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CONTROL OF SEAFOOD LABELLING IN PORTUGAL

Rogério Mendes and Helena Silva

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CONTROL OF SEAFOOD LABELLING IN PORTUGAL

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ABSTRACT

Project Labelfish – the "Atlantic Network on Genetic Control of Fish and Seafood Labelling and Traceability" is a European project that aims to set up a network of entities with an interest in the use of standardised, innovative analytical techniques to control genetic traceability and labelling of seafood products. Within this project one of the objectives is the analysis of fish labelling in markets of the Atlantic region (Portugal, Spain, France, United Kingdom and Ireland). This report summarizes the level of implementation of seafood labelling control across the Portuguese seafood sector. Main areas focused in the report include, (i) identification of the bodies involved in the control and evaluation of seafood labelling, (ii) assessment of the experience and results of the Portuguese administration in relation with the effective control of seafood labelling, (iii) survey of annual control plans and *modus operandi* and (iv) statistics of level of compliance.

Key words: Seafood, official control, labelling, Portugal, fish species identification

RESUMO

Título: Controlo da rotulagem do pescado em Portugal

O projecto Labelfish – "Rede Atlântica de Controlo Genético, Rotulagem e Rastreabilidade de Pescado e Marisco" é um projecto Europeu que tem como principal objectivo a criação de uma rede de laboratórios e organismos de controlo nacionais com experiência e interesse na utilização de técnicas de análise harmonizadas para o controlo da rastreabilidade genética e para a rotulagem dos produtos do mar vendidos no mercado europeu. Um dos objectivos deste projecto é a análise da rotulagem do pescado nos mercados da região atlântica (Portugal, Espanha, França, Reino Unido e Irlanda). As principais áreas focadas neste relatório incluem: (i) identificação dos organismos oficiais envolvidos no controlo e avaliação da rotulagem do pescado, (ii) avaliação da experiência e resultados da administração portuguesa em relação ao controlo efetivo da rotulagem, (iii) levantamento dos planos anuais de controlo e *modus operandi* e (iv) estatísticas do nível de conformidade dos produtos da pesca.

Palavras-chave: Pescado, rotulagem, controlo oficial, Portugal, identificação de espécies

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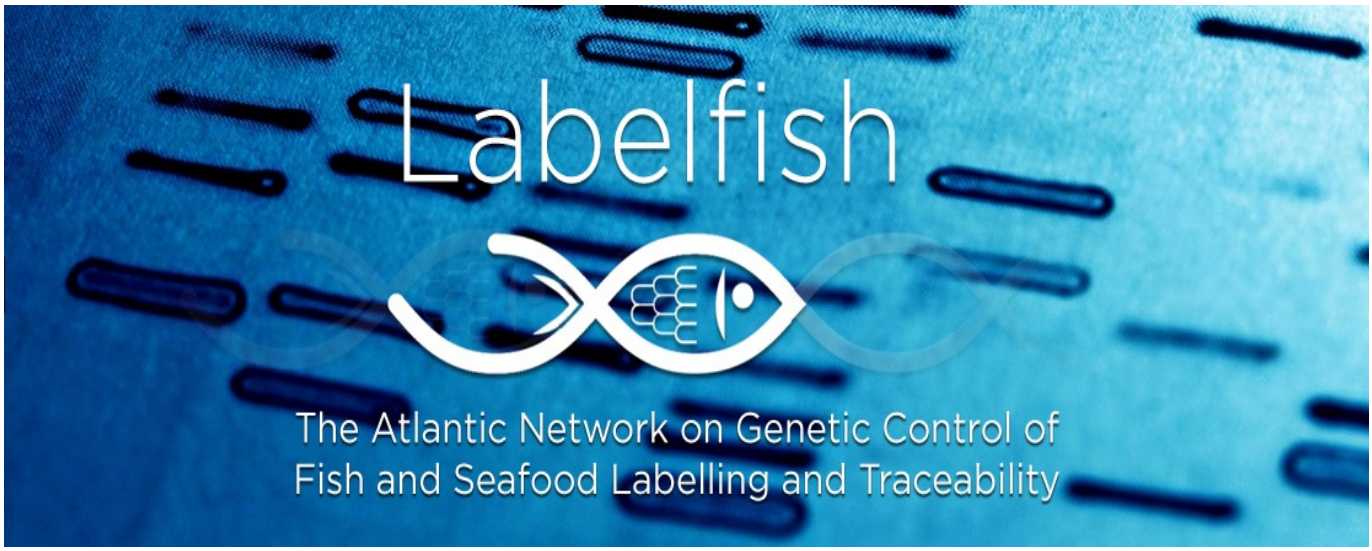

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1. GENERAL GOALS OF THE PROJECT

Project Labelfish – the "Atlantic Network on Genetic Control of Fish and Seafood Labelling and Traceability" is a European project that aims to set up a network of entities with an interest in the development of a common strategy and in the use of standardized, innovative analytical techniques to control genetic traceability and labelling of seafood products.

Within this project one of the main activities is dedicated to the analysis of fish traceability and fish labelling in markets of the Atlantic region. The general objective of this activity encompasses the analysis of the current situation of traceability and labelling of seafood products sold in the markets of the Atlantic region countries. The intention is to evaluate the current bottlenecks at regional and national level for an adequate implementation of traceability schemes and the appropriate labelling of European seafood products at transnational level. One of the tasks consists in the determination of the level of implementation of seafood labelling control across the Portuguese seafood sector.

The results of this evaluation will permit to establish the experience and results of each competent administration across Atlantic regions in relation with the effective control of seafood labelling.

2. CONTROL OF SEAFOOD LABELLING IN PORTUGAL

2.1 OBJECTIVE

The objective of this action is to establish the level of current control of labelling and traceability performed by the Portuguese official administration. In this evaluation it is relevant to determine the experience and detailed results of the Portuguese competent authorities in relation with the effective control of seafood labelling.

2.2 ACTIVITIES DEVELOPED

The activities foreseen in the development of the action were directed to the characterization of the level of implementation of traceability schemes across the supply chain of seafood products and included:

1. Identification of the official authorities involved in the control and evaluation of labelling.
2. Interviews with the national inspection and control governmental organizations.
3. Assessment of the experience and results of the Portuguese official administration in relation with the effective control of seafood labeling.
4. Survey of annual control plans and *modus operandi*.

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5. Statistics of level of compliance.

In terms of results these activities will allow an evaluation at a comparative level of the involvement and capacity of the control bodies involved in the Portuguese seafood value chain. This report will permit the clear identification of the control actors and their operational procedures.

3. LEVEL OF SEAFOOD LABELLING CONTROL IN PORTUGAL

3.1 OFFICIAL AUTHORITIES INVOLVED IN THE CONTROL OF LABELLING

As can be seen in the Figure 1, which represents a simplified version of the Portuguese seafood supply chain, the Portuguese seafood network can be quite complex and in its diversity many stakeholders are involved. In this section the public stakeholders are going to be described as well as their exchange of information during the intervention in the control process.

Starting from the arrival of products at the Portuguese harbors, landing or transshipment of fishery products transported by third-country fishing vessels; for example handling of imported tuna or swordfish fish, follows a specific customs procedure controlled by the General Directorate of Customs and Excise Duties (DGAIEC, attributions later described in this section) and fishery products must only be landed after acceptance by the Fisheries Management Office (DGRM).

Whenever it is requested the unloading of imported fish from countries outside the UE, the supervising Customs Office contacts the DGRM officials for control and clearance of the products. It is not allowed to unload any quantity of fishery products from third-country fishing vessels, as long as it is not received, within the same Customs Office, the communication of the DGRM, authorizing the discharge.

By land the imports must go through the Border Inspection Post (BIP) which regularly extracts samples according the national monitoring plan for food products, issued by the Veterinary Office (DGAV). If some noncompliance is registered, products are rejected and the sampling frequency is increased.

DGAV also controls the installation, working facilities and conditions in processers, retails, markets and supermarkets in what concerns hygiene and safety of the food products for human consumption. If it is a local market for fresh food, further control may be made by the municipal veterinary office in what concerns hygiene and quality.

In every step of the process the Economic and Food Safety Authority (ASAE) has the competency to verify if the vessels, establishments (either receiving, processing, distributing or selling fish and fish products) are working according all applied regulations (concerning all aspects from hygiene, safety, commercial and financial laws and regulations). They also receive information of the European Rapid Alert System (RAPEX and RASFF) and are responsible for checking follow-up measures accordingly.

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The Portuguese Institute for the Sea and Atmosphere (IPMA) is also involved in the official control of the seafood products using its laboratory to the control of fish species identification of samples collected from the other official competent authorities. To this effect methods used rely on the characterization of proteins (IEF) and in the analysis of mitochondrial DNA by molecular biology methods.

On a voluntary basis and for the past two decades, the Portuguese association for the protection of consumers (DECO) also promotes or participates in sampling and control of fish and fishery products (usually choosing more important commercially species) but on an irregular time frame. Usually the study has a component of control of product labeling and species identification.

In summary in Portugal there are at least five official institutions that regularly check by direct inspection or analysis of commercial invoices whether the fish species name written on the label is correct, being these:
a) DGAIEC - General Directorate of Customs and Excise Duties (public administration) – on arrival;
b) DGRM - Directorate General of Marine Resources/Fishery Inspection (public administration) – on arrival/transport;
c) DGAV - Directorate General of Food and Veterinary (public administration) – on safety issues, on entrance of imported products;
d) ASAE - Economic and Food Safety Authority (public administration) – on trading, restaurants, markets;
e) IPMA – Portuguese Institute for the Sea and Atmosphere (public administration) – on samples collected by other official competent authorities.

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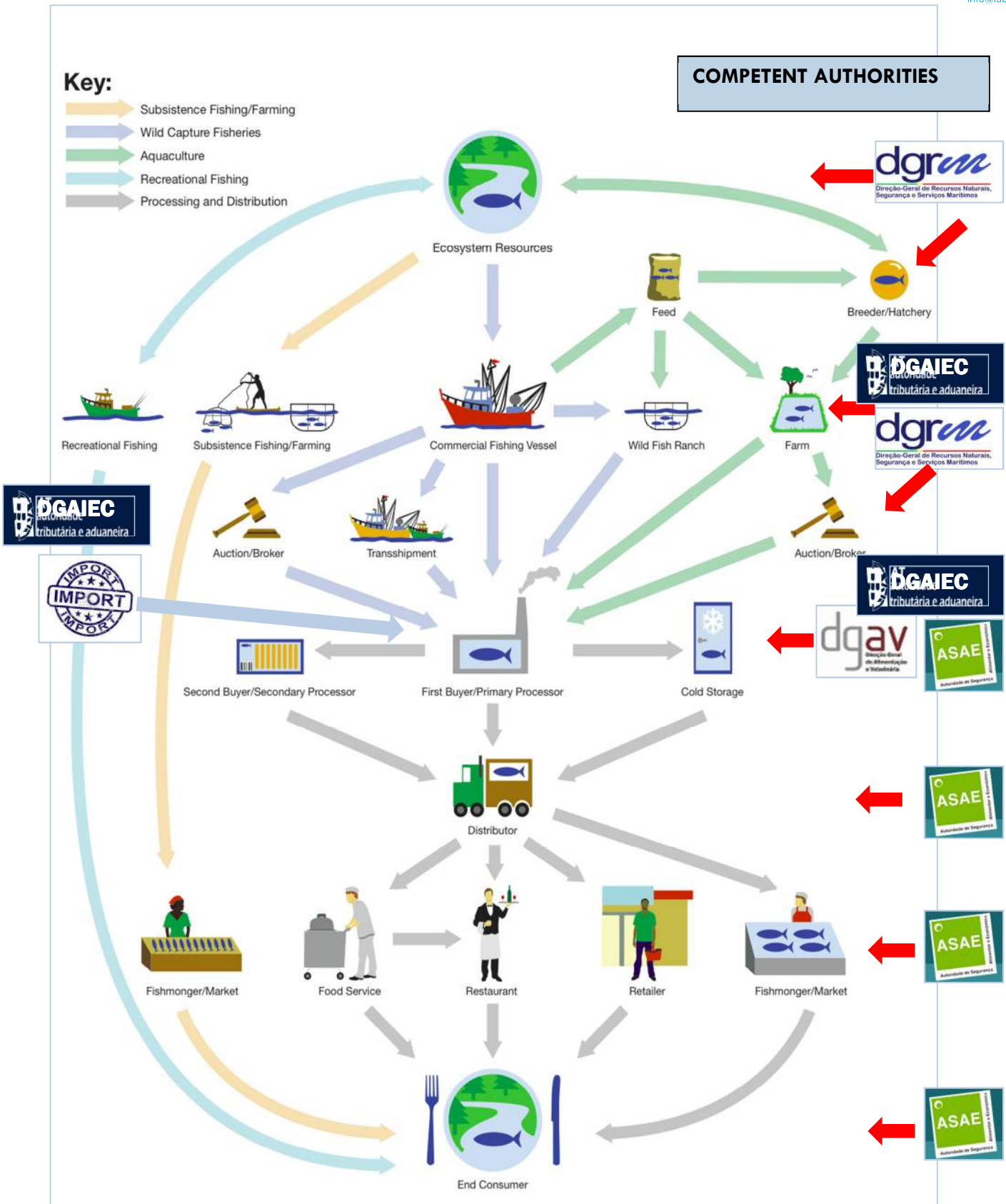

Figure 1 - Simplified seafood supply chain that bring product to the Portuguese end consumer. Red arrow represent points of inspection of competent authorities.
Adapted from http://blogs.miis.edu/tamiweiss/files/2012/08/supply-chain.jpg

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Competent authorities/ Administrative Structure

Who does what, when, where.

As previously mentioned, several public organizations of the Portuguese government play a key role in the control of the compliance of national and European regulation on traceability and labelling of seafood products.

Portugal is administratively divided into five regions (North, Centre, Lisbon and Tagus Valley, Alentejo and Algarve) and two autonomous regions, Azores and Madeira. The autonomous regions have an elected regional government, with legislative powers. Three ministries and the competent departments of the autonomous regions, as well as other entities in accordance with the functions and duties specific to each that are listed in this section participate in the official control.

The introduction of fishery products into the European community customs territory is subject to prior checks to be carried out by the competent authorities. In Portugal, the General Directorate of Food and Veterinary and the General Directorate of Customs and Excise Duties are responsible for verifying the compliance with the measures laid down in regulations (EC) No 1005/2008 and (EC) No 1010/2009 of the Commission which establish a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU).

This section describes briefly the nature of each of the bodies and major assignments as well as the other governmental bodies involved in the control of regulations in the seafood chain.

GENERAL DIRECTORATE OF CUSTOMS AND EXCISE DUTIES (DGAIEC)

The DGAIEC is the service of the Ministry of Finance that has for mission the control of the community border and the national customs territory for fiscal and economic purposes and protection of the society, in particular in the field of culture, the environment and public health and safety, as well as to administer excise duties and other indirect taxes which are committed.

Within the limits of its assignments of the control of the external border in relation to the fisheries products and in compliance with regulatory measures, the DGAIEC has a mandate to:

a) Receive and manage the catch certificate, in relation to the correct validation by the proper authorities with competence assigned by the respective countries;
b) Ensure that the remaining documentation, when necessary, is delivered together with the respective catch certificate;
c) Ensure that the documentation previously referred is presented and properly identified when declarative formalities are involved at the presentation of goods to customs and its further clearance.

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d) Proceed where it is necessary, to the examination of the content of the documentation submitted and/or the consignment in order to monitor the accuracy of the information supplied in compliance with the declarative formalities referred to in point (c).
e) Communicate to the competent services of DGRM, the situations which give rise to doubts, as well as the non-compliance with the regulatory measures.

GENERAL DIRECTORATE OF FOOD AND VETERINARY (DGAV)

The DGAV is a central department of public administration, tutored by the Portuguese Ministry of Agriculture and Sea, and has direct responsibility as National Sanitary Veterinary Authority. The mission of DGAV involves the definition, implementation and evaluation of policies for food safety, animal protection and animal health, plant protection and plant health, and is also invested as the veterinary and phytosanitary health authority and national authority responsible for the management of the food safety system. Main areas of responsibility include: (i) animal health and animal welfare protection control, (ii) health certification of animals and animal products, (iii) official inspection/hygienic control on production, (iv) processing and storage of animal products and animal by-products or animal feed, (v) evaluation, authorization, regulation of marketing and use of veterinary medicinal products, (vi) veterinary biocides and veterinary products, and (vii) coordination of actions to defend Genetic Heritage as well as Animal Breeding.

BORDER INSPECTION POST

The trade of animal products, products of animal origin and live animals, between the European Union (EU) and third countries, as well as among Member States, are based on a broad set of directives, regulations and decisions that allows a harmonized approach from the veterinary authorities of the Member States. On entrance in the EU through the Portuguese borders, products and animals are checked at specific and approved entry points, called Border Inspection Post (BIP). They are under the responsibility of official veterinarians, who conduct veterinary checks and ensure that animals and products are safe and meet the specific import conditions laid down in European and national legislation. In the case of Portugal, the veterinary checks carried out in the BIP are the responsibility of the DGAV.

The Lisbon BIP is the largest and busiest border inspection post in Portugal, playing a key role in the control of consignments introduced in the EU through the Portuguese territory. At the Portuguese border inspection post the inspectors perform the veterinary controls of the products which includes, namely the documentary control, a physical (quality) check and the identity control of the products.

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This identity check is made by visual inspection of the agreement among the animals or products and the respective certificate(s) or veterinary document(s) submitted (article 2 of the 97/78/CE Policy). In the case of products, and when these are transported in containers, the seals affixed by the official veterinarian of the country of origin are verified. The label control is intended to confirm that these are intact and that the data listed on them correspond to the certificates or documents accompanying the products (article 4 of Directive 97/78/CE).

After the control of label, this is removed and the container opened, in order to verify the presence and conformity of stamps, labels or health marks identifying the establishment and country of origin with the certificate or documents that accompany the consignment (article 4 of Directive 97/78/CE). However, if the legislation does not mandate or allow the reduction of checks, a reduced identity check can be carried out, that is just a label control, without opening the container. In the case of packaged products the control of labelling according to the specific legislation (article 4 of decision 97/78/CE) is made.

In terms of physical check these are to be carried out according to frequencies laid down in Commission Decision 94/360/EC or equivalence agreements and are defined as "a check of the product itself, possibly including sampling and laboratory testing". The aim of the physical check of the animal products is to ensure that the products still meet the purpose mentioned on the veterinary certificate or document. The guarantees of origin certified by the third country must be verified accordingly while ensuring that the subsequent transport of the product has not altered the original guaranteed condition, by means of:

- sensory examinations: smell, color, consistency, taste;
- simple physical or chemical tests: cutting, thawing, cooking;
- laboratory tests to detect: residues, pathogens, contaminants, evidence of alteration.

At the Border Inspection Post other than a visual identification process, no analytical check is made regarding the identification of the fish species, in the case of fishery and aquaculture products or in any other type of food products.

AT THE BORDER NO ANALYTICAL CHECK REGARDING THE IDENTIFICATION OF THE FISH SPECIES IS MADE IN THE CASE OF SEAFOOD PRODUCTS

GENERAL DIRECTORATE OF NATURAL RESOURCES, MARITIME SAFETY AND SERVICES (DGRM)

The General Directorate of Natural Resources, Maritime Safety and Services (DGRM) is a central department of public administration, tutored by the Portuguese Ministry of Agriculture and Sea,

dgrm Direção-Geral de Recursos Naturais, Segurança e Serviços Marítimos

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and is the Portuguese national authority responsible for the coordination, schedule and runs with its own means or in collaboration with other agencies and institutions whose activities are related to the monitoring, control and surveillance of fishing activities, aquaculture and related activities. In its responsibilities are included the Fisheries Control and Inspection System (SIFICAP) and Vessel Monitoring System (MONICAP) ensuring its integrated operation. It also manages and develops resources and computing applications and communication systems through its Fisheries Inspection Directorate (DSF). DGRM further manages the information system for fisheries in its various components of national and regional coverage and links to relevant national and international bodies. It is also responsible for licensing of fisheries, as well as the system of statistical fishing under the national statistical system, ensuring the expansion and development of the National Data Bank on Fisheries (BNDP); DGRM-DSF undertakes the supervision and monitoring of Portuguese marine fisheries, aquaculture and associated activities.

Is also the responsibility of the DGRM, while National Fisheries Authority, through its Directorate for Fisheries Surveillance of the Regional Fisheries Board of Madeira, in the autonomous region of Madeira and the Azores Fisheries Regional Inspection of the autonomous region of the Azores, in compliance with the established by the European Commission regulation to:

a) Designate the ports or places where landing or transshipment operations of fishery products in the national territory are authorized;
b) Receive and handle notifications prior to landing or transshipment of fishery products transported by third-country fishing vessels;
c) Perform the inspections on the landing and transshipment operations by third-country fishing vessels;
d) Perform the checks considered necessary to ensure compliance with regulatory measures;
e) Issue and validate the European Community Catch Certificates for the purpose of export/re-export from Portugal;
f) Clarify the situations which give rise to doubts in the implementation of the measures laid down and provide instructions on the importation of fishery products;
g) Grant the status of “approved economic operator" in the context of fisheries;
h) Carry out the checks of specific nature on fishery products.

ECONOMIC AND FOOD SAFETY AUTHORITY (ASAE)

The ASAE is the last public organization with intervention in the seafood chain, mostly in the final stages of the transactions. ASAE is a central department of public administration, tutored by the Ministry of Economy and Employment. ASAE has the task of evaluation and communication risk

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in the food chain, as well as the monitoring and prevention of the regulatory compliance of the exercise of economic activities in the food and non-food sectors. ASAE is engaged among others, in the following tasks:

a) Inspection of all places where any industrial activity related to tourism, commerce, agriculture, livestock slaughtering, fishing and services are developed;
b) Inspection of the supply of products and services in accordance with legally laid down regulations with a view to ensuring the safety and health of consumers, as well as the legal obligations of economic operators, thus researching and producing the respective instruction of the legal cases falling in the legally assigned jurisdiction;
c) Promotion of preventive and repressive action on offences related to the genuineness, quality, composition, food additives and other substances and labelling of foodstuffs and feeding stuffs;
d) Characterization and assessment of the risks that have direct or indirect impact on food safety, ensuring public and transparent communication of the risks and promoting the dissemination of information on food security to consumers;
e) Cooperation in its area of competence with the European Food Safety Authority;
f) Administration in conjunction with the DGAV of the national plan for residue control and the official program of control of pesticides residues in products of vegetal origin;
g) Provision of scientific and technical advice, recommendations and warnings, particularly in matters related to human nutrition, animal health and welfare, plant health and genetically modified organisms.

Among the official control bodies, together with IPMA, ASAE is the only one to have own laboratories and particularly from the end of 2014 to have the expertise of Molecular Biology integrated in the competences of the Microbiology Laboratory. This Microbiology Laboratory is incorporated in the Department of Food Hazards and is going to proceed with its activity in the area of Molecular Biology, to the detection and quantification of fish species by sequencing as well as vegetables, food-borne virus research, emerging or re-emerging microorganisms, microorganisms of important technological relevance and allergens.

PORTUGUESE INSTITUTE FOR THE SEA AND ATMOSPHERE (IPMA)

IPMA is a public research institute devoted to carry out research, technological development, innovation, services and dissemination activities on sea and atmosphere, including sustainable exploitation of marine resources as well as on production, upgrading and processing of seafood products, both from fisheries and aquaculture. IPMA acts as counsellor to the national authorities on fisheries and aquaculture, fishing industry and fishery organizations, and is member of a high number of national and international commissions. Furthermore IPMA is also the national reference laboratory for the evaluation of bivalve mollusc microbiological quality and for the analysis of

chemical contaminants in farmed fish species. At IPMA the research unit involved in the quality control of fishery products from the industry and the other official competent authorities is the Division of Aquaculture and Valorisation (DivAV). This division has a deep expertise in seafood upgrading and quality and safety and also in the improvement and development of new analytical tools for seafood quality and safety.

IPMA/DivAV ensures the implementation of various activities in order to set up harmonized procedures and analytical techniques for the control of genetic traceability and labelling of seafood products sold in the Portuguese market. From the activities developed it stands the participation in the analysis of the current situation of traceability and labelling of seafood products sold in the markets of Portugal, the analyses of the current situation of methods and analytical tools used in Portugal for the control of traceability and labelling and the participation in the establishment of a network of laboratories and public entities with interest and authority in seafood traceability and labelling.

IPMA/DivAV has a quality control laboratory dedicated to the analysis of products from the fish industry and has acquired qualification and interest in traceability of fishing products through participation in several EC research projects concerning the identification of fish species: "Identification and quantification of species in marine products" (FAIR No. UP 3.783), "Advanced methods for identification and quality monitoring of processed fish" (FAIR CT95-1227), "Identification of species in processed seafood products using DNA-based diagnostic techniques" (FAIR CT97-3061) and "Atlantic network on genetic control of fish and seafood labelling and traceability" (INTERREG 2009-1/67).

THE ECONOMIC AND FOOD SAFETY AUTHORITY (ASAE) AND THE PORTUGUESE INSTITUTE FOR THE SEA AND ATMOSPHERE (IPMA) ARE THE OFFICIAL CONTROL BODY WITH LABORATORIES EQUIPED FOR IDENTIFICATION OF FISH SPECIES BY MOLECULAR BIOLOGY METHODS

3.2 EXPERIENCE AND RESULTS OF THE OFFICIAL CONTROL

Among the competent authorities with intervention in the control of seafood labelling DGAIEC perform only activities of control of labelling at the level of documental check of identity of products at the borders and points of entrance. Within its control activities this entity do not perform any detailed analysis whether the fish species declared in the label is correct, being this only documental and visual.

In relation to DGRM and DGAV the activity is mostly performed at the level of the producers and processors. ASAE is the Portuguese competent authority with the widest area of activity and with the greatest number of interventions in the fish supply chain, covering from processors/producers to distribution, retailers, markets, restaurants and food services. ASAE is the only authority to have available information regarding the control actions performed by

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the field inspectors, namely the fraudulent mislabeling cases detected. The other competent authorities consider the information of restricted access and this was not rendered accessible, since it involves legal issues pending court resolution.

In relation to the fraudulent replacement of species detected during inspections actions, Table 1 presents the species more prone to be substituted.

Table 1 - Frauds detected by ASAE regarding fish species replacement during 2010-2014. Source ASAE webpage at http://www.asae.pt/ consulted at 30.12.2014.

SPECIES	REPLACED BY
Atlantic wreckfish *(Polyprion americanus)*	**Nile perch** *(Lates niloticus)* **Panga (***Pangasius hypophthalmus)*
Cod *(Gadus sp.)*	**Alaska Pollack** *(Theragra chalcogramma)* **Striped seasnail** *(Liparis sp.)*
Dogfish *(Galeorhinus sp./Mustelus sp.)*	**Blue shark** *(Prionace glauca)*
Gilthead seabream (wild) *(Sparus aurata)*	**Gilthead seabream (aquaculture)** *(Sparus aurata)*
Grouper *(Epinephelus aeneus)*	**Nile perch** *(Lates niloticus)*
Hake *(Merluccius sp.)*	**Panga** *(Pangasius hypophthalmus)*
Octopus *(Octopus vulgaris)*	**Giant squid** *(Dosidicus gigas)*
Seabass (wild) *(Dicentrarchus labrax)*	**Seabass (aquaculture)** *(Dicentrarchus labrax)*
Sole *(Solea solea)*	**Panga** *(Pangasius hypophthalmus)* **Black halibut** *(Reinhardtius hippoglossoides)*
Squid *(Alloteuthis sp./Loligo sp.)*	**Squid** *(Berryteuthis sp.)* **Giant squid** *(Dosidicus gigas)* **Squid** *(Illex sp.)* **Arrow squid** *(Nototodarus sp.)*

Information gathered is based on the data from the Economic and Food Safety Authority from the period 2010 to 2014. In total 10 fish species have been found to be replaced by less expensive ones, with particular relevance to the use of Panga as the most frequently fish species used for the replacement.

Regarding the control of labelling in terms of the analytical support laboratories operating in Portugal, some points can be summarized:

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1. ASAE is the only competent authority to have laboratory facilities for molecular biology analysis dedicated to seafood identification. Tough not being a competent authority for the species identification, IPMA is also a public laboratory with the capacity to perform fish species identification;
2. In view of the reduced number (3) of laboratories with fish species identification capacity no national network of laboratories is in place;
3. The private laboratory BIOPREMIER is the only Portuguese laboratory accredited according ISO 170125: 2005 for identification of organisms by PCR and DNA sequencing of pure samples. The competent authorities and official laboratories consider as highly recommendable the existence of normalized methods that would allow the identification of the most relevant fish species;
4. The existence of an official European method for authentication of seafood products is regarded by all the actors in this sector as an important step towards the increase in the confidence of consumers in the seafood products;
5. Requirements for this methodology would involve the development of a process that should be, tendentially, universal, for either raw or processed fish, or must propose, through a clear gene based decision-tree scheme, different alternatives (no more than three) for big specific groups. Also, this methodology should be accepted as an universal standard on European or International Standard Organizations. For this, it must have on its basis, tests on at least 80/100 different species samples, of different nature and different trials on a large number of labs, as ISO usually does.
   Furthermore the method should also be rather cheap and use some common lab resources available in all European countries. A sound European database for fish species, with stored specimens and double checked sequences (similar to BOLD), but with more than one gene sequences (i.e. cyt b, COI….etc.) as some species will need extra confirmation, and available as control samples for the rest of countries, will also be needed. This database should have an availability duration of no less than 10-15 years if possible.

3.3 SURVEY OF ANNUAL CONTROL PLANS AND *MODUS OPERANDI*

As previously referred DGAIEC does not performs any kind of control of the label in relation to the fish species identification either than a visual one. In relation to the other competent authorities no annual plans of control regarding the control of labelling are in place, though some control is performed integrated in the normal inspections performed in the course of the development of the control of the activities of their specific competence.

Considering specifically the case of samples taken at inspection for control of labelling by the use of molecular biology methods we found that per year:

1. DGRM and DGAV – variable number, accounted as not more than 5-10 samples/year (2012-2014);
2. ASAE – Between 20-30 samples/year (2012-2014).

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At present the laboratorial control of the fish species identification of the products inspected is done by methods of DNA extraction, PCR methods, SANGER sequencing. Though protein based electrophoresis methods were used in the past, they are not used anymore. These services are requested by the competent authorities either at private accredited laboratories or public laboratories like IPMA.

Following information gathered at the Portuguese competent authorities in the control of seafood labelling, it can be summarized that in Portugal:

1. No specific plans exist for the official labelling control of seafood products;
2. No annual official sampling plan is specified for identification of fishery products;
3. No verification of the conformity of fish species declared as ingredients in processed products is made;
4. The origin of products declared in the label is not verified either than from documental sources;
5. The major limiting factors for a better control of labelling are unquestionably the insufficient human resources and costs.

3.3 STATISTICS OF LEVEL OF COMPLIANCE

At present only ASAE renders available the fraud cases arising from their inspections on fishery products. Data regarding the years from 2010 to 2014 with specifications of the number of cases detected and the fish species replaced are presented in Table 2.

In the 5 years' timeframe records of ASAE inspections, replacements were naturally more frequent in the more expensive fish species, particularly cod and Atlantic wreck fish and also in a lesser extent sole. The number of detected frauds is relatively small and this can be explained either by the low level of inspections or the proper labelling of seafood products.

To have an idea of the level of fraud detected involving the replacement of fish species it is presented in Table 3 a summary of the overall operational activity of ASAE in the years 2011-2014 with the detected fish species frauds.

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Table 2 – Frauds detected by ASAE inspections (Economic and Food Safety Authority) regarding fish species replacement during 2010-2014. Source ASAE webpage at http://www.asae.pt/ consulted at 30.12.2014.

SPECIES	REPLACED BY	2010	2011	2012	2013	2014	TOTAL
Atlantic wreckfish	**Nile perch**	1	1	7	4	1	
Polyprion americanus	*Lates niloticus*						
	Panga			1			
	Pangasius hypophthalmus						15
Cod	**Alaska pollack**		4	5	5	3	
Gadus sp.	*Theragra chalcogramma*						
	Striped seasnail				1		
	Liparis sp.						18
Dogfish	**Blue shark**				1		
Galeorhinus sp.	*Prionace glauca*						
Mustelus sp.							1
Gilthead seabrem (wild)	**Gilthead seabrem (aquaculture)**			1		3	
Sparus aurata	*Sparus aurata*						4
Grouper	**Nile perch**			1			
Epinephelus aeneus	*Lates niloticus*						1
Hake	**Panga**			4	2		
Merluccius sp.	*Pangasius hypophthalmus*						6
Octopus	**Giant squid**			5	2		
Octopus vulgaris	*Dosidicus gigas*						7
Seabass (wild)	**Seabass (aquaculture)**			2		2	
Dicentrarchus labrax	*Dicentrarchus labrax*						4
Sole	**Panga**	1	1		2	2	
Solea solea	*Pangasius hypophthalmus,*	1					
	Black halibut *Reinhardtius hippoglossoides*						7
Squid	**Squid**						
Alloteuthis sp.	*Berryteuthis sp.*						
Loligo sp.	**Giant squid**			1			
	Dosidicus gigas						
	Squid				1		
	Illex sp.						
	Arrow squid						
	Nototodarus sp.	1				1	4
TOTAL		4	6	27	18	12	67

As it was previously mentioned, the level of fraud involving the replacement of fish species is relatively low in comparison with the overall merchandise fraud and attains a mean level of 1.9% in the period 2011-2014. The available data does not allow to discriminate within the targets/operators inspected which were involved specifically in the seafood value chain. So for example for the 35 747 inspections made in 2014 it is impossible to know how many seafood operators were involved and therefore to know the exact level of conformity of seafood labelling.

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Table 3 – ASAE Accumulated Operational Activity 2011-2014 (November 2014) with frauds detected regarding fish species replacement.
Source ASAE webpage at http://www.asae.pt/ consulted at 30.12.2014.

	2011	2012	2013	2014 (November)	TOTAL
Overall Operations	8 298	10 426	9 478	3 099	**31 301**
Targets/Operators	48 334	46 489	45 523	35 747	**176 093**
Overall Merchandise Frauds	1 118	998	811	355	**3 282**
Fish species frauds	6	27	18	12	**63**
% of fraud	0.5%	2.7%	2.2%	3.3%	**1.9%**

3.4 SEAFOOD LABELLING CONTROL BY THE INDUSTRY

Considering that the conformity of the seafood labelling is a responsibility of the seafood operators, these were contacted in order to know the level of request of identification of fish species to control laboratories, what kind of products are being controlled and finally what type of laboratories are been used for this purpose, public or private.

From the 15 replies received, 8 operators stated to have requested at some point in the last 3 years, a species identification analysis. Seven operators did not request the analysis but all of them were aware of the existence of an analytical method for fish species identification. In general the private laboratory operating in Portugal was preferred to the public ones and performed 75% of the analysis requested, though some operators used simultaneously both private and public.

Another important aspect of the control of labelling is related with the needs of the industry and what are the fish species more prone to doubts. In this respect the seafood species object of request of analysis were:

- Hake
- Cod
- Sole
- Tuna
- Sardine
- Panga
- Salmon
- Alaska Pollack
- Atlantic wreckfish
- Sardinella
- Shrimps

From the data collected, it is clear that there is already a reasonable acceptance of the use of the services providing fish species identification for labelling purposes, namely control of purchases/imports. The preference for the private over the public laboratories is clear and may be justified by the fact that the private laboratory is accredited by ISO 17025:2005. Furthermore it is curious to note that when the analytical request from the industry are

compared with the frauds detected by the inspections of the competent authorities it is clear that the replacements are almost exactly on the same fish species object of control by the industry.

Being one of the major concerns of the Portuguese stakeholders the risk of losing the confidence of the customers when cases of fraud are detected, they all request analytical procedures less expensive and with faster time of reply. Taking into account the growth on imports from outside of the EU countries, the level of control by the operators is necessarily increasing and the general opinion is that the control at point of entrance should include also the fish species identification check.

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