



# How to promote sustainable seafood consumption in Portugal? An overview with campaigns as a starting point

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## ABSTRACT

Seafood consumption in Portugal is a major challenge given it is the highest in Europe, it does not show a decreasing trend and may have ecological, health and economic consequences. This article presents the results of a survey focused on seafood consumption campaigns developed in Portugal over the last decade. Questionnaires and interviews with key informants were also conducted, which resulted in relevant insights on policy measures implemented so far and alternative approaches to sustainability. Policy failures were analyzed and different policy options were discussed. Thirty different campaigns were identified. Many focused sustainability, but different messages regarding seafood consumption may have caused misunderstandings and confusion among consumers. On the other hand, campaigns claiming for a sustainable consumption do not necessarily present key factors of sustainability and practical advices. Thus, in order to promote the sustainability of seafood consumption, besides better and longer communication campaigns, there is a need for a coherent and strategic approach that also changes seafood supply by policy measures previously discussed in a forum that brings together relevant actors. The idea is to gather representatives from seafood, health, tourism and environment sectors, discuss sustainability drivers and limits, and action towards a more sustainable path.

**Keywords:** Seafood consumption, campaigns, sustainability, public policy development, Portugal

**JEL classification:** Q, Q2, Q5, Q21, Q22, Q27, Q28, Q56

## RESUMO

O consumo de pescado em Portugal é um grande desafio pois é o mais elevado da Europa, não apresenta uma tendência decrescente e pode ter consequências ecológicas, económicas e para a saúde. Este artigo apresenta os resultados de um estudo centrado nas campanhas sobre consumo de pescado realizadas em Portugal na última década. Para além disso, foram realizados questionários e entrevistas a pessoas-chave que forneceram opiniões relevantes sobre medidas existentes e abordagens alternativas em prol da sustentabilidade. Foram analisadas as falhas das políticas e discutidas três opções de política diferentes. Identificaram-se trinta campanhas diferentes. Muitas focaram a sustentabilidade, mas mensagens diferentes sobre consumo de pescado podem ter causado equívocos e confusão entre os consumidores. Por outro lado, as campanhas que reivindicam um consumo sustentável nem sempre apresentam os fatores-chave de sustentabilidade e conselhos práticos. Assim, para promover a sustentabilidade do consumo de pescado, para além de campanhas de comunicação melhores e mais longas, é necessária uma abordagem estratégica coerente que também altere a oferta de pescado através de medidas de política pública previamente discutidas num fórum que inclua os atores relevantes. A ideia é reunir representantes dos setores do pescado,

saúde, turismo e ambiente, discutir os catalisadores e limites da sustentabilidade e ações para um caminho mais sustentável.

**Palavras-chave:** Consumo de pescado, campanhas, sustentabilidade, desenvolvimento de políticas públicas, Portugal

**Classificação JEL:** Q, Q2, Q5, Q21, Q22, Q27, Q28, Q56

## 1. INTRODUCTION

### 1.1. Context of the policy problem

Seafood<sup>22</sup> consumption has grown steadily in most countries of the world (average rate of about 1,5 percent per year between 1961 and 2015) and has never been higher, rising above a global average of 20 kg/capita in 2015 (FAO, 2018). This global trend is considered problematic by several authors (Smith et al., 2010; HLPE, 2014; Costello et al., 2020), since it puts an increasing pressure on wild stocks<sup>23</sup> and the ecosystems they depend on. In fact, the percentage of stocks fished at biologically unsustainable levels increased from 10 percent in 1974 to 33.1 percent in 2015 (FAO, 2018).

In Portugal, seafood consumption raises sustainability concerns. With an annual apparent consumption of 62 kg/capita in 2007/2009 (Bjørndal et al., 2015) Portugal has the highest seafood consumption rate in Europe and one of the highest in the world. Besides, seafood production has been decreasing, domestic aquaculture is still low (5-8% of seafood production over the last 10 years) (based on official INE statistics) and imports currently support around three quarters of the seafood supply (FAOSTAT, no date), which makes Portugal one of the European Union (EU) countries with the lowest degree of self-sufficiency despite its access to productive waters (Vardakoulis & Bernick, 2016). Thus, investigating the sustainability of seafood consumption in Portugal is a pressing and demanding challenge ecologically, behaviorally and economically in terms of the import/export balance.

In the last decade a lot of interesting initiatives in Portugal focusing seafood consumption were developed by different types of organizations (public, private for-profit and non-governmental). A first identification of seafood consumption campaigns run in Portugal over the last decade shows that 30 different campaigns have been implemented.

Some campaigns have been developed by public organizations of fisheries and health sectors. The former have strategic objectives (Docapesca, 2015) and a political commitment related with seafood consumption<sup>24</sup> and the later pursue recommendations from a public program for the promotion of healthy eating (Graça et al., 2018). Also, the public tourism authority and Lisbon tourism association have been organizing for more than 10 years an annual fair to promote seafood<sup>25</sup>, along with wines and other Portuguese traditional delicacies, an initiative that is rooted in the Tourism Strategy 2027 (TdP, 2017). Finally, the Common Fisheries Policy (CFP) and its implementing regulations in Portugal, is obviously at the cornerstone of the policy framework of seafood consumption.

The development of different types of campaigns, promoted by actors pursuing different aims (along with a lot of single actions, festivals and fairs all over the country), over the last decade may have fueled the confusion on consumers willing to make better choices (as found elsewhere by Klein & Ferrari, 2012; Richter & Klöckner, 2017; Farmery et al., 2018). In fact, the seafood consumption trend suggests that such campaigns, interesting they may be, have not been effective enough in terms of sustainability or have not reached enough people. However, such suppositions remain to be demonstrated since the effectiveness of some campaigns has been evaluated (e.g., Docapesca, 2017), but there has not been a critical integrated assessment of such initiatives.

In a brief overview of campaigns developed in Portugal over the last decade, it seems that most focus on the valorization of sustainable and undervalued species, but nutritionally rich and with potential

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<sup>22</sup> Throughout this study the term “seafood” is used generally to mean all kinds of fisheries and aquaculture products including fish, crustaceans, and molluscs.

<sup>23</sup> Ritchie and Roser (2020).

<sup>24</sup> At the Our Ocean Conference 2018 (Bali, 29-30.OCT.2018), Portugal committed to raising awareness of sustainable fish consumption till 2030 (available at: <https://ourocean2018.org/?l=our-ocean-commitments> ).

<sup>25</sup> “Peixe em Lisboa” (Lisbon Fish and Flavours).

for innovation (e.g., mackerel species). This approach is important in terms of the valorization of seafood products with potential to raise fishermen's revenue and diversify the options of the seafood-processing industry (Docapesca, 2017; Rito, 2019). Nevertheless, though it may have an important role in reducing pressure on over-exploited species, it must be supported by measures that ensure sustainable exploitation levels (Correia, 2016).

Moreover, some initiatives focused on encouraging people to eat more seafood as a way of improving health standards, a practice that has been criticized by some authors (e.g., Clonan et al., 2011) that advocate a better alignment of nutrition and sustainability goals. Considering that nutritionists advise an annual per capita seafood consumption of 9,36 kg (based on APN, 2016), such alignment clearly implies a reduction on seafood consumption, a dietary shift that has recently been advocated by the EAT-Lancet Commission (2019)<sup>26</sup>.

In a global market where seafood may be produced in one place and eaten thousands of kilometers away and given the state of some wild stocks and marine ecosystems, concerns regarding the depletion of seafood species have increased (FAO, 2018; Watson & Tidd, 2018; Costello et al., 2020). Such concerns have led to the development of certification schemes (e.g., Marine Stewardship Council) and communication approaches to seafood sustainability, including consumer guides, recommendation lists and environmental education programs (Jacquet & Pauly, 2007). However, as Schrader and Thøgersen (2011) clearly say, "there is an ongoing debate, whether the context (e.g., the availability and attractiveness of consumption alternatives and information) or individual values, attitudes, and motives is more important for a behavioral shift towards sustainability".

Changing food systems at a global scale is essential for sustainable development, given current climate and environmental impacts of food production and consumption (Santos et al., 2013; EAT-Lancet Commission, 2019; IGS, 2019; UNEP, 2021). Considering the significant contribution of seafood to food security and nutrition at a global scale (HLPE, 2014; Béné et al., 2015), the important role of seafood consumption campaigns in changing efforts (Jacquet & Pauly, 2007) and the willingness of several actors to develop them, it is critical to look deep into public policy measures, and particularly into seafood consumption initiatives developed so far in Portugal and assess whether there is a need for change.

## **1.2. Purpose**

This article proposes to critically evaluate the seafood consumption campaigns developed in Portugal over the last decade, identify potential alternative evidence-informed solutions of public policy regarding seafood consumption and assess their possible effects.

In order to discuss the topic of how to promote sustainable seafood consumption in Portugal, this research considered the following questions:

- Have campaigns disseminated different messages regarding seafood consumption which may have caused misunderstanding and confusion among Portuguese consumers?
- Have seafood consumption campaigns in Portugal contributed to promote more sustainable patterns?
- Can campaigns promote sustainable seafood consumption?

## **1.3. Methodology and limitations**

This research used four main methods of collecting information, following literature on qualitative research (Hatch, 2002; Bell, 2005): literature review, data collection, questionnaires and semi-structured interviews.

The literature analysis targeted secondary sources on seafood consumption, fisheries history and management, including previous studies, reports, policies at national and international level.

Data collection techniques to gather primary data have been inspired by similar studies (PAU Education, 2014; EUMOFA, 2017). This included the collection of online data on seafood consumption campaigns developed in Portugal over the last decade. For the purpose of this study the term "campaign" has been defined as a series of planned actions intended to achieve a particular result and/or a particular social, commercial or political aim related with seafood consumption

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<sup>26</sup> The EAT-Lancet Commission recently established an annual intake from fish of 10,22 kg (28 g/day) as a scientific target for a planetary health diet.

(adapted from the Oxford Learners Dictionary). Based on this definition, the identification process discriminated campaigns that have been initiated until June 2019, included more than one action and a clear aim related with seafood consumption.

The campaigns' survey also included the selection of five campaigns as different as possible in terms of type of organizer, timeframe, geographical scope and objectives. Information from questionnaires and semi-structured interviews with five selected campaigns' organizers was collected and analyzed. Materials, including leaflets, booklets, guides, posters and a manual, were also selected and analyzed.

Additionally, questionnaires and interviews with 12 key-informants from different sectors (researchers, public administrators, policy advisors, influencers and businesspeople) have been developed as part of a strategic survey approach.

A number of limitations may have influenced results and conclusions. Firstly, the study relies on online searches, which may have resulted in a limited perception of campaigns run over the last decade, as some may have had almost no digital contents and dissemination, or because actions were not reported or not recorded in photos/videos. Additionally, some key experts in the seafood and health sectors previously identified for the strategic survey were not able to cooperate with the research.

Finally, policy evaluation has been supported by a framework of analysis methodologically based on Young and Quinn (2002). Policies that currently frame seafood consumption have been analyzed and policy failures have been identified. Three policy options have been described and assessed. The evaluation used a set of previously defined criteria, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis and an analysis of stakeholder involvement.

## **2. CURRENT POLICIES INFLUENCING SEAFOOD CONSUMPTION IN PORTUGAL**

In order to better understand the phenomenon, current public policies that frame seafood consumption in Portugal were analyzed:

### **2.1. Fisheries policies**

Fisheries policy in Portugal is implemented within the framework of the Common Fisheries Policy (CFP). Supplementary national legislation includes the regulatory framework for fishing and marine cultures in Portuguese waters<sup>27</sup> and the fisheries legislation for non-maritime inland waters<sup>28</sup>.

CFP establishes a set of rules to manage European fishing fleets and commercial fish stocks. Its overarching goal is fisheries sustainability (EC, 2010), i.e., securing fish productivity over the long term and equal access for European fishing fleets to EU waters and fishing grounds (EC, 2010). Its most important sustainability-driven measures include reduce fishing, end discards, regionalize fisheries management and increasing attention to fisheries' "external dimension" (Pauly, 2019). However, CFP also has serious loopholes, particularly government subsidies to fisheries, which contribute to overcapacity and do not promote more innovative sustainable approaches (Bueno-Pardo et al., 2017; Pauly, 2019; Skerritt et al., 2020).

Moreover, the Operational Programme for the Sea 2020 prioritizes the improvement of scientific knowledge, data collection and management, and the support to monitoring, control and enforcement (EC, 2014). However, the number of fish stocks assessed each year has not increased (INE, 2020) and is still far from an adequate coverage of relevant commercial stocks<sup>29</sup>. Additionally, total allowable catches (TACs) have frequently been set above scientific advice and increased by an average of 36% annually since the European discard ban has been introduced in 2015, despite a general lack of compliance with the landing obligation and widespread illegal and unrecorded discarding (Borges, 2020). In face of this scenario, the exploitation of wild stocks of seafood should be subject to a precautionary approach and more effective control.

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<sup>27</sup> Decree-Law No. 278/87, published 07/07, and subsidiary legislation.

<sup>28</sup> Law No.7/2008, published 15/02, Decree-Law No. 112/2017, published 06/09 September, and subsidiary legislation.

<sup>29</sup> Portugal's monitoring efforts of fish stocks within biologically sustainable levels is currently achieved with three proxy sub-indicators, defined in accordance with stocks' data availability (INE, 2020). The 2019 report shows that just a few of the stocks caught in Portuguese waters are assessed (13 in 2019), some of the most important seafood stocks are not assessed (Atlantic chub mackerel, European anchovy and octopus), some of those that are assessed are unsustainably explored (e.g., hake) and one is even over-exploited (sardine).

## 2.2. Health policies

The Integrated Strategy for the Promotion of Healthy Eating<sup>30</sup> (Estratégia Integrada para a Promoção da Alimentação Saudável-EIPAS) provides a policy framework for food consumption in Portugal. One of its strategic intervention areas is to promote consumer literacy for healthy food choices, which prioritizes the promotion of the Mediterranean diet with the traditional Portuguese emphasis on seafood. EIPAS entails several challenges: “obtaining quality information for decision-making”, communicating in an era of social networks and “integrating environmental sustainability and culture” (Graça et al., 2018). As an example of how EIPAS is tackling sustainability issues, Graça et al. (2018) mentioned the ongoing development of guidance for public food procurements to increase the use of organic food in public canteens, but nothing is reported in terms of promoting seafood sustainability.

Indeed, the riddle seems to lie in the right way to promote the sustainability of seafood consumption. It does not seem adequate to merely promote the consumption of seafood without mentioning the need to consume moderate portions or to draw attention to sustainability criteria such as size, origin or fishing gear. The promotion of sustainable seafood consumption clearly demands more integrated work between health, environment and other public policy areas. As the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO) have recently noticed public health policy regarding seafood consumption needs to consider both adverse and beneficial health effects (FAO & WHO, 2019). Yet, considering risks and benefits is not enough. Public health policy must widen its focus and also consider the sustainability effects of recommended foods.

Though the Directorate-General for Health (DGS) still defends the “healthy food” approach, instead of the “sustainable food” already advocated by FAO, there are some signs of change particularly regarding the adoption of the Mediterranean diet as the role model. Some interesting examples of an integrated approach to food issues have been found, not only in the collaborative approach assembled for preparing EIPAS (involving the Finance, Internal Affairs, Education, Health, Economy, Agriculture, and Sea Ministries), but also in the campaign “Receitas com enlatados” (Can recipes) organized by DGS and the Portuguese Institute for Sea and Atmosphere (IPMA) (Sousa et al., 2015).

## 2.3. Tourism policies

The tourism policy regarding the promotion of Portuguese products, traditions and gastronomy for domestic/foreign markets, and the promotion of Portugal as a foreign investment and tourism destination, is also relevant in framing seafood consumption. Indeed, some relevant lines of action identified in the Tourism Strategy 2027<sup>31</sup> include to value endogenous regional products (e.g., gastronomy), value sea products associated with the Mediterranean Diet and reinforce tourism in the sea economy (TdP, 2017). However, tourism policy commits to sustainability targets but does not include the sustainability of touristic products, like seafood, which allows for messages and initiatives that are not aligned with the need to promote a more sustainable seafood consumption.

## 2.4. Sustainability policies

The 2030 Agenda for Sustainable Development, adopted by the United Nations (UN) in 2015, assumes that seafood plays a crucial role in food security at a global scale and, consequently, the fisheries sector has a great responsibility in meeting Sustainable Development Goal (SDG) 2: End hunger, achieve food security and improved nutrition and promote sustainable food production (UNGA, 2015). The big challenge is to achieve SDG 2 through sustainable fisheries and practices as envisaged in SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Significantly, Portugal embraced the 2030 Agenda and has taken a leading role in the implementation of SDG 14 (DGPM, n.d.). In 2017, Portugal presented the first National Voluntary Review on the implementation of the 2030 Agenda (Cabaço et al., 2017). Portugal is also committed to European sustainability policies, namely the European Green Deal (EC, 2019) and the European Farm to Fork Strategy (EC, 2020).

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<sup>30</sup> Order No. 11418/2017, published 29/12.

<sup>31</sup> Council of Ministers Resolution No. 134/2017, published 27/09.



The National Strategy for Sustainable Development<sup>32</sup> (Estratégia Nacional de Desenvolvimento Sustentável-ENDS) provides a general framework for sustainable food consumption in Portugal, but it does not approach this issue specifically and it is not clear whether it has been evaluated over the last years. This situation has enabled sectoral policies to thrive with scarce coordination, a lack of discussion over sustainability drivers and hindered a clear political support and guidance to the promotion of a more sustainable food consumption.

In short, seafood consumption has not been directly addressed by a public policy. On the contrary, it is vaguely or indirectly addressed by fisheries, health and tourism, which have different and possibly conflicting objectives regarding seafood consumption and have not been articulated under a sustainability umbrella.

### 3. SEAFOOD CONSUMPTION CAMPAIGNS' ANALYSIS

Thirty different campaigns developed in Portugal over the last decade were identified and characterized<sup>33</sup>. A high diversity of organizers was found, including public organizations, associations (from fisheries, industry, science, health and tourism sectors), non-governmental organizations (NGOs), private and state-owned companies.

The aims of these campaigns are also diverse. Most aim either to promote the consumption of specific species/products (e.g., Atlantic chub mackerel, Atlantic horse mackerel, cod) under an overarching goal of seafood valorization (12 out of 30 campaigns), or to promote the sustainability of seafood consumption (12/30). Five other campaigns aimed at disseminating the health benefits of seafood consumption, and only one was triggered by an interest to promote culinary tourism.

The genres of seafood campaigns are wide and there is much diversity, which might confuse consumers. For example, there are campaigns with different structures, duration, type of activities, messages, language, etc.

The data analysis revealed that campaigns embody the organizers' interests and values. In some cases, this relation is direct like in the case of associations from the fisheries sector (e.g., Seafood Row, ACOPE-Fish Traders Association, AIB-Cod Industrialists Association) that promote seafood valorization or environmental NGOs that advocate for seafood consumption sustainability (e.g., Greenpeace, ANP/WWF-Portuguese Nature Association and World Wildlife Fund).

An overview of campaigns disclosed an alignment between these initiatives and public policies from different policy areas (fisheries, health, tourism and sustainability). A wide diversity of actions was found: creation of websites, distribution of communication materials (e.g., leaflets/booklets, posters/billboards, guides, didactic materials/games, videos), organization of events (e.g., classroom/outdoor activities, conferences/workshops, exhibitions, festivals/fairs, showcooking), dissemination of campaigns in mass media (e.g., press releases, interviews, TV/radio and ATM spots) and social media (e.g., newsletters, posts, podcasts).

Selected seafood consumption campaigns (and organizers) are identified below:

- “Campanha da cavala” (Atlantic chub mackerel campaign) (Docapesca);
- Fish Forward (ANP/WWF);
- “Pescado controlado” (Controlled Seafood) (*Fileira do Pescado*; Seafood Row);
- “Rota do peixe português, o melhor do mundo” (Portuguese fish route, the best in the world) (APTECE-Portuguese Association of Culinary Tourism and Economy); and
- *Turma Imbatível – Alimenta o Amanhã* (Unbeatable Class – Feed the Tomorrow) (Lidl Portugal).

Results from the analysis of 15 materials from the selected campaigns show that a wide variety of significant words are used to talk about seafood consumption. The most frequent words were product (14/15), consumption (12/15) and fish (12/15). Significantly, words such as stock, security and vulnerability were scarcely used. Materials of the two campaigns aiming sustainability (Fish Forward and Unbeatable Class) show words regarding sustainability key factors, such as origin, size, diversity, certification, season, vulnerability and fishing gear.

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<sup>32</sup> Council of Ministers Resolution No. 109/2007, published 20/08.

<sup>33</sup> The identification and characterization of seafood consumption campaigns is presented in the full policy study.

The communication challenge inherent to seafood consumption campaigns is intrinsically linked with the difficulty of changing behaviors. This has been mentioned by some interviewees as the major challenge in what concerns promoting sustainable seafood consumption. That is why some campaigns have targeted small children who are keener to apprehend new concepts and behaviors. Indeed, almost 1/3 of the campaigns (9/30) developed communication actions with school children. Interestingly, while the two selected campaigns that aimed sustainability developed actions with schools, the two campaigns aiming at seafood valorization targeted hotel schools (among others) and the campaign on culinary tourism addressed restaurants.

The Mediterranean diet considered sustainable by FAO and WHO (2019) advocates a more frequent consumption of seafood compared with a low, less frequent consumption of red meat. This is clearly aligned with Portuguese nutritionists' advice of eating small portions of seafood twice a week (APN, 2016). However, the message in campaigns is often simplified as "consume more fish", as appears to be the case with the campaigns "Atlantic chub mackerel", "Controlled Seafood" and "Portuguese Fish Route". In fact, these campaigns also had a secondary or tertiary goal related with sustainability, but the analysis of communication materials revealed that though this word is used widely (in 11 out of 15 materials), key factors of sustainability are not used as much (seafood size – 8/15; diversity – 7/15; fishing gear – 7/15; seafood origin – 5/15; season – 3/15; reduction – 2/15; portion – 2/15; vulnerability – 2/15), which might result in dubious messages.

Table 1 shows the most important results of the campaigns' survey, i.e., campaigns' characteristics, communication channels, results, contribution to sustainability and main lessons. Policy failures and policy solutions indicated by the selected campaigns' organizers are also presented.

**TABLE 1: SYNTHESIS OF RESULTS FROM CAMPAIGNS' SURVEY**

<i>Synthesis of results from campaigns' survey</i>	
<b>Characteristics of the campaigns</b>	At least 30 diverse campaigns on seafood consumption developed in Portugal over the last decade; Campaigns organized by a diversity of entities (public organizations, associations, NGOs, private, state-owned companies), with different aims and motivated by different values and interests; 12 campaigns focused on seafood valorization, 12 on sustainability, 5 on health and 1 on tourism; , While campaigns targeting seafood valorization have been consistently implemented since 2008, campaigns focusing sustainability have only increased since 2015; Campaigns' communication approaches are diverse and depend significantly on their own contexts, interests and perspectives on their role and purpose in the process of creating change; 9 out of 30 campaigns developed activities with school children; Some campaigns (both public and private) aligned with public policies in the fisheries, health, education and tourism sectors; some campaigns from private associations or companies only aligned with their goals/interests;
<b>Communication channels</b>	Website Onsite dissemination (e.g., sale points, restaurants, municipal markets, schools) Mass media (TV, radio, newspapers/magazines) Social media (Facebook, Instagram, LinkedIn) Local media ATM machines Company's communication channels (onsite, door-to-door) Events (e.g., congresses, festivals, fairs)
<b>Results of the campaigns</b>	Wide diversity of messages and communication approaches regarding seafood consumption across the whole country over the last decade; Valorization of some species and products (e.g., undervalued species, canned products); All five studied campaigns reached a lot of consumers (0,38 – 6,4 million), but none of the campaigns' organizers recognize a change in consumption behavior due to their own campaigns;
<b>Contribution to sustainability</b>	Campaigns developed by public entities did not have sustainability as their main objective and did not address sustainability's concept, key factors or advices in campaign materials <sup>1</sup> ; they were either focused on commercial promotion or health benefits, or both; Campaigns aiming at seafood valorization communicated on sustainability at events, press releases and opinion articles, but their most important message used health benefits as a trigger to promote consumption ("seafood is health");

	<p>Most campaigns motivated by health concerns also disseminated similar messages without raising awareness on sustainability issues; these campaigns' contribution to sustainability is twofold: raising awareness towards undervalued species and disseminating innovative recipes that promote the diversification of seafood consumption<sup>2</sup>;</p> <p>Sustainability-driven campaigns raised awareness regarding important concepts and key factors and provided practical advice for a more sustainable consumption;</p> <p>Campaigns did not identify feasible indicators to allow the assessment of their effectiveness in the promotion of seafood consumption sustainability; thus, it is impossible to quantify campaigns' contribution to sustainability;</p>
<b>Main lessons</b>	<p>Most effective communication channels: TV, radio, ATM and social media;</p> <p>Campaign's effectiveness seems to depend on its continuity over time<sup>3</sup> and the adequacy of the communication approach;</p> <p>Some campaigns did not guarantee coherent messages communicated through different channels (some materials used simple and short messages and disregarded secondary aims, like sustainability);</p> <p>Some campaigns prepared interesting studies/articles that were disseminated through low-impact channels and not reflected in main messages;</p> <p>Constraints included budget, bureaucracy, resistance to behavior change, communication challenges and scarce political support;</p> <p>Assessing campaign's effectiveness is crucial and requires that feasible indicators are identified and measured while defining campaign's aims.</p>
<b>Policy failures</b>	<p>Lack of public discussion on sustainable food consumption;</p> <p>Lack of strategy regarding sustainable food consumption;</p> <p>Scarce coordination between public entities and between public and private entities;</p> <p>Health policies do not promote sustainable diets;</p> <p>Lack of support to industrial seafood processing innovation;</p> <p>Lack of seafood sustainability criteria in public procurement.</p>
<b>Policy solutions</b>	<ul style="list-style-type: none"> <li>- a comprehensive approach to seafood sustainability that joins awareness campaigns with coherent specific measures from relevant sectoral policies (e.g., fisheries, health, fiscal), supported by scientific evidence;</li> <li>- create a working group integrating sectoral policy-makers and relevant stakeholders;</li> <li>- incentives to the development of innovative and "easy-to-eat" products from species captured in Portuguese waters;</li> <li>- support certification processes for nationally produced seafood;</li> <li>- sustainable food consumption recommendations/requirements for public procurements that aim to supply public food services (schools, universities, hospitals, Parliament, etc.);</li> <li>- campaigns aiming at changing seafood consumption habits in children, supported by the implementation of seafood meals made with sustainable species in school canteens (including training for kitchen assistants).</li> </ul>
<p><sup>1</sup> Apart from a campaign of the Regional Government of the Azores.</p> <p><sup>2</sup> VT Mar, Marketing Intelligence &amp; Docapesca (2017).</p> <p><sup>3</sup> Average campaign duration: 3 years and 2 months.</p>	

Source: Elaborated by the author.

What seems to reach most people are the simpler messages disseminated by broader communication channels, like TV, radio and social media networks. Indeed, of the selected campaigns, "Controlled Seafood" campaign reached the most people, ca. 6,4 million people, through such channels. Even considering that such figure might be overestimated, it is much higher than the runner-up (Fish Forward, 2,8 million people) and such a difference is probably related with the communication materials and channels chosen: TV, radio, ATM, mupis at 3 international airports and videos on TAP flights.

However, estimated total reach is only one approach to measure campaign's effectiveness. The way people are reached is relevant and that is why some campaigns (e.g., Unbeatable Class) targeted young children with messages/activities that explore principles of ocean sustainability. Of the selected campaigns studied, only the "Atlantic chub mackerel" campaign (2012-2017) has been



subject to an external assessment of its value for chub mackerel's market valorization. It concluded that there was an opportunity to increase its sales, the campaign should be sustained in time and geographically enlarged. Dissemination instruments should go beyond the word-of-mouth and use traditional media (TV and social networks) and campaign's scope should include other species (VT Mar, Marketing Intelligence & Docapesca, 2017). These conclusions have been wisely used by Docapesca in the following "Atlantic horse mackerel is cool" campaign (2018-2020), that was disseminated through TV and ATM spots, billboards and social media, and is aligned with recommendations collected during the strategic survey.

#### 4. IMPROVEMENTS FOR THE CAMPAIGNS AND ALTERNATIVE POLICY MEASURES

Within this research, a strategic survey has also been conducted in order to better understand seafood consumption drivers and trends, the role of campaigns, policy failures and appropriate measures.

One important conclusion is that mixed messages in campaigns may confuse consumers and even undermine their trust in institutions. In what regards seafood consumption in Portugal, results from this study show that a coherent and consistent communication approach is needed, which is generally what literature on the effectiveness of media campaigns also concludes (Noar, 2006; Wakefield et al., 2010).

Indeed, despite the high number and diversity of campaigns run over the last decade, respondents to the strategic survey recalled a maximum of 5 campaigns and all interviewees mentioned Docapesca's "Atlantic chub mackerel campaign", which supports the views of some interviewees regarding the short-lived effects of these initiatives and appeals to continuous communication on seafood sustainability.

Potential improvements for the campaigns might include:

- Securing the continuity of campaigns addressing the sustainability of seafood consumption,
- Comprehensive, more incisive/simple and integrated campaigns,
- Coordination between public and private entities to promote credible and coherent messages,
- Public species-specific campaigns only addressing stocks that are regularly assessed and known as sustainably exploited,
- Solid scientific basis in context characterization, campaigns' design and contents,
- Science communication and marketing techniques, tools and experts to design campaigns' messages and layouts,
- More digital communication, social networks, major magazines/newspapers, TV/radio spots, and
- Assessments of campaigns' effectiveness, cost/benefit balance and potential sustainability impact.

However, most participants on the strategic survey stated that even if campaigns are improved and expanded (as they should), they are not enough to promote a more sustainable seafood consumption (10/12). Such results are aligned with studies/reviews concluding that education or awareness campaigns alone are unlikely to produce food behavior changes (Jacquet & Pauly, 2007; Brambila-Macias et al., 2011; Dolmage et al., 2016; Trieu et al., 2017).

Besides some specific policy failures identified by both respondents from the campaigns' and strategic surveys, results of this study clearly point out to the following major policy failures:

- Scarce coordination between sectoral policy areas and actors;
- Lack of discussion on sustainability obstacles and drivers; and
- Lack of political support or guidance involving all stakeholders.

Table 2 shows a set of potential additional measures identified during the research and insights on their suitability and feasibility provided within the strategic survey.

**TABLE 2: SYNTHESIS OF ASSESSMENT OF POTENTIAL POLICY MEASURES**

<i>Synthesis of assessment of potential policy measures</i>		
<i>Designation ▼</i>	<i>Justification and description of the measure ▼</i>	<i>Insights from the strategic survey ▼</i>
<b><i>Lobbying at the EU level for more sustainable seafood imports and consumption policies</i></b>	<p>Given that Portugal is a member of the EU, it is not wise to establish different standards and requirements at a national scale alone. This measure is justified by the identification of a set of issues that must be addressed at the EU level, particularly seafood imports and consumption policies.</p> <p>Justified by the lack of a strategic approach to the topic.</p> <p>The idea is to establish an intersectoral forum for discussion of policy measures, support to their implementation, monitoring and evaluation. This would also include the design of public seafood consumption campaigns driven by sustainability.</p>	<p>This measure was mentioned spontaneously by some interviewees as the most effective way to address some measures (e.g., seafood products labelling, traceability and imports).</p>
<b><i>National commission or working group for the promotion of seafood consumption sustainability</i></b>	<p>Justified by the number and diversity of campaigns developed so far, which shows the capacity and willingness of a lot of organizations and a need to converge into a common path of sustainability promotion.</p> <p>Aimed at providing guidelines on how to develop an effective campaign on seafood consumption sustainability, this might include principles, guidance, best practice and case studies.</p>	<p>The need to establish a national discussion forum was identified both in the campaigns' and strategic survey.</p> <p>Some respondents clearly identified the advantages of involving relevant stakeholders from the seafood value chain, health and education sectors in the discussion of measures.</p>
<b><i>Guidelines on how to promote sustainable seafood consumption through campaigns</i></b>	<p>Most respondents found this measure useful and feasible. Some mentioned it may benefit from a long-term perspective to be developed by interdisciplinary and independent experts, include good examples, tips regarding the adequate type of language, a glossary, an appeal to the standardization of terms and different messages tailored for different regions and target groups, and supported by studies on seafood consumption characteristics, trends and needs.</p>	<p>Some mentioned it may benefit from a long-term perspective to be developed by interdisciplinary and independent experts, include good examples, tips regarding the adequate type of language, a glossary, an appeal to the standardization of terms and different messages tailored for different regions and target groups, and supported by studies on seafood consumption characteristics, trends and needs.</p>
<b><i>Official seafood consumption recommendations' guide</i></b>	<p>Justified by the existence of guides with contradictory recommendations for a few stocks, this measure is meant to provide accurate and updated information, that can be trusted by consumers.</p> <p>The idea is to prepare and regularly update scientifically-sound recommendations by stock.</p>	<p>All respondents found this measure interesting and feasible, though some mentioned it might have a small impact. Some referred it should be prepared by renowned experts from IPMA and other scientific institutions and discussed with different sectors (producers, industry, retailers). Communication experts could also be involved in the final design and dissemination activities (including mass media and partners' networks). The guide should provide accurate information on seafood stocks (contributing to the demystification of the state of some stocks) and it might also include nutritional information and recipes.</p>
<b><i>Coalition of retailing, HORECA (Hotels, restaurants and catering) and fisheries sectors for seafood sustainability</i></b>	<p>Justified by the existence of some scattered initiatives from the seafood supply chain and a low involvement and commitment with concrete actions for the promotion of a</p>	<p>Some interviewees showed some doubts on the feasibility of this measure due to little tradition in associative/cooperative dynamics and suggested previous</p>

	<p>more sustainable seafood consumption.</p> <p>Aimed at promoting a change in seafood supply in a constructive and cooperative way, this measure requires the direct involvement of key decision-makers (i.e., the Minister of the Sea) in activities that contribute to the establishment of a new supply dynamics.</p> <p>This might include inviting all stakeholders to adhere to some guiding principles and commit with concrete actions to be implemented within a reasonable deadline (e.g., 3 years), promoting partnerships for the development of innovative products, and the organization of public event(s) (e.g., seminar) to present the results.</p>	<p>meetings with associations from relevant sectors, consumers and NGOs.</p> <p>Some previous work may be done by IPMA, the fisheries authority (Directorate-General for Natural Resources, Safety and Maritime Services - DGRM) and universities to develop a structure with a vision and targets. This might include concrete ideas of commitments that might be put forward and invitations to some players (e.g., a label/trademark for sustainable restaurants, food festivals' organizers invited to reduce seafood waste). Some people suggested it would require incentives (e.g., a contact platform, local certification, label/trademark, prize, annual events).</p>
<p><b>More stringent requirements on mandatory information and more mandatory information on seafood products labelling</b></p>	<p>Seafood labels are important because they allow consumers to make responsible choices. Current standards for seafood labelling<sup>34</sup> include a group of mandatory information and some additional voluntary information.</p> <p>The idea is to discuss the adequacy of establishing more stringent requirements on mandatory information (e.g., catch area) and more mandatory information (e.g., port and date of landing) on seafood products labelling.</p>	<p>Most respondents mentioned that improving labelling is important and challenging and requires more precise and reliable traceability. Most agreed that mandatory information should be more specific regarding origin (catch area). Some suggested the establishment of a sustainability classification for labels, in alignment with the official recommendations guide, similar to the Nutri-Score (used to decode nutritional information) or with a QR (Quick Response) code. Two respondents suggested a thorough assessment of current system should be performed to understand whether there is a need for change (what and how) or there is only a need for rigorous implementation. Consultation with relevant sectors to avoid double-system or non-compliance situations (some companies already adhered to GS1 standards) could be relevant.</p>
<p><b>Revision of the seafood imports requests' assessment criteria and procedure</b></p>	<p>Imports of fishery products into the EU are subject to official certification of non-EU countries and an assessment procedure in each EU Member State.</p> <p>The idea is to assess whether such procedure could benefit from a revision and improvement.</p>	<p>Most interviewees were against this measure since EU has a consistent policy on seafood imports and changing procedures in Portugal might distort the market. Some of them stated that demand pressures will overcome such restrictions by inducing purchases in more permissive countries and that the main problem might be at the origin (in some countries the certificates refer a false origin and there is not enough control). Seafood imports could therefore be subject to international lobbying at the EU level for more control and independent audits to improve the</p>

<sup>34</sup> Regulation (EU) No. 1169/2011, of the European Parliament and of the Council.

<b>Improve seafood traceability system</b>	<p>Traceability is the basis for more transparency and an incentive to law compliance since it aims to track individual items from production till consumption. Improving seafood traceability will enable more accurate data available for fisheries control and law enforcement procedures as well as more reliable information for consumers.</p> <p>The idea is to identify and discuss possible improvements to the seafood traceability system currently in place and assess the challenges of implementing the best option available.</p>	reliability of compliance certificates.	<p>Though two people disagreed with this idea stating traceability is mandatory, well defined in regulations and a matter of law compliance, most interviewees agreed it is important to improve the traceability system, as a way to reduce illegal fishing opportunities and improve consumers' confidence. Modern technologies (e.g., blockchain) may improve the accuracy of information on catch areas, catch date and time, compliance with quotas/rules, etc. Ideally with an electronic catch documentation scheme (eBCD), an individual identity card like the tunas, but that is not possible for all species.</p>
<b>Support for certification of fisheries and aquaculture national products</b>	<p>Certification processes are demanding, time-consuming and costly. Such difficulties may hinder many companies and associations of seafood production and processing industries from trying certification. This measure aims to provide financial and technical support to the certification of fisheries and aquaculture national products. It might also include labelling and marketing initiatives<sup>35</sup>.</p>		<p>All interviewees agreed with this measure. Some said this will require a lot of public resources and producers' organizations will need more capacity. One interviewee suggested the creation of an EU origin label as a guarantee of compliance with the rules. Some people mentioned Portugal could create a national certification, but one of the interviewees clearly objected.</p>
<b>Guidelines for public food procurement to supply public canteens and catering services with sustainable seafood</b>	<p>Promoting the consumption of sustainable species in public canteens and catering services might contribute to increase awareness and encourage the seafood supply industry.</p> <p>The idea is to prepare guidelines for public procurements for canteens in schools, universities, prisons, courts, health and other public services. Such guidelines might have a wider focus on sustainable food and circular economy principles.</p>		<p>Though two people disagreed because of many existing requirements, complex legal framework, low business margins and difficulties for national producers to support such demand, most interviewees found the idea interesting and challenging in terms of definition, implementation and communication. This would be an opportunity for literacy and innovative fish processing and cooking, and an instrument of public policy towards the valorization of seafood caught in Portuguese waters. Interesting experiences have been developed by ANP/WWF in cooperation with Sesimbra Municipality and by IPMA with the Public Administration Social Services.</p>
<b>Tax rates, incentives and disincentives</b>	<p>Tax rates, incentives and disincentives have already been successfully used in Portugal as tools to promote food behavior change (e.g., sweetened beverages)</p> <p>This measure aims to identify and assess possible fiscal incentives and disincentives to promote sustainable seafood products and discourage unsustainable products,</p>		<p>Most interviewees showed doubts regarding this measure, which might become just another tax or a perverse incentive (inducing false identification of products' origin). It might be difficult to implement, control and assess.</p> <p>However, one interviewee was very enthusiastic, stating that taxes are effective instruments in inducing</p>

<sup>35</sup> Inspired in examples in Portugal (e.g., fish baskets) and elsewhere (Gómez & Maynou, 2021).

	respectively.	consumption practices. Another suggested shrimp, lobster and other products could be taxed at the maximum value added tax. Some people showed a preference for positive incentives and education referring that such approaches are more prone to behavior change.
<b>Review/Improvement of the work plans for data collection in the fisheries sector (National Program for Biological Sampling – PNAB)</b>	Collecting biological data on seafood stocks that allows regular assessments and effective management is essential. Currently, only a few seafood stocks are assessed each year and this situation might change if an improvement of the work plans for data collection is performed and approved.	All interviewees agreed that improving data collection is important for fisheries sustainability since it shall provide fisheries managers with better knowledge. Some people mentioned that data collection within PNAB should be improved. Other said it would be useful to assess whether there is a need for improvement and how. One respondent suggested the implementation of integrated data collection plans that promote the creation of a network with universities and research centers that also collect data on stocks (in a similar way to Portfir and Seafood Tomorrow in relation to food nutrition). Another respondent suggested the costs of monitoring should be paid by the fishing sector in a user-pays perspective.
<b>Strengthening the inspection of fisheries and of the marketing of seafood products</b>	Justified by the importance of control and inspection tasks to evaluate compliance with fisheries management measures.  Strengthening the inspection of fisheries and of the marketing of seafood products might include more inspectors, more means and greater articulation between authorities.	Though two interviewees said they do not know if a reinforcement of the inspection is necessary, all agreed on the need for more coordination between competent authorities, further training, integrated inspection (first and second sales' auctions, processing and distribution). Two people mentioned the problem of illegal, unreported and unregulated fishing (IUU) fishing ('fuga à lota') saying there is a need for more inspection.
<b>Review of the system of fines and additional penalties</b>	Justified by the relevance of having fines and additional penalties that are discouraging enough so that illegal fishing might be significantly reduced, this measure aims to assess the adequacy of the current system and eventually propose adequate adjustments.	Most respondents said they do not know if a review of fines is needed, but two stated it is not needed because fishery laws are updated and have sufficiently high (deterrent) fines. However, two agreed with this measure, saying that the law should be more stringently applied in what regards mesh sizes, minimum sizes of specimens, banned species, and that suspending the fishing license would be more discouraging of illegal practices. Great complexity and overlapping legal rules that lead to some ambiguity in its application, insufficient care in the instruction of cases and low sensitivity of the magistrates were mentioned as related problems.

Source: Elaborated by the author.



## 5. POLICY OPTIONS

Portugal faces a major challenge regarding seafood consumption given its high rate and its environmental, health and economic consequences. Facing such a challenge has become increasingly urgent given the consequences of overfishing, the unreasonableness of seafood waste and the threats of climate change (Costello et al., 2020).

Within this research, three different policy options have been considered and analyzed:

- Business as usual (BAU), i.e. baseline policy option – current policy framework and lines of work are maintained as well as financial and human resources capacity;
- Demand-driven policy option – focuses on trying to change seafood consumption patterns by strategically targeting consumers' ability to change; and
- Supply-focused policy option – focuses on changing supply by a diverse set of policy measures in an incremental way in relation to the demand-driven policy option.

These options have been characterized and analyzed according to a set of evaluation criteria and an estimated 6-year timeframe for the implementation of a policy-based solution. The most important results of the evaluation<sup>36</sup> are presented in Table 3.

**TABLE 3: BUSINESS AS USUAL, DEMAND-DRIVEN AND SUPPLY-FOCUSED POLICY OPTIONS FOR PROMOTING SUSTAINABLE SEAFOOD CONSUMPTION IN PORTUGAL**

<b>Criteria ▼</b>	<b>Policy Options</b>		
	Business as usual (BAU) policy option	Demand-driven policy option	Supply-focused policy option
Effectiveness in terms of behavior change	Extremely unlikely	Probable but only in the long run (beyond 10 years)	Possible
Feasibility	High This option does not require the costs and efforts needed to change current policy and is thus highly feasible	Medium This option requires willingness and efforts to adopt different roles and lines of work. Its feasibility is dependent on political acceptance and involvement	Medium Justification as presented for demand-driven
Costs	Low	Low This option will require different roles and lines of work for public stakeholders. This is not expected to have more costs than the BAU option (the available budget may be focused on the new lines of work)	Medium This option will require a new mindset focused on the long-term, different roles and lines of work for public and private stakeholders This is expected to have more costs since most measures will require more financial resources (e.g., traceability technological tools, incentives)
Human resources and technology	Low	Low Justification as presented for costs	Medium Justification as presented for costs
Stakeholders' involvement	Sporadic and ad-hoc involvement or cooperation between stakeholders	Increased cooperation between researchers and fisheries' administrators in the awareness and education programs Sporadic and ad-hoc involvement or cooperation	Long-term involvement through collaborative approaches of different types of stakeholders: - Public organizations and decision-makers from fisheries, health, tourism,

<sup>36</sup> A SWOT analysis and an analysis of stakeholder involvement were also performed as a support to options' evaluation. The results of such analyses are presented in the full policy study.

		of other stakeholders	environment, education and economy sectors - Fisheries producers organizations - Private companies and associations (from the retailing, HORECA, seafood processing and aquaculture sectors) -NGOs
Institutional barriers	Low	Medium This option will require different roles and lines of work for several stakeholders (researchers, public administrators, organizations from the fisheries sector) and such demand may be subject to some resistance	High This option will require a new mindset focused on the long-term, different roles and lines of work for several stakeholders, particularly for public administrators, organizations and decision-makers from the fisheries sector, and more cooperation between them, and this may put additional pressures on the institutions
Institutional partnerships	Almost none	Few	Lot
Public acceptability	Reduced	High With a focus on reliable information and consumers' awareness, this option will probably be well accepted by the public	Even higher This option may collect even higher support from the public, given the coherence of the multisectoral approach Conditioning awareness campaigns to a prior assessment of stock sustainability and developing measures to decrease illegal and unsustainable seafood in the market are some of the most important measures in this regard
Valorization of sustainable and undervalued species	++	+++	+++
Seafood consumption trend	---	---	↓
Main messages in public awareness initiatives	Substitution	Diversification	Diversification Innovation Reduction
Illegal seafood selling	Increase	Increase	Decrease

Source: Elaborated by the author.

The recommended option is the supply-focused policy option. This option may have better results in the long-term since it aims changing supply (i.e., the basis of the value chain), it is incremental in relation to the demand-driven policy option and promotes stakeholders' involvement.

Possible measures to promote a change in supply and/or demand (described and assessed in Table 2) might include promoting a business coalition (e.g., producers, retailers, HORECA), improving seafood traceability and labelling, reinforcing the inspection of fisheries and seafood products' marketing,

supporting seafood certification, and improving fisheries data collection. It might also include financial support to industrial innovation in processed seafood and public campaigns for the valorization of sustainable and undervalued species conditioned to a prior assessment of stock sustainability.

This option will require a new mindset focused on the long-term, different roles and lines of work for several stakeholders, particularly for organizations and decision-makers from the seafood sector, which will possibly encounter some institutional barriers. However, given the prospects of a long-term involvement through collaborative approaches, the potential for more innovation and creativity in fisheries, aquaculture and seafood processing industries and a new impetus regarding fisheries law enforcement, thus enhancing equity in the sector, such initial constraints will probably be overcome.

Moreover, this is the only policy option that is expected to result in a change in seafood consumption patterns, contributing to a decrease in seafood waste and illegal seafood selling. This option is aligned with the climate change mitigation and biodiversity conservation agendas, targets all the stakeholders of the seafood value chain (from producers to consumers) and entails the integration of sectoral policies in a multi-disciplinary approach to seafood production and consumption sustainability.

## 6. CONCLUSION AND RECOMMENDATIONS

This research looks into seafood consumption campaigns developed in Portugal over the last decade and attempts to understand how interesting is their contribution in raising consumers' awareness of the need to make prudent choices when buying seafood and ultimately contributing to change the way fish are exploited. This approach to sustainability is nonetheless doubtful.

Firstly, because if changing consumer behavior is not easy, changing seafood consumer behavior in Portugal is definitely difficult given the traditional gastronomic culture around seafood (Almeida et al., 2015a; Roheim et al., 2018; Madsen & Chkoniya, 2020). Significantly, all five selected campaigns' organizers claimed to have reached a lot of consumers, but most stated that it is not possible to say that there was a change in seafood consumption in response to their own campaigns (4/5).

Also interesting is the fact that all but one selected campaigns' organizers identified a problem with the high consumption of some imported species (cod, salmon, tuna and hake) and recognized the need to diversify seafood consumption. Such a claim is supported by Almeida (et al., 2015b), who found that Portuguese consumers know a lot about seafood but not necessarily about its sustainable consumption and advocates the promotion of existing habits such as diversifying seafood and using small pelagic species.

As many authors have shown, merely providing better information does little to change individual behavior (Jacquet & Pauly, 2007; Wakefield et al., 2010; Brambila-Macias et al., 2011; Dolmage et al., 2016; Trieu et al., 2017), because change requires additional efforts (first in gathering, interpreting and utilizing information; secondly in cooking and tasting new species) and humans tend to weight such costs against potential benefits. Since potential benefits are not directed to the individual but primarily to species and ecosystem conservation, valuing such intangible results requires environmental sensitivity and awareness. Or as Wallen and Daut (2018) put it, behaviour change benefits from an alignment with a pre-existing personal interest.

Secondly, communicating sustainable seafood consumption is not easy. Sustainability is a well-known word, but many different concepts prevail since there has not been a discussion around its limits. Moreover, key factors of sustainability are not easily perceived by consumers and may require explanations and examples, as included in the Fish Forward guide (WWF, 2016).

Thirdly, a change of consumers' behavior, even considering public entities' and enterprises' involvement along with individual consumers' awareness, might take a long time (one or two generations) to reach the desired effects of promoting sustainable seafood consumption.

Thus, as time is running out, it is interesting to consider a policy option that attempts to promote a behavior change on the side of producers/providers (food processing industry, retailers, HORECA sector, and public procurement organizations) and consumers alike, i.e., the supply-focused policy option.

Portugal embraced the 2030 Agenda for Sustainable Development (UNGA, 2015), the European Green Deal (EC, 2019) and the European Farm to Fork Strategy (EC, 2020), among other multilateral

environmental agreements that require action towards sustainability in general and food sustainability in particular. Some of the most relevant commitments/targets in this respect include:

- halving per capita food waste by 2030 (UNGA, 2015);
- developing the potential of sustainable seafood as a source of low-carbon food (EC, 2019);
- fighting IUU fishing and seafood fraud (EC, 2020);
- promoting healthy, affordable and sustainable food for all (EC, 2020);
- reviewing EU marketing standards for fishery and aquaculture products to ensure the uptake and supply of sustainable products (EC, 2020).

At national scale, besides fisheries, health and sustainability policies, Portugal adopted the Carbon Neutrality Roadmap 2050 (RNC2050)<sup>37</sup>, and the National Ocean Strategy 2030 (DGPM, 2020), which will demand new action on the sustainability of seafood production and consumption.

Thus, the needed change shall be promoted by the government. However, given that fisheries policy is set at the EU level and that the problem is global, the government could consider the relevance of lobbying for more sustainable seafood imports and seafood consumption policies and putting these issues on the agenda. Promoting debates at national, European and global scales in favor of seafood consumption sustainability might be a very important step towards the solution.

Finally, a change from a pure “economicist” mindset to one that considers the natural capital and ecosystem services, which requires valuing every discard, by-product and seafood waste, could be a relevant policy improvement. Involving all stakeholders of the seafood value chain in broader discussions on how to promote seafood sustainability might result in the creation of innovative solutions to resolve the riddle of valuing marine resources and marine ecosystems’ services.

In short, just a few campaigns developed in Portugal over the last decade aimed to promote sustainability (most aimed at seafood valorization and health improvement), but in fact there is not a public policy or political message regarding the importance of promoting sustainable seafood consumption in Portugal. As such, though a possible increasing seafood cost might induce a slight slowdown in consumption, it is highly unlikely that seafood consumption will change much, or rates will drop, unless a different approach is adopted. As shown, all the efforts of public and private campaigns to encourage the consumption of sustainable species are probably not enough to change seafood consumption, particularly if they are not interconnected by a common approach.

### **6.1. A new policy approach**

The policy option recommended in this study addresses the need to change demand patterns and preferences, by improving campaigns’ effectiveness, while focusing the greatest efforts in adjusting seafood supply by a diverse set of policy measures. This option is based on a constructive and cooperative partnership approach, involving all stakeholders of the seafood value chain (from fishermen to consumers), public institutions, academia and civil society.

The idea is to set a discussion forum that gathers relevant players from seafood, health, tourism and environment sectors. Discussions could address sustainability drivers and limits, and needed action, so that a clear and comprehensive long-term strategy to promote sustainable seafood consumption can be designed and implemented.

The National Strategy for Sustainable Development (ENDS) and the National Ocean Strategy 2030 provide a good framework. The Interministerial Commission for the Affairs of the Sea (Comissão Interministerial para os Assuntos do Mar - CIAM), in articulation with the Integrated Strategy for the Promotion of Healthy Eating (EIPAS) working group, may become the discussion forum that allows the strategic coordination to promote the sustainability of seafood consumption.

This policy option is drawn from discussions with researchers, policy-makers, influencers and businesspeople, and inspired by the results from innovative evidence-based approaches in the health sector (e.g., salt, sugar) discussed in an interministerial forum and supported by a National Strategy, that included regulatory and fiscal measures and negotiations with the industry (Polonia & Martins, 2009; Goiana-da-Silva, et al., 2019).

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<sup>37</sup> Decree-Law No. 85/2019, published 01/07.

Policy measures to be further discussed might include those whose suitability and feasibility has been assessed within this research. Some measures to improve seafood consumption campaigns might include the preparation of guidelines and an official recommendations' guide. Measures aiming to change seafood supply might include promoting a business coalition, improving traceability, supporting seafood certification and improving fisheries data collection.

## **6.2. Policy recommendations**

Recommendations on how to put the chosen policy in place can be summarized as follows:

1. A working taskforce on seafood consumption could be established by the Minister of the Sea under the umbrella of CIAM with a clear mandate to discuss sustainability key factors, define policy measures, responsible entities, targets and timeframes, monitoring and evaluation.
2. Docapesca should continue developing public campaigns focused on the valorization of sustainable and undervalued species, as committed till 2030. On the one hand, mackerel species targeted by these campaigns have had quotas higher than its catches and on the other hand, these commonly are by-catch fish in need of market-based approaches to increase its value. However, it would be important to establish a catch limit, measures that promote market regulation, an increase in research investment and include sustainability-related messages.
3. The Minister of the Sea could commission the design of a broader communication program on seafood consumption sustainability targeting mass media (TV, radio, magazines) and social media, over a long period of time. This might include disclosing the evolution of catches, consumption and first sale value of fish in the last decade, and regular publication of official seafood consumption recommendations. Public species-specific campaigns should only choose stocks that are regularly assessed and known as sustainably explored.
4. The Minister of the Sea could lobby at the European Union level for more sustainable imports and consumption policies, promote debates, workshops and conferences at national, European and global scale and work towards bilateral and multilateral agreements with other member states of the United Nations to lobby in favor of seafood consumption sustainability.

The policy option advocated herein may successfully address the urgent need to tackle seafood overconsumption in Portugal. Bringing relevant stakeholders together will enable discussion over sustainability drivers, policy integration and strategic coordination. It is a first step to a new sustainability approach. A first step for future action!

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## **SUPPLEMENTARY MATERIAL**

This article is part of a larger policy study that presents a more detailed and profound analysis of the surveys' results, describes the specificity of seafood consumption in Portugal and provides a



discussion on sustainability challenges. The full study may be made available upon request to the author.

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