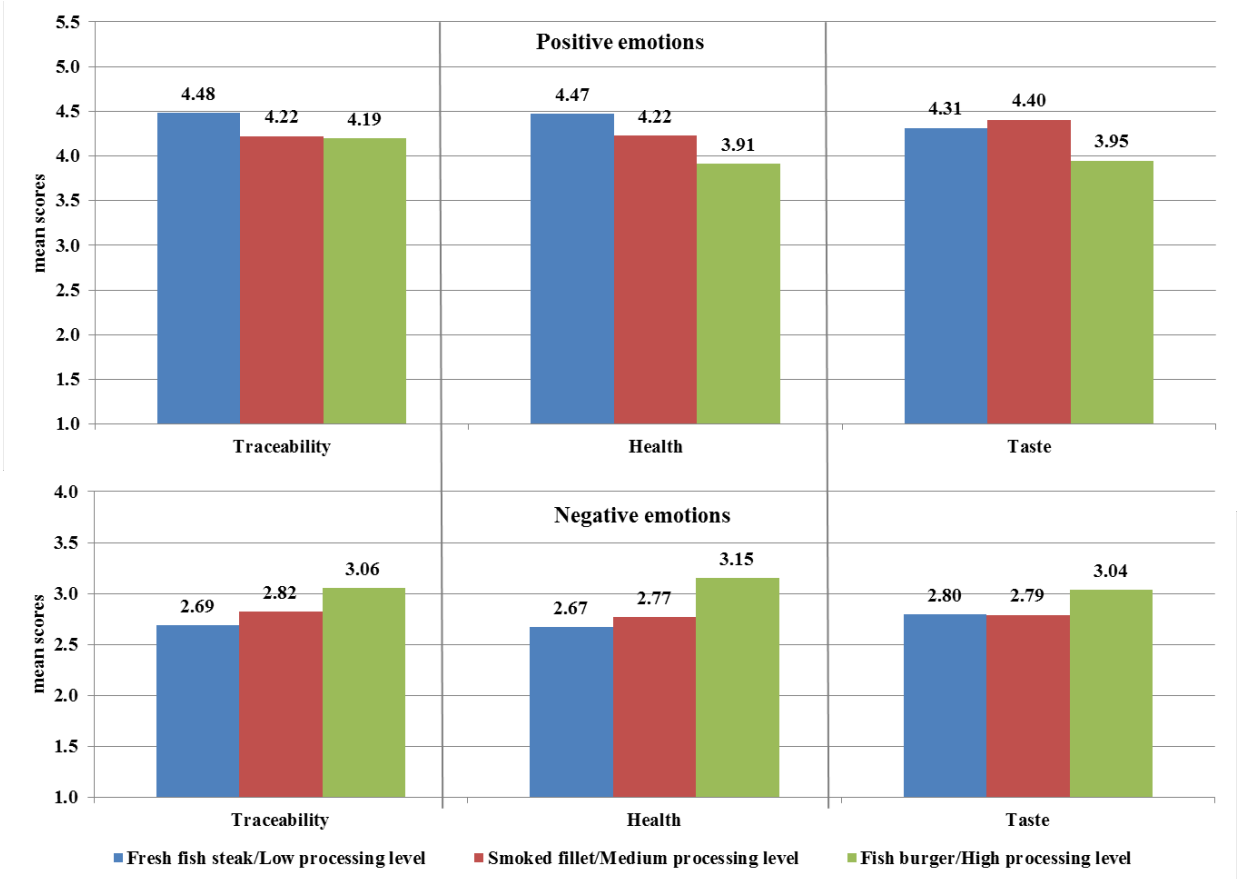



**Figure 9.** Experienced positive and negative emotions after reading the goal messages; 7-point intensity scale anchored 1=not at all/7=very strongly.

As seen from Figure 9, the traceability message "encouraged" positive emotions across all three products, but "prevented" the elicitation of negative emotions only for the medium- or low-processed ones (PE across products: F = 2.001, $p$ = 0.136; NE across products: F = 2.095, $p$ = 0.124). On the other hand, the health message (PE across products: F = 6.219, $p$ = 0.002; NE across products: F = 3.995, $p$ = 0.019) worked similarly, exception for fish burger where it evoked less positive and more negative emotions than the

traceability message. The taste message evoked less positive and more negative emotions (PE across products: F = 4.628, $p$ = 0.010; NE across products: F = 1.252, $p$ = 0.287) again in the case of fish burger when compared to traceability, but created more positive emotions and less negative (though non-significant) emotions for the medium- rather than the low-processed product. Further, the positive and negative emotions elicited by different goal messages (i.e. traceability, health and taste) were investigated across the five countries under study (see Figure 10).

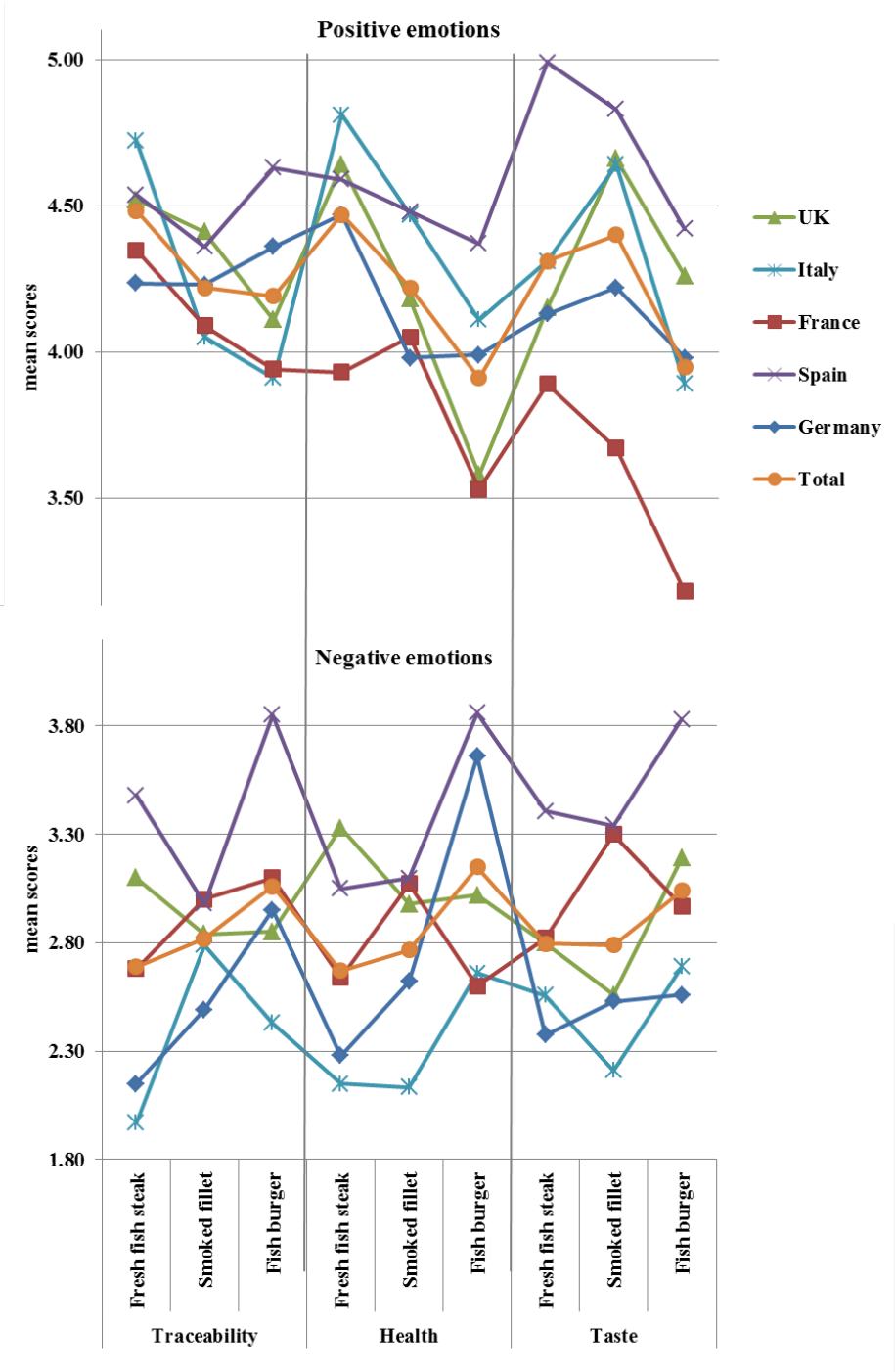



**Figure 10.** Positive and negative emotions elicited by goal message per investigated country; 7-point intensity scale anchored 1=not at all/7=very strongly.

The main differences that occurred across countries were related to negative emotions evoked by the traceability and health message primed with the low- and high-processed products (i.e. fresh fish steak and fish burger) (traceability x low processed product: $F(4,145) = 6.789$, $p < 0.001$; traceability x high processed product: $F(4,138) = 3.123$, $p = 0.017$; health x low processed product: $F(4,148) = 3.207$, $p = 0.015$; health x high processed product: $F(4,150) = 4.162$, $p = 0.003$).

The same occurred for the taste goal message and medium- and high-processed products (Taste x medium processed product: $F(4,159) = 3.464$, $p = 0.010$; Taste x high processed product: $F(4,147) = 3.154$, $p = 0.016$). As seen from Figure 10 (bottom chart), this was mainly due to the Spanish consumers, to whom the goal message related to traceability and health with low/high processed products, as well as the taste goal message primed with medium/high processed product evoked more negative feelings than in the other countries (all $p < 0.05$).

On the other hand, the taste goal message primed in all three products evoked more positive feelings in some countries (taste x low processed product: $F(4,140) = 2.781$, $p = 0.029$; taste x medium processed product: $F(4,159) = 4.499$, $p = 0.002$; taste x high processed product: $F(4,147) = 3.206$, $p = 0.015$). This was mainly due to the Spanish and French consumers (see Figure 10, top chart) to whom the taste goal message evoked higher/lower positive feelings, respectively compared to German, Italian and UK consumers (all $p < 0.05$).

### 3.4 Attitude towards the product as a function of goal messages and primes

We further examined the relationship between goal message (i.e. traceability, health and taste) and product (prime, i.e. low- / medium- / high-processed). We expected that the messages would be more effective and persuasive when presented in conjunction with the low-processed product than compared to the high-processed product. To test this hypothesis, we investigated the attitude towards the three products in the nine experimental groups compared to the control group.

Accordingly, the three items measuring "attitude towards the product" (i.e. "negative" / "positive", "unfavourable" / "favourable", and "bad" / "good") were averaged (Cronbach's $\alpha = 0.926$). The results of a 3 (product type as prime: low *vs* medium *vs* high processed product) x 3 (goal message: traceability *vs* health *vs* taste) between-subjects ANOVA yielded the expected (goal message x prime) interaction ($F(8,1386) = 4.352$, $p < 0.001$).

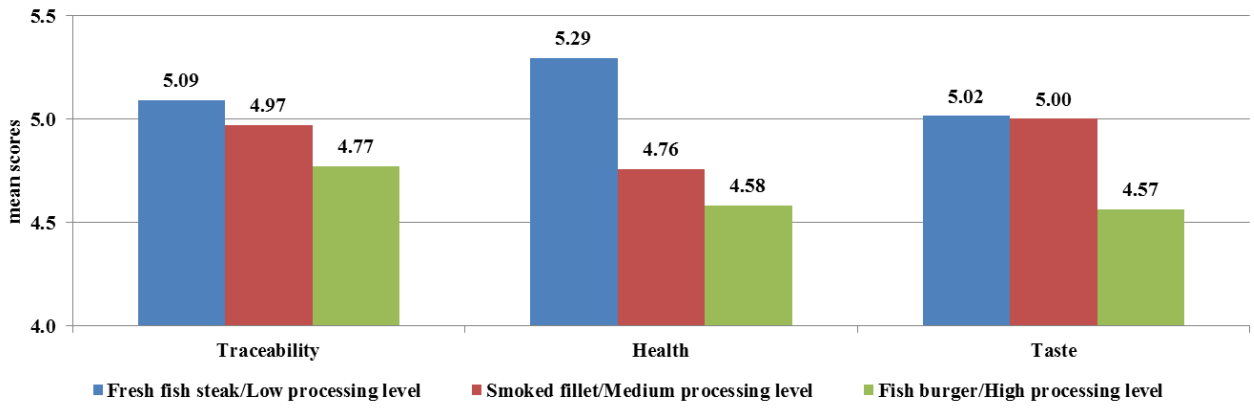



**Figure 11.** Product attitude as a function of message goals and primes - processing level.

Figure 11 shows "attitude towards the products" as a result of the interaction between the goal message and the prime (products indicating processing levels). As anticipated, the effect on product attitude is higher when the goal message is associated with the lower level of product processing across all three goal messages. This is particularly evident in the case of fresh fish steak and the health goal message. Besides health, the traceability goal message worked well across all three primes. Finally, product attitude in the control group did differ in relation to all three goal messages when primed with the highly processed product (all $p < 0.05$).

In order to assess the relationship between product attitude and product (i.e. prime) liking, we further examined their correlations within the nine experimental groups and the control group (see Table 6). A significant impact of product liking on product attitudes was observed (correlations above 0.25), showing the importance of paring the product type with the appropriate communication appeal.

**Table 6.** Correlations between the liking of the products and product attitude

| **Correlations** | **Message goal** | | | **No message/ No primes** |
|---|---|---|---|---|
| | **Traceability** | **Health** | **Taste** | |
| *Primes* | | | | |
| Fresh fish steak | 0.590** | 0.571** | 0.455** | |
| Smoked fillet | 0.570** | 0.263** | 0.485** | |
| Fish burger | 0.507** | 0.599** | 0.575** | |
| *Control* | | | | 0.532** |

**: Significant at 0.01.

Product attitude as a function of message goal and product (prime) was also examined (see Figure 12). There were no significant differences across the investigated countries except for the goal message emphasising health of the smoked fillet ($F(4,157) = 2.580$, $p = 0.039$). Specifically, consumers from the UK were affected much more than consumers in the other countries by the health message related to the medium processed product – smoked fillet (all $p < 0.05$).

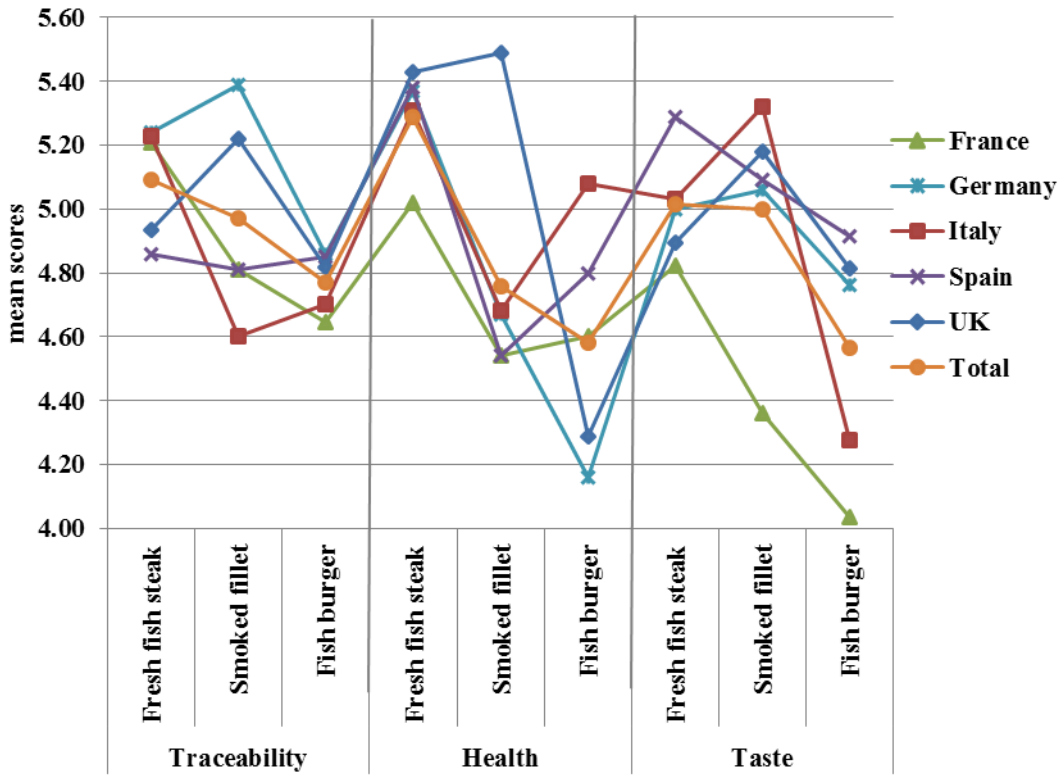



**Figure 12.** Product attitude as a function of goal message and prime per investigated country.

### *3.4.1. Message goal persuasiveness*

We further examined the persuasiveness of each goal message (i.e. traceability, health, and taste) across the nine experimental groups. As before, to test the persuasiveness of the messages the four relevant items (i.e. "unpersuasive" / "persuasive", "uninformative" / "informative", "weak" / "strong", and "unbelievable" / "believable") were averaged (Cronbach's $\alpha = 0.952$) (see Figure 13).

The results of a 3 (prime: low *vs* medium *vs* high processed product) x 3 (goal: traceability *vs* health *vs* taste) between-subjects ANOVA showed that the message persuasiveness varied across the experimental groups ($F(8,1386) = 4.481$, $p < 0.001$).

Again, and as seen from Figure 13, the higher message goal persuasiveness is associated with the lower level of product processing. In addition, some similarities can be noted between Figure 11 and 13, confirming the above assumptions.

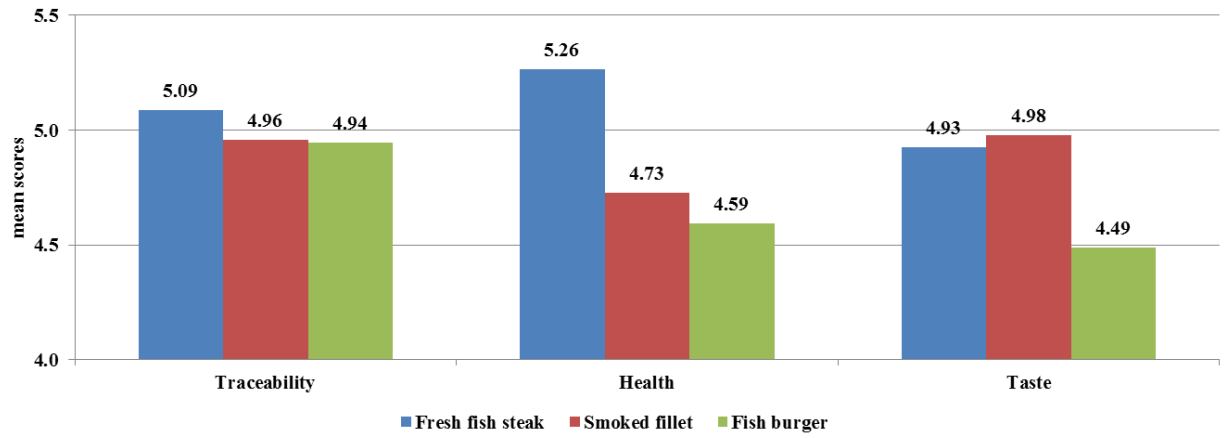



**Figure 13.** Message persuasiveness as a function of message goals and primes - processing level.

We have also examined the relationship between the message persuasiveness and product liking (see Table 7) across the nine experimental groups and the control group. Table 7 shows that the primes (i.e. low / medium / high processing level) impacted the persuasiveness of the goal message (all correlations above 0.3).

**Table 7.** Correlations between the liking of the products and message goal persuasiveness

| **Correlations** | **Message goal** | | | **No message/ No prime** |
|---|---|---|---|---|
| | **Traceability** | **Health** | **Taste** | |
| *Primes* | | | | |
| Fresh fish steak | 0.497** | 0.591** | 0.459** | |
| Smoked fillet | 0.576** | 0.299** | 0.465** | |
| Fish burger | 0.504** | 0.577** | 0.634** | |
| *Control* | | | | 0.170ns |

**: Significant at 0.01, ns : not significant.

Regarding the message goal persuasiveness across countries (see Figure 14), the only significant differences occurred for the goal messages traceability and taste when primed with the medium processed product (i.e. smoked fillet) (traceability x medium processed product: $F(4,147) = 2.642$, $p = 0.036$; taste x medium processed product: $F(4,158) = 3.605$, $p = 0.008$). These differences mainly occurred as consumer in Germany and the UK considered the traceability goal message primed with smoked fillet more persuasive than consumers in the other countries (all $p < 0.05$). On the other hand, French consumers thought the taste goal message primed with smoked fillet as less persuasive when compared to consumers in the other countries (all $p < 0.05$).

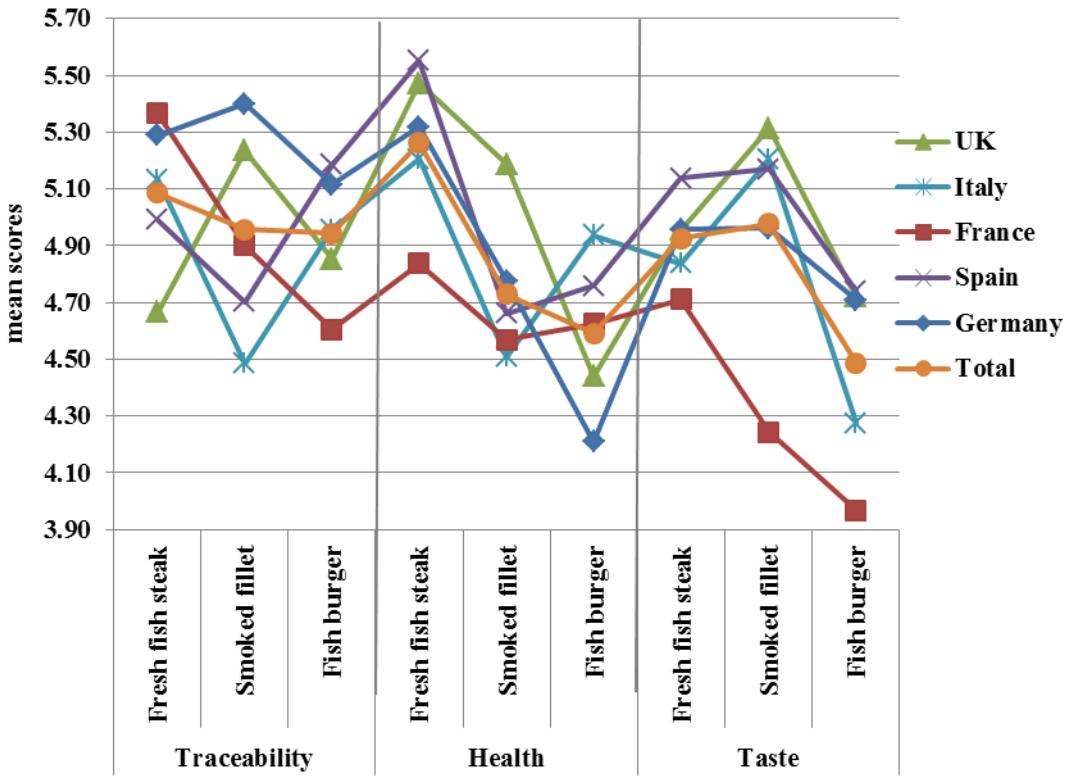



**Figure 14.** Message persuasiveness as a function goal message and prime per investigated country.

### *3.4.2. Effect of promotional message, goal message persuasiveness and emotions on product attitude*

To examine the effects of DIVERSIFY promotional message and evoked emotions on product attitude, a regression analysis was conducted across the nine experimental groups. Specifically, the averaged attitude towards DIVERSIFY aquaculture, the persuasiveness of the message goal, and positive and negative emotions were regressed on product attitude in each experimental condition (see Table 8).

The model in each experimental condition was highly significant and the variables manged to explain most of the variance (highest $R^2 = 0.847$, lowest $R^2 = 0.696$). As seen in Table 8, the highest impact on product attitude had the **goal persuasiveness of the message**, which overrode the impact of all the other variables. **Positive and negative evoked emotions** had also a significant impact in all models and they co-occurred in explaining product attitude. Attitude towards the DIVERSIFY promotional message had a weaker effect on product attitude. This effect was more important in the case of the traceability goal message and the lower processing levels, i.e. fresh fish steak and smoked fillet.

**Table 8.** Regression results for the product attitude per experimental condition.

| | Standardized coefficients | | | | $R^2$ | F | Sig. |
|---|---|---|---|---|---|---|---|
| **Dependent variable** | **Attitude DIVERSIFY promotion message** | **Goal message persuasiveness** | **Positive emotions** | **Negative emotions** | | | |
| ***Attitude…*** | | | | | | | |
| Fresh fish steak x traceability | 0.210** | 0.540** | 0.177** | -0.163** | 0.721 | 97.146 | 0.000 |
| Smoked fillet x traceability | 0.158** | 0.602** | 0.162** | -0.117** | 0.696 | 98.714 | 0.000 |
| Fish burger x traceability | 0.008ns | 0.715** | 0.173** | -0.053ns | 0.705 | 85.979 | 0.000 |
| Fresh fish steak x health | 0.110ns | 0.656** | 0.128** | -0.118** | 0.710 | 93.981 | 0.000 |
| Smoked fillet x health | 0.168** | 0.716** | 0.031 ns | -0.056ns | 0.734 | 111.866 | 0.000 |
| Fish burger x health | 0.038ns | 0.729** | 0.173** | -0.045ns | 0.766 | 127.015 | 0.000 |
| Fresh fish steak x taste | 0.083ns | 0.622** | 0.244** | -0.138** | 0.780 | 128.788 | 0.000 |
| Smoked fillet x taste | 0.093ns | 0.662** | 0.159** | -0.098** | 0.713 | 101.443 | 0.000 |
| Fish burger x taste | 0.042ns | 0.809** | 0.101ns | -0.023 ns | 0.847 | 209.805 | 0.000 |

**Significant at 0.05.
ns not significant.

### 3.5 Purchase probability as a function of message goal and prime

As the different communication efforts have the ability to inhibit or excite consumers' attitudinal change, this may influence further consumers' purchasing intention and actual behaviour (Aaker & Lee, 2001; Ajzen & Manstead, 2007; Lee & Aaker, 2004). Therefore, we have also assessed **products' purchase probability as a function of goal messages and primes** (processing levels) across the nine experimental groups and the control group (see Figure 15).

As expected, the lower the product processing level, the higher the message goal effectiveness on consumers' likelihood of buying the product. The results of a 3 (prime: low- *vs* medium- *vs* high-processed product) x 3 (goal: traceability *vs* health *vs* taste) between-subjects ANOVA verified the expected effect on consumers' likelihood of purchase ($F(8, 1386) = 14.375$, $p < 0.001$).

Multiple comparisons showed that for the high-processed product the traceability goal message could work better than the health goal message ($p = 0.037$). For the low- and medium-processed products, all three goal messages worked fine. As in the case of product attitude, purchase probability in the control group did differ from the experimental conditions in relation to all message goals when primed with the high-processed product (all $p < 0.05$).

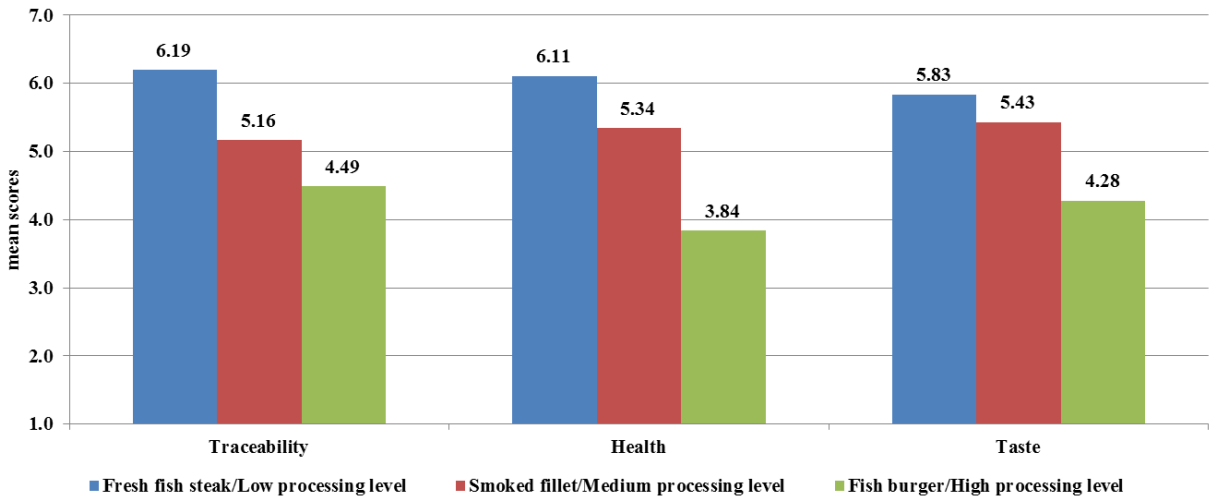



**Figure 15.** Product purchase probability as a function of message goals and primes; 11-point Juster (1966) probability scale.

The correlations between product liking and purchase probability (see Table 9) were also quite high (all above 0.4), confirming the above.

**Table 9.** Correlations between the product's liking and purchase probability

| **Correlations** | **Message goal** | | | |
|---|---|---|---|---|
| | **Traceability** | **Health** | **Taste** | **No message/ No prime** |
| *Primes* | | | | |
| Fresh fish steak | 0.418** | 0.478** | 0.436** | |
| Smoked fillet | 0.602** | 0.507** | 0.443** | |
| Fish burger | 0.630** | 0.592** | 0.655** | |
| *Control* | | | | 0.525** |

**: Significant at 0.01.

The same occurred across the investigated countries (see Figure 16): the persuasiveness of the goal message was higher when primed with the lower processing product. This was especially evident for the health goal message primed with the low-processed product and the taste message primed with all three products (health x low processed product: $F(4,148) = 3.286$, $p = 0.013$; taste x low processed product: $F(4,140) = 2.835$, $p = 0.027$; taste x medium processed product: $F(4,159) = 2.878$, $p = 0.025$; taste x high processed product: $F(4,147) = 2.688$, $p = 0.034$).

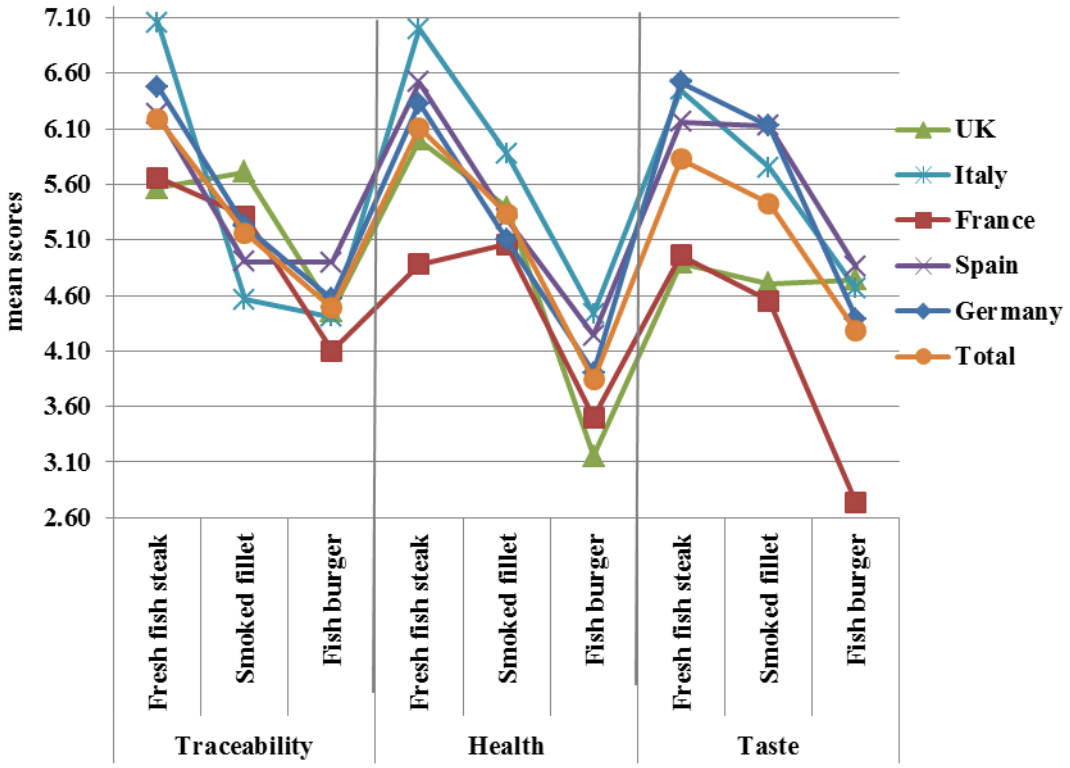



**Figure 16.** Purchase probability as a function of message goals and primes per country; 11-point Juster (1966) probability scale.

For the health goal message primed with the low-processed product (i.e. fresh fish steak), French consumers were as persuaded as consumers in the other countries and had a lower likelihood of buying the specific product (all $p < 0.05$). Similarly, French consumers also had a lower likelihood of buying any product with the taste goal message compared to the other countries except for the UK consumers, who were also unconvinced by the taste message goal when primed with low- / medium-processed product (all $p < 0.05$).

### 3.5.1. *Effect of DIVERSIFY promotional message, product attitude, goal message persuasiveness & emotions on purchase probability*

We also investigated the impact of the DIVERSIFY promotional message, product attitude, goal message persuasiveness & emotions on purchase probability. For this, another set of a regression analysis was conducted. Again, the averaged product attitude, as well as attitude towards the DIVERSIFY aquaculture, persuasiveness of the goal messages and positive and negative emotions were regressed on the purchase probability in each of the nine experimental conditions (see Table 10).

**Table 10.** Regression results for the purchase probability.

| Dependent variable | Standardized coefficients: Attitude DIVERSIFY promotion message | Goal message persuasiveness | Positive emotions | Negative emotions | $R^2$ | F | Sig. |
|---|---|---|---|---|---|---|---|
| ***Purchase probability…*** | | | | | | | |
| Fresh fish steak x traceability | 0.104$^{ns}$ | 0.151$^{ns}$ | 0.265$^{**}$ | -0.321$^{**}$ | 0.347 | 20.763 | 0.000 |
| Smoked fillet x traceability | 0.312$^{**}$ | 0.212$^{**}$ | 0.263$^{**}$ | -0.221$^{**}$ | 0.516 | 46.502 | 0.000 |
| Fish burger x traceability | 0.119$^{**}$ | 0.276$^{**}$ | 0.519$^{**}$ | -0.202$^{**}$ | 0.637 | 63.183 | 0.000 |
| Fresh fish steak x health | 0.055$^{ns}$ | 0.087$^{ns}$ | 0.502$^{**}$ | -0.294$^{**}$ | 0.426 | 29.235 | 0.000 |
| Smoked fillet x health | 0.163$^{**}$ | 0.097$^{ns}$ | 0.476$^{**}$ | -0.274$^{**}$ | 0.478 | 37.864 | 0.000 |
| Fish burger x health | 0.045$^{ns}$ | 0.308$^{**}$ | 0.495$^{**}$ | -0.212$^{**}$ | 0.514 | 41.761 | 0.000 |
| Fresh fish steak x taste | 0.012$^{ns}$ | 0.390$^{**}$ | 0.196$^{**}$ | -0.074$^{ns}$ | 0.306 | 16.861 | 0.000 |
| Smoked fillet x taste | 0.178$^{ns}$ | 0.238$^{**}$ | 0.218$^{**}$ | -0.136$^{ns}$ | 0.303 | 18.567 | 0.000 |
| Fish burger x taste | 0.013$^{ns}$ | 0.115$^{ns}$ | 0.576$^{**}$ | -0.253$^{**}$ | 0.606 | 59.025 | 0.000 |

$^{**}$Significant at 0.05.
$^{ns}$not significant at 0.05.

As the product attitude variable and the message goal persuasiveness variable were highly correlated, and as the goal message goal persuasiveness variable had a VIF factor higher than three in each of the experimental conditions, it was decided that this variable should be taken out from further analysis. The final model was less significant than the attitude model, but the variables still explained a satisfactory portion of the variance in the model in each experimental condition (highest $R^2$ = 0.606, lowest $R^2$ = 0.347), see Table 10. The results show that the **highest effect** on product's purchase probability had the **positively and negatively evoked emotions**. This finding was evident especially for the experimental conditions with the **traceability and taste goal messages** primed with **medium** (i.e. smoked fillet) - and **high** (i.e. fish burger) - **processed products.** DIVERSIFY promotional message had more impact in the case of goal messages - traceability and health when primed with medium processed product (i.e. smoked fillet). Goal message persuasiveness was higher for taste message when primed with low processed product (i.e. fresh fish steak).

## 4. Conclusions

In this report, we set out to investigate if the attitude towards new DIVERSIFY aquaculture products (implying relevant levels of processing, i.e. low/medium/high) used in the current communication experiment as primes) can change through communication (i.e. messages framed to make an appeal to different consumer goals, i.e. traceability / health / taste) with the potential to persuade consumers. Evidence regarding this assumption clearly shows that the interplay among new DIVERSIFY products (i.e. low/medium/high processing product type), goal message framing (i.e. traceability/taste/health) and a DIVERSIFY promoting message emphasising the benefits and significance of it as a production method (i.e. sustainability) can change (enhance) consumers' attitudes and products' purchase probability. Furthermore, this report demonstrates that the product processing level impacts the effectiveness of the goal message framing, where message goals are more effective and persuasive when presented with the low-processed product compared to the medium- and high-processed alternatives. Furthermore, affective reactions to the goal messages act as important predictors of both product attitudes and purchase probability.

These results of the communication experiment show that match between the goal message frames and the prime will determine the message persuasiveness. The mechanism behind these findings can be attributed to the enhanced *processing fluency* (Janiszewski & Meyvis, 2001; Lee & Aaker, 2004; Thompson & Hamilton, 2006). Specifically, when there is a match between product prime and goal frame (focus of the message), it is easier for the message recipient to process the information at hand and associate the product to the goal. Generally, in our study, low processed products created impressions of more healthiness and transparency than high processed products, thus creating a higher match between the health and traceability goal. Further evidence in support of this is that conditions of higher fit between the prime and goal frame lead to more favourable – positive affective states and higher likelihood of purchase. Again in our study more effective goals for low compared to high processed product were health and traceability evoking more positive affective states and higher purchase probability. On the other hand, conditions of lower fit lead to unfavourable – negative affective states and lower likelihood of purchase, especially in the case of highly processed product and the health goal.

Certainly, the traceability goal message invokes more positive emotions of security, such as content, hope and fulfilment, which in turn can induce more positive attitude change, even with products that are highly processed, and may induce higher probability of purchase. The taste goal message has similar although weaker effect, demonstrating that affective states generated by taste appeal vary based on the extent to which the message fits the product, although for the highly processed product taste goal could be used to evoke more positive associations. On the other hand, the health message frame invokes evidently more negative affective responses with high-processed products. Thus, one contribution of the current research is the extension of previous research on message framing by demonstrating the moderating role of *self-interest* (i.e. pursuit of personal goals) and perceived negative/positive levels of primes on the effectiveness of message frames. Indeed, the results show that more favourable attitudes and higher likelihood product purchasing occur under conditions of compatibility between the prime and the goal framed. Results from this study suggest that processing fluency in these conditions underlines message persuasion, a finding with important implications especially for public-level communication policy in aquaculture.

Another contribution of the current research is the empirical support it offers for the theoretical distinction between the ways in which message frames may be operationalized for aquaculture. Specifically, this research shows that message frames can be operationalized by focusing on end-states, i.e. desirable goals (i.e. traceability, health, taste) and possible outcomes, i.e. achieving these goals with the selection of the "right" product (i.e. low- / medium- / high-processed). This operationalization could be particularly useful in contexts when attitudes and behaviours vary and are regulated by nature of the personal goals people hold and by the ways how these goals can be achieved (Aaker & Lee, 2001; Lee & Aaker, 2004). This is especially important in aquaculture products, where for example a desirable goal may be achieved by using different strategies, which will allow for maximizing the positive affective states or for minimising the negative ones. In simple words, the commercial message appeals and promotion efforts need to be more

adapted to the product using clear, differentiated and attractive messages that can take full advantage of the aquaculture method and fit the product itself.

## 5. Recommendations

There is a clear need for aquaculture industry to promote new products and persuade/engage consumers that they can constitute an excellent source of sustainable and quality food. This is especially trues as aquaculture production intensified in the recent years. This intensification has generated an increased amount of adverse press and promotional campaigns (EC, 2014; FAO, 2016). Further, poor knowledge about aquaculture practices and vague information often affected by opposed interests (framed *vs* wild fish) reflects the complex nature of seafood markets. Concerns about the environment and some unsustainable aquaculture practices just add to previous and have undoubtedly raised justified consumer concerns about aquaculture (Kaiser & Stead, 2002; Schlag & Ystgaard, 2013). Therefore, aquaculture products should not be promoted using generic messages, which reflects a "standardised" general aquaculture sector that cannot stand competition and defend against bad word of mouth. Likewise, new aquaculture products should not interact with traditional market segments but promote unique production process by increasing their visibility as traceable, healthy but also tasty alternatives for modern diets and responsible consumption.

Accordingly, "*choose products from DIVERSIFY aquaculture*" as "[DIVERSIFY aquaculture] *it is renowned for its sustainability and the production of responsible, healthy and tasty products that deliver value to the consumer*" give unique and encouraging advice, ultimately a consumer-relevant reason to choose DIVERSIFY products over other competitive options. If these (still generic) messages are backed up with more targeted messages about specific new products, e.g. "Transparent journey of a fresh fish steak from DIVERSIFY aquaculture for a responsible tomorrow" (low processing x traceability goal) or "Super-tasty smoked fillet from DIVERSIFY aquaculture for a great moment (medium processing x taste goal), which are more reassuring and compliment the DIVERSIFY initiative with concrete method-related benefits, this could have a positive effect on messages' persuasiveness. The ability to communicate production method's sustainability and reassure the consumer about the product journey and its safety, health and hedonic aspects may have a profound impact on consumer attitudes and product purchase probability. This type of communication around the new product, coupled with attributes on product label as country-of-origin and Aquaculture Stewardship logo that are strong drives of positive product preference on behalf of consumers (see deliverable D29.6), could create the necessary conditions for the wider endorsement of aquaculture by European consumers.

In all, considering the insights from this study and the results from previous tasks (D28.1, D29.2, D29.4 and D29.6), and in order to be able to tailor-make a comprehensible tactic to put new aquaculture products under the spotlight, two main areas should be addressed when building communication campaigns for new aquaculture products.

First, the **improvement of knowledge about "diversity" in aquaculture production** and its unique production methods (i.e. DIVERSIFY) in particular could help to overrule the mounting criticism about its adverse environmental impact. Based on the results from this and previous studies, we believe that there is a need for more information on real and socially-relevant developments in aquaculture, which may allow further increase in aquaculture consumption rates and the creation of a premium aquaculture market. Lack of differentiation at the early upstream supply chain (production method, i.e. farm level) piles up more confusion and actually affect negatively the aquaculture sector altogether. Consumers told by otherwise trusted sources that "EU aquaculture is sustainable" and then hearing contradictory information in the media about aquaculture malpractices from another still trusted source, they lose confidence and all the persuasion efforts through communication are lost. European aquaculture already is on a mature stage in its lifecycle, a stage diverse enough in the technology behind to sustain a too generic communication of all its production methods and products alike. The present study validates this effort showing that if specific aquaculture practice and products are promoted in a unique way, this affects consumers' attitudes and purchase probability towards the wishful direction.

Second, the **increase in consumer support** by not only using positive messages as 'healthy' and 'tasty', but also by adapting these messages to the characteristics and benefits of each product type in a clear, unique and differentiating manner that can take full advantage of the each product and aquaculture method. This is fully supported by the present study, which shows that not all messages work equally well for each product type and that the latter (i.e. low/medium/high processing level) has an impact of the persuasiveness of the message. By adapting communication efforts to specific product types, not only will consumers learn about the products, but also about the different high-value choices that modern aquaculture systems make available to them, and the option to buy these products if/when available and affordable.

For aquaculture producers and distributers, aquaculture products are already in a good concentration on the market; what missing are targeted communication efforts around these products that can take a full advantage of their characteristic and benefits. Exclusive and unique selling propositions should be made when communication efforts are considered, which on one hand promote the production method while on the other increase product visibility within existing consumer trends, such as healthy diets, responsible consumption, sustainable fisheries, etc. In this effort, the DIVERSIFY project and the work reported in this deliverable are an inspiration and can function as a set of guidelines for industry professionals who wish to endorse the above ideas.

**References**

Aaker, J. L., & Lee, A. Y. (2001). "I" seek pleasures and "we" avoid pains: The role of self-regulatory goals in information processing and persuasion. *Journal of Consumer Research, 28*, 33-49.

Ajzen, I., & Manstead, A. S. (2007). Changing health-related behaviors: An approach based on the theory of planned behavior. *The scope of social psychology: Theory and applications*, 43-63.

Altintzoglou, T., Vanhonacker, F., Verbeke, W., & Luten, J. (2011). Association of health involvement and attitudes towards eating fish on farmed and wild fish consumption in Belgium, Norway and Spain. *Aquaculture International, 19*, 475-488.

Banović, M., & Krystallis, A. (2017). Fish for the future: What could influence European consumer choice of new aquaculture products? Evidence from an experimental study with low and medium processed products. In *Aquaculture Europe 2017 - DIVERSIFY special session (http://www.diversifyfish.eu/)*. Dubrovnik, Croatia, 16-20 October, 2017.

Banović, M., Krystallis, A., Guerrero, L., & Reinders, M. J. (2016). Consumers as co-creators of new product ideas: An application of projective and creative research techniques. *Food Research International, 87*, 211-223.

Chandran, S., & Menon, G. (2004). When a day means more than a year: Effects of temporal framing on judgments of health risk. *Journal of Consumer Research, 31*, 375-389.

Claret, A., Guerrero, L., Aguirre, E., Rincón, L., Hernández, M. D., Martínez, I., Peleteiro, J. B., Grau, A., & Rodríguez-Rodríguez, C. (2012). Consumer preferences for sea fish using conjoint analysis: Exploratory study of the importance of country of origin, obtaining method, storage conditions and purchasing price. *Food Quality and Preference, 26*, 259-266.

Claret, A., Guerrero, L., Gartzia, I., Garcia-Quiroga, M., & Ginés, R. (2016). Does information affect consumer liking of farmed and wild fish? *Aquaculture, 454*, 157-162.

Claret, A., Guerrero, L., Ginés, R., Grau, A., Hernández, M. D., Aguirre, E., Peleteiro, J. B., Fernández-Pato, C., & Rodríguez-Rodríguez, C. (2014). Consumer beliefs regarding farmed versus wild fish. *Appetite, 79*, 25-31.

Davidson, K., Pan, M., Hu, W., & Poerwanto, D. (2012). CONSUMERS'WILLINGNESS TO PAY FOR AQUACULTURE FISH PRODUCTS VS. WILD-CAUGHT SEAFOOD–A CASE STUDY IN HAWAII. *Aquaculture Economics & Management, 16*, 136-154.

EC. (2014). Communication Campaign on Aquaculture in the European Union: Analysis of International Campaigns on Aquaculture. In *MARE/2012/12-Lot 1: Information and communication activities*. European Commission, Directorate-General for Maritime Affairs and Fisheries.

Edell, J. A., & Burke, M. C. (1987). The power of feelings in understanding advertising effects. *Journal of Consumer Research, 14*, 421-433.

Eurostat. (2016). Main aquaculture producing EU countries. In (Vol. 2016): European Commission.

Evans, L., Maio, G. R., Corner, A., Hodgetts, C. J., Ahmed, S., & Hahn, U. (2013). Self-interest and pro-environmental behaviour. *Nature Climate Change, 3*, 122-125.

FAO. (2016). The state of world fisheries and aquaculture: Contributing to food security and nutrition for all. Rome. 200 pp. In. FAO website (www.fao.org/publications).

Gaskell, G., Allum, N., & Stares, S. (2003). Europeans and biotechnology in 2002: Eurobarometer 58.0. *Brussels: European Commission*.

Greenacre, M. (2007). *Correspondence Analysis in Practice* (Second Edition ed.): Chapman and Hall/CRC

Grimsrud, K., Nielsen, H., Navrud, S., & Olesen, I. (2013). Households' willingness-to-pay for improved fish welfare in breeding programs for farmed Atlantic salmon. *Aquaculture, 372*, 19-27.

Janiszewski, C., & Meyvis, T. (2001). Effects of brand logo complexity, repetition, and spacing on processing fluency and judgment. *Journal of Consumer Research, 28*, 18-32.

Juster, F. T. (1966). Consumer buying intentions and purchase probability: An experiment in survey design. *Journal of the American Statistical Association, 61*, 658-696.

Kaiser, M., & Stead, S. M. (2002). Uncertainties and values in European aquaculture: communication, management and policy issues in times of "changing public perceptions". *Aquaculture International, 10*, 469-490.

Laros, F. J., & Steenkamp, J.-B. E. (2005). Emotions in consumer behavior: a hierarchical approach. *Journal of Business Research, 58*, 1437-1445.

Lee, A. Y., & Aaker, J. L. (2004). Bringing the frame into focus: the influence of regulatory fit on processing fluency and persuasion. *Journal of personality and social psychology, 86*, 205.

Luten, J., Kole, A., Schelvis, R., Veldman, M., Heide, M., Carlehög, M., & Akse, L. (2002). Evaluation of wild cod versus wild caught, farmed raised cod from Norway by Dutch consumers. *Økonomisk Fiskeriforskning, 12*, 44-60.

Mintel. (2016a). Ethical and Environmentally Friendly Food Product Claims in 2015 for Europe. In.

Mintel. (2016b). Newly launched fish products: Numbers, prices, claims and logos. In. Online Mintel GNDP Database (http://www.gnpd.com).

Naylor, R. L., Goldburg, R. J., Primavera, J. H., Kautsky, N., Beveridge, M. C., Clay, J., Folke, C., Lubchenco, J., Mooney, H., & Troell, M. (2000). Effect of aquaculture on world fish supplies. *Nature, 405*, 1017-1024.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In *Communication and persuasion* (pp. 1-24): Springer.

Reinders, M. J., Reinders, M. J., Banovi´, M., Banovi´, M., Guerrero, L., Guerrero, L., Krystallis, A., & Krystallis, A. (2016). Consumer perceptions of farmed fish: A cross-national segmentation in five European countries. *British Food Journal, 118*, 2581-2597.

Richins, M. L. (1997). Measuring emotions in the consumption experience. *Journal of Consumer Research, 24*, 127-146.

Schlag, K. A., & Ystgaard, K. (2013). Europeans and aquaculture: perceived differences between wild and farmed fish. *British Food Journal, 115*, 209-222.

Small, D. A., Cohen, I., Daniels, N., & Eyal, N. (2015). On the psychology of the identifiable victim effect. *Identified vs. statistical lives: An interdisciplinary perspective*, 13-23.

Stefani, G., Scarpa, R., & Cavicchi, A. (2012). Exploring consumer's preferences for farmed sea bream. *Aquaculture International, 20*, 673-691.

Thompson, D. V., & Hamilton, R. W. (2006). The effects of information processing mode on consumers' responses to comparative advertising. *Journal of Consumer Research, 32*, 530-540.

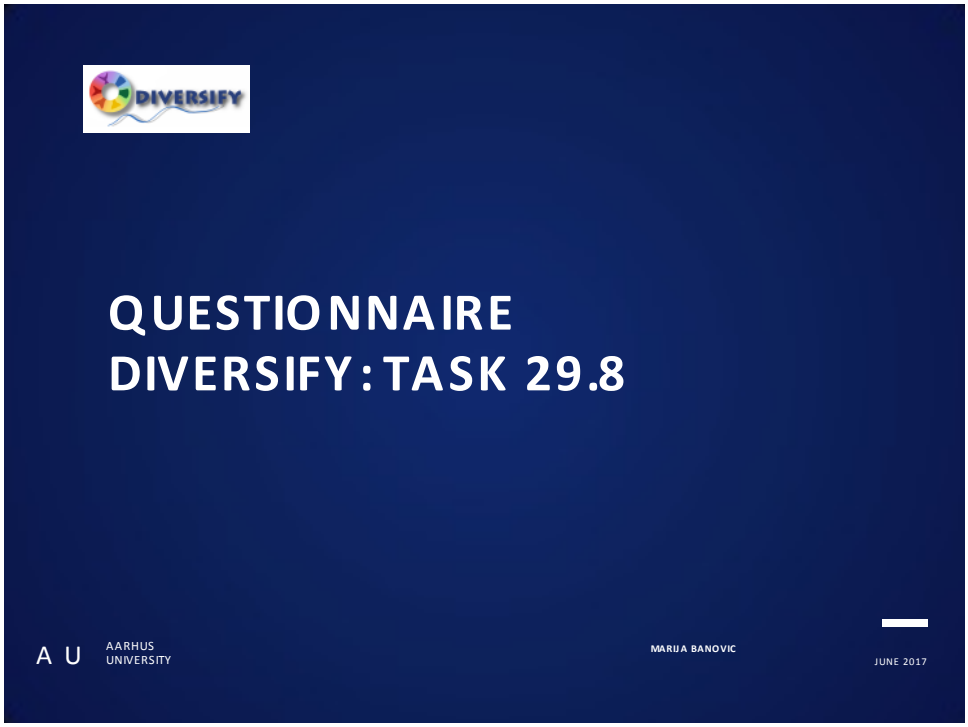
Thurstan, R. H., & Roberts, C. M. (2014). The past and future of fish consumption: Can supplies meet healthy eating recommendations? *Marine Pollution Bulletin, 89*, 5-11.

Verbeke, W., Sioen, I., Brunsø, K., De Henauw, S., & Van Camp, J. (2007). Consumer perception versus scientific evidence of farmed and wild fish: exploratory insights from Belgium. *Aquaculture International, 15*, 121-136.

World-Bank, T. (2013). Fish to 2030: Prospects for Fisheries and Aquaculture. In *World Bank Report number 83177-GLB*.

Yi, Y. (1990). Cognitive and affective priming effects of the context for print advertisements. *Journal of Advertising, 19*, 40-48.

**Appendix 1.** Example of the Questionnaire used for the traceability/fish burger experimental condition.



**Dear participant,**

**Thank you very much for your willingness to participate in the present study.**

**This study is a part of the research project DIVERSIFY, funded by the European Union's Framework Programme for research, technological development and demonstration.**

**This survey is entirely anonymous and thus responses will not be linked to any particular people.**

**Remember that you:**

**- Need to provide an answer in order to move to the next question.**

**- Cannot go back to see or change your previous answers.**

**The whole survey will take approximately 20 minutes to be completed.**

**Thank you very much in advance for your participation.**

NEXT

**CHOOSE PRODUCTS FROM DIVERSIFY AQUACULTURE!**

**All products are made with the same attention to quality**

Diversify aquaculture fish products come from a carefully selected group of finfish species and a production method that allows for both greater diversity of fish species and new value-added products. The fish species, such as Greater Amberjack, is selected based on its growth, size and excellent product quality. Fish are grown in large cylinder-shaped pools that float on the sea surface and reach down up to 20 meters depth. This sustainable method is used for rearing finfish species in coastal and open waters, within areas sheltered from excessive wave action, but with sufficiently deep water and fast current speeds where the water flows freely through the pools, and allows the fish to grow in clean and highly oxygenated water.

Diversify aquaculture is renowned for its high quality, sustainability and consumer protection standards.

With Diversify aquaculture imagine the benefits for you and your family!

NEXT

**After reading the message about Diversify aquaculture, would you think that using this aquaculture method in the production of fish :**

| | Not at all 1 | 2 | 3 | 4 | 5 | 6 | Extremely 7 |
|---|---|---|---|---|---|---|---|
| … is useful | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ….. is risky | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| … is morally acceptable | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| …should be encouraged | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Recently products from Diversify aquaculture came to the market…**

Imagine that you are browsing the internet searching for aquaculture products and seeing the picture of wide blue sea with lots of fish swimming around makes you feel satisfied. Seeing this picture and finding the products from Diversify aquaculture reminds you that you have to purchase a fish burger [adapt to the product].

In the following pages you are asked to study the presented information as if you were going to purchase a fish burger [adapt to the product] from Diversify aquaculture. Consider information about the product quality, whether the product appeals to you emotionally and if it enhances your personal goals, so you can make well-informed decisions.

NEXT


Please, try to imagine again how much you would like this fish product.
Greater Amberjack

**Please answer by ticking in the relevant box.**

9 ☐ I think I would like it extremely

8 ☐ I think I would like it very much

7 ☐ I think I would like it moderately

6 ☐ I think I would like it slightly

5 ☐ I do not think I would like it nor dislike it

4 ☐ I think I would dislike it slightly

3 ☐ I think I would dislike it moderately

2 ☐ I think I would dislike it very much

1 ☐ I think I would dislike it extremely

NEXT

**In your opinion, this product....**

| | 1 Strongly disagree | 2 Disagree | 3 Moderately disagree | 4 Neither disagree nor agree | 5 Moderately agree | 6 Agree | 7 Strongly agree |
|---|---|---|---|---|---|---|---|
| Is readily available..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is credible..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is trustworthy..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is traceable..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is healthy..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is familiar to you..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is produced in an environmental friendly way..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is authentic..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is of high quality..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is a product that helps local producers/economy..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is tasty..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is nutritious..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is easy to cook..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is natural..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Is safe to consume..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

NEXT

To which extent did you find the image of the product ...

| | Not at all 1 | 2 | 3 | 4 | 5 | 6 | Extremely 7 |
|---|---|---|---|---|---|---|---|
| ... appealing | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ... attractive | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ... pleasing | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

NEXT

**GET TRACEABLE PRODUCTS FROM DIVERSIFY AQUACULTURE!**

**Transparent journey of fish burger [adapt] from Diversify aquaculture for a responsible tomorrow**

Diversify aquaculture refers to the cultivation of fish species, such as Greater Amberjack, in a production method where is all clear and transparent.

The fish burger [adapt to a product] from Diversify aquaculture is a traceable meal choice that you can track to its roots, with the carefully selected product's history from the fish species, including the rearing site, the rearing technique and the processing method of the final product. Eating this product is a clear and transparent journey where even the smallest detail is accessible to you. The fish burger [adapt to a product] from Diversify aquaculture that comes to your table has always a calling address, its name and surname!

We are proud to say that products from Diversify aquaculture meet the very highest standards of responsible production practices.

The high standards that you demand and deserve!

NEXT

After reading the message about the Fish burger [adapt to the product], would you think your attitude toward this product is:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Negative | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Positive |
| Unfavourable | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Favourable |
| Bad | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Good |

After reading the message about the Fish burger [adapt to the product], how credible did you find the message:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Unpersuasive | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Persuasive |
| Uninformative | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Informative |
| Weak | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Strong |
| Unbelievable | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | Believable |

NEXT

If you were in the market for fish product, how likely is it that you would purchase Fish burger [adapt to the product] :

- ☐ No chance, almost no chance (1 in 100)
- ☐ Very slight possibility (1 chance in 10)
- ☐ Slight possibility (2 chances in 10)
- ☐ Some possibility (3 chances in 10)
- ☐ Fair possibility (4 chances in 10)
- ☐ Fairly good possibility (5 chances in 10)
- ☐ Good possibility (6 chances in 10)
- ☐ Probable (7 chances in 10)
- ☐ Very probable (8 chances in 10)
- ☐ Almost sure (9 chances in 10)
- ☐ Certain, practically certain (99 chances in 100)

NEXT

While you were reading the message about the fish burger [adapt to product] describe to which extent these thoughts were about...

| | Not at all | | | | | | A great deal |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| ...product healthiness | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...product traceability | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| ...product taste enjoyment | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

NEXT

Indicate to what extent did you experience the following emotions while reading the message about Fish burger [adapt to the product]:

| | Not at all | | | | | | Very strongly |
|---|---|---|---|---|---|---|---|
| 1. Contented | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. Scared | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. Hopeful | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. Worried | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. Sentimental | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. Sad | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. Peaceful | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. Discontented | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. Fulfilled | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10.Nervous | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11.Enthusiastic | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. Afraid | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13.Unfulfilled | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. Encouraged | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. Angry | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. Happy | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

NEXT

The list below consists of different attributes. **Please indicate which attributes were advertised on the product label you just saw and which were not.** Please work as quickly as possible.

| | | |
|---|---|---|
| **Origin** | ☐ **Yes** | ☐ **No** |
| **Price** | ☐ **Yes** | ☐ **No** |
| **Claims** | ☐ **Yes** | ☐ **No** |
| **Best before date** | ☐ **Yes** | ☐ **No** |
| **Product weight** | ☐ **Yes** | ☐ **No** |
| **Ingredients** | ☐ **Yes** | ☐ **No** |
| **Recipe** | ☐ **Yes** | ☐ **No** |
| **Fish species** | ☐ **Yes** | ☐ **No** |

In your own words, please write down everything you remember being mentioned in the message about Fish burger [adapt to the product]:

NEXT

| **How often do you purchase the following fish products?** | 1 Once a week or more | 2 2-3 times a month | 3 Once a month | 4 Less than once a month | 5 Never |
|---|---|---|---|---|---|
| Farmed fish (aquaculture)... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wild fish... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fresh fish fillets... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fish burgers... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Smoked fish... | ☐ | ☐ | ☐ | ☐ | ☐ |

| **How often do you consume the following fish products?** | 1 Once a week or more | 2 2-3 times a month | 3 Once a month | 4 Less than once a month | 5 Never |
|---|---|---|---|---|---|
| Farmed fish (aquaculture)... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wild fish... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fresh fish fillets... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fish burgers... | ☐ | ☐ | ☐ | ☐ | ☐ |
| Smoked fish... | ☐ | ☐ | ☐ | ☐ | ☐ |

**Thinking about grocery shopping, are you the main decision maker:**

- Yes, I'm the main decision maker ☐
- Yes, I am the joint decision maker alongside other family member ☐
- No, someone else in my family is main decision maker ☐

NEXT

**In terms of buying and consuming fish products, would you say that:**

| | 1 Strongly disagree | 2 Disagree | 3 Moderately disagree | 4 Neither disagree nor agree | 5 Moderately agree | 6 Agree | 7 Strongly agree |
|---|---|---|---|---|---|---|---|
| You know more about fish than other people do.... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| You have a lot of knowledge about how to prepare fish... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| You have a lot of knowledge about how to evaluate the quality of fish..... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| When in the store, you usually check whether or not the fish product you buy comes from farmed or wild fish.... | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| You are very concerned about what fish products you purchase | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| You care a lot about what fish products you consume | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Generally, choosing the right fish products is important to you | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

NEXT

Now, we would like you to answer a few demographic questions just for classification purposes.

This survey is entirely anonymous and thus responses will not be linked to any particular people.

NEXT

Gender: ☐ male ☐ female

Age: ☐ [write in]

Marital status:

Married/co-habiting ☐
Single at parents home ☐
Single, living independently ☐
Separated/divorced ☐
Widowed ☐

Do you have children? ☐ No ☐ Yes

If yes, how many children do you have:

Below 18: ☐ [write in]
Above 18: ☐ [write in]

Are they living with you at home? ☐ No ☐ Yes

What is your level of education?

Primary school ☐
Secondary school ☐
Higher education (not university) ☐
University (first degree, BSc) ☐
University (higher degree, postgraduate as MSc, PhD) ☐

What is your level of income?

More than average ☐
Average ☐
Less than average ☐

How would you evaluate your financial situation?

| 1 Difficult | 2 | 3 | 4 | 5 | 6 | 7 Well-off |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

NEXT

Thank you very much for your collaboration

FINISH


Co-funded by the Seventh
Framework Programme
of the European Union