Applicability of ecolabelling fish products from two artisanal Portuguese fisheries

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“Se não me interessar pelo mundo, este baterá à minha porta pedindo-me contas.”

José Saramago, 2001
Because this is a work I could not have accomplished on my own.

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Obrigada.
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<tbody>
<tr>
<td>CCL</td>
<td>Proof of Purchase at Auction Centre</td>
</tr>
<tr>
<td>DGRM</td>
<td>Directorate-General for Marine Natural Resources, Safety and Services</td>
</tr>
<tr>
<td>DOP</td>
<td>Protected Origin Designation</td>
</tr>
<tr>
<td>EEZ</td>
<td>Economic Exclusive Zone</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
</tr>
<tr>
<td>GMO</td>
<td>Genetically Modified Organisms</td>
</tr>
<tr>
<td>ICES</td>
<td>International Council for the Exploration of the Sea</td>
</tr>
<tr>
<td>IPMA</td>
<td>Portuguese Institute for the Sea and Atmosphere</td>
</tr>
<tr>
<td>LPN</td>
<td>Portuguese League for Nature</td>
</tr>
<tr>
<td>LSF</td>
<td>Large-scale fisheries</td>
</tr>
<tr>
<td>MSC</td>
<td>Marine Stewardship Council</td>
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<tr>
<td>MPA</td>
<td>Marine Protected Area</td>
</tr>
<tr>
<td>MSY</td>
<td>Maximum Sustainable Yield</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<tr>
<td>SSF</td>
<td>Small-scale fisheries</td>
</tr>
<tr>
<td>SWOT</td>
<td>Strengths, weaknesses, opportunities and threats</td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Programme</td>
</tr>
<tr>
<td>US EPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
<tr>
<td>WWF</td>
<td>World Wildlife Fund for Nature</td>
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Foi na década de 90 que as preocupações ambientais começaram a estar mais disseminadas e atingiram transversalmente todo o público, tendo este período ficado conhecido como «década do Ambiente». O mar, os oceanos, os recursos pesqueiros e as frotas mereceram especial atenção a partir daquele que foi o Ano Internacional dos Oceanos, em 1998.

Foi também nesta altura que surgiram de forma mais marcada os chamados selos ambientais ou ecolabels. Estes selos começaram por ser tomadas de posição que os produtores ou distribuidores assumiam em como os seus produtos tinham sido produzidos com o mínimo de impactos sobre o meio ambiente. Estes rótulos também atestavam a rastreabilidade dos produtos, o que significa que o consumidor pode saber qual o percurso que o produto fez desde a produção até chegar à sua mão. O objectivo dos rótulos ambientais é informar o consumidor sobre aquilo que está a adquirir, permitindo-lhe fazer escolhas informadas que, consequentemente, impactem o menos possível um património que é comum – o Ambiente. Estes selos constituíram-se assim como uma arma para a emergente educação ambiental. Os primeiros ecolabels apareceram associados à indústria do Turismo, tendo-se seguido o sector primário, nomeadamente a Agricultura.

Selos ambientais ligados aos produtos pesqueiros e às práticas nas pescas chegaram mais tarde, mas depressa se disseminaram e ganharam notoriedade entre os consumidores mais preocupados e com maior consciência ambiental. Estes selos aparecem recorrentemente ligados ao conceito de «sustentabilidade». Mas o que é sustentabilidade nas pescas? Como definir práticas sustentáveis? Num sector tão diversificado como este, com tamanha pluralidade de espécies, artes de pesca, embarcações, leis e tradições, como conseguir traçar uma linha condutora que toque todos os aspectos que as pescas incluem?

Actualmente, estes rótulos de produtos de pesca aparecem no mercado com diferentes âmbitos e coberturas, sendo uma das maiores críticas apontadas o facto de poderem confundir os consumidores menos informados ou atentos. Outra crítica recorrente é o facto de estes esquemas estarem desenhados para as grandes pescarias industriais, características do norte da Europa. Estas pescarias caracterizam-se por terem poucas espécies-alvo, envolverem grandes embarcações, envolverem poucas artes de pesca e capturarem grandes quantidades de pescado. Todas estas características são opostas à maior parte das pescarias que operam no sul da Europa, maioritariamente consideradas como pescas de pequena escala. Estas caracterizam-se por serem multiespecíficas (o que significa que têm muitas espécies-alvo), por terem menores níveis
de rejeições (ainda que de mais espécies), utilizarem uma multiplicidade muito grande de artes e embarcações de pequenas dimensões (até 9 m). Para além de tudo, há que ter em consideração o factor social por trás destas pescarias. Os pescadores destas pescarias são tendencialmente mais velhos e mais avessos a mudanças num ambiente muito familiar, estruturado e hierarquizado. Adicionalmente, estão inseridos em comunidades onde a pesca tem um papel importante na economia local e também na identidade cultural dos seus membros.

Em Portugal, a pesca de pequena escala tem sofrido progressivamente um estrangulamento orçamental, num sector já previamente economicamente instável. A contribuir para isto está o facto de o sistema de remuneração destas pessoas ser diferente do da maioria dos trabalhadores por conta de outrem: os pescadores não têm um salário mensal pré-determinado, sendo que o seu rendimento depende directamente das vendas que concretizam no leilão de primeira venda que tem lugar em lotas geridas pelo Estado.

Uma das vantagens identificadas e extensamente discutidas dos esquemas de certificação ambiental de pescarias é a valorização do pescado, e expectavelmente a melhoria dos rendimentos dos pescadores. Um empresário que produz de forma mais sustentável ou mais «amiga do ambiente» tem geralmente um maior custo de produção. Deste modo, o valor de venda ao consumidor terá que sofrer um aumento para compensar. Nas pescas, tal valorização dos produtos, associada a uma melhor e mais justa distribuição da cadeia de valor (o que significaria que os intermediários não absorveram a maior parte do lucro), resultaria num aumento do rendimento do pescador. E esta é, a par de contribuir para a sustentabilidade do recurso pesqueiro, a maior vantagem que os rótulos ambientais apresentam para os produtores.

No entanto, e apesar destas vantagens, as associações e organizações que representam as pescarias de pequena escala são, na sua maioria, desprovidas de meios económicos e do grau de organização necessários para aceder aos esquemas de certificação ambiental dos produtos da pesca. Estes esquemas necessitam de um investimento inicial para fazer a avaliação biológica do recurso, assegurar a cadeia de custódia, melhorar as condições e as práticas da pescaria e suportar custos marginais. Entra-se assim num ciclo vicioso em que a pescaria não tenta uma certificação porque não tem meios financeiros e não tem meios financeiros porque não tem forma de valorizar o seu pescado.

Nesta tese, averiguou-se que selos ambientais ligados aos produtos pesqueiros e às pescas existem e quais podem ser aplicados à realidade portuguesa. Paralelamente, averiguou-se se as Organizações Não-Governamentais de Ambiente (ONGA's) poderão ter um papel nas candidaturas e implementações de rótulos ambientais aplicados aos
produtos da pesca de pequena escala em Portugal. Isto porque alguns dos mais rótulos ambientais reconhecidos (ex.: Marine Stewardship Council) resultaram de parcerias com ONGA’s (neste caso, o World Wildlife Fund for Nature) e porque estas organizações têm demonstrado uma tendência mundial para um maior envolvimento com os produtores na procura de soluções mais amigas do ambiente.

De 400 selos ligados aos mais diversos sectores, identificaram-se 27 que se aplicam a aquacultura e capturas no meio selvagem. Destes, consideraram-se 6 que têm aplicabilidade na pescaria artesanal de pequena-escala: Marine Stewardship Council, Friend of the Sea, Naturland, Seachoice, Happypeixe e Henry and Lisa Natural Food. Esta aplicabilidade justificou-se, por exemplo, porque estes selos não apresentam constrangimentos geográficos nem eram direccionados a apenas uma espécie.

Para limitar o âmbito da tese, escolheram-se duas pescarias: a pescaria do polvo de Santa Luzia, no Algarve, e as pescarias que operam no Parque Marinho Professor Luiz Saldanha, a partir de Sesimbra. A primeira permitiu uma abordagem de certificação pela espécie e a segunda pelo local de proveniência.

Foram estudadas as listas de critérios de cada ecolabel e as características de cada pescaria. Fez-se uma análise de onde resultou a distribuição e alocação de cada critério em 12 grupos: (1) sustentabilidade, (2) cadeia de custódia, (3) espécies-alvo, (4) arte de pesca adequada/impacto nos fundos marinhos, (5) princípio da precaução, (6) direitos humanos e laborais, (7) pegada de carbono, (8) gestão da pescaria, (9) by-catch, (10) armazenamento/embalamento, (11) uso de organismos geneticamente modificados e (12) direito internacional.

Simultaneamente, realizaram-se entrevistas direccionadas e estruturadas a agentes – stakeholders – com interesse e/ou opinião no/sobre o assunto. Estes incluíram a Docapesca, S.A., um Instituto de Investigação, uma ONGA, a Direcção-Geral dos Recursos Naturais, Segurança e Serviços Marítimos, representantes das associação de pescadores e armadores, representantes de associações de consumidores e comerciantes/distribuidores. Quando não foi possível realizar entrevistas, recorreu-se a literatura pré-existente quando isto não foi possível.

As entrevistas permitiram fazer uma análise das forças, fraquezas, oportunidades e ameaças (S.W.O.T) que se verificam na intenção de obtenção de um selo deste tipo, a qual suporta a conclusão, também referida na literatura, de que as vantagens que advêm de uma certificação deste género superam as desvantagens e os obstáculos. Assim, seria vantajoso para a pescaria artesanal portuguesa a obtenção de um selo ambiental. No entanto, os selos existentes não se adaptam completamente às particularidades das pescas de pequena escala em Portugal, pelo que os seus moldes precisariam de sofrer
algumas alterações de forma a poderem contribuir para a sustentabilidade deste segmento de pescas.

Relativamente aos casos de estudo abordados, concluiu-se que o selo mais adequado para a pescaria do polvo é o Seachoice, uma vez que foca o grupo que é o maior ponto forte desta pescaria: arte de pesca adequada e reduzido impacto nos fundos marinhos. As pescarias do Parque Marinho, por sua vez, beneficiariam da implementação de um selo construído de raiz com critérios adequados às características da pescaria. Uma comunicação utilizando o sistema vermelho-amarelo-verde ou bronze-prata-ouro seria mais indicado, uma vez que estas pescarias dificilmente conseguiriam cumprir todos os critérios impostos em simultâneo, devido a serem tão diversificadas.

O papel das ONGA’s foi averiguado e, à semelhança do que alguns ecolabels aconselham nas suas listas de critérios, com base em exemplos passados e recorrendo à literatura consultada, seria uma mais-valia a sua inclusão e associação com estes esquemas. A busca de uma certificação ambiental por parte de uma pescaria é algo que se coaduna com aquele que é o actual papel das ONGA’s e, por isso, traria benefícios para todos os stakeholders.

**Palavras-chave:** certificação ambiental, Portugal, pescarias multiespecíficas, pescarias de pequena escala, sustentabilidade de recursos pesqueiros
ABSTRACT

Sustainable fisheries and fishing practices have become some of the main topics in the international agenda. Ecolabels are considered an increasingly important tool of achieving fish stocks’ sustainability. Ecolabelling consists in labelling the products of fisheries that prove having fewer impacts on the marine environment. The existing schemes are mostly oriented to certify large, industrial fisheries, disregarding small-scale fisheries’ particular characteristics. Most of the Portuguese fisheries are artisanal and small-scale, and face critical obstacles in accessing certification schemes.

The aim of this thesis was to ascertain whether Portuguese small-scale fisheries can seek these certifications and study the role environmental NGOs can play in such process. The octopus fishery in Santa Luzia, Algarve (species-based) and the fisheries within Professor Luiz Saldanha Marine Park, in Sesimbra, (origin-based) were identified as case-studies.

A survey about the existing fish and fisheries ecolabels available was carried out and 6 were identified as potentially applicable to the two fisheries: Marine Stewardship Council, Friend of the Sea, Naturland, Seachoice, Happypeixe and Henry and Lisa Natural Food. The scope of each ecolabel was determined by dividing their criteria into 12 clusters. Key stakeholders were identified and interviewed. Ecolabelling advantages and disadvantages were systematized in a S.W.O.T analysis.

It is concluded that ecolabelling has concrete and valuable benefits for the two Portuguese fisheries. Seachoice is the most suitable ecolabel for the octopus fishery. The Marine Park fishery, on the other hand, would probably benefit more from a traffic-light or bronze-silver-gold communication.

NGOs were concluded to be crucial stakeholders in the process. Some of the actions these organizations can take are described (e.g. advertising, educating in schools and public aquariums, forming alliances with producers and distributors in order to influence their decisions).

**Key-words:** ecolabelling, Portugal, multi-specific fisheries, small-scale fisheries, fish stocks' sustainability
1. Introduction

1.1. Ecolabels for sustainable fisheries

Sustainable fisheries and fishing practices have become one of the main topics in the international agenda. As a way of increasing fish stocks’ stability and sustainability, the scientific community, government bodies and other agents (e.g. Non-Governmental Organizations (NGOs)) have been trying to reverse overfishing. This is where ecolabelling¹ appears – as a way of helping resources’ sustainability.

An ecolabelling scheme has to be attractive for both producers and consumers. If, on one hand, producers (or distributors) have to assure better practices while handling the fish and obtain a market advantage, on the other hand, consumers are encouraged to use their buying power as a tool to promote better environmental outcomes (Potts & Haward, 2007).

Despite being a market strategy, ecolabelling also focuses on management issues, primarily through the process of establishing compliance via sustainability indicators and the assessment of fisheries (Potts & Haward, 2007).

Certifying fisheries has a potentially valuable role to play in changing the manner in which biological resources are extracted from the sea by implementing changes in the behavior of participants across the supply chain (Kaiser & Edwards-Jones, 2006). However, it is important to acknowledge that this impact will always be proportional to the fishery’s impact itself. If certifying a small-scale fishery (SSF) that has intrinsically little negative impacts on the environment, the positive impacts resulting from the certification will be small as well. However, certifying SSF also has advantages and those will be identified throughout.

Certifying a fishery is attesting it met some pre-established and agreed criteria. A label tends to be granted on the basis of investigation into the ecological integrity of the harvest, including ecosystem considerations within the fishery (Potts & Haward, 2007).

Besides the discussion about whether ecolabels can indeed play a decisive role when it comes to guarantee a stock’s sustainability – that can be very controversial –, one thing cannot be denied: this issue has drawn attention to the fisheries sustainability problem and is a legitimate and positive way of placing the topic in the negotiating table.

¹ Ecolabelling and certification are used as synonyms henceforth.
1.2. Small-scale fisheries and ecolabels

Small-scale fisheries (SSF) have very particular characteristics and almost none of them is coincident with the large-scale fisheries’ (LSF) ones. Fishing is an extremely diverse activity that involves many different practices and scales of operation (Allison, 2001). Therefore, finding a comprehensive label that covers every need/topic can be rather challenging. In this section, two enormous sectors (both economic and social) are approached, so there is a need to separate them, characterize them and identify advantages/disadvantages and facilities/difficulties in ecolabelling fish products – specifically, ecolabelling fish products from artisanal SSF.

Actually, many SSF in Europe and North America have a large number of eco-friendly attributes but fall short of one or two of the sustainability criteria considered as essential by the certification body, so are not labeled (Kaiser & Edwards-Jones, 2006). Therefore, in reality, certification is only available for fisheries “that can” pay it or access it, which goes against one of the principles set by the FAO stating that an ecolabelling scheme has to “be non-discriminatory, by not creating obstacles to trade and allowing for fair competition”².

Consequently, this raises the question: are these schemes well adjusted to the fisheries universe? This will be discussed throughout.

1.2.1. Small-scale fisheries vs. Large-scale, industrial fisheries

Having in consideration the inherent differences between the numerous SSF fleets, these fisheries can generally be defined as “traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption”³.

In Europe, about two thirds of the small-scale fleet can be found in 5 countries: Greece (23%), Spain (11%), Portugal (11%), Italy (13%) and France (9%). In 2011, there were approximately 7700 small-scale vessels in Portugal, a decrease of more than 20% in the past 10 years (European Parliament, 2011).

The national fleet is constituted mainly by small vessels (about 91% of the registered vessels are less than 12 m long)⁴. This fishing gears used by this fleet, known as polyvalent, are mainly gillnets, trammel nets, pots, line, etc⁴. They fish close
to shore and usually no further than 6 nautical miles. The main captured fish resources are sardine, mackerel and horse mackerel, but the most valuable are octopus, hake and cuttlefish.

Market-based incentives, such as ecolabels, seem likely to become more widely adopted and could, in addition to other management measures, improve the management of export-oriented fisheries (Allison, 2001) (as happened with Marine Stewardship Council (MSC) implementation in Portugal), but also contribute to the economic sustainability for small, local fisheries.

Small-scale fisheries discard little to no fish and (with the exception of a few methods, such as dynamite) do not destroy benthic communities (Jacquet & Pauly, 2008). SSF also have the potential of being much more specific by having target-species. This is explained not only because they work in a much more restricted place but because are more appropriate for the area they operate in.

Despite SSF being potentially, and sometimes are indeed, more sustainable than LSF, they are disadvantaged because of their typical remoteness, lack of infrastructure, and marginal political power (Jacquet & Pauly, 2008). This duality and differences between LSF and SSF is schematically shown bellow (Figure 1). Figure 1 shows that SSF are at a disadvantage when competing for fisheries resources and market access with industrial fleets, mainly because the income source “subsidies” is very different for both fisheries. In addition, the number of people working in each of the sectors is inversely proportional to the subsidies income, so they have to distribute less wealth among a much superior number of workers. Nevertheless, there are obviously other things such as the money spent on fuel (that is much higher in LSF).
### 1.2.2. Small-scale fisheries difficulties in accessing ecolabels/certification schemes

More recently, small-scale fisheries have begun to face an additional barrier to trade from well-intentioned sustainable fisheries initiatives, such as ecolabelling. Jacquet and Pauly (2008) acknowledged that ecolabelling may provide good incentives for the improvement of industrial, high-volume fisheries, but cannot contribute much to the global improvement of fisheries management if it cannot serve the needs of SSF. And since these represent most of the fisheries worldwide, it is an obvious problem.
The discrepancy between LSF and SSF to access ecolabelling schemes may even lead to a point where only industrial fleets are certified as “sustainable”, leaving SSF selling the “unsustainable” products (Constance & Bonanno, 2000).

1.3. System of first-sale and social problems inherent to fishing
In Portugal, and with the system of first-sale auction stating that every landed fish has to go through the “lota” in which a reverse auction takes place and buyers have to be registered, the fishermen’s remuneration depends on the results of the fish sale. Unlike the majority of professions, fishermen do not have a monthly steady salary. This means that if a vessel has a bad harvest day, the fishermen end the day with no income and, for instance, spent money on gas. Due to this, the communities depending on fisheries are highly economically instable. Morte (1992) affirmed that the system of payment practiced in artisanal fishery is not an example of progress and transparency, being even a true constraint to its development (Fonseca, 2003).

This is one of the main points approached in this thesis. The fishing activity is highly uncertain and fishermen’s income is affected by too many variables. Portuguese fishermen have had their incomes progressively reduced and unsure due to prices’ stagnation or reduction in the first-sale auctions. Apart from this, the production costs are increasing, with particular relevance to the boost of fuel prices\(^5\).

This sector, in Portugal, in 2009, had a total production of 286 000 ton. The employment directly connected to the sector was 0.6% (fishing, aquaculture and manufacturing industry), however, the artisanal coastal fishing represented 70% of a total of 30 000 employers in the sector. Moreover, these fishermen’s average income was about 56% of the national average income (Cunha, 2010).

Actually, although it is true that sometimes the community poverty is induced by (or is directly related to) the overexploitation or depletion of the resource, the fact is that this knowledge has contributed to fail to notice other elements, such as social ones (Béné, 2003). This author stated that fisheries provide a never-ending number of empirical examples of different types of socio-institutional failures that lead or maintain poverty in rural communities.

Certification is one way of increasing fishermen’s revenue, thus having the potential to lead to less fishing effort and therefore increase a stock’s sustainability. Besides this, certification and its diffusing can contribute in a positive way to add social value to this profession.

1.4. Objectives and motivation
This thesis arises due to the global and, more specifically, the Portuguese slow but needed awareness concerning sustainability and the growing idea that the Oceans are, indeed, “ours” and therefore it is our responsibility to guarantee the next generations will have them in good conditions. Sustainability is a subject than can generate controversy but it is agreed that we are reaching the turning point when it comes to assure fish stocks perpetuation in fine conditions. This thesis aims to ascertain whether ecolabelling can be a way of assuring (or contributing to) such thing. Can ecolabelling be one of the answers we are looking for? More, can the Portuguese artisanal fisheries benefit from such schemes? Is there a way to implement these schemes, increasing the added value of the catch and thus the fishermen’s revenue?

This thesis aims to identify if there already are certification schemes and ecolabels in Portugal. If so, it intends to identify which ones can be adapted by the Portuguese small scale artisanal fisheries, what criteria lists are used to certify a fishery and what stakeholders should be taken into account when running for an ecolabel. At the same time, it is an objective to understand if there are any economic and social advantages (besides the environmental) to the producers and to the consumers. If so, it is expected to systematize which these advantages are.

Afterwards, it is aimed to ascertain which label (if any) is more suitable for each fishery, having in consideration their characteristics. It is hoped that, adapting the schemes to the Portuguese reality, they can be extended to other fisheries, besides the two we are studying.

The main research question can be put into: is there any applicability of ecolabelling given the Portuguese panorama of artisanal SSF?

Simultaneously, it is intended to evaluate if an environmental NGO can have a decisive role in an implementation scheme. Are NGOs main actors in this subject, helping the attribution of ecolabels and thereafter monitoring the fisheries? Can they help and disseminate ecolabelling among consumers?

Despite being clearly an ambitious theoretical work, the aim is to raise awareness and to start implementing, in a near future, these schemes if and when these are beneficial to stakeholders.

1.5. Relevance and scope of the work
Inserted in a Master's Degree in Marine Ecology, this thesis is relevant not only because it flees from the normal matters treated by ecologists, but because it reaches
a subject that is very dear to Portuguese culture and economy: the sea and its products.

Marine Ecology discusses several important topics when we talk about the study of marine biodiversity and its habitats. However, many times there is a tendency to neglect other topics that are as important as the previous: maritime space management, governance, fisheries’ and stocks’ management. The legislative basis assumes a special relevance when there is an attempt to implement measures that aim to promote a future based in the marine resources’ sustainability. That is why ecolabelling appears in a Master of Marine Ecology; because it was identified as a potential means to fight problems such as stocks’ management, definition of fisheries’ good and bad practices, pollution, fair trade politics and social appreciation of the profession.

This thesis focuses on applying ecolabels to Portuguese small-scale artisanal fishery because this is a traditional activity with several centuries of existence in Portugal. Being a coastal country, with an historical past connected to the sea and the Discoveries, Portuguese economy has always leaned and still leans on fish and fishing. Despite this, it is an aged working force with inherent and very characteristic problems (such as resistance to change and socio-economic issues). In the two case-studies, two different approaches were undertaken – area-based and species-based ecolabels. We focus on only two fisheries due to time constraints making impossible to embrace a wider universe. However, there will most certainly be other European countries with a similar fleet and fishing habits that can carry on this study; this topic can be something to focus on.

2. State of the art

The following section intends to provide an overview of the general panorama of certification and ecolabelling. Starting with a small introduction on ecolabels and what motivated their start, the aim is to introduce ecolabels applied to fish, fisheries and fish products, the relationship between “ecolabels” and the concept of “sustainability”, the consumers/market opening to receive these labels and a Portuguese case of success is also presented. Also, some of the NGOs and ecolabels partnerships’ history is presented.
2.1. Historical perspective of ecolabels and overall conducive process to certification

Ecolabels are “seals of approval given to products that are deemed to have fewer impacts on the environment than functionally or competitively similar products. The rationale for basic labelling information at the point of sale is that it links fisheries products to their production process”.

Ecolabels, ecoseals, green labels, green stickers, to name a few synonyms, have appeared in the late 1980’s and have been applied for various purposes. Ecolabels started to be applied to tourism, with the first ecolabel being the Blue Flag, launched in 1987 (Raiser & Simmons, 2008), preceding what is nowadays known as the “decade of the environment” or the “Earth decade” (Finisterra do Paço & Raposo, 2010). After this, the popularity of ecolabels increased due to the global increase in environmental awareness. Even when not called “ecolabels”, these products advertising some words like “recyclable”, “eco-friendly” or “low energy” were already expressing this eco-friendly movement (GEN, 2004). The conductive line of all of these certifications has been one: to assure consumers the product they are acquiring/utilizing was produced with the minimum environmental impact. Despite their differences in scope, coverage and organization giving the label, ecolabels are a way of promoting sustainable development (Kozak & Nield, 2010; Söderström, 2007).

Nowadays, there are more than 400 ecolabels associated with about 25 industry sectors. Because of this, a general definition for ecolabel is rather difficult (Kozak & Nield, 2010).

Ecolabelling allows consumers to make informed choices when buying products (Ward, 2008), therefore constitute an important way to assure resources’ sustainability. Besides, ecolabelled products are sought by environmentally aware consumers, whom aim to reduce their adverse environmental impacts trough their purchasing choices (GEN, 2004). The objectives of such schemes can be grouped in three main clusters: (1) protecting the Environment, (2) encouraging environmentally sound innovation and leadership and (3) building consumer awareness of environmental issues (GEN, 2004).

According to European Commission guidelines, there are five minimum standards to all schemes, regardless their scope. These are: (1) precision, objectivity and verifiable technical criteria, (2) independent third-party accreditation process, (3) openness to all operators, without discrimination, (4) the schemes must be properly

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controlled to ensure they comply with the minimum requirements and (5) transparency to every actor (specially consumers) (UNEP, 2009).

One can separate the certification schemes into three categories: first, second and third-party certification. In first-party certification, the individual or organization that supplies the product labels its packages with some type of assurance (whether about quality, practices, used materials, etc.). Second-party certification is the name given to a certification that is provided by a bigger company or enterprise holding the certified one (in general, a more specific, oriented company). Third-party certification is the type of ecolabel established by a private or public body which is independent of the company, producers, processes involved, chain of custody, distributors, retailers and sellers (Wessells, 2001). In this thesis, only the third-party certification is considered.

In third-party certification it is mandatory that the entity implementing the scheme does not have any relation to or interest in the process. First, the company seeking the label requests an auditory showing their interest in acquiring the label and then has to be evaluated against the set of criteria the certifier designed. This list is not tight and inflexible; it is negotiated between the interested parties – stakeholders – having in consideration the possibilities and the inherent characteristics of each fishery. If the company/fishery fills the criteria demanded by the certifier, it is allowed to display the label/seal in its products. It is also possible that the initiator accredits other entity as the certifier – accrediting body. This seems to be the most credible way of certification, because it is not provided by anyone with any kind of interest in the label thus ensuring transparency and, consequently, a higher trust and confidence to the consumers.

Ecolabels also have drawbacks. According to Lem (2012), some of the negative aspects of ecolabelling are related to the potential exclusion of producers from market access and act as a barrier to trade: this fear appears due to a legitimate concern related to the survival and profitability of non-certified companies. Plus, these schemes are less implemented in developing countries and this tendency should be counteracted in order to boost their development. Also, the author points out the fact that private certification schemes may duplicate, compete with or undermine public regulatory frameworks for sustainable resource management and, obviously, proliferation may confuse consumers (Lem, 2012).
2.2. The fishing industry, ecolabelling fish products and its relation to the concept of sustainability

In 1992, the countries that took part in the Rio Conference (United Nations Conference on Environment and Development) agreed to “encourage expansion of environmental labelling and other environmentally related product information programs designed to assist consumers to make informed choices” (Wessells, 2001). This led to the creation of market-based incentives in order to make consumers purchase such products. This partly responds to one of the main problem raised by ecolabels: ecolabelled products are necessarily more expensive than the conventional ones. Due to this, all ecolabelling schemes share the assumption that consumer choices are not just motivated by price and mandatory product information (e.g. composition; nutritional contents), but by the impacts a given product has had (Wessells, 2001). So, environmentally aware consumers may be willing to pay more for the product they think has the least impact on environment.

To identify the several processes that take place in the activity of fishing, the main tasks have to be separated. In order to do so, one has to identify which phases there are so that the procedures are as adapted as they can be. When it comes to fishing production itself, we distinguish four main stages: (1) equipment construction, (2) vessel operation, (3) electronic and communication equipment operation and (4) fishing gear construction and operation (Brazil Government, 2000). Moreover, it is of great importance to assure that, during the fish processing, after the harvest, every stage is carried out with minimal environmental prejudice. As a result, another four stages are identified: (1) selection, treatment and sanitization, (2) product and sub-product elaboration, (3) packaging, storing and transportation and (4) quality control and effluent monitoring (Brazil Government, 2000). The main idea behind this exercise of discrimination is to show that there are a lot of subsidiary activities that have to be taken into account when the aim is to implement a label with a wide range of criteria. This shows why the main ecolabel schemes are so “narrow”, i.e. embrace such a small number of criteria.

A certification scheme can be implemented in a process or in a product’s life cycle at almost any point. This thesis suggests two different times of a fishery cycle (Figure 2).
Applicability of ecolabelling fish products from two artisanal Portuguese fisheries

Figure 2 Diagram of the process from the moment of capture until the resource’s consumption, with representation of the phases the certification process can be implemented (adapted from Fonseca, 2003)

The diagram represented in Figure 2 shows where certification scheme can be allocated. When implementing a certification of origin, which labels the fish provenience, one should implement it in an early stage of the process (or chain of custody) (certification A). However, if the objective is to certify the fleet (as it happened with the MSC-certified purse-seined sardine), the scheme is applied in a later phase and to the vessels or fishing gear (certification B). The first option is suitable to certify an area, similarly to Protected Origin Designations (DOP) that are spread in the Portuguese market, and the products coming from that specific area. The second choice is more common in the fishing panorama and is also agreed to be the least complicated to implement and monitor.

United States Environmental Protection Agency (US EPA) defines “sustainability” as “everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony that permits fulfilling the social, economic and other requirements of present and future generations”.

MacMullen (1998) and Deere (1999) concluded that there were few ecolabels for fisheries, since most of them focused on other types of food (Wessells, 2001) (e.g. agriculture). Since then, several schemes have been developed as a way of promoting sustainable managed fisheries and highlight their products to consumers. However, it is very difficult to define sustainability in fisheries. This is reflected by the various labels

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one can find on the market, such as labels advertising “by-catch free” (related mainly to marine mammals), “not overfished stock”, “food chain not harmed” or “ecosystem friendly” (Wessells, 2001). Such variety of labels is more likely to confuse the consumer when trying to understand what sustainability really means, especially fisheries and fishing resources’ sustainability.

Certification schemes try to overcome this setback by focusing on a small number of sides of sustainability. Schemes including sustainability as a whole are very rare because they would have further effort on monitoring and criteria lists that are virtually impossible to meet. The perfect ecolabel would be the one that covered every trace of the concept of “sustainability”. Brécard et al. (2009) advance some paths we can follow in order to achieve this more inclusive concept of sustainability: kind of conservation, packaging, the level of fishermen’s income and the other potential substitutable goods. The authors suggest other variants that can be improved besides the normal, expected “ecological/stock sustainability”.

2.3. Ecolabelling fish products around the world and consumers’ preference

Ecolabelling is increasing in popularity. Nowadays, 27% of consumers in the Organization for Economic Co-operation and Development (OECD) countries can be considered “green consumers” (Brécard et al., 2009), stating they have a strong willingness-to-pay for ecolabelled products and strong environmental activism. Consumers identified that the two main reasons that constrain the purchase of ecolabelled products are personal income and information on a product’s environmental characteristics (Brécard et al., 2009). However, other study suggests that the two main reasons people buy eco-friendly products are related to considerations for the environment and/or their own health (Grankvist et al., 2004). This presupposes that consumers are environmentally aware. Despite these statements, one has to discern an eco-friendly attitude from eco-friendly behavior, which means that consumers are probably interested in paying attention to ecolabels and actually prefer labeled product, but their concern is not enough to make them really buy ecolabelled alternatives (Grankvist et al., 2004). However, this can be counteracted and, when provided with the information about the products’ environmental impacts, consumers tend to choose the eco-friendly ones (Grankvist et al., 2004).

Successful eco-labels may require that consumers pay a price premium in order to offset higher investments and operating expenses related to governance, technology and business process innovation (Hallstein & Villas-Boas, 2013). The willingness-to-
pay higher prices for ecolabelled food has been target of study, mainly applied to agriculture (apples, especially). However, and to some extent, the theory behind it can be applied to the fish products. These ecolabelled products are more likely to be more expensive than the ones conventionally produced. The issue is if the consumers are willing to pay for this difference, because if they are not, the State has to subsidize eco-friendly producers (Moon et al., 2002), advocating these producers cannot be prejudiced after trying to have a more eco-friendly attitude. However, these extra subsidies could easily generate dissatisfaction among the conventional producers. There is a measurable demand for improvements in environmental quality associated with primary sector production. Some consumers are indeed willing to pay higher prices for environmentally benign techniques (Moon et al., 2002) but that depends on other attributes of the fish (e.g. quality, brand, safety, personal experience and product promotions (Wessells et al., 1999a)).

In the case of ecolabels applicable to fish products, variety means that more attention is being paid to fisheries and stocks’ sustainability and that consumers have more choice, allowing them to form their own opinion and sharpen their critical sense. On the other hand, variety can confuse less informed consumers. It can create the false illusion that it is just a marketing strategy masking illegitimate reasons to raise prices (Washington & Ababouch, 2011). Despite being a real problem, there is an attempt to give credit to these schemes, by informing the consumers as much as possible about the path the product followed. Here the concept of “traceability” gains relevance. Traceability, or chain of custody, as is usually known in the fisheries, is “the ability to trace the history, application or location of an entity by means of recorded identifications⁹”. This brings us to the importance on assuring the chain of custody. It is important that the distributing chains – supermarkets mainly – make a continued effort to inform consumers about the products they buy. This creates the necessary tractability usually called “from cradle to grave” (Wessells, 2001).

In the United States of America, a large survey about consumers' preference was carried out and showed that, with sufficient market research and consumer education, certifying and ecolabelling some seafood products may be a possible long-run approach to promoting sustainable fisheries (Wessells et al., 1999). Besides this, in the USA, the main factors influencing the purchase of ecolabelled fish are (1) the species, (2) the region and (3) the product format. The authors warn to the fact that the study was performed in the USA and can only make assumptions about US consumers but these show an increasing tendency to purchase ecolabelled seafood.

When it comes to the demand for ecolabelled fish products in Europe, there is a significant relationship between the desire for ecolabelling and a given amount of seafood characteristics (such as freshness, geographical origin and wild vs. aquaculture) (Brécard et al., 2009).

Among consumers, it is relatively consensual that income is related to environmental awareness (the higher the income level, the more aware one is). This can be explained by the fact that these individuals can more easily pay for the marginal costs of a given product's certification (Straughan & Roberts, 1999).

It is important to know the target-audience and to carry an exhaustive study on this topic because, ultimately, these schemes' success depends on consumer acceptance. About the issue of the price, it is important to evaluate if the consumers are indeed willing to pay the extra costs because this fact can have a significant impact on the success of certification programs (Johnston et al., 2001).

According to Paço & Raposo (2009), the Portuguese “green consumers” are divided into three categories: (1) the uncommitted (36%), (2) the green activists (35%) and (3) the undefined (29%). The study was carried out through survey questionnaires. In theory, consumers of ecolabelled food would be the “green activists” and these are described as between 25 and 34 and between 45 and 54 years old, having the highest education level, working in more qualified jobs and earning higher incomes (Paço & Raposo, 2009). However, this study states that these consumers, despite their support for policies designed to improve the environment, do not usually manifest their concerns in actions: their majority rarely join environmentalist associations and they do not take part in policy-making. It is important to distinguish the verbal willingness the consumers show (for instance, while being interviewed or answering questionnaires) and the actions they practice. This shows that consumers have a real concern and recognize the environment as something worthwhile and that needs protection (so the Portuguese public understands the current problems the environment is facing), however that concern is not strong enough to make them change habits.

2.4. The MSC implementation in the Portuguese sardine purse seine fishery – a case of success

In January 2010, the Portuguese sardine purse-seine fishery became the first Portuguese fishery to be MSC-certified. Marine Stewardship Council is, nowadays, the
most known fish ecolabel worldwide\textsuperscript{10}. It is an independent non-profit organization that sets standards for sustainable fishing.

In Portugal, there were 99 vessels included in this certification, most of them represented by Anopcerco\textsuperscript{11}, which together account more than 95\% of the sardine landings in Portugal. This fishery, which was described as “sustainable and well-managed”, has existed for several centuries in the Portuguese coast\textsuperscript{12} and is an artisanal fishing gear. The MSC certificate covers all of the association's larger coastal vessels (over 9 m long) whose main activity is purse seining.

The majority of the sardine landings are consumed fresh in the country. Some of it is exported to Spain and the rest (approximately $1/3$) is used as raw-material by the canning industry\textsuperscript{13} that also participated in the certification consortium. Portuguese Institute for Sea and Atmosphere Research (IPMA)\textsuperscript{14} held a decisive role in this 3 year process, providing crucial, scientific data that lead to the decision of giving the ecolabel.

The MSC certification lasts for five years, after which it can be restored upon reassessment. The fishery suffers an annual auditory in which it has to prove that it keeps on meeting the criteria established in the beginning. The main reasons that led to the pursue of certification were (1) the pressure from the international markets that are increasingly demanding certified products and (2) the aim of increasing the value chain, i.e. by valuing the fish, fishermen and the industry add value to their product, increasing their income\textsuperscript{15}. In the Portuguese fishery, this is paradigmatic because this is a sector with many questions when it comes to the money distribution through the commercial chain.

Every intervenient that intents to get the “blue label” has to assure their chain of custody, which is one of the three pillars demanded by MSC\textsuperscript{16}. This is required in order to assure the traceability in every stage, assuring the practices are the least negative they can be.

However, the Portuguese MSC-certified fishery suffered a reverse when, in the 2012 auditory, ICES found that the sardine stock was decreasing and had fallen below

\textsuperscript{10}http://www.msc.org/get-certified/use-the-msc-ecolabel/why, accessed on 20\textsuperscript{th} September 2013.
\textsuperscript{11}Anopcerco is the National Association of Purse-seine Producers’ Organization, a non-profit organization that represents and develops purse-seine interests.
\textsuperscript{12}http://www.prof2000.pt/users/avcultur/gasparalbino/Xavega01.htm, accessed on 24\textsuperscript{th} September 2013.
\textsuperscript{13}http://www.msc.org/track-a-fishery/fisheries-in-the-program/certified/north-east-atlantic/portugal-sardine-purse-seine, accessed on 1\textsuperscript{st} August 2013.
\textsuperscript{14}IPMA is the State-owned laboratory which research scopes are fisheries, sea and atmosphere.
\textsuperscript{15}http://anopcerco.wordpress.com/certificacao-msc/, accessed on 1\textsuperscript{st} August 2013.
\textsuperscript{16}Marine Stewardship Council is based on three principles: (1) sustainable fish stocks, (2) minimizing environmental impact and (3) effective management.
the acceptable sustainable level and that appropriate harvest controls were not in place\textsuperscript{17}. Consequently, the monitoring body considered that the MSC criteria were no longer being respected, and the certification was suspended. This happened, in January 2012, and the sardine could no longer be commercialized displaying the label.

After this, it was the fishery’s responsibility to elaborate a Corrective Action Plan to get back on track. Anopcerco took only a year to put in practice these demands (e.g. to show irrevocable evidence that the stock had recovered and was above the minimum levels), so in January 2013, the certification was reinstated\textsuperscript{18}. In this process, several parties were involved: Docapesca, S.A.\textsuperscript{19}, IPMA, DGRM\textsuperscript{20} and ANCIPA\textsuperscript{21} and all of them made an effort to fulfill the commitment.

### 2.5. Ecolabelling and environmental Non-Governmental Organizations

Some of the most known ecolabels were started and launched by or in partnership with environmental Non-Governmental Organizations (NGOs). For instance, Marine Stewardship Council was established in 1997 by a partnership between WWF and Unilever – one of the world’s biggest buyers of frozen fish – and aimed to change the way fish were caught, marketed and bought (McHale, 1997). Initiatives like this seek to provide incentives to fishermen to create sustainable fisheries.

Dolphin Safe, another ecolabel that has great projection near the media and the public, was launched in the early 1990’s. It is mainly directed to the tuna fishing industry and the fisheries boasting it are accredited as not harming dolphins while capturing tuna. Dolphins and other cetaceans constitute most of these fisheries by-catches and this practice has been a scourge to dolphin populations worldwide. This is another ecolabel that was first sponsored by a north-American NGO. In this case, it was the Earth Island Institute and it approached sustainability in another way; it did not make any consideration about the sustainability of tuna stocks, but made a commitment that by-catches would contain no dolphins (Washington & Ababouch, 2011).

Supporting, launching or even sponsoring ecolabels can be one of the means environmental NGOs can act. Associating such actions to promotions or even

\textsuperscript{17} \url{http://www.msc.org/newsroom/news/portuguese-sardine-fishery-MSC-certificate-reinstated}, accessed on 1\textsuperscript{st} August 2013.

\textsuperscript{18} \url{http://www.msc.org/noticias/news/apescaria-portuguesa-de-sardinha-recupera-o-certificado-msc}, accessed on 1\textsuperscript{st} August 2013.

\textsuperscript{19} Docapesca S.A. is the public company that regulates the first-sale system of fresh fish products and auction centers.

\textsuperscript{20} DGRM is the Directorate-General for Marine Natural Resources, Safety and Services.

\textsuperscript{21} ANCIP (National Association of Marketers and Industrials of Food Products) is a canning industrials’ association.
fomenting public discussions and raising pertinent questions to relevant actors can and should be the role of NGOs.

With the collapse of fish stocks and increasing concern for the oceans, NGOs have launched a variety of seafood related social marketing campaigns, ranging from ecolabelling to the explicit boycott of certain products (Jacquet & Pauly, 2007).

Non-Governmental Organizations can associate themselves to organized boycotts of certain species when there is scientific data showing the stock is under pressure. Some NGOs accompany these ecolabels or actions with consumers guide to inform civil society (Washington & Ababouch, 2011). These guides can be elaborated in partnership with Aquariums (UNEP, 2009), since they are institutions that generally have people’s attention and sympathy and play an important role in educating the public. Also, some NGOs focusing on seafood problems are, within their power, discovering the gaps that avoid the efficacy of their programs (Jacquet & Pauly, 2007).

It is proposed that NGOs may consider changing their conservation focus to other ways, suggesting that NGOs could try implementing a “slow fish” movement, highlighting the need to decrease the speed of fishing, giving the stocks time to regenerate, and support small-scale instead of industrial by encouraging SSF to be associated (Jacquet & Pauly, 2007).

Non-Governmental Organizations could also launch environmental education campaigns to switch from the usual perception that seas are open to fishing with small exceptions (e.g., Marine Protected Areas (MPAs)) to the opposite side, that the seas should be closed to fishing, with small exceptions (e.g. fishing areas) (Walters, 1998).

It is not enough to have the name or the logo associated with the ecolabels; it is part of the NGOs actions to influence, inform and clarify citizens, with suitable language. NGOs can also exercise pressure near the retailers, fishermen and distributors pushing them to make smarter and, most of all, more sustainable choices. A large portion of the consumers’ choice is made by these early actors; the responsibility is not exclusive, so the preoccupation should start upstream, instead of downstream.

Most important, NGOs usually have a linking role, connecting three different worlds: fishermen, retailers and buyers. Representing the society, should have in mind the multiplicity of ages, educations, access to information, interests and purchasing power of the population. NGOs can take actions that ends on “shaming” the bad practices and the bad practitioners (Washington & Ababouch, 2011), bringing them to public. Public pressure can be a powerful tool when it comes to retailers and supermarkets that live from the image and from the confidence they inspire on their
clients. Nevertheless, this is a strategy that should only be applied when all efforts to improve retailers' procurement policies have failed.

The involvement of NGOs with these schemes should be encouraged firstly because NGOs, in general, have the trust of consumers. The Edelman's Trust Barometer\textsuperscript{22} report (2013) revealed that NGOs remain the most trusted institutions by the consumers in 2013, with their trust increasing from 58\% to 63\%, across the world. However, in Portugal, trust in most institutions has decreased with NGOs, Government and Media having the lowest levels of trust, while companies are more trustworthy to consumers\textsuperscript{23}.

Nevertheless, in Portugal, the third most reliable spokesman is the “NGO representative”\textsuperscript{23}, which indicates that these people, and NGO members in general, are well seen and trusted. “Academic/Specialist” and “Company technician” occupy the first and second places for most reliable spokesman.

In addition to this, by not being a governmental institution, NGOs do not have to apply extra taxes. Private or State initiatives necessarily imply extra fees and taxes that result in increasing the prices to the consumers.

Clear standards should be agreed between NGOs and industry players, and those standards should be represented by fewer labels. This way, the labels’ meaning is clearer through education programs initiated by NGOs and environmental protection agencies or other public agencies\textsuperscript{24}. If the market gets hectic with too many different certification schemes, the consumer is more likely to turn to non-labelled brands or not being able to distinguish between competing labels because, ultimately and for a layman, they all advertise the same (Potts & Haward, 2007).

United Nations Environment Programme (UNEP) (2009) advances another role NGOs can play when it comes to certification. In this report, is showed that some of the small-scale or developing country fisheries have started certification schemes on their own. When this happens, these schemes are funded by external donors and/or NGOs sources, without requiring any cost/benefit studies, which means less initial investment. However, in the current Portuguese context, this hypothesis is highly unlikely due to the economic crisis affecting the country.

Either way, NGOs are a crucial stakeholder; not only the ecological-oriented but also the sociological NGOs. Moreover, even with divergent definitions of sustainability

\textsuperscript{22} Edelman Trust Barometer performs an annual study about trust and credibility. It aims to analyze the public’s levels of trust in four entities: Government, companies, NGOs and Media.

\textsuperscript{23} http://gci.pt/2013/06/04/edelman-trust-barometer-2013-empresas-disputam-confianca-com-ongs/, accessed on 10\textsuperscript{th} September 2013.

\textsuperscript{24} http://www.fastcompany.com/1543957/eco-labels-do-they-really-matter, accessed on 25\textsuperscript{th} July 2013.
and with very different criteria lists, the majority of the labels we are dealing with recognize that NGOs should be involved in certification: e.g. both MSC and Naturland agree that NGOs should be a part of the process.

3. Methodology

The methodology used in this work aimed to get a general perspective about how to identify a given number of stakeholders and to gauge the feasibility of implementing a certification scheme for fish in Portugal.

The work started by ascertaining exactly what labels exist worldwide and are connected to fish, fisheries or fish products. After this, a “cleaning” was carried out by scanning, of these labels, how many had scope restrictions and could not be applied to the Portuguese SSF. Then, the choice of case-studies implied knowledge of the SSF fleet operating in Portugal’s mainland. Stakeholders’ identification, interview scripts elaboration and posterior interviews were undertaken next. These scripts were elaborated having in consideration each stakeholder field of expertise and in order to embrace the maximum of different opinions. These interviews were later extensively analyzed to extract the needed information and put into a S.W.O.T analysis.

The methodology was held in order to systematize and simplify future implementations and to serve as a theoretical basis to start from.

The steps were developed and adapted according to the real needs, so one can divide them as shown in Figure 3.

More detailed information about each step is provided below.

Survey of ecolabels applicable to fish products

Selection, analysis and comparison of ecolabels

Identification of case-studies

Clusters construction and comparison among ecolabels

Identification of stakeholders to consider for the implementation of a certification scheme

Development of scripts and interviews

Analysis of the interviews: overall and S.W.O.T analysis

**Figure 3** Diagram representing the methodology steps
3.1. Survey of ecolabels applicable to fish products

An exhaustive online research was carried out in order to compile information about all available ecolabels for fish products. Both national and international labels were considered for analysis and no attention was given to their scope (i.e. whether private or state-owned; for wild captured fish or aquaculture products; fresh, frozen or canned, etc). The only criterion taken into account was the applicability of the ecolabel to fish and its products. This part of the research was carried out online using online search engines and databases devoted to this subject.

3.2. Selection, analysis and comparison of ecolabels

A bottleneck methodology was applied in order to select the list of ecolabels for analysis. First, labels that could not be applied in Europe or that had geographic constraints not applicable to Portugal were eliminated. Following this, all labels certifying aquaculture products, industrial fishing or were oriented to species not targeted by the artisanal small-scale coastal fisheries were excluded. For instance, Dolphin Safe, an ecolabel that is mainly applied to tuna fishing, was excluded since the artisanal fisheries in the study do not target tuna. The procedure identified a limited number of ecolabels that were subjected to an in-depth analysis.

Following the selection procedure, the next step consisted in collecting information about several criteria. The criteria selection was based on the set of recommendations provided by each label organization. All ecolabels considered in this work have public documents (available online) that describes the criteria that have to be fulfilled in order to achieve certification.

3.3. Clusters construction and comparison among ecolabels

This way, the list of criteria was homogenized, since the labels are intrinsically very different from each other and at times subjective, hindering comparison. After the first selection of labels that could be used for Portuguese artisanal fisheries, their criteria lists were randomly compiled and no attention was paid to each criteria scope. After a detailed analysis of each criterion, it was decided to group them in clusters. Fictitious/artificial groups of criteria were formed and named clusters. These were grouped by similarity of subjects in order to facilitate their analysis. Then each criterion was allocated to a group. This number of clusters was not decided a priori but empirically, with the objective to ease the subsequent analyzes and the conclusion
making process. The suitable number of clusters with similar criteria turned out to be 12.

The next step consisted of evaluating each label to ascertain what they were oriented to achieve. To accomplish this task, a score system was applied counting how many criteria each label had included in which cluster. This showed the degree of importance each label gives to which cluster. This also allowed us to understand the labels’ coverage, i.e. whether their criteria were too oriented for only one cluster or, on the contrary, if they had a wider comprehension of sustainability and if other topics (such as social topics, for instance) were object of concern.

3.4. Identification of case-studies

Certification and ecolabelling are approached from two different perspectives: (1) species-based certification and (2) provenience/origin-based certification. These two approaches were identified as important and pertinent because the Portuguese fishing panorama is characterized as multi-specific (like most fisheries from Southern Europe/Mediterranean rim). This eases and makes it more practical to consider a restricted area instead of a fishery because the latter is more likely to have a multitude of fishing gears and target-species. The most common certification schemes are designed for larger mono-specific fisheries – typically from Northern Europe –, with lower levels of by-catches, making them more difficult to implement in the case of small-scale artisanal fisheries. This fact, however, does not invalidate trying to ascertain the applicability of certification schemes to small scale, mono-specific fisheries.

Two small-scale fisheries were chosen as case-studies. These had to be from mainland Portugal, had to be coastal (i.e. only operating near the shore), small scale and artisanal. This need was due to (1) the easy access to information sources, (2) these SSF are well studied, so the problems related to scarce information were reduced and (3) because this fleet segment is, generally, more economically strangled and have greater difficulties in accessing these big certification schemes.

The octopus fishery from Santa Luzia (Tavira) and the fishery operating in Luiz Saldanha Marine Park (Sesimbra) (Figure 4) meet these criteria and were selected as case-studies. The choice fell on these two fisheries because they filled all the previous requirements and had already been thoroughly assessed by the scientific community (both of them have been extensively studied and are common case-studies).

Similarly to the MSC-certified Portuguese purse-seine sardine, the octopus fishery is a good example of a gear that has low levels of by-catch (it basically only
catches octopus) and harms the environment at minimum levels. The presupposition that the octopus fishery would be relatively easy to certify also came from the fact that almost every octopus fished in Portugal is using “covos” (pots) and that it is an animal that is relatively easy to track due to its low mobility. Besides this, these pots are rarely abandoned or loss in the sea, being a more “sustainable” fishing gear. Plus, the Portuguese octopus had already been identified as a possible species for certification, by IPMA. Due to this, there was a lot more literature to lean on and more published work to start from. Besides, octopus is one of the most landed species in Portuguese ports, achieving the highest traded price in auction. In 2011, octopus fishing had a particular bad year due to the unfavorable environmental conditions, with its landings suffering a drawback of almost 32% comparatively to the previous year (INE, 2011). However, in 2012, octopus turned to its place, with the captures increasing by 33% (INE, 2012). Actually, from July 2012 to August 2013, octopus has had consecutively the highest price in auction centers (among the most landed species). This can explain why fishermen can potentially have more interest in certification and assuring its sustainability, since it is so important for the fishing economy.

The other case-study, the fishery from the Marine Park, was chosen giving that there is also a lot of available literature and that it is an area that has probably more attention and interest than any other maritime space in Portugal, being the scope of many studies (e.g. Coelho, 2011; Alves, 2008; Baptista, 2007). Giving that it is a Marine Park, with inherent restrictions and subjacent management rules (even if not applied perfectly), it is a relatively small area and where fishermen are fairly well organized led to the choice of this as a case-study. In this Park, there are only about 70 fishing licenses attributed and all of them correspond to artisanal SSF. This way, these vessels are eventually more sustainable, i.e. are less harmful to the environment, than others operating at a larger scale. More, all of the fishing gears allowed in the Park are contemplated in the Portuguese Law as least harmful (for instance, bottom trawling was forbidden as well as discards), the vessels are registered and there is tight control (the Park is obligated to promote an anchored fishing gears identification system).

Because of such reasons, it was decided that the fish products coming from this Park would more easily meet the criteria of an eventual certifier, so the work would be facilitated.

26 Resolução do Conselho de Ministros n.º 141/2005, Artigo 34.º, 1, alínea o).
27 Resolução do Conselho de Ministros n.º 141/2005, Artigo 34.º, 1, alínea n).
28 Resolução do Conselho de Ministros n.º 141/2005, Artigo 46.º, 2.
3.4.1. Santa Luzia octopus fishery

Santa Luzia is one of the most important fishing harbors in the Algarve for octopus (*Octopus vulgaris*, Cuvier, 1797) landings. The harbor is located within the Ria Formosa, near Tavira (Fonseca, 2003).

The vessels operating in Santa Luzia specifically target octopus and operate from Quarteira to the Spanish border. Fishermen use “covos”, a crock pot and more recently, also plastic traps, which is baited and functions as a decoy. Octopus gets in and cannot leave, being trapped. The vessels go out once per day and “covos” are baited with sardine or mackerel and released. These “covos” remain for one day in the sea, are recovered the next day and immediately baited again. However, sometimes, due to time and work constraints, the fishermen cannot recover the pots daily, so they remain in the sea for more than one day.

Octopus from Santa Luzia is landed with great freshness because the landing is fairly done on a daily basis and the fishing gear does not damage the cephalopod (Fonseca, 2003). Octopus is sold according to its freshness and weight, being forbidden the sale of individuals with less than 750 g. This is the average weight agreed to define when an individual is more likely to have achieved sexual maturity. Nevertheless, laboratory results have shown that size is not a reliable indication of an individual's age (Mangold & Boletzky, 1973). So, the tendency is to capture heavier,

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29 Portaria nº 281-C/97, de 30 de Abril.
bigger octopuses not only because of this but also because the weight/price relation is much higher when the individuals weight more than 1000 g.

Due to the detailed and generally consensual information about octopus and combining that this species can rapidly recover from diminishing stocks, this can be a serious candidate to certification.

3.4.2. Professor Luiz Saldanha Marine Park fisheries

Professor Luiz Saldanha Marine Park a Marine Protected Area (MPA) created in 1998 and is included in the Natural Park of Arrábida, which exists since 1976. In 1998, International Year of the Ocean, this protected area was enlarged and got its limits extended into the sea and the Marine Park was established.

This MPA has a particularity: it was the first MPA in Portugal having a management plan. Such management instrument sets guidelines to follow when implementing management measures and is an important tool that can guide the decision making processes. Despite being an obligation by Law, this plan only came into force in 2005 (Alves, 2008). Among the objectives declared in this plan, one can find “framing human activities through a rational management of natural resources, in order to promote simultaneously the economical development and the improvement of its residents’ quality of life, in a sustainable way.” This management plan names several objectives with different scopes. The mentioned is inserted in “sustainable development”, but there are others inserted in “biodiversity conservation” that can be contradictory. In case of contradiction, the plan is not clear about which ones should prevail. It is important to give fishermen room to develop their activity; not only because it is what provides them subsistence, but also because it is part of the community identity, having major meaning in the local habits, culture and tradition.

The establishment of the Marine Park was very controversial because its implementation was done using a top-down approach (Coelho, 2011). The implementation of the Park was carried out by the Government, trough policies, laws and regulations. This is the definition of governmental authority and was badly received by the local community that was not capable to accept such restrictions and rules given that had had a limited participation in the decision making process.

More, this implementation imposed some restrictions in a previously weakened sector. In Sesimbra, and particularly, in the fishing community, there are many families

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30 Decreto-Lei n.º 622/76, de 28 de Julho.
31 Decreto Regulamentar n.º 23/98, de 14 de Outubro.
32 Resolução do Conselho de Ministros n.º 141/2005.
33 Resolução do Conselho de Ministros n.º 141/2005, Artigo 2.º, 2, alínea b).
that depend on fishing and these measures caused a stir (Alves, 2008). The limitations vary within the Park area, according to its zoning scheme: total, partial and complementary protection areas.

The fishing gears operating within the Park’s limits are polyvalent, which means there are a considerable number of fishing gears and therefore the target-species also vary. This makes this fishery highly multi-specific. These fishing gears include mainly the following: bottom longline, jigs, pots, floating gillnets and trammel nets (Batista, 2007). Most vessels have more than one of these fishing gears in order to face seasonality and abundance of target-species. The most captured species in this area are cephalopods, flat fishes and small pelagic fishes (Batista, 2007).

3.5. Identification of stakeholders to consider for the implementation of a certification scheme

The identification and selection of stakeholders to interview was based upon the literature and set of labels’ recommendations, i.e. some ecolabels, in addition to describing a list of criteria for certification, also advance other types of recommendations, for instance: which stakeholders should/have to be involved, who to consult, the periodicity of monitoring, the timings. A wide research was carried out in order to identify all stakeholders with interest in certification, insight, contribution (in every aspect from scientific to social or economic) or that were directly affected by the consequences of such implementation. This stakeholders had to include representatives of fisheries investigation, resources’ management, marketing, trading, NGOs, fishermen associations and every pertinent/relevant agent.

3.6. Development of scripts and interviews

Each interview had 5 to 8 questions and the scripts were designed to not exceed one hour, in order not to weary the interviewees that were mainly in labor time. The scripts are displayed in Appendix I.

The interviews were conducted in a way that allowed the interviewee to give both their personal and professional/official opinions. The scripts were elaborated giving attention to the main valence of each agent. This means that different questions were adapted to different stakeholders, however most questions were common to all stakeholders. The survey included both generic and specific questions. Most questions were common questions because there was a conductive, common thought that we wanted to be transversal among the agents, despite their expertise.
The stakeholders selected and therefore the entities chosen for the interviews were:

- A Research Institute;
- Docapesca S.A., the public company responsible for the first-sale system of fresh fish products;
- Portuguese Directorate-General for Marine Natural Resources, Safety and Services (DGRM, in Portuguese);
- Representatives of fishermen (e.g. representatives of the Direction of the local fishermen and ship-owners associations);
- Consumers, represented by an association of consumers;
- Marketers, both larger (Grupo Sonae and Jerónimo Martins) and smaller business (Miosótis – biological supermarket);
- Environmental Non-Governmental Organizations (NGOs), represented by Sciaena Marine Sciences and Cooperation.

The scripts were specific in order to get the unique insight of each agent, given their specialty and given the reasons that agent was chosen. For instance, when designing the script for the Research Institute, we tried not to abandon the topic “sustainability of resources” and “impacts on the marine environment and communities” because the Institute was identified to give us a biological, ecological understanding. The same way, we did not ask questions about species’ ecology to Docapesca S.A. simply because it is not their area of expertise.

About the questions, an example of a common question is shown below:

- “What stakeholders do you think should be involved in a possible scheme implementation?” – This question allowed us to understand the importance the interviewee gave to other agents and how inclusive these attempts of obtaining an ecolabel should be, in their opinion.

Other questions were common for only two or three stakeholders, for instance:

- “Could the artisanal, small scale, coastal fishery benefit from ecolabelling? If so, what benefits do you consider the fishermen gain in having their fish certified?” or “What barriers to ecolabelling of fish products do you predict to exist, in Portugal?” – these questions were put both to the Research Institute and Docapesca S.A., because it was pertinent...
Applicability of ecolabelling fish products from two artisanal Portuguese fisheries

In the end, some time was allowed to exchange opinions between the interviewer and the interviewee, in an informal manner in order to get a more personal insight of the subject.
The Research Institute was selected due to its scientific knowledge about fisheries, stocks’ sustainability and ecolabels. In this institute, 3 researchers were interviewed given their fields of expertise: one whose work has been focused on Portuguese artisanal fisheries, other specialized in octopus and another that has been directly involved in the implementation of MSC in Portugal.
The selection of Docapesca and DGRM was done due to their knowledge about the economic, logistics and bureaucratic issues behind certification.
Fishermen were considered through the local fishermen and ship-owners associations. Given the obvious difficulty of interviewing a considerable number of fishermen, ship-owners and consumers to make a representative sample within a short time, it was decided that these stakeholders’ opinions would be comprised in their representatives. Obviously, there is some margin of subjectivity, however we considered the representatives gave us a general insight of what these stakeholders think about the subject. In this stakeholder, 3 associations were interviewed.
The marketers were the most diverse agent identified and we tried to embrace both local and large marketers. In order to do so, we interviewed a small supermarket which business is based on biological products and local municipal markets that sell fresh fish. The point was to see if there is a clear interest from these agents, since they are the ones that tie producers to consumers. Without their willing to purchase labeled products and to advertise those near the public, any attempt of disseminate these products collapses. So, this agent could not be disregarded.
At last, environmental NGOs were approached to represent the civil society and the ordinary citizen but also to ascertain if there is an interest in associating themselves to such initiatives. From these NGOs, Sciaena Marine Sciences and Cooperation Association was chosen, considering it as a good representative of the NGOs related to the maritime affairs. Sciaena has been involved in the conception, execution and providing support to projects connected to the marine environment. It aims to promote a sustainable exploitation of the marine resources, including the human development and considering Man as an important piece instead of an outsider or an offending agent. It has been very active in the Portuguese and European panorama of maritime affairs, so it was considered to embrace the current problems of this subject. Besides
this, Sciaena is also the NGO running PONG-Pesca, which is a platform that gathers 6 Portuguese environmental NGOs connected to fisheries.

The last identified stakeholder was the consumers. Given the evident difficult of interviewing a considerable number of consumers in order to have some statistical representativeness, this sector was considered through literature available online, namely research papers and official statistics about their preferences and purchase tendencies.

Every interview was recorded and took place between 7th May and 20th August. These interviews were later transcribed. For practical reasons, it was decided to maintain the personal names in anonymity. However, most of the host institutions to which the stakeholders belong are revealed because stakeholders were identified for particular reasons that are important to the conclusions of the present work. Still, the opinions patent in this paper should not be considered as the literal opinion of the institution they are attached to but representative. The interviewees were told they were representing the institution they work for.

3.7. Analysis of the interviews: overall and strengths, weaknesses, opportunities and threats analysis

Strengths, weaknesses, opportunities and threats (S.W.O.T) analysis is a tool used to draw a possible scenario. It aims to show in a more intuitive and synthesized way what are the current strengths and future positive outcomes of a project, and the current weaknesses and future problems that can arise. It is a powerful tool in decision-making processes. It weights the pros and cons when thinking about implementing a plan and is nowadays used as a basis when applying a wide variety of projects. It is a simple system to position or verify the strategic position of a given company in a given environment.

In order to identify strengths, fishery’s advantages towards ecolabelling schemes were identified. Weaknesses include the objective, direct disadvantages connected to obtaining an ecolabel. The topic of opportunities comprises the positive aspects with potential of aiding the ecolabelling growth and, finally, threats are the negative, hypothetical aspects that can potentially compromise an implementation success.

This type of analysis is very useful to identify action priorities, risks, to anticipate problems that are out of the company’s control and to predict good outcomes. The idea behind a S.W.O.T analysis is to reduce to the maximum the probability of having
surprises while implementing the project so it serves as a theoretical basis to construct contingency plans.

4. Results

The following section presents the results from the ecolabels analysis as well as the results from the interviews. Information is systematized in tables.

4.1. Survey of ecolabels applicable to fish products

Table 1 compiles all of the 27 labels (out of more than 400) that resulted from the previous survey. Every label that can be applied to fish or fish products is presented in this table with the country where they were launched and the constraints each of them faces and that later exclude them. It is noteworthy that two of them — Ocean Wise and Seafood Watch — were launched in partnerships with public aquariums and that the USA is the country with more labels circulating on the market.
<table>
<thead>
<tr>
<th>ECOLABEL</th>
<th>COUNTRY/ENTITY</th>
<th>AQUACULTURE</th>
<th>GEOGRAPHIC CONSTRAINTS</th>
<th>SPECIES-ORIENTED</th>
<th>LIFE CYCLE</th>
<th>OTHER</th>
</tr>
</thead>
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<tr>
<td>Aquaculture Stewardship Council</td>
<td>The Netherlands</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Certified Organic</td>
<td>Australia</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Southern Rocklobster</td>
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<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B Corporation</td>
<td>USA</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Best Aquaculture Practices</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bio Hellas</td>
<td>Greece</td>
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<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Bio Suisse</td>
<td>Switzerland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
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<tr>
<td>Derbio</td>
<td>Norway</td>
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<td></td>
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</tr>
<tr>
<td>Freedom Food</td>
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<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Friend of the Sea</strong></td>
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<td></td>
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</tr>
<tr>
<td>Green Tick</td>
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<td></td>
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</tr>
<tr>
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<td>Brazil</td>
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<td>Nordic Council of Ministers</td>
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</tr>
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<td>Ocean Wise</td>
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<td>✓</td>
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<td>Salmon-safe</td>
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<td>✓</td>
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<tr>
<td><strong>Seachoice</strong></td>
<td>Canada</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Seafood Watch</td>
<td>USA (Monterey Bay Aquarium)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Soil Association Organic Standard</td>
<td>UK</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**NOTE:** the labels marked in red indicate the ones chosen for in-depth analysis, given that none of their requirements exclude Portuguese artisanal fisheries, unlike all the remaining
4.2. Selection, analysis and comparison of ecolabels

Table 1 systematizes the gathered information. Each label is indicated with its country of origin and/or the entity that started it. The country a label is original from does not indicate, per se, any geographical constraint.

The labels marked with “Aquaculture” are the ones specifically designed to award fish farms that follow certain rules when it comes to animal welfare, non-use of antibiotics, for instance, assuring the best available/possible practices. Therefore, all of them were excluded due to not being applicable to these case-studies.

“Geographic constraints” seem to constitute the biggest barriers for the majority of ecolabels. Some of these labels have their action area restricted to their country or to a small number of countries (not including Portugal). Having no chances of being applied to the Portuguese reality, they were also excluded from the analysis.

There are some “species-oriented” labels that can be and are applied in Portugal. Dolphin Safe is a particular case. This label is currently applied to tuna-fishing, in Azores. It was discarded because it is specifically designed to certify tuna fisheries that do not hurt cetaceans during the harvest. Therefore, it is not appropriate for the two fisheries in this study. However, all of the other labels in this category are indeed species-oriented (e.g. salmon or lobster-fishing).

“Life cycle”-oriented labels are labels that do not certify the product’s quality, that do not necessarily assure the sustainability behind its production and do not make statements about the practices on board or about the stocks’ perpetuity. These labels – Green Tick and Nordic Swan – are focused on the product’s life cycle, assuring that the consumer knows exactly where the product comes from and where it is heading, even when not being used anymore. Because they do not certify fish or fish products, they are out.

The final category, “Other”, includes different scopes. For instance, B Corporation, and concretely CleanFish (the sub-company) encourages a partnership among “a group of fishermen, fish farmers, seafood distributors, chefs, retailers and consumers dedicated to positive environmental change” and aims to create transitional moments in seafood. Their work relies on advertising every stakeholder to make the most suitable and sustainable choices. Bio Hellas is a label that assures that the fishmeal and fishoil used in are organic. At last, both Ocean Wise and Seafood Watch work directly with restaurants and markets, ensuring that they have the most current scientific information regarding seafood and helping them make ocean-friendly buying decisions.

It also occurred that some labels had constraints of more than one order and such is also indicated.

This way, Friend of the Sea, Happypeixe, Henry and Lisa Natural Seafood, Marine Stewardship Council, Naturland and Seachoice were the only labels that did not have constraints, so could be considered as potentially applicable to the Portuguese small-scale fisheries and the case-studies, in particular.

4.3. Clusters construction and comparison among ecolabels

The final clusters were determined as follows:

- Sustainability
- Chain of custody
- Target species
- Adequate fishing gear/seafloor impact
- Precautionary principle
- Human and labor rights
- Carbon footprint
- Fishery management
- By-catch
- Storage/packaging
- Use of Genetically Modified Organisms (GMOs)
- International Law

It is noteworthy that there are clusters that comprise two different topics. When this happened, it was explained by the similarity between them or because their scopes or the arising consequences blended.

The clusters’ artificiality is also explained with the fact that some labels had a lot of extensively described criteria. For instance, “Sustainability” and “Precautionary principle” could have been joined in one cluster, however, every label made distinctions between the two concepts, so it made sense to divide them. The same happened when we separated “Target species” from “By-catch”. Because both of them had such specific descriptions, a distinction was made.

On the other hand, “Adequate fishing gear” could have been separated from “Seafloor impact” but the description given on the lists merged the concepts, even being used as synonyms sometimes. This is comprehensible because most of the negative impacts on seafloor are caused by trawlers, so it is related to the use of certain fishing gear, i.e. the use of fishing gear which impact on the seafloor.
“International Law” was the least mentioned cluster but it could not be joined with any other due to the lack of common characteristics with any other cluster.

Also, some of these criteria lists had indication of possible stakeholders. Marine Stewardship Council and Naturland were the only labels indicating eventual stakeholders to be involved in the process (Table 2).

Table 2 Stakeholders indicated on MSC and Naturland criteria lists

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Marine Stewardship Council</th>
<th>Naturland</th>
</tr>
</thead>
<tbody>
<tr>
<td>scientific institutions dealing with the respective type of fishery</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NGOs</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>organizations from the fishing and/or processing industries</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>government agencies</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>community or tribal entities/individuals</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>fishing authorities</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Table 3 Number of criteria each label includes in each cluster

<table>
<thead>
<tr>
<th>Label</th>
<th>S</th>
<th>CC</th>
<th>TS</th>
<th>AFG/SI</th>
<th>PP</th>
<th>HLR</th>
<th>CF</th>
<th>FM</th>
<th>BC</th>
<th>SP</th>
<th>GMO</th>
<th>IL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Stewardship Council</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Friend of the Sea</td>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Naturland</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Seachoice</td>
<td>3</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Happypeixe</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Henry and Lisa Natural Food</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend: S – Sustainability; CC – Chain of custody; TS – Target species; AFG/SI – Adequate fishing gear/Seafloor impact; PP – Precautionary principle; HLR – Human and labor rights; CF – Carbon footprint; FM – Fishery management; BC – By-catch; SP – Storage/packaging; GMO – Use of GMOs; IL – International Law
Figure 5 evidences that the cluster with more described criteria is “Sustainability”, followed by “Adequate fishing gear/Seafloor impact”. Of a total of 58 criteria considered by the 6 ecolabels, 12 were related to the fisheries sustainability and 10 related to the use of proper fishing gears and minimizing impact to the seafloor. On the other side of the spectrum, the “Use of GMOs” and “Target species” were the least approached/mentioned, with 1 and 2 criteria, respectively.

By analyzing Table 3 in a cluster-approach, it is possible to see that “Sustainability” and “Adequate fishing gear/Seafloor impact” are the most mentioned clusters by these labels, having 5 of 6 labels paid attention to them. The majority of the criteria are considered only by 3 ecolabels and 3 of the clusters (“Target species”, “Storage/packaging” and “Use of GMOs”) are only mentioned by one ecolabel (Friend of the Sea by the first and Naturland by the remaining). Following the traffic-light color system, the clusters can be ordered by increasing importance, if assuming that the more times a cluster is mentioned the more important it is (Figure 6).

Figure 6 Color system showing which clusters are less and more mentioned and, therefore, are less (red) and more (blue) important.
Figure 7 Composition of graphics A, B, C, D, E and F showing how much coverage each label gives to which cluster (the de-attached cluster is the one with more expression).

Table 4 Main scope of each label

<table>
<thead>
<tr>
<th>Label</th>
<th>Main Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Stewardship Council</td>
<td>Sustainability</td>
</tr>
<tr>
<td>Friend of the Sea</td>
<td>Target species and Human and labor rights</td>
</tr>
<tr>
<td>Naturland</td>
<td>Storage/packaging</td>
</tr>
<tr>
<td>Seachoice</td>
<td>Adequate fishing gear/Seafloor impact</td>
</tr>
<tr>
<td>Happypeixe</td>
<td>Sustainability</td>
</tr>
<tr>
<td>Henry and Lisa Natural Seafood</td>
<td>Sustainability</td>
</tr>
</tbody>
</table>
Table 4 shows the importance each label gives to which cluster and this is also presented, in a graphical way, in Figure 7. For instance, MSC (A) allocated 6 of its 9 criteria to “Sustainability” cluster, leaving the remaining dispersed in “Chain of custody”, “Precautionary Principle” and “International Law”. MSC criteria list is very extensive and demanding on describing “Sustainability”, corresponding to more than half of all criteria.

Naturland (C) approached almost every cluster, focusing more on “Storage/packaging”. From the 12 clusters initially created, Naturland seems to be the most inclusive, embracing 10 of them. It is followed by Friend of the Sea (B) that has criteria from 8 clusters. MSC (A) and Seachoice (D), on the other hand, are the most exclusive labels, focusing the importance in only 4 of the total of clusters. Seachoice allocated its efforts on “Adequate fishing gear/Seafloor impact” paying less attention to “Fishery management”.

Happypeixe (F) has more criteria included in “Sustainability” cluster and distributed the remaining criteria among “Carbon footprint”, “Human and labor rights”, “Adequate fishing gear/Seafloor impact” and “Chain of custody” equally. Similarly to MSC (A) and Happypeixe (F), Henry and Lisa Natural Seafood (E) emphasizes “Sustainability” more, approaching 4 other clusters in an equal way.

This way, one can systematize the information and giving the ecolabels a label, i.e. by knowing to which clusters the ecolabels give more importance, we can extrapolate what are their main concern (Table 4).

![Figure 8 Coverage of each ecolabel](image)

Figure 8 resumes this information, showing that Naturland is indeed the most comprehensive label and MSC and Seachoice the least (10 and 4 clusters of 12, respectively). By analyzing how many clusters each ecolabel approached, was
possible to draw this graphic. Figure 9 shows the order we get when placing the labels from the least to the most inclusive.

Compiling the information about what clusters which ecolabel includes and how the criteria are allocated into which cluster, it is possible to have an integrative scheme (Figure 10). This provides a more visual picture about cluster and criteria’s distribution.

![Figure 9 Crescent ordination of each label according to its coverage](image)

![Figure 10 Criteria distribution and ecolabels’ coverage](image)

**Legend**
- Marine Stewardship Council
- Friend of the Sea
- Naturland
- Seachoice
- HappyPeixe
- Henry and Lisa Natural Seafood

**S** – Sustainability; **CC** – Chain of custody; **TS** – Target species; **AFG/SI** – Adequate fishing gear/Seafloor impact; **PP** – Precautionary principle; **HLR** – Human and labor rights; **CF** – Carbon footprint; **FM** – Fishery management; **BC** – By-catch; **SP** – Storage/packaging; **GMO** – Use of GMOs; **IL** – International Law
4.4. Analysis of the interviews: overall opinions

The opinions collected during the interviews to 5 stakeholders were interpreted and systematized in Table 5.

Despite the scripts only included 5 to 8 questions, sometimes, one question led to another, so, when the interview showed availability, other questions (previously allocated to other interviewees) ended up by being discussed and answered. That is why most of the stakeholders answered unexpected questions.
### Table 5: Systematization of 5 stakeholders’ opinion about 10 questions

<table>
<thead>
<tr>
<th>1. Overall opinion on certification</th>
<th>Docapesca, S.A.</th>
<th>Research Institute</th>
<th>NGO</th>
<th>DGRM</th>
<th>fishermen associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

#### 2. Role of certification in the assurance of a resource’s sustainability

- **Mostly residual.** There are several uncontrollable factors that influence a stock’s sustainability. Certification can help especially because it presupposes a continued monitoring and this means that the probability of identifying changes is increased.
- **Related to the degree of commitment fishermen will have and how rigorous the scheme is.** In the case of octopus, its sustainability is not a problem, because it doesn't have a stability problem. These labels guarantee better management and more concerns with conservation; the tendency is positive.
- **It might have some impact; it won’t be at a worldwide scale, but at a more regional scale.** In the case of Portuguese fisheries there is an advantage of higher “sustainability potential”. Being multi-specific, it allows fishermen to change target species when a species is in a particularly bad year. These fisheries have a greater adaptability potential. If the scheme is well applied and the monitoring consistent, then the role won’t be as residual as it may seem.
- **The effect is mostly residual.** We have to be realistic. For instance, certifying octopus on a local basis won’t have impacts on the entire/national stock.

#### 3. Benefits from certification

- **Species’ appreciation, increase in the market value and assuring an amount of indicators that allow us to perpetuate the existence of the fish stocks.** Other benefits include a fairest trade and increasing fishermen’s income. With better practices and respecting the stocks’ regeneration period, fishermen will have more fish to assure their income, in the future.
- **Increase in fishermen’s income.** For instance, certifying octopus would have a great impact on the local economy.
- **The first and more immediate advantage is the obvious increase in income.** However, there would be the need for a better distribution in the commercial chain. In longer term, the certainty that the resource they depend on will most certainly have continuity and their activity is assured.
- **Valuing the fish and the pledge that we’re keeping up with the resource’s state.** It is a guarantee of long-term sustainability and brings attention for the need for effective management measures. It will value the job in a social way, fishermen lack recognition by the general public. This could be a way of showing fishermen are interested in the resources’ sustainability as much as we are.
- **Certification will increase fishermen’s income (because the fish would most certainly be sold at higher rates in first auction).** It would also contribute for the fishery and stock sustainability. Social appreciation of this profession is also a benefit. Nowadays, artisanal fishing is in great competition with aquaculture. This would be a good way to distance and boost artisanal fisheries.

#### 4. Disadvantages of certification schemes

- **High monetary costs.**
- **Bureaucracy and costs.** Plus, valuing a species can lead to a greater fishing effort and there is the need to not increase fishing effort nor inflict discrepancies. Valuing a resource may lead to a greater demand.
- **The biggest disadvantage is probably the costs.** Fishermen associations don’t have the quantity of capital needed to invest on a certification scheme. The State should invest financial capital on certification initiatives; maybe European funds should be allocated.
- **Sometimes, these schemes are seen as a farce.** People tend to look at them as marketing strategies.
- **Expensive and complex.** Fishermen associations don’t have the money to invest in certification. For MSC certification because the money came from several external investors, it was possible. Now, would have to appear inputs from other agents.
### Table 5 (continue)

<table>
<thead>
<tr>
<th>Docapesca, S.A.</th>
<th>Research Institute</th>
<th>NGO</th>
<th>DGRM</th>
<th>fishermen associations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5. Major obstacles to the implementation of certification schemes</strong></td>
<td>Need for a change in mentality. Fishing gears must become more sustainable, the used materials should be reconsidered as well as waste treatment and the fuel. Fishing gears can be an obstacle because of the specific characteristics of each gear, the great variety of species captured. Nowadays, with the economic crisis, there’s an urgent need to make money and make it fast, which can be a problem because these schemes usually require some time to show return.</td>
<td>Criteria lists that are too demanding and can’t be applied to a modest, small and aged universe that has deep difficulties in making alliances and associating themselves. The vessel sizes difficult carrying ice and vats aboard. Regarding octopus, probably the biggest constraint will be related with its transportation and storage. However, since the octopus fishing activity takes less than 10 hours, this would not be a problem. Handling the fish would also probably constitute a problem for a certifying entity. Another problem is the free access and the resource liberalization. Since anyone can fish in any area, the income wouldn’t necessarily be channeled to local fishermen. Multi-specificity and the multiplicity of gears (usually 5 or 6) can be a problem because we fish lots a species but in small amounts. Since these schemes are usually designed for mono-specific fisheries, it’ll be more difficult to adapt them. Another constraint is the lack of systematized knowledge and scientific data supporting any application to certification. A profound assessment is needed and this doesn’t exist. There is also a lack of how and specialists.</td>
<td>Multi-specificity is objectively a disadvantage but our challenge is to make this fact an advantage because it is our reality. Then, the pre-assessment work that is needed for schemes such as the MSC. MSC will hardly manifest interest in certifying a fishery that lacks pre-assessment. To add to this having the commitment and real involvement of every stakeholder in every stage of the process is difficult. Particularly for the case of octopus, their biology and short life-cycle could be a problem. Just because I don’t see advantage in certifying a species that doesn’t have perpetuity problems. Maybe certify the fishing gear and its selectiveness is more suitable. Free access to fishing grounds and the lack of unity amongst fishermen could be another problem.</td>
<td>Probable the difficulty of access to and dissemination of information. Fishermen are, by nature, suspicious and resistant to change, they’d have to see some gain in the process. If a small amount of professionals started to make profit, the entire community would follow. This is harder mostly because we’re talking about an elderly sector. An added difficulty is related to the problems inherent to applying the new CFP, specifically the discards ban in multi-specific fisheries. The new regulations didn’t take into account the specific case of the southern-European fisheries.</td>
</tr>
</tbody>
</table>
6. Criteria to be contemplated for a certification scheme

<table>
<thead>
<tr>
<th>Docapesca, S.A.</th>
<th>Research Institute</th>
<th>NGO</th>
<th>DGRM</th>
<th>fishermen associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above all, storage criteria, because that can value the fish in first auction. The fishing gear doesn’t constitute a problem; neither by-catch levels. The implementing organism would have to act along the chain of custody, not only at capture level.</td>
<td>Economical, social and environmental criteria should be contemplated. Environmental sustainability will only be achieved having these 3 pillars in consideration. Mostly, any criteria will have to be realistic (e.g. we can’t demand zero by-catch; no fishery will meet this standard). We have to understand that no certification is flawless and be willing to accept some errors. The tendency they show is more important. There will have to be a constant monitoring to assess the stock and the criteria should be incisive in that field. Ideally, we should have comprehensive criteria, but, given our fleet, we have to leave some room for each fishery adapt to their reality.</td>
<td>Economic and social factors should be contemplated. It has to be both environmentally and monetarily sustainable.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Labelling fish from a Marine Protected Area (MPA): problems and advantages

<table>
<thead>
<tr>
<th>Docapesca, S.A.</th>
<th>Research Institute</th>
<th>NGO</th>
<th>DGRM</th>
<th>fishermen associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any problem could be solved by explaining to people that a MPA does not exclude fishing, but makes fishermen be more aware, more restrictions and have better practices are put in place. It matters to demystify this idea. Actually, since these fishermen have so many limitations, we can explain that this is a way of giving them some return for their efforts, since they can’t increase profit through quantity of fish they do it by quality.</td>
<td>No problem if care is taken to explain to people that a MPA is not an exclusive and restricted zone per se. This can even help with clarifying to people what a MPA truly is. We have to update the concept of MPA and of Ecology. The ancient concepts don’t apply anymore.</td>
<td>No problems. It would be a way to explain to people that a MPA is a protected area, that has total protection areas, but where fishing is legal, within certain parameters and with certain restrictions.</td>
<td>It would only be an advantage. Particularly in Sesimbra, those fishermen have been severely harmed with the restrictions. This could be a way of giving them some return for their efforts. The establishment of this MPA was very controversial and fishermen weren’t heard, so this could be a way of redemption.</td>
<td></td>
</tr>
<tr>
<td>8. Fisheries which could obtain a label on a medium term</td>
<td>Docapesca, S.A.</td>
<td>Research Institute</td>
<td>NGO</td>
<td>DGRM</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Probably octopus (on a national basis), because it has already been discussed. Any fishery that has a defined target-specie</td>
<td>Octopus because it is already extensively studied, has very specific fishing gear, having almost no by-catch. Black swordfish (<em>Xiphias gladius</em> (Linnaeus, 1758)) has been discussed but by-catch sharks.</td>
<td>Probably octopus because some of the pre-work is getting done. Anyway, the certification should be done towards a species that is captures in a specific way. Not only the species and not only the fishing gear.</td>
<td>Maybe black swordfish, which seems to be well positioned when it comes to the pre-assessment, despite the by-catch. The solution is in certifying a mono-gear fishery, instead of lots of fishing gears. Perhaps certifying bivalve mollusks and Berlengas’ goose barnacles (<em>Pollicipes pollicipes</em> (Gmelin, 1789)).</td>
<td></td>
</tr>
</tbody>
</table>

| 9. Stakeholders’ interest in participating in a certification scheme | Docapesca shows availability and interest in the matter and can help by advertising the products, giving logistic support or information and sensitization campaigns. It is assumed as a dynamic agent, spreading information. | Sciaena reiterates its interest in associating themselves to ecolabels, with certain caveats and ethical questions to have in consideration. It states it’s a perfectly natural step, a reasonable tool. Can help the implementation showing the fishermen that, despite some restrictions that come from certification, they can obtain a fairest price for their work. NGOs can have a role not only in advertising and advising sustainable consumption but, upstream, in gathering with other stakeholders. | DGRM aims to improve fishermen life conditions, value the fishing products and, of course, assure a better resource management. DGRM wants to be part of the discussion about certification; it has the power to gather people, to disseminate the message and can give technical support, in cooperation with IPMA. |

| 10. Perception about which stakeholders should be implied in the process | - Docapesca - producers’ organizations - fishermen associations - marketers - manufacturing industry - universities and scientific bodies - NGOs - local State authorities - DGRM (both on resources’ management and veterinary accompaniment) | - Docapesca - IPMA - fishermen associations - NGOs - tourism organisms - distributors - local State authorities | - Docapesca - local State authorities - NGOs - fishermen associations - scientific bodies - tourism organisms - marketers’ associations - restoration - distributors - DGRM | - producers’ organizations - scientific bodies - NGOs | - regulator agents - scientific bodies - local State authorities - fishermen associations |
Docapesca, S.A.

To the representative of Docapesca, certification is a topic to have into consideration in the future, also referring that initiatives like this are positive for the company because they contribute to their activity’s development. The interviewee from Docapesca strongly emphasizes that certification presupposes constant monitoring. If a species or a stock is not monitored without certification, by having this scheme implemented, the probability of identifying changes (good or bad) is much higher. And that, says the interviewee, can only be good. It obviously does not assure the stock’s sustainability but can surely help detecting problems.

The interviewee from Docapesca points out that the fishermen need a certain level of revenue. If they sell their fish at low prices, they will necessarily raise the fishing effort, compromising the stock’s sustainability. The market absorbs everything (whether legally or by parallel ways). She is of the opinion that certification would be positive solely from the biological point of view, but since fishing is an economic sector, such is not enough, so there is a need to create market-based incentives.

When asked about ways to guarantee that a certain fish is actually captured in a given area (e.g. the Marine Park), the interviewee from Docapesca suggested the use of Geographical Positioning System (GPS), since these small vessels do not have logbook, and control and policing is weak. The interviewee clarifies that, nowadays, the local markets already have labels in place that inform the consumer that the fish he is buying has been traded in an auction centre. It is called CCL (Proof of Purchase at Auction Centre) and it indicates where the fish was captured (e.g. Northwest Atlantic and Portuguese Economic Exclusive Zone (EEZ)). The next step, if implementing a scheme to an MPA, would be to indicate the area, in this case, Luiz Saldanha Park. Obviously, in order to turn this into trustworthy information there would have to be on board monitoring, but the Docapesca interviewee emphasizes that, since these schemes are not obligatory, the fishermen would be, from the start, much more receptive to comply with rules (for instance, area limitations).

The interviewee from Docapesca thinks that these schemes would be positively received by the fishing communities because they have an inherent feeling of valuing the local fish. Fishermen are very traditional and connected to their home-town, so have a natural tendency to appreciate what comes from their home-town or what they capture. This, according to Docapesca, can be a breaking-point when presenting the idea to the communities or associations.
When asked about the role NGOs can play, or if they have a role to be played, the interviewee from Docapesca responds positively, considering that NGOs have been showing an increasing approximation to reality, leaving the old role aside, back when they were much more theoretical and fundamentalist. The interviewee refers that it is important that NGOs go to the field, talk to the fisherman and give alternatives, not just restrictions. In the interviewee’s opinion, it is mandatory that the speech is adequate and, because NGOs are not labeled as «money-makers», can have a positive impact on the fishermen’s opinion.

**Research Institute**

The Institute’s researcher states that ecolabelling intrinsically means that fishermen will have a greater income and that, given the Portuguese reality, is decisive and should be supported. The researcher also thinks that, given that Portugal is so behind when it comes to certification, it would be easier to start by certifying species, instead of fisheries. It is thought that a wide knowledge of the community, the fishery and the potential consumer is needed, to start. Certification should be applied to fisheries that capture large amounts of a same species and that is not the case of artisanal fishery that is extremely polyvalent.

The interviewee refers that since these vessels are no longer than 9 m, it would be very difficult to impose them the transport of freezing cases, without compromising their safety. Here, the researcher says, there is room for investigation and nautical engineering: discovering new ways of fishing and storage.

About certifying octopus, the researcher says that protecting species that are inherently abundant does not make sense. If we want to certify species-oriented and have this conservationist preoccupation, then have to choose a species that is not as profuse as octopus. So the certification topic, when it comes to octopus, does not have much to do with protecting these animals. Moreover, since octopus is a very opportunistic species, protecting it does not tell us that we are doing the best for the environment, since these animals usually proliferate when the environment is shaken and impaired.

**NGOs**

The interviewee from Sciaena places the organization as a modern NGO, an organization that, despite protecting the marine environment, tries an inclusive, integrative approach. He does not see the marine environment without the human action. It is important to understand the human being as a part of the environment and
that its activities result in impacts. The alternative is trying to minimize such impacts. The interviewee approaches ecolabelling as a way of telling the fishermen that they have some restrictions due to the stocks’ vulnerability, but NGOs can help them to achieve a fairest price for their work.

About the partnerships between NGOs and ecolabels, the representative from Sciaena gives the example of WWF that launched MSC. He states that, meanwhile, MSC turned into a business model, becoming autonomous like most of the most known ecolabels, affirming that this may be the main reason why these partnerships, in general, break. MSC, it is said, despite this, has environmental concerns, has a lot of questions related to the environment but evolved to a business that aims to reach the entire world. However, the interviewee says, Marine Stewardship Council is not the model to apply to the generality of Portuguese fisheries. It turned out very well with the sardine but because its characteristics are very different from the majority of our fisheries.

When questioned about whether there are conflicts of interests, the opinion is that it all comes to what role the NGO play in the scene. The interviewee thinks there is no problem in associating Sciaena to these schemes because any profit will be (or should be) channeled for the fishery and the community’s improvement and development. If NGOs can help this process, there is not any problem. The interviewee admits that the NGO credibility can always be questioned but that happens regardless the topics we discuss. Actually, he states, environmentalism has been evolving in that direction. NGOs nowadays do not have a decisive role on letting the public know the environmental problems; media does it in a more diffuse manner. NGOs now are needed to act, to take part in the problems’ resolution (certification or other).

Besides, it is agreed that making profit is not a bad thing. Fishermen should have their profit increased. Every fishing stakeholder agrees that the money is wrongly distributed in the chain of value; the biggest sum of money does not rest with the fishermen and should be simply because they have the hardest work. Sciaena does not intend to demonize the intermediates, but the truth is they absorb most of the fishing sector income.

The representative thinks it is important to point out that conservation and ecology do not have to turn their backs to profit and income; and that we need to think it as a sustainable development instead as ecology per se.

Sciaena’s representative prefers communication trough traffic lights, instead of the regular certification communication. It considers that it would be easier to follow and perceive. It states that it is very important that every stakeholder feels represented,
because that will encourage them to respect the rules certification imposes. Besides, the representative says that a change needs to happen in the sector; if the sector believes in itself as an economical sector, attempts like this should slowly become more welcomed and applauded.

**DGRM**

The DGRM interviewee approves initiatives like this and tells they are important to show European Union and conservationists that we are committed to achieve a sustainable ocean, better fishing practices and that we are trying to meet Maximum Sustainable Yield (MSY). The interviewee sees an advantage in certifying Berlengas’ barnacles because it is a small area, it is very well monitored and any attempt to break the Law should be rapidly identified (since it is an MPA).

About NGOs, the DGRM interviewee thinks they can have an important role on agglutinating wills, being mediators and facilitating the communication and the process itself. This interviewee, however, warns that, given the present difficulties the Portuguese consumers are living, schemes like this may not have much interest because people have other concerns and paying more for a same product just because is “eco-friendly” may be hard.

About how easy can be to a label to assure a product’s traceability and its provenience, the DGRM representative says that can be tricky, because the fishermen allowed to fish within the MPA limits are also licensed to other areas. So, she finalizes, we would have to demand them to keep the fish separated and that, in small vessels, can be a challenge.

**Fishermen and ship-owners associations**

Representatives from these associations say this topic is pretty much unknown for the average Portuguese fisherman. The only ecolabel they have heard about, and do not know much about, is MSC due to the sardine recent certification.

About the receptiveness these products can have in the market, the opinion is that, given the economical constraints most people live in, the public will not be open to pay more for these products.

They are sure certification can result in an income increase; however this is not assured from the start. Fishermen will have to be open to live in this uncertainty for a period of time. Then, it is also needed that the certification costs and an eventual
obligation of diminishing the fishing effort do not result in an income decrease. This, they consider, has to be taken into consideration.

When questioned about if fishermen are willing to change their habits if that means their activity will be more appreciated, associations interviewees respond it all comes to what profit the fishermen will gain. Fishermen are, above all, entrepreneurs and business men. If, even being eco-friendly, their work is not fairly rewarded, fishermen will not comply with the rules. If, obviously, they see their income increase and, allied to that, they know they are being sustainable, they will most certainly do what they are asked to, the interviewees say. For them, it is important to emphasize that a fisherman can hardly have another job, so he is the first to be interested in his activity’s sustainability.

Another representative considers that Portugal has the best fish, due to the Atlantic Ocean characteristics, and that this has to be recognized worldwide. So she considers that certification is, with no doubt, a step in that direction. It is said that their associates have been trying to carry ice during the harvest, but that is not easy when they are dealing with 6-7 m vessels. Nevertheless, the interviewee says that, favouring them, they have the fact that they stay in the sea for little time so when the fish is landed, it has extreme quality. Everyone, the interviewee states, is aware that the fishing future will be based upon the fish freshness and quality, to fight aquaculture.

The association representative strongly emphasizes the need to socially appreciate this job; a change of mentality is needed, even giving the example that 

cookers are nowadays chefs and fishermen have to be seen as noble as any other employees of the primary sector.

The interviewee highlights that there has to be a co-management, between Science and the fishing professionals. They share the opinion that there should be a fund that allowed fishermen to stop fishing a stock in order for it to rest. Since these funds do not exist and people have to subsist, the stocks are continually explored, they state.

Associations’ interviewees reiterate that associations are a crucial intervenient in the process and that its success depends on them. Fishermen will only listen to their representatives, so associations need to be heard and have to have a word. After this, the communications and impositions must be done trough them, otherwise, the process stops. They consider that the action would have to be done in phases and including the community.
Marketers

Local marketers were covered by visiting the local, more traditional markets that sell fresh fish. These interviews had different conditions because these women were in working hours and were not much receptive to be interviewed. Despite this, these women were very suspicious and apprehensive about the scope of the questions, which made it harder to get objective, straight answer.

Not one interviewee had any knowledge about ecolabels. Only one of them had heard remotely about the sardine certification but had never seen this blue label on the market. There were a lot of confusion between these ecolabels and CCL, indicating the source, if wild or produced in aquaculture and the fishing gear. The fish these women sell is mostly from Portuguese SSF but there is also a great quantity that comes from abroad (mainly perch and gilt-head bream) and other part is from aquaculture. A small part comes from industrial fishing. These women seem very sure that the environmental practices do not matter to the consumer and point the economic crisis reason. The sellers have never done any effort to purchase labeled fish and say the average consumer does not ask about its provenience and is not worried about the practices aboard.

Miosótis, the other marketer facet, is a small biological supermarket. It only sells food that has been biologically produced and stored. The products' origin is mainly national and only a small number is foreign. They only sell ecolabelled fish (and shellfish), mostly MSC – sardine –, Friend of the Sea and Dolphin Safe – tuna. The national fish products have a certification called Sativa\textsuperscript{35} that is an internal frame of reference provided by a partnership between Miosótis and the fishermen from Sesimbra. They make every effort to assure their clients every product is ecolabelled following a biological, harmless way of production and are mostly willing to pay the higher prices. They are sure that the fish is caught only by “sustainable”, small vessels. For instance, most of the fish is caught by line, “covos” or purse seine. The shellfish is captured by hand, without gears that harm the substrate. They demand the retailers to assure them the traceability and sustainability of the production process. For Miosótis, is very important to assure that the client is informed about the fish provenience, how it was caught and that fair price and trade are practiced.

About its clients, Miosótis says they have an environmental consciousness and awareness above the average. The fish sold in the store is not the same trough the year, it respects its seasonality. The clients are aware the store does not sell the fish

\textsuperscript{35} Sativa is a Portuguese certification enterprise working mainly in the agricultural industry. It certifies commercialization processes to ensure traceability.
they want, but the existing one and know that this is the reality about natural resources. The public is very heterogeneous (age, gender, academic education) and have to be people with a purchase power above the Portuguese average. It also considers that the elderly prefer the store because it’s more familiar and reminds them of what commerce and trading used to be.

The larger supermarkets chains were not contemplated in this study due to miscommunication and lack of availability to be interviewed. The institutes representing consumers were also not included for similar reasons. Consumer’s preference was ascertained using literature, throughout the thesis.

4.5. Analysis of the interviews: S.W.O.T analysis

The S.W.O.T analysis shown beneath (Table 6) includes every strength, weakness, opportunity and threat identified by the stakeholders.

Table 6 S.W.O.T analysis systematizing every collected opinion

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>- species’ appreciation</td>
<td>- monetary costs</td>
</tr>
<tr>
<td>- fairest trade</td>
<td>- excess of bureaucracy</td>
</tr>
<tr>
<td>- fishermen’s income increase</td>
<td>- criteria complexity</td>
</tr>
<tr>
<td>- help the biological sustainability</td>
<td>- too demanding for fishermen’s associations that live with</td>
</tr>
<tr>
<td>- social valuation of the job</td>
<td>limited human and financial resources</td>
</tr>
<tr>
<td>- give information and form fishermen to</td>
<td>- fisherman’s resistance to changing habits</td>
</tr>
<tr>
<td>become more sustainable with their practices</td>
<td>- free access to marine resources</td>
</tr>
<tr>
<td>- multi-specificity</td>
<td>- multi-specificity</td>
</tr>
<tr>
<td>- Portuguese consumers are responsive to</td>
<td>- little pre-work done (lack of scientific data)</td>
</tr>
<tr>
<td>fish and fish products (cultural reason)</td>
<td>- little opening from the Portuguese consumers to support</td>
</tr>
<tr>
<td></td>
<td>the margin costs of certified food</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>THREATS</th>
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<tr>
<td>- monitoring and assessing the stocks</td>
<td>- possible increase of fishing effort</td>
</tr>
<tr>
<td>(scientific data collection)</td>
<td>- contribute to disseminate confusion about ecolabels among</td>
</tr>
<tr>
<td>- draw attention to the matter of fisheries and</td>
<td>consumers, by adding a new one</td>
</tr>
<tr>
<td>marine stocks’ sustainability</td>
<td>- loss of credibility in these schemes, if wrongly</td>
</tr>
<tr>
<td>- let the general public know how a MPA</td>
<td>implemented</td>
</tr>
<tr>
<td>functions</td>
<td>- possibility of fooling the system and end up certifying</td>
</tr>
<tr>
<td>- involve NGOs in the discussion</td>
<td>fish that did not comply with the specifications</td>
</tr>
<tr>
<td>- open the way to certify SSF (proportioning</td>
<td>--------------------------------------------------------------</td>
</tr>
<tr>
<td>a basic criteria list adapted to fisheries</td>
<td>--------------------------------------------------------------</td>
</tr>
<tr>
<td>that are not usually contemplated by these</td>
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<td>schemes)</td>
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5. Discussion

5.1. Analysis and comparison of ecolabels applicable to fish products

From 400 ecolabels, only 27 were identified as applicable to fish and fisheries, clearly showing that this sector is not covered as much as sectors like agriculture, forests, biological production and energy. However, this also reflects the slow but growing attention that has been paid to the seas and fish stocks, especially since the International Year of the Ocean, 1998 (Wessells, 2001). From these 27, 6 were identified as having applicability in the Portuguese context of artisanal SSF.

When analyzing each ecolabel and their restrictions, it is possible to see that geographical constraints seem to constitute the biggest problem. This can be explained by the difficulty on launching an ecolabel that has a high geographical coverage. Launching a label limiting its area extent eases the implementation, the monitoring processes and the policing. Besides, fisheries from the same area are more likely to have similar characteristics, so this can help when designing the criteria lists.

The separation of criteria and posterior inclusion in clusters turned out to be more challenging than expected. By analyzing the criteria lists for each ecolabel, it was possible to see the complexity of ecolabels and partly explain why these ecolabels are so hard to implement and disseminate.

Even after FAO released its guidelines for ecolabelling fish products (FAO, 2009), in an attempt of standardizing at a minimum level these schemes, each label has its own depth and objectivity. For instance, some labels are as vague as “The fishing gear has to be sustainable”. Other labels are much more detailed about fishing gear characteristics (length, mesh sizes, number of hooks, lines, time on water, etc) without ever mentioning the word “sustainability”. This illustrates the level of subjectivity we had to deal with. It is not obvious how to separate the criteria even because sometimes they blend. Maybe ecolabels could benefit from dividing their criteria lists in major clusters perhaps suggested by FAO or other regulating entity. Ecolabels, and ultimately the consumers, could benefit from transparent, homogeneous, standard information because it would prevent confusion and misinformation.

The identified clusters were useful to understand the orientation of each ecolabel, even if they do not advertise it or even if all of them proclaim to be sustainability-oriented. This latter issue can actually be corroborated if we look at them in a superficial perspective. The truth is that, from the first general board with all of the criteria items, “Sustainability” is the most mentioned cluster. This reveals an obvious concern with this topic which confirms their efforts. “Sustainability” is followed by
“Adequate fishing gear/Seafloor impact”, which also reflects that this topic is also object of concern by these labels. However, this is, in reality, an extent of “Sustainability”, blending one into the other. All other clusters are more sparsely represented, what probably reflects the specific concerns specific labels have. Most of the remaining clusters are actually approached by 1 or 2 ecolabels. It is interesting to see that, from a universe of 6 ecolabels, they have such different comprehensiveness and approach such different topics. This may be an indicator of the work that has to be done when it comes to standardize this matter.

Such heterogeneity is reflected by the fact that the most comprehensive labels include most of the clusters but in a superficial manner. MSC is the ecolabel that gives more attention to a single cluster (“Sustainability”), which tells us that they comply, at a first sight, with their three principles. Seachoice is the label that dedicates most of its criteria to a single topic (“Adequate fishing gear/Seafloor impact”), showing that the most specific an ecolabel is, the more criteria they dedicate to a unique cluster. On the other hand, the most comprehensive ecolabels dedicate 1 or 2 criteria to each cluster. This is symptomatic and can help when trying to understand if it is better to be wide and superficial or narrow and deep. The truth is there is no perfect answer. The labels should include more than 1 or 2 facets of sustainability, otherwise, they end up being too strict or specific, neglecting other factors (such as social and economic) as warned by Béné (2003).

By analyzing the data, it is possible to see that half of the ecolabels (MSC, Happypeixe and Henry and Lisa Natural Seafood) are oriented for/give more importance to sustainability criteria. Ultimately this is the aim of every ecolabel – resources’ sustainability – so this is not surprising. What is surprising is, for instance, the fact that Friend of the Sea is oriented for “Target species” and “Human and labor rights”. Both of the clusters are very different but the first one can be seen as an extent or a variation of “Sustainability”. The same for Seachoice; it is an ecolabel that focuses heavily on “Adequate fishing gear/Seafloor impact”. Despite this derivates from the major topic of sustainability, Seachoice chose to allocate efforts on describing what they perceive as adequate fishing gears. Naturland, on the other hand, by focusing more on “Storage/packaging” let us know that acts more on the post-fishing and that gives great importance to handling the fish. However, it is interesting to see that none of the other ecolabels mentions this cluster, which suggests they do not give much importance on what happens to the fish once it is caught. This can constitute a criticism to these ecolabels: if one of the main objectives is to increase the fisherman’s income, then care should be extended to the fish handling, storage and packaging. This is a
decisive factor on presenting the fish and on adding value to it. The concerns with the fish cannot dry in the end of the fishing-moment.

Naturland, despite being, in theory, the most comprehensive ecolabel, since covers a wide range of sustainability, have to be subjected to a wider research because it is probably very difficult to implement. A fishery can hardly fulfill such variety of demands. The key is to find a mid-term: not focusing on only one cluster, making it too easy to neglect other factors, but not disperse into too many clusters, making it impossible to be applied.

5.2. Stakeholders to consider for an attempt of obtaining a certification

The identification of stakeholders ended up being quite instinctive and unanimous, with interviewees choosing mostly the same stakeholders to take part on the process of obtaining certification. Once again, moderation is the key word. One cannot make the mistake of calling to the table few stakeholders, mainly because this is a very controversial sector, with deep problems of poverty and academic education (Suárez de Vivero et al., 2008; Béné, 2003). Since we are talking about a facultative project that needs the interest and willingness of everyone involved, it is mandatory that every stakeholder feels represented. Besides, it is important to rely on several inputs of different areas of expertise.

The stakeholders issue is rather sensitive because one has to find the mid-term. Involving the stakeholders in the planning processes is usually seen as an advantage in the anticipation that participation will make the process more democratic and hence legitimate. However, some studies have shown that is not as obvious and simple as it may seem (Buanes et al., 2004). These authors have studied whether this is the actual outcome, and concluded this is an empirical question, depending on which stakeholders are most active and effective in the management decision-making process, and to what extent they are able to sort out their differences and conflicting aspirations.

Despite the argument about what stakeholders should or could be involved in these processes, fishermen should always be implied (represented by associations). These are probably the most important stakeholder and one should not impose a top-down method. This type of approach has been proved to be unwelcomed in the fishing community (Coelho, 2011). Every agent identified scientific bodies, for instance, as a fundamental stakeholder, and yet not everyone identified fishermen associations.
There is a need of finding a mid-term between (1) calling too few stakeholders and take the risk of unpleasing the stakeholders left apart and therefore turning much more difficult to have their support or sympathy and (2) calling too many people, causing entropy, delaying the process, falling in the excess of bureaucracy the stakeholders previously condemned (Suárez de Vivero et al., 2008). The relationship between stakeholder participation and the ecosystem-based approach to fisheries management is often taken for granted, but is actually very complicated (Gray & Hatchard, 2008). This can be applied to ecolabelling fishing products.

When it comes to what stakeholders should be involved in certification, there is a broad consensus. All interviewees name producers’ organization, a scientific institution and NGOs. Then, Docapesca is also named by 3 stakeholders and so are local State authorities (i.e. town councils). Some stakeholders go a step further and include fishermen associations, marketers and tourism. This shows that, from every interviewed stakeholder, Docapesca and NGOs are the ones that would call more diverse actors. This is important because illustrates how inclusive each stakeholder thinks the approach should be. It is surprising that DGRM does not mention the fishermen associations as a stakeholder to be included. This stakeholder only points out to producers’ organizations; however, these are not the same as the fishermen associations. Not every fisherman is in producers’ organization. Actually, SSF are basically represented by fishermen associations and not producers’ organizations.

The Research Institute, Docapesca, DGRM, fishermen associations and NGOs were relatively easy to contact and to arrange interviews with. This can be a reflection of the interest these stakeholders have on the subject. Moreover, certification and ecolabelling is not a new topic for any of them, so they are more at ease to talk about it. Furthermore, since this is such a peculiar and closed sector, some fishermen associations hesitated on associating themselves to the thesis. We are dealing with mostly familiar and traditional communities, with very entrenched habits, so this is reasonable.

The other surveys were made in different forms. From the marketers/distributors, only the biological supermarket and the local markets were contemplated. Large supermarkets did not answer the request for interview. Since these supermarkets provide fish and fish products for the majority of the population and move great quantities of fresh fish, it would have been very interesting to have their insight, if they are aware of such problems, if have concerns about the origin of the fish, how it was caught, their fair-trade policy and other questions. It would be an interesting theme for further investigation: the commercialization of fresh fish and fish products.
within the largest Portuguese supermarkets chains and their perception of stocks stability.

Consumers that, at first, were supposed to be embraced through an interview to a consumers institute, ended up by being considered through available literature.

5.3. Overall opinions

It was very interesting to see the different reactions and opinions about ecolabels. Despite all interviewees being in favour of ecolabels and seeing the advantages on obtaining an ecolabel, their opinions diverge on some questions and it was remarkable to see how each of them identified specific rewards and inconveniences for their institution.

The first question, that generated some divergent answers, was whether certification can have a decisive role on assuring sustainability. Most of the stakeholders were careful and showed some precaution when answering this question. It was more or less consensual that, since we are dealing with SSF that operate at a localized level and involve a moderate fishing effort, the positive impacts cannot be much relevant. Actually, it is a matter of proportionality. If the negative environmental impacts occurring from these fisheries operation are not that prevailing, the positive impacts when adjusting the practices cannot be much grander. Besides, sustainability (i.e. whether the stock has the ability of self-regenerating within a certain period of time) is influenced by many other uncontrollable and not-related factors besides fishing effort. This is emphasized by the Research Institute and Docapesca. Maybe this happens because these are the stakeholders with a more scientific insight. In this topic, is also mentioned, by the NGO, a concept named “sustainability potential”. This is a big point in favour for all the times multi-specificity is pointed as a disadvantage and an obstacle to obtaining certification. This “sustainability potential” gives the Portuguese SSF the possibility of shifting efforts whenever a stock is more weakened. This corroborates some other studies that state SSF are indeed more sustainable than LSF (Jacquet & Pauly, 2008). This way, and unlike what happens in many industrial LSF, the company does not have to stop with no income which can potentially lead to bankruptcy. As concluded by Pauly et al. (2002) the reduction of fish biomass to low levels may compromise not only the sustainability of fishing, but also support only relatively low economic yields.

About the benefits, every stakeholder agreed that the biggest advantage when obtaining an ecolabel would lay with the fishermen. Given the presented socio-
economic problems that characterize the small scale fishermen, income increase is probably the biggest point in favour when presenting this idea to them. In parallel, the second most wanted outcome (that reflects on the latter) is adding value to fish when in first auction centres. This was identified as the most immediate benefit (despite it needs some time to have monetary return). However, runs in parallel with the sustainability one. If we assure the stocks’ sustainability, even at a local stage, we are assuring economic sustainability because we are perpetuating the resource and the future fishermen will still have jobs. Obviously, biological sustainability is not justified by this. We should protect the stocks because of their intrinsic value. But, in the case of the octopus fishery and since these perpetuity problems were not identified, we could turn a possible certification in order to answer some of the community’s socio-economic problems that are common to many artisanal fisheries, as referred by Béné (2003). On the other hand, the fishery from the Marine Park could be more focused on the biological side of sustainability.

The disadvantages were unanimously identified as the monetary costs and bureaucracy. It is true that the candidature to a big, international labelling scheme (such as MSC) usually involves a great initial investment: the cost of a full fishery certification may range from about $10,000 for a small, simple fishery to more than $100,000 for a large, complex fishery (Peacey, 2001). Given the Portuguese reality, this is too much to ask for the communities. Also, ecolabels like MSC have costs in every stage of the process and are requested by foreign markets, for exportation. In Portugal, there is not this demand of having ecolabelled food, so it would mostly be an unnecessary expense. And this is important because SSF sell mostly fresh fish to the national market. For the Portuguese fisheries, it would be mandatory that the labelling scheme has a reduced investment, which brings us to the need of (1) adjusting a pre-existent ecolabel or (2) create a new ecolabel, simpler, with less demands, less initial investment and having in consideration the characteristics of multi-specific fisheries.

Another identified disadvantage was the possibility of increasing the fishing effort on one stock, if the certification scheme turned out to be successful. This can be circumvented if we apply the necessary policing and management measures. We are dealing with relatively small areas and the statistics are useful in this case. Since the certified fish has to go through an auction centre, it would be relatively easy to ascertain whether the fishing effort had increased. And not every fisherman would be allowed to sell their fish for certification, so this could be done using a bottleneck.

Interviewees identified the need for a change in mentality as the biggest obstacles to obtaining an ecolabel. It would not be easy to tell these man how they
should start fishing from now on. Trying to introduce new onboard practices should be a slow, gradual work, done in cooperation with associations. It is important to explain the reason these changes are being made and to point out to the advantages for them. Another thing, and that was partly responsible for the success in certifying the sardine, is that these fishermen are resistant to associativism. Sardine was a case of success and the NGO’s representative pointed that out. The sardine fishery was very accurately identified by MSC and benefited from the extensive scientific data that had been collected. This stakeholder mentioned that this is probably the most well documented sardine stock in Europe. This has probably also contributed for the success. About associativism, more than one stakeholder pointed out to this fact. Actually, if fishermen are gathered in a single platform, agree on the general terms, and work for a common objective, projects like this will become much more facilitated.

The free access was also mentioned by DGRM and the Research Institute and, despite it is a fundamental right, it may be a problem. If we are dealing with a local, regional ecolabel and the aim is that the income stimulates the local economy, is hardly fair that any other fisherman can extract profit from there. But then again, not every fisherman would be certified so this could be solved.

The problem behind certifying fish from an MPA was not identified by any stakeholder. They all agree it is exclusively a matter of informing people. Actually, the ancient concepts of “ecology”, “environmentalism” and “protected area” fell into disuse. Nowadays, these concepts request a much more integrative approach, acknowledging that human being has a role to be played. MPAs should be explained to the audience to end with the myths.

Every stakeholder agreed on what species should be the focus of a next certification: octopus. They consider it gathers the minimum conditions to be certified. To this fact contributes the extensive published literature; it is a very well known species and its fishing is widely studied (Chédia et al., 2010; Lourenço & Pereira, 2006; Iglesias et al., 2004; Fonseca, 2003; Mangold & Boletzky, 1973). Besides octopus, some stakeholders point black swordfish and bivalve mollusks, namely the Research Institute, DGRM and Docapesca. The idea of certifying fish from an MPA is attractive for most of the stakeholders, but is considered to need a much more exhaustive and wider research and stock assessment. Professor Luiz Saldanha Marine Park has been widely studied, mainly in the academic meanders, and there is already much information (Coelho, 2011; Alves, 2008; Batista, 2007). The next step would be ascertaining the stock status and to find a way of certifying such different fishing gears. This would be a success and case-study for future multi-specific fisheries.
About the stakeholder “Consumers”, despite there being clearly a bigger mind-opening towards the environment, fish stocks and a concern with their sustainability, some studies show ecolabelled products are not readily accepted in the market (Brécard et al., 2009; D’Souza et al., 2007; Grankvist et al., 2004). Obviously, these studies were carried out in other countries that share few characteristics with Portugal, but can be an indicator about the receptiveness Portuguese people would have to these products. This is not a very spread amongst the average consumer, so any label launching would have to be accompanied with great publicity campaigns.

5.4. Strengths, weaknesses, opportunities and threats of ecolabels

Giving that small-scale fisheries have very limited financial resources, it is mandatory to overanalyze the scenario because no budget surprises, twists and turns can be borne.

Interviewees included in strengths all the intern advantages that come directly from the implementation. Every topic is directly related to the act of obtaining an ecolabel, supporting the thesis that this is indeed a good way for these fisheries to get more dynamic and attract the spotlight. It was interesting to see that some stakeholders (such as fishermen associations and the Research Institute) did not separate “fairest trade” and “fishermen’s income increase”. Actually, one does not necessarily imply the other. The fact the money is better distributed within the value chain does not mandatorily reflect on increasing the income for fishermen. In theory, it should happen, but the will is that the retailers and intermediaries stop absorbing such a big amount of the profit. If it is reflected on the fishermen’s income or not is later analyzed. Since these schemes are based on this topic – rewarding the fishermen by their effort – it is implicit that they receive more money, but one does not mean the other.

It is noteworthy that “multi-specificity” is indicated both as a strength and weakness. This is explained by the fact that this topic was identified by several stakeholders as an obstacle (sometimes the biggest) to implementing a certification scheme. However, the NGO’s representative referred a very important concept named “sustainability potential” that is inherent and can only be identified because we are talking about multi-specific fisheries. Obviously, this is true to the MPA fishery (and the vast majority of the Portuguese SSF) but is not for the octopus fishery. However, and since the octopus fishery is not representative of the majority of the fleet operating in Portugal, we considered this topic important to be mentioned.
The remaining weaknesses are mostly related to the Portuguese SSF’s socio-economic characteristics. Monetary costs, excess of bureaucracy and other facts mentioned before, such as the fact that SSF are characterized by having an aged working force, and being a sector that is not very receptive to changing habits. Despite this, it is also a sector that, by default, struggles with economic stifling (Béné, 2003). If the worry is that fishermen will not have earnings at a short-term, it is understandable that this is not their primary concern. This is why it is needed to have external donations and investment. But then again, since there these are not for exportation and there is not a demand from the Portuguese market, it is even harder to start the process. The lack of scientific data will most certainly constitute a problem if there is an attempt of obtaining one of the most known ecolabels, e.g. MSC. Marine Stewardship Council does not shows a primary interest in certifying a fishery if that fishery does not have evidence of having the scientific data about the stock, or at least the means to reach it\textsuperscript{36}. Besides, we have seen that MSC is not demanded by the Portuguese market, besides being an expensive label to get, so having it could be redundant and an unnecessary expenditure.

The lack of scientific data is also important and ultimately exclusive when trying to obtain the MSC ecolabel, as identified by Jacquet & Pauly (2008).

Maybe the last identified weakness is the most preponderant, in the present economic context (“little opening from the Portuguese consumers to support the margin costs of certified food”). Portugal, as Europe and the rest of the world, is currently experiencing a major economic crisis. This has implications in every aspect of people’s lives. Giving the current problems, it is not expected that the consumers will respond to launching an ecolabel labelling sustainable seafood. In some countries, the problem is that people do not consume seafood\textsuperscript{37}. In Portugal, this is not a problem because fish is consumed by nearly everyone, across the year and in many different manners. This is identified in Strengths. Being the 1\textsuperscript{st} major fish consumer in Europe (61.6 kg/capita/year) (OCEAN2012, 2011) and the 3\textsuperscript{rd} in the world\textsuperscript{38}, Portuguese consumers are very sensitive to this. So, entering the market would not probably be a problem. The problem would always be accepting and being able to afford the marginal costs of a labeled product. Changing the behavior of consumers to affect fisheries significantly requires an integrated campaign to increase awareness and understanding of the

\textsuperscript{36} \url{http://www.msc.org/about-us/consultations/previous-consultations/pre-assessment-reporting-template-and-guidance-for-users-v2}, accessed on 24\textsuperscript{th} September 2013.


\textsuperscript{38} \url{http://www.tsf.pt/Paginalnicial/Vida/Interior.aspx?content_id=1588140&page=1}, accessed on 12\textsuperscript{th} September 2013.
environmental issues and an understanding of the connection between sustainable fisheries and seafood purchase decisions (Wessells et al., 1999a).

When approaching Opportunities, by seeing what the possible advantages that can indirectly result after a scheme implementation, the most obvious was that, in consequence of heavy monitoring, a work of gathering and systematizing information would happen. This is the biggest opportunity identified by Docapesca. Another benefit that can come along with this issue is to draw attention from the public. Through marketing campaigns, and if having the support of many stakeholders, this would be a good pretext to make a national campaign advertising the stocks’ state and the inherent problems. This was not made when the sardine was certified probably because it was oriented to foreign markets, but it had been a good opportunity to divulge and report some important information. The same principle should be applied to disclosing an MPA. Most people have a very superficial idea of what an MPA is and what purpose it serves. Despite a campaign publicizing only MPAs and clearing people’s minds should take place, certifying fish from an MPA could be a good information vehicle and a way of spreading information. With sufficient market research and consumer education, certifying and ecolabelling seafood products may be a feasible long-run approach to promoting sustainable fisheries (Wessells et al., 1999a). This is also an opportunity of involving NGOs in a more marked manner. NGOs should be a preferential stakeholder in projects like this, because have in consideration the scientific views, the need for sustainability, are close to the fishing community (e.g. Sesimbra’s community) and have the skills to communicate to the public (which sometimes other stakeholders lack). Obviously, the last opportunity, and perhaps the one with more importance at a long-term, is that certifying these fisheries, with suitable criteria lists, designed especially for their particularities, would open a precedent and could impulse similar projects in other countries.

When analyzing Threats, the aim was to predict what could go wrong after a scheme is implemented. Obviously, some stakeholders showed concerns, such as the possibility of augmenting the fishing effort, if fishermen see their peers are indeed earning more or if the market receives this so well that the demand out tops the offer. Another threat that was identified since the beginning of this research is the possibility of confusing consumers by including a new label (or an adjusted one) in the panorama. This can be circumvented if the ecolabel is very transparent and honest from the beginning. It is important that the implementation is phased and that is accompanied by adequate information and the proper clarifications. It is also important that an ecolabel is not too ambitious and this brings us to the subject of how many clusters or
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sustainability facets include. It is better to narrow the clusters and assuring that the monitoring body can monitor and comply with the pre-established criteria, than trying to embrace too many sides and create distrust among the consumers. It is also essential to give each fishery some room for movement, to create the criteria with a minimum of subjectivity in order to allow them adapt the criteria. A successful ecolabelling program, even if with specific characteristics, cannot follow a standard approach (Wessells et al., 1999a). There has to be some flexibility to adjustments. Once again, a mid-term is needed. Not giving rules that are too subjective and leave room to misinterpretations is as important as not closing too much the criteria, becoming impossible to be applied to real cases.

The two last threats are real but cannot be suppressed. They are present in every project implementation. There is always the possibility of making errors on the implementation and giving the public room to generalize and condemn every similar scheme. The same happens with the possibility of cheating and end up by certifying fish that was not sustainably captured. This is a real threat and cannot be reduced to zero. It can be minimized by adequate monitoring, but it is not possible to guarantee there is not mis-certified fish.

5.5. Ecolabelling the Marine Park and the octopus fisheries

There is no experience in certifying multi-specific fisheries, like the Marine Park’s, so it is suggested to create an ecolabel with some different characteristics. This idea is welcomed; however, it would be more prudent to wait until we have some more practice with ecolabelling, have more biological assessment and know-how.

If happening, it would be mandatory that this label would not be as demanding and tight as the others, because the rejections and discards dynamics are very different in a multi-specific fishery. The fishermen should not be favored towards others and should not be an exception to the Law, but if strictly implemented, then these men will never be able to seek certification. And this brings us to the paradox that certification is only available for those who can, i.e. for those who can afford its demands. What could be done is a traffic-light system or a bronze-silver-gold system that allowed the consumer to choose the minor disadvantage. It is not possible to have the perfect certification scheme and this was pointed out by the NGO’s representative. Maybe, the correct approach is to create a list with suitable criteria, having in consideration the artisanal small-scale fisheries’ characteristics (vessel size, type of fishing gears, target and accessory species, number of workers, storage conditions,
worker's age, income, to name a few). Then, the package, when in supermarkets, should have some sort of score indicating what are the production's weaknesses and its strengths. For instance, a given fish could have been captured by using a harmful fishing gear, but, on the other hand, that vessel had had no by-catch. This was one of the suggestions that came out of the interviews.

Labor rights and subsidies are two preponderant issues on this context, so this should be heavily focused on a possible ecolabel. Most of all, this hypothetical label should face two main topics: (1) helping achieve or maintain the fish stocks' sustainability and (2) increase the fishermen's income. If it would evolve to a marketing strategy or some parallel business is not possible to predict, but those should not be the aims. This ecolabel would have to be less bureaucratic. Obviously, there still would have to be scientific data to start from and monitoring, so the pre-assessment is mandatory, otherwise it would be a “blind certification”. It should be a faster, dynamic process, not only to motivate the stakeholders but to make their interest raise the public’s interest.

For the octopus fishery, given the results and analyzing each ecolabel, MSC, despite possible, is not suitable for it because (1) the Portuguese market does not demand so and (2) it is too expensive and requires a pre-assessment work that the fisheries and associations can hardly bear. Friend of the Sea that focuses “Target species” and “Human and labor rights” could be a possible ecolabel given that they have experience in ecolabelling cephalopods that are caught in similar ways as octopus. Therefore, this scheme has experience in certifying this catches. Friend of the Sea also gives a number to the maximum discards there can be. Since this fishery has low by-catch, it could be a possibility. A downside to Friend of the Sea is the fact that it does not make any reference to “Sustainability”. This could constitute a problem but, as the interviewed octopus expert mentioned, this is not a major topic in octopus fishery, it would actually not be a problem.

Naturland, with its scope on “Storage/packaging”, could also be applied. As referred by some stakeholders, the main change this fishery should invest in is the handling, storage and packaging of the octopus. Every other practice is approved or is not as preponderant and, since this is the main critic, if the fishermen invested in better storage practices, that would be this fishery’s added value and would differ and distance it from the others. However, if not willing to make such profound changes, one would have to exclude this ecolabel. Also, the other twist is that this ecolabel has a very wide embrace of clusters. Since we previously suggested that any ecolabel
applied to Portuguese SSF should be simplified and include fewer clusters, this would not be a suitable option.

Seachoice, as the previous, could also be a suitable candidate. It focuses on “Adequate fishing gear/Seafloor impact” and it is generally agreed that this fishery would have no problem with fulfilling any demands on this cluster. Given the fact that the fishing gear used to target octopus fulfill such demands, one can hardly refute that it has any impact on seafloor and is not adequate. Also, Seachoice only approaches 4 clusters which, despite it can be considered as too few, might be better than including too many.

Both Happypeixe and Henry and Lisa Natural Food could, in theory, be applied to this fishery (as any of the other ecolabels). However, and since their scope is “Sustainability” and this is not preponderant, even being almost negligible, and we are choosing the most suitable, these would be discarded.

5.6. The importance of involving environmental NGOs

Non-Governmental Organizations were identified by every stakeholder as important to take part in the certification process. Unlike some literature, that states NGOs could help ensuring the auditing process and inspection requirements (Washington & Ababouch, 2011), in the Portuguese reality, NGOs may not be willing or have the means to perform this sort of work. This was pointed out by the NGO’s representative.

The NGOs’ role has now changed and is not the proponent of social marketing for environmental change. This was the NGOs’ role back in 1970’s (Jacquet & Pauly, 2007). Sciaena stated that is available to take part in these ecolabelling processes in a more active way, because the role of assuring awareness is guaranteed by the media.

Environmental NGOs are now much more interventional and some have work groups concerning only the sea, fisheries and their matters. This subject has been gaining a gradual interest and has been pushed to the spotlight.

As some ecolabels have already done (B Corporation, Ocean Wise and Seafood Watch; that were early excluded from this analysis), in addition to consumer campaigns, these market-based approaches include business/environmental NGOs partnerships and sustainable investment in industry (Iles, 2007). Even when not able to launch or sponsor an ecolabel, NGOs have been identified as possible actors in launching consumers guide, in partnership with public aquariums (Iles, 2007), for

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Portuguese League for Nature (LPN), for instance, has a work-group that treats exclusively subjects related to oceans and fisheries, the Oceans Group.
instance, as happened with the Monterey Bay Aquarium. In Portugal, Lisbon Oceanarium has done similar efforts\textsuperscript{40}, so NGOs could associate themselves to initiatives like this, contributing with inputs of their expertise.

Another fact to have in consideration is that instead of targeting consumers only, NGOs can stimulate retailer-to-processor, retailer-to-distributor, institutional buyer-to-distributor, processor-to-producer, investor-processor and other production chain linkages (Iles, 2007).

As stated previously, any process of this type should be inclusive and act along the entire life cycle, not just in the selling-moment. As happened with Home Depot\textsuperscript{41} that allied to an NGO to change its supplier requirements to favor plantation wood instead of rainforest wood (Iles, 2007), NGOs could associate themselves with fresh food retailers and distributors such as supermarket chains.

So, since launching an ecolabel seems outside of a Portuguese NGO scope, maybe NGOs should start by, instead of focusing on ecolabels, developing processes for specifying what producers need to do, collecting and integrating information that illuminates their performance, generating feedback on consumer and producer behavior, and exposing producers to scrutiny through consumer and producer pressures (Iles, 2007). These constraints in launching an ecolabel can be related to (1) few employed staff in NGOs, being the majority of the work assured by volunteers and (2) the little subsidies and funding. This was pointed out by the NGO's representative.

NGOs can also act in advertising and influencing the production chain. NGOs can cross-link these various sources, identify what information gaps exist, use expert judgment to rectify some gaps, evaluate what information may be too much and determine how fishers, fishing communities, scientists, marketers, processors and other actors can help gather, verify and funnel information (Iles, 2007). This would take the NGO from the spotlight and not portray it as the responsible or launcher, but as a partner and an involved actor. This approach would probably suit better in the Portuguese NGOs’ capacity and influence.

Sustainability will probably depend on whether NGOs can make environmental benefits a structural part of every production chain, not an add-on (Iles, 2007). This approach meets what the NGO representative stated in the interview: the inclusive approach and the encouraging/counseling. This approach does not end in the production chain. It is also important to reach the younger strata, to teach them to

\textsuperscript{40} http://www.oceanario.pt/cms/1693, accessed on 26\textsuperscript{th} September 2013.

\textsuperscript{41} Home Depot, Inc. is a US company that sells decoration and civil construction products and materials.
make informed and better choices. Environmental education gains relevance and NGOs can also be partners with schools.

There is a broad number of niches where NGO can act, giving the difficulties, constraints and limitations they face.

5.7. Example of cooperation between an NGO and an artisanal SSF

In the Sesimbra fishing community, there is currently an attempt of implementing a pilot-project. This project has been conducted by the local fishermen association in partnership with an environmental NGO – Portuguese League for Nature. This project aims to give a purpose to the usually discarded species (or with low value in auction centre), by making a fish basket – “Cabaz do Peixe” – with these species, already gut and clean. This should have an appropriate price and the novelty is that the consumer cannot choose the fish. The fish in the basket will always be according to the catches and what was not sold. This way, the costumer will always have seasonal fish and that is not sold in auction centre, despite it has the quality for it.

This is important because it drains the discards. In Sesimbra, in 2012, the amount of discards was of 139 ton, 97% of which was due to the impossibility of commercialization in the auction centre (INE, 2012), i.e. Law impositions such as minimum sizes. The same way, in Sesimbra port landed 20 896 ton of marine fish, being the most represented groups small pelagic (mackerel, black swordfish, sardine, in order) and cephalopods (mainly octopus) (INE, 2012).

This project is an example of how NGOs can cooperate with fishermen association in order to respond to specific problems that multi-specific fisheries sometimes have. These types of partnerships should be encouraged because strengthen and clarify the role of NGOs can have in this topic and show how these collaboration models can help solving some problems (in this case, giving discards a use).

6. Conclusions

With the present research, it was possible to identify 27 ecolabels that can be applied to fish and fisheries and 6 that can be applied to the case-studies approached (Santa Luzia octopus and Professor Luiz Saldanha Marine Park). This research was hampered by the limited available literature about certifying small-scale, and especially multi-specific, fisheries available.
The main limitations had to do with time constraints and especially to the lack of answers from some stakeholders that had been identified as important. Besides, ecolabelling still is a very unknown subject to most people, so it could benefit from bigger dissemination. If people are informed, it is easier to criticize and to suggest new solutions. The main difficulties related to the research had to do with the great subjectivity each label’s criteria lists show. Standardization of ecolabels is approached from the beginning as an advantage and this is corroborated by the research. Such subjectivity easily confuses consumers and is more likely to promote competition among ecolabels that promise/advertise the same. If this happens, consumers will more probably give up on trying to understand what ecolabels are and what they advertise. It would have been helpful to have the direct insight and opinions of consumers. The available literature allowed to close gaps and to make some assumptions. However, the answers from consumers would have allowed getting to know if the consulted literature is still current. There already are some works, in other countries, ascertaining consumers’ demand on ecolabelled seafood. Given the Portuguese high fish consumption, this could be an interesting topic to investigate.

Giving that no perfect solution exists, mid-term is the best result for these schemes. Above all, ecolabels should be as transparent as possible and not promising goals they cannot achieve. It is important for the consumer to feel he is not being tricked and is not being fooled by some marketing strategy. This mid-term should be reflected not only on how many stakeholders to bring but also on the number of clusters and criteria an ecolabel should demand.

The fact that most of the interviewed stakeholders reveal interest in helping a possible candidature and implementation of a label is positive and shows that, at least, there is awareness towards this topic. Most stakeholders are in line with each other when it comes to the major questions. Obviously, there are some differences and small quarrels that come from the stakeholder inherent condition and struggles.

In the future, it should be ascertained whether there are other similar fisheries – in other countries – that could benefit from these certifications. It is important to recognize this issue as a real way of helping to achieve fish stocks’ sustainability. Obviously, and this is a breaking point, we cannot sell ecolabelling as solving all problems related to overfishing, unfair trade and low income, but if we seek this perfect, integrative solution, will never reach change.

Another paradigmatic issue is associativism. When the sardine ecolabelling happened, its success was partly due to Anopcerco’s strength. This happened because the association gathered in the same platform fishermen that, despite being different
from each other, were reunited towards a single objective. If more fishermen took this attitude, the sector would probably come out strengthened and could reach higher public and governmental bodies.

It is important to refer the current economic crisis. Perhaps, in more prosperous times, stakeholders could show more willingness to help with financial resources and, particularly, consumers could be more willing to purchase such products.

It is agreed that it would be easier or preferable to certify the octopus fishery, given the reasons presented in other text sections. Besides, octopus is the “flag-ship” species in Docapesca and DGRM, currently. Docapesca has even organized a meeting about the octopus appreciation and value increase⁴². So, this stakeholder in particular is already interested in finding new ways of increasing this species’ the auction value.

Certifying the MPA fishery would be a long-term goal, but maybe not possible now. This ecolabel, if implemented, should follow some of the guidelines provided in this thesis. It would be a more precautionary approach and could increase. These guidelines include less bureaucracy, reduced investment costs and some flexibility about discards and storage. It has to take into account all the fishing community’s socio-economic problems and their inherent characteristics. Also, instead of trying a conventional ecolabel, this fishery could benefit from a traffic-light communication or other score/color system, in which the consumer could choose among different advantages and disadvantages according to what he considers important.

So, the conclusion is that Seachoice would probably be the most suitable ecolabel for the octopus fishery. Nevertheless, it is important to refer that all the remaining ecolabels could be applied. MSC, Happypeixe and Henry and Lisa Natural Food would be more appropriate to certify fisheries where sustainability was a breaking point. In those fisheries, it would be important having an ecolabel targeting sustainability. In the case of the octopus fishery, certifying its sustainability would not make much sense, as indicated by some stakeholders.

The analysis revealed that there are clear advantages (e.g. fairest trade (i.e. fairest distribution in the value chain), income increase, contributing for the stock’s sustainability) and some disadvantages (bureaucracy, high monetary costs, the difficult in adapting these schemes to multi-specific fisheries) in applying an ecolabelling scheme. We consider the advantages overcome the disadvantages. Pilot or smaller projects, even if at local levels, should be encouraged. Nowadays, every initiative

⁴² Docapesca S.A organized a meeting/workshop in Peniche, on the 21st May 2013, named “Conversas em Rede – A Valorização do Polvo Português”.

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promoting fish stock’s sustainability should be taken into account since we are in no position of refusing ideas.

The NGOs role was also discussed in this work. Nowadays, with the easy access to information, NGOs are gaining relevance not so much in denouncing problems, but in fighting and helping the civil society in fighting shared problems. This is why it is important to include NGOs in these implementations. NGOs can be the impartial stakeholder, providing the public some tools to make informed choices and to act in consciousness.

The example provided in the previous sections is a good example of how NGOs can cooperate with the fishing sector, namely with a fishermen association. Despite it is not functioning yet, the process can serve as role-model to other pilot-project. Besides everything, and the obvious environmental advantages of giving discards a purpose, this partnership proves that NGOs can be involved in processes that aim to increase monetary incomes. This way, and in this case, it gives a boost not only environmentally, but also social and economically. Also, as showed previously, associating NGOs to ecolabels has been done and as turned out to be successful.

It is difficult to give a concrete yes or no answer to whether ecolabels have applicability in the Portuguese small-scale fisheries. However, and giving the results, one should be optimistic. There is still a lot of work to be done, such as stocks’ assessments, and these could be a further studied. Also, the economical impact that schemes like this could have in the fishing communities would be a very interesting work and could support future attempts. However, and it has to be clear, nowadays, we should encourage every attempt of improving and helping resources’ sustainability. Even if turn out to be unsuccessful, an ecolabel scheme is always a good opportunity to attract the spotlight for these issues and, with the current dissemination and easy access to information, these are good means to reach a great number of people. If people become gradually more sensitive to subjects like fish stocks, sustainable fisheries, responsible fish consumption, it will become easier to spread information and to reflect that information and education on the purchasing-moment.
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APPENDIX
APPENDIX I – Interviews scripts

Research Institute and DGRM

1- Can certification schemes have a decisive role on assuring sustainability or will it remain residual?
2- Do you think ecolabelling schemes should be implemented in Portugal at a regular basis?
3- Do you think any Portuguese SSF has the potential, at a short/medium-term, of obtaining an ecolabel?
4- Could SSF benefit from obtaining an ecolabel? What advantages would the fishermen see in it?
5- What fisheries do you think have more probability or potential to obtain an ecolabel? Why? If certifying, what approach should we take, species or provenience?
6- What do you think are the biggest obstacles in ecolabelling fish products that artisanal SSF have to overcome?
7- Having in consideration that the public associates an MPA to an area where extracting resources is severely limited, do you think fish from an MPA would be badly receive among the consumers?
8- What stakeholders should be implied in a process like this?

Docapesca, S.A.

1- How does Docapesca face ecolabelling fish products?
2- Is there any interest from Docapesca in helping SSF obtaining this sort of labels?
3- How does Docapesca assure the traceability of a given fish product? Is it easy to deluding the system?
4- How exactly could Docapesca encourage, within the fishing communities, the implementation of such schemes?
5- Do you consider Docapesca could benefit from a wider ecolabels implementation in Portugal?
6- Could Docapesca support or even launch a certification scheme in some Portuguese fisheries?
7- What stakeholders should be implied in a process like this?

Fishermen and Ship-owners associations

1- Do your associates know what certifications have been attributed in Portugal?
2- Do they know the advantages a hypothetical certification? Is there any disadvantages?
3- Can certification schemes have a decisive role on assuring sustainability or will it remain residual?
4- How do you perceive (positive, negative, null) ecolabelling vs. (a) resources’ sustainability, (b) social appreciation of the profession, (c) fish monetary appreciation and (d) fishermen’s income increase?
5- Do you know what the procedures to obtain an ecolabel are?
6- Do you think fishermen would be willing to change some fishing habits/practices if that meant their products would come out with added value?
7- What stakeholders should be implied in a process like this?

Marketers

1- Do you associate ecolabels to sustainable products and consumption and to “eco-friendly” practices and habits?
2- Do you make any effort in looking for “eco-friendly” products?
3- Would you be willing to pay a higher price if that reflected a more “eco-friendly” attitude?
4- What is your relationship to ecolabelled fish products? What percentage of your products would you consider to be ecolabelled? What are these ecolabels?
5- What is the origin of your fish products? (artisanal or industrial)
6- Would you consider the possibility of associating/launching/supporting to an ecolabel?

Environmental NGOs

1- How do you face the possibility of an NGO becoming associated or even sponsoring an ecolabel?
2- Do you consider NGOs can have a decisive role when implementing and advertising an ecolabel without putting their credibility in jeopardy?
3- Can certification schemes have a decisive role on assuring sustainability or will it remain residual?
4- Do you consider the partnerships between NGOs and ecolabels have been positive?
5- What stakeholders should be implied in a process like this?