Managing sustainability in the seafood supply chain: The confused or ambivalent consumer

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Abstract

The economic, social and environmental benefits of doing business sustainably are now well established, with many industries fully embracing and integrating sustainable practices. However, some industries are facing greater challenges and struggling to embrace sustainable practices. For example, the issue of sustainability within the seafood industry is highly topical, with a 2014 Google search on the term "sustainable fish" scoring over 37.4 million hits. Despite a groundswell of discussion and action within the seafood industry, the current literature on seafood sustainability remains emergent. While consumers are the stakeholder group that arguably has the most potential interest, the actions of all other stakeholders within the industry affect choices available to them. Accordingly, this paper reviews the current literature and seeks to identify how each stakeholder defines and seeks to manage the issue of seafood sustainability.

Several sources of confusion, ambiguity and conflict in the field (including gaps in current research) are evident. Consumers are either confused or ambivalent about sustainability with respect to seafood and there is a lack of consensus on what sustainability means across the seafood supply chain, with differing perspectives across the various stakeholders involved with the industry including governments, NGOs, the seafood industry itself (producers, processors, and distributors), and consumers. The review provides an understanding of consumers and other stakeholder perspectives with respect to the sustainability of seafood and provides a basis for developing strategies to reduce ambiguity, promote clarity and shared understandings regarding sustainable seafood, and also opportunities to increase knowledge, potentially leading to more sustainably managed seafood supply chains.

Keywords: consumers, seafood, sustainability, stakeholders, supply chain

Introduction

Sustainable development (focussing on the three pillars of economic, environmental and social sustainability) is now a well-established business concept (Lorenz & Veenhoff, 2013; Lubin & Esty, 2010). The importance of sustainability for food production is an emerging mega-trend and undisputed in particular issues such as reduced food miles and food security (Gafsi et al., 2006; Van Passel, 2013; Asche et al., 2015). Seafood is an increasingly important source of food globally, accounting for almost 17 percent of the global population's intake of animal protein (FAO, 2014). However, seafood is also a vulnerable renewable resource – with a predicted global breakdown of seafood species by 2048 based on current trends in seafood consumption (Branson, 2013). Reflecting this trend, seafood sustainability is a topic of high and ever-increasing interest in current academic and industry conversations (Roheim, 2009; Roheim, Asche & Santos, 2011). A glance through the agenda of any recent seafood industry conference reveals sustainability-driven discussions about consumer intentions and behaviour and the factors that help inform those consumer choices, such as eco-labelling, accreditation schemes, government fishing and marine conservation policy, production/harvesting practices, retail strategy and practice, discards and food waste, and food security. As these topics suggest, multiple stakeholder groups play a role in achieving seafood sustainability, including (importantly), consumers (who ultimately determine value), governments, NGOs, and the seafood industry (producers, processors and distributors).

Despite intense interest in the popular press and other media, academic research into sustainable seafood can still be categorised as emergent. While there is no doubt that sustainability of seafood production must be ensured, the current literature on developing seafood sustainability is fragmentary and dispersed across multiple disciplines. This is perhaps most evident when considering the perspectives of the various stakeholders involved

with the seafood industry. In particular, the literature is unevenly weighted across stakeholder groups. The majority of current research (e.g. de Barcellos et al., 2011; Megicks, Memery & Williams, 2008) has focussed on consumer attitudes and behaviours regarding sustainability, with less attention devoted to other members of the seafood supply chain, notably producers, processors, and distributors.

Our review also indicates that consumers are either confused or ambivalent regarding sustainability, and that there is a lack of consensus across the other members of the supply chain on what sustainability means in relation to seafood. Achieving and managing a sustainable seafood supply chain has been hindered by this lack of understanding and evident complexity regarding seafood sustainability.

In part, consumer confusion and the lack of consensus on what sustainability means with respect to seafood derives from the complex and ambiguous usage of the term "sustainability" and, in part, from the different roles and associated goals of stakeholders. A wide range of vocal and influential NGOs shape political and social spheres, and governments are increasingly regulating the industry; impacting all industry stakeholders. In response to these pressures, and in a highly competitive global business environment, many producers and retailers are using sustainability as a core business strategy to seek to gain a competitive advantage by influencing both what consumers buy as well as where they shop (Deloitte, 2007). However, given that many consumers lack knowledge and understanding regarding what sustainability means in regards to seafood and that many are ambivalent, it is unlikely that such competitive advantage will be fully realised until this issue is addressed.

In brief, there are several gaps in the current research into sustainable seafood, with most studies focussing on the consumer and very limited research from the perspective of other stakeholder groups. Clarity on how each stakeholder group defines sustainability is also

not evident. Each stakeholder group appears to use different approaches and tactics to achieve their goals, often resulting in suboptimal outcomes for both industry and consumers.

These fragmented perceptions and attitudes and the resulting lack of consistency in understanding sustainability are problematic given the increasing complexity and interdependence of food supply chains (Fearne, 2009). Consumers, who play a key role in driving sustainability as they make the final purchase decisions, rely on consistent information, advice and recommendations to remain engaged (Leadbitter & Ward, 2007) and avoid becoming confused and cynical (Parkes et al., 2010). The absence of a shared understanding provides a challenge for creating sufficiently coordinated and transparent strategies across the different roles of each stakeholder group in the seafood supply chain to guide consumers effectively. Awareness of the varying perspectives across stakeholder groups can provide a foundation for building strategies to promote shared understandings, increase knowledge and influence the behaviour of each group.

The purpose of this chapter is to address the gaps identified above by exploring how the different stakeholder groups define sustainability in relation to seafood. Sources of confusion, ambiguity and conflict in the field will be highlighted and gaps in current research will be identified to provide a basis for richer understanding and insights for strategy development by each stakeholder group. The issue of sustainable seafood is a global challenge, however, this chapter proceeds by reviewing the current literature with a focus on the Australian context.

The Literature

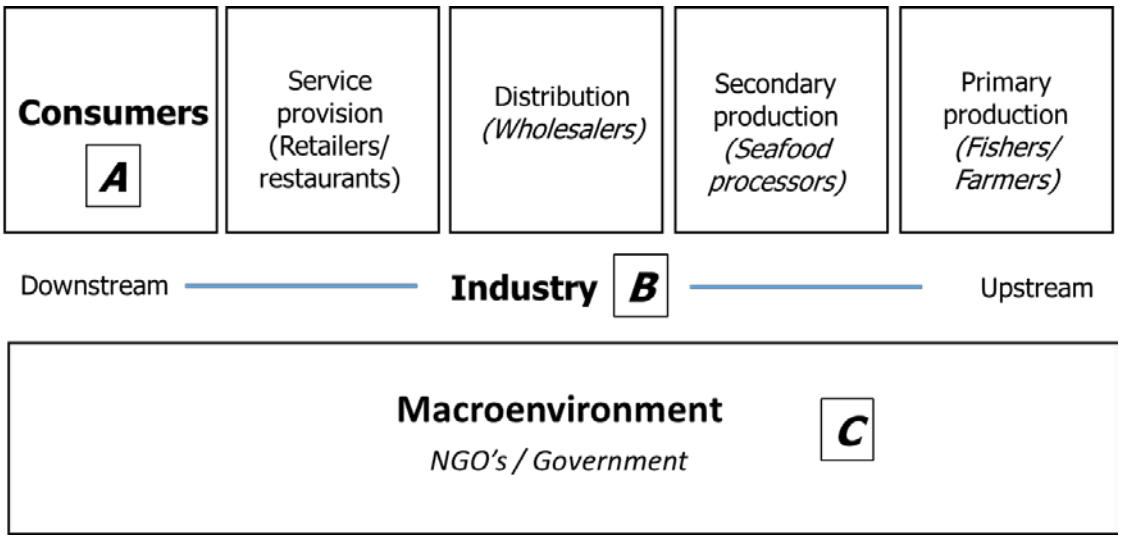
Early interpretations of the term "sustainable" focussed primarily on environmental sustainability (Boyd & Schmittou, 1999); however, it is now well established that there are three pillars of sustainability – environmental, social and economic (Gafsi et al., 2006; Lubin et al., 2010; Wurts, 2010). While these pillars apply to sustainability in all industries, more specific meanings can be attributed to food. For example, the environmental element of food sustainability could refer to care for the natural environment and preservation of natural resources. The social element of sustainability refers to issues such as quality of life, animal and human welfare, and also societal responsibility, while the economic element concerns issues such as producers being paid a fair price and consumers paying a fair price (Vermeir & Verbeke, 2006; Gafsi et al., 2006).

Fragmentation of approaches to seafood sustainability is partly linked to inconsistent usage of the term "sustainability" in the literature. A range of apparently interchangeable related terms is evident, including sustainable development, ecologically sustainable development and sustainable consumption. Terms such as ethical consumption and socially responsible consumption, which overlap considerably with sustainability (Megicks, Memery & Williams, 2008; Belton, Little & Grady, 2009), add further complexity. Moreover, sustainability is a complex concept which is not easily operationalised (Gafsi et al., 2006; Wurts, 2010), in turn, this complexity is reflected in the variety of perspectives adopted by the key stakeholder groups involved with the seafood industry.

The varying understanding of sustainability can also be partly attributed to each stakeholder group playing a different role in contributing to seafood sustainability. To address this, we group stakeholders into three broad categories based on their role in sourcing, delivering and consuming seafood (Figure 1). Arguably, the most important role is that of consumers (A), who make the ultimate consumption choice. The stakeholder role may

also relate to individual stages of the industry value chain (B) or to the over-arching macro-environment (C), which provides a context within which the industry operates, both at global and national levels. Although the seafood industry value chain itself is not well defined, a rough division between upstream and downstream activities is presented in Figure 1, with consumers taking first place to highlight their key influence role for sustainability. The literature review that follows deals with each of these three broad categories in turn. It should be noted that a specific organisation may operate in only one or several of the stages of the value chain and have multiple goals addressing either a subset or all of the three pillars of sustainability.

Figure 1: Stakeholder Roles in Seafood Sustainability



In addition to role-related differences in perspective on sustainability, these stakeholder groups construe sustainability differently in terms of the three pillars, with most groups, as well as individual members within the groups, having a partial rather than comprehensive focus or understanding. Given little research has addressed how each group defines sustainability, understanding of what sustainability means for various stakeholders may be inferred from stakeholder actions or indirect statements.

Consumers as stakeholders (A)

Consumers, who are the first stakeholder grouping identified in Figure 1, play a key role as those making the decision about whether, what and how to purchase seafood. As such, they directly affect the economic goals of other stakeholders within the industry. Many consumers use the terms locally, organically, environmentally-friendly and sustainably produced foods interchangeably (Robinson & Smith, 2002). Some studies compound this issue by simply asking about sustainability as a general concept and assuming respondents know what the term means (e.g. Aslin & Byron, 2003). In a Mintel study (2010), consumers associated sustainability with creating less waste, helping the environment, and food safety. In another UK consumer survey, when asked how knowledgeable they were about food sustainability, only 6% of respondents reported they know a lot about sustainability with a further 78% suggesting they knew a little and 16% admitting they do not know anything (SeaFish, 2007). A 2003 study of community perceptions of fishing in Australia (Aslin & Byron, 2003) indicated low levels of knowledge about the Australian fishing industry, and when asked how sustainable (as an overall term) various sectors of the fishing industry were, 37% of respondents gave a neutral response, perhaps indicating a lack of understanding of what the term meant. A follow up study in 2011 showed this pattern of responses remained unchanged over time (Sparks, 2011).

While consumer recognition of eco-labels, such as the MSC eco-label, is slowly growing, a recent global survey (n = 5977) revealed that only 12% of Australian consumers could describe the de-branded MSC eco-label in their own words as a mark for environmental/sustainable seafood, lagging well behind European consumers (MSC, 2012). Moreover, with over 320 environmental groups currently targeting sustainable seafood across the globe (McGovern, 2005), a multitude of often conflicting seafood accreditation schemes and over 200 seafood guides advising consumers what seafood they should and should not eat

(Seaman, 2009), it is little wonder that research reveals consumers are confused (Roheim, 2009). Indeed, Klein and Ferrari (2012) note that conflicting messages across the seafood guides used by the two major supermarkets in Australia has contributed to 'a type of seafood stewardship crisis, one that the ocean cannot afford to battle', and suggest that 'consistent guidelines are essential if we want consumers to take sustainable seafood and marine conservation seriously'. However, correctly determining whether seafood is sustainable or not is challenging as it relies on access to full information on how the species is fished, the fishing equipment used, origin or location of wild-catch or the particular farming method used (Klein & Ferrari, 2012).

With this lack of consistency and clarity, it is little wonder that consumers are generally ambivalent, lack knowledge or are confused (Jacquet et al., 2009). For many consumers sustainability simply is not "top of mind". Retailers report that the questions they are most commonly asked about seafood are how to store and how to cook seafood, with many reporting they have never been asked about sustainability (Telesca, 2011). Hence, basing seafood sustainability policies on purported consumer demand would appear misguided.

Turning to recent Australian consumer research, results confirm the confusion and lack of knowledge highlighted above (Danenburg & Mueller, 2011; Danenburg & Remaud, 2010; Birch & Lawley, 2012). Content analysis of 10 focus groups which included a question about what consumers understood by the term "sustainable seafood" identified three levels of understanding (Colmar Brunton, 2010). Approximately one third of respondents did not know what the term meant, with respondents stating '*I wouldn't have a clue'* and '*I don't know*', while others commented, '*I think a lot of people would be scratching their heads about it*' and '*some people might not know what it means'*. Those who proffered a definition of sustainability primarily focussed on environmental aspects including '*not overfishing'*,

'*environmentally-friendly'*, and '*dolphin-friendly'*, while some provided a more accepted definition such as, '*our grandkids can eat it too'* and *'new word on the block – it means ongoing'*. Only one respondent commented on the economic benefits of sustainability, stating, '*it means in the future there is going to be fish around. It's not going to be fished out and it's going to stay at the same price as well*'. None of the participants mentioned any social aspects of sustainability. Finally, considerable confusion about the meaning of the term "sustainability" was evident with participants making comments such as, '*it lasts longer if it is sustainable,*' and using country of origin as a measure of sustainability, for example, '*people want Australian products because they know they are sustainable*'.

While knowledge and awareness about sustainable seafood appear low, when questioned, consumers report favourable attitudes toward sustainable seafood (Aslin & Byron, 2003; Ruello & Associates, 2006; Seafish, 2007). However, these favourable attitudes are not consistently translated into behaviour. This ethical purchasing gap (EPG) has been widely reported in relation to pro-environmental behaviour (Finisterra do Paço & Raposo, 2010; Diamantopoulos et al., 2003; Kollmuss & Agyeman, 2002) as well as in relation to sustainable foods (McEachern et al., 2010; de Barcellos et al., 2011) and specifically in relation to seafood (Seafish, 2007; DEFRA, 2011). For example, in a UK government study (DEFRA, 2011), 70% of consumers said that buying sustainable fish was important, but only 30% of consumers actively sought sustainable seafood (with no indication of the number of consumers who then actually purchased sustainable seafood). Common explanations of the ethical purchasing gap reflect pragmatism and include price (i.e. sustainable option is too expensive), convenience (i.e. sustainable option not conveniently available) and the fact that sustainability is a credence attribute that consumers cannot evaluate personally and therefore must rely on or trust the source claiming sustainability (Vermeir & Verbeke, 2006; McEachern et al., 2010).

Finally, research on the role of sustainability in consumer decision processes suggests low involvement. In-depth interviews of 12 fishmongers (Birch & Lawley, 2012) supported that most consumers do not understand what sustainability means, that there is considerable misinformation, and very few consumers ask about sustainability at the point of sale. Indeed, two of the 12 fishmongers could not recall ever being asked about sustainability by a customer, with the other ten respondents suggesting only two or three of their customers had ever asked about sustainability.

Industry value chain stakeholders (B)

In making their purchase decisions, consumers engage most directly with service providers (retailers and restaurants) in the seafood industry value chain, however, the actions of all industry stakeholders have an impact on the choices and information available. Accordingly, this second grouping in Figure 1 (B) addresses the main activities in the seafood industry value chain and identifies the key stakeholders with their different roles and related goals. Those engaged in upstream primary production activities are closest to the natural resource and include seafood fishers and farmers. Mid-stream seafood processors and distributors link with service providers (i.e. retailers and restaurants) who deliver end products to consumers. While the majority of the seafood industry value chain are "for-profit" organisations, their roles across the value chain are affected by differing competitive pressures and regulatory requirements, as well as activity-specific seafood sustainability issues.

Retailers. Retailers have several roles related to seafood – interpreting customer demand, sourcing, storing, displaying and selling seafood products, as well as marketing. The two major Australian supermarket chains (Coles and Woolworths) changed their seafood sourcing policies in 2011 regarding sustainable seafood, based on internal research indicating

that sustainability is increasingly important to consumers and the belief that Australian consumers are sufficiently concerned about sustainable seafood to impact demand. The aim of the supermarkets was to gain accreditation to deliver a competitive advantage within an aggressive retailing environment.

Press releases accompanying these sustainable seafood initiatives by both major Australian supermarket chains revealed retailers' perceptions of the sustainability concept, with both emphasising the environmental aspects of seafood sustainability. For example, in Coles' press release, "sustainable seafood" referred to wild-caught, fresh seafood with sustainability being narrowly construed as environmental sustainability: 'preserving stocks of some traditional favourites which are under threat from overfishing' (Coles, 2011). Coles works with the Marine Stewardship Council to source certified sustainable seafood, and is a signatory to the WWF Global Seafood Charter, a commitment to sustainable seafood and safeguarding marine eco-systems. In 2011, Coles asked the WWF to review all of their wild-caught fresh seafood supplies, and like Woolworths, Coles is committed to sourcing sustainable and "dolphin friendly" tuna from sustainable fisheries and methods (Coles, 2013).

Woolworths' seafood sourcing policy is guided by the Sustainable Fisheries Partnership (SFP) (Woolworths Ltd., 2013). In addition to sourcing sustainable seafood, Woolworths is a supporter of marine conservation programs such as the Taronga Zoo's marine protection programs. Moreover, Woolworths states that it is committed to supporting its suppliers, and where appropriate making grants to suppliers to assist with accreditation processes and co-investing in sustainability improvements of its fish suppliers. Woolworths also provides research funding and scholarships to government entities and fisheries (e.g. FRDC).

Restaurants. In the food service sector, sustainable seafood is also emerging as an important issue for many chefs and buyers (Glazer, 2012). Again, however, understanding of sustainability appears to focus on environmental issues specifically for wild capture seafood, with conflicting interpretations of sustainability. One study found that, in order to be deemed truly sustainable, seafood must be "locally-sourced" (Lebihan, 2011). In a recent Australian study of 68 chefs (Howieson & Lawley, 2014), chefs noted that they relied on suppliers to provide information regarding sustainability (because while they were interested), but time pressures meant they were unable to search for information about sustainability themselves. Moreover, sustainability was only ranked 13th out of 14 factors in terms of importance in their purchasing decisions (Howieson & Lawley, 2014). In brief, while some chefs are passionate advocates for sustainable seafood, many appear confused about what sustainability actually means and most consider it to be of lesser importance as compared with other factors such as consistency of quality and supply and relationships with suppliers.

Producers. As with all primary producers, the main motivation of fishers and farmers is to make a profit, however, motivations can differ. For example, local, small scale seafood fishers and farmers are often family-owned business relying on the sea or land for their survival, and thus tend to have a greater appreciation and concern for the environment. Conversely, larger producers may have a stronger focus on short-term profits.

Despite increasing consumer demand for seafood in Australia (FRDC, 2013), Australian seafood producers are faced with aggressive competition from seafood imports from places such as Indonesia and Vietnam. Meantime, dominant supermarket chains such as Coles and Woolworths are increasing their demands on seafood producers to demonstrate proof of sustainability (FRDC, 2013). These factors, combined with pressures from governments and NGOs, have forced seafood producers to explore and implement more sustainable fishing practices. Significant restructuring of fisheries in recent years has led to

smaller fleet sizes in many fisheries. Moreover, a number of external factors, including a high exchange rate and higher business input costs, particularly fuel, have increased the industry focus on sustaining profitability (Curtotti, Hormis & McGill, 2012).

In summary, Australian seafood producers appear to have a high degree of knowledge relating to sustainable seafood practices; however no research is evident which explores how producers actually view sustainability or where their focus lies.

Processors and wholesalers. Although processors' and wholesalers' understanding of sustainability is also neglected in research, their behaviours indicate an emerging awareness of a link between sustainability and consumer buying preferences. Wholesalers can promote sustainable seafood practices by ensuring their products are sourced from sustainable fisheries. Increasingly, Australian seafood wholesalers are being influenced by consumer demands and as a result have a strong incentive to prove the sustainability of their seafood products by demonstrating adoption of various sustainability assessment techniques, including those provided by the Sustainable Fisheries Partnership and WWF's Ecological Sustainability Evaluation of Seafood (FRDC, 2013).

However, there is evidence that wholesalers can play a double gatekeeping role; limiting flows of information about sustainability (Howieson & Lawley, 2014). This potential blockage impacts both upstream and downstream value chain stakeholders, with producers not able to leverage sustainable practices and chefs and retailers unable to provide consumers with complete information on which to base their buying decisions.

Macro-environment stakeholders (C)

The final grouping in Figure 1, NGOs and Government (C), comprises the main stakeholder groups in the macro-environment. NGOs associated with seafood cover a broad spectrum ranging from international government-funded bodies such as the Food and Agriculture Organisation (FAO) through to non-profit/charity organisations such as the Marine Stewardship Council (MSC), which focus on seafood and are funded largely through their accreditation work, to conservation organisations such as the World Wildlife Fund (WWF). NGOs vary widely in terms of their degree of internationality, the breadth or specificity of their remit, and sources of funding which, in turn, influence their perspectives on seafood sustainability. More broadly-focussed international NGOs, such as FAO, highlight the importance of all three pillars of sustainability across all sectors (wild capture and aquaculture) as shown in their definition:

> '*Sustainability means ensuring human rights and well-being without depleting or diminishing the capacity of the earth's ecosystems to support life, or at the expense of others well-being. It is a multi-dimensional concept encompassing environmental integrity, social well-being, economic resilience and good governance*' (FAO, 2014).

However, many NGOs tend to focus primarily on the environmental perspective. For example, the Marine Stewardship Council (MSC), while not clearly defining the term "sustainable", state their overall mission as 'to use our eco-label and fishery certification program to contribute to the **health of the world's oceans** by recognising and rewarding sustainable fishing practices' (MSC, 2014). Reviews of accreditation schemes and eco-labels promoted by NGOs such as Friend of the Sea identify several inconsistencies in relation to criteria used to assess sustainability, with social and economic aspects often being poorly

addressed as compared with environmental impacts (Parkes et al., 2010; Leadbitter & Ward, 2007). More environmentally driven NGOs, such as Friends of the Sea, use accreditation schemes to influence outcomes. Moreover, fragmentation is evident with some accreditation schemes focussed on wild capture only (e.g. MSC) while others focus purely on aquaculture (e.g. Aquaculture Stewardship Council). The proliferation of accreditation schemes and eco-labels promoted by NGOs (as well as other industry stakeholders) adds to the confusion, with over 30 schemes identified in a recent global review (Parkes et al., 2010).

Governments, being the only entities with the authority to regulate and enforce industry practice, focus on the development and implementation of policy and regulation. For example, in Australia there are two main federal agencies governing seafood. The Department of Agriculture, Fisheries and Forestry (DAFF) manages fisheries for the public good through controls such as limiting catches and controlling fishing methods, while the Department of Sustainability, Environment, Water, Population and Communities controls the establishment of marine parks and protected areas.

In terms of defining sustainability, a review of the DAFF website reveals a range of terms (but no specific definitions) including “sustainable”, “ecologically sustainable”, “social licence”, and “social and economic sustainability”. The term “sustainability” is variously employed, with both general and specific interpretations, with all three dimensions (social, economic and environmental) addressed overall. For instance, government-sponsored research exploring community perceptions of sustainability of the fishing industry in Australia offered the following definition, which is focussed on “practices and policies” and captures ecological/environmental aspects of sustainability as well as social and economic aspects:

'*The industry having the necessary practices and policies in place that ensure the future of fish species and the marine environment, while at the same time providing sufficient supply of fish for commercial and recreational fishing needs*' (Sparks, 2011, p. 2).

Discussion

Given these findings, it remains to bring the various perspectives and behaviours together to gain an understanding of the overall picture across all stakeholder groups, as shown in Table 1 below. The first column lists the key stakeholder groups in the seafood industry, with NGOs split into two groups based on funding: government funded organisations such as the FAO in the first group and more special-interest, independently funded groups including WWF and MSC in the second group. The information in the second column draws from the previous literature to identify how each group defines or views sustainability, while the third column presents an example (where identified) of how a stakeholder defines sustainability. The summary highlights the differences across stakeholder groups in both completeness and focus in their definitions of seafood sustainability.

Table 1: Summary of stakeholder perspectives on seafood sustainability

Stakeholder	Definitions of Sustainability			Examples
	Environ't	Social	Economic	
Consumers	✓			*'I wouldn't have a clue'* *'Environmentally friendly'* *'In the future there is going to be fish around. It's not going to be fished out and it's going to stay at the same price as well'*(Colmar Brunton, 2010).
Producers			✓	No definition identified in the literature
Wholesalers/ middlemen			✓	No definition identified in the literature
Retailers	✓			*'Preserving stocks of some traditional favourites which are under threat from overfishing'* (Coles, 2011).
Chefs	✓			*'Locally-sourced'* (Lebihan, 2011).
NGOs: Independently funded (e.g. MSC)	✓			*'To use our eco-label and fishery certification program to contribute to the health of the world's oceans by recognising and rewarding sustainable fishing practices'* (MSC, 2014).
NGOs: Government funded (e.g. FAO)	✓	✓	✓	*'Sustainability means ensuring human rights and well-being without depleting or diminishing the capacity of the earth's ecosystems to support life, or at the expense of others well-being. It is a multi-dimensional concept encompassing environmental integrity, social well-being, economic resilience and good governance'* (FAO, 2014).
Government	✓	✓	✓	*'The industry having the necessary practices and policies in place that ensure the future of fish species and the marine environment, while at the same time providing sufficient supply of fish for commercial and recreational fishing needs' (Sparks, 2011)*

In considering how each group defines sustainability, it is evident that governments and government-funded NGOs tend to view sustainability from the perspective of all three pillars (albeit with some government departments focussing more on one of the pillars). On the other hand, the independently funded NGOs like WWF and Greenpeace tend to focus strongly on environmental sustainability. While producers and distributors in the seafood industry need to be economically sustainable to stay in business, no research appears to have explored how they actually define sustainability. In line with NGOs, consumers tend to focus on the environmental issues of sustainability and have very limited understanding or

knowledge of sustainability overall. In brief, the different stakeholder groups appear to define and perceive sustainability differently. Understanding the different perspectives and motivations of the various stakeholder groups provides a starting point for developing strategies to influence the behaviour of each group.

Pressure placed on producers and suppliers to adopt sustainable seafood practices from government, consumer groups and vocal NGOs has led to a growing interest in informing consumers about the environmental aspects to take into account when purchasing seafood (Young et al., 2010). It appears that producers and suppliers do this in order to influence consumer purchasing decisions so that efforts towards sustainable seafood practices can be profitable, as well as relieving pressures from the groups mentioned above. However, little research has been undertaken to understand producers' attitudes and behaviours.

Consumers constitute the stakeholder group for which most research into understanding of and knowledge about sustainability has been undertaken, but interestingly are also the group with the least knowledge and understanding of sustainability. Even within the consumer research there are gaps. For instance, many research studies start with the assumption that consumers have a shared understanding of what sustainability actually means, yet research indicates this is clearly not the case. Indeed, sustainability only influences the actual purchase decisions of fewer than 5% of consumers (OECD, 2008). Since consumer adoption of sustainable seafood products has been low, a central issue would appear to be changing consumer behaviour, but given food consumption is "highly habituated", this is recognised as a complex issue. Research indicates that raising involvement through increased information may change behaviour (Vermeir & Verbeke, 2006). However, while information plays a key role in changing behaviour, Wells et al. (2011) highlight that the information must be relevant and the right quality, as too much information leads to cognitive overload. Indeed, the plethora of accreditation schemes (and

associated eco-labels) has resulted in confusion and information overload amongst consumers.

Due to a range of different approaches, labelling is one area of communication that has generated substantial consumer scepticism (Hoek, 2013). Labelling by itself is also not effective and needs to be supported with a full communication strategy that is supported by all stakeholder groups. The role of retailers is critical, given consumers are generally ambivalent, lack knowledge or are confused, thus abdicating their responsibility, with a tendency to rely on the assumption that 'if a retailer sells it, it must be sustainable'. Indeed, most consumers simply don't want or need added complexity in their buying decisions for a food product already associated with higher levels of functional and financial risk than most food products (Birch & Lawley, 2012); they just want to trust retailers to sell quality, fresh sustainable seafood.

Conclusions and Implications

There is broad agreement among stakeholders that seafood sustainability is important and many stakeholder groups are acting in some ways towards this goal. However, the understanding of seafood sustainability is partial and ambiguous and strategies to achieve it are at best piecemeal and incomplete. While all stakeholder groups play different roles in driving sustainability, ultimately consumers are the key as they make the final purchase decisions. All other stakeholder groups seek to influence the behaviour of consumers through a variety of different tools and approaches.

This study has shown that different stakeholder's understandings of sustainable seafood vary significantly with many inconsistencies between strategies, policies, plans and guidelines. Consumers are typically either confused or ambivalent about sustainability. At present, sustainability appears to be industry driven and more of a "business imperative"

rather than a consumer-driven concern. This study has highlighted many gaps in the existing research about sustainability, specifically gaps around industry stakeholder perceptions of sustainability and consumer research that is not based on the assumption that consumers have a common understanding of the meaning of the term.

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