1. VALUE CREATION AND SUSTAINABILITY

Additional material



SUSTAINABILITY IN THE FISH INDUSTRY



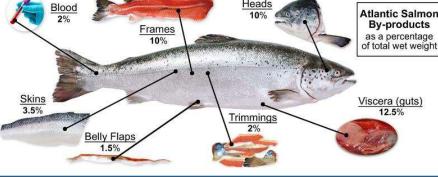
FISH BY-PRODUCTS - EXAMPLE

Key findings:

- The main by-products generated were trimmings, heads, frames, skins and belly flaps, with the largest reported category being "mixed by-products".
- The Food Recovery Hierarchy would suggest that greater value could be retained or added to these by-products were they to be used for food rather than feed.
- There were three main categories:
- Food for Human Consumption (15%)
- Livestock and Pet Feed (75%),
- Fuel and Fertiliser production (10%).
- Conclusion:
 - Strategic by-product utilisation could result in a potential monetary value increase of 803% (£23.7 million) and a potential food output increase of 61%.

Findings of a <u>study of Scottish salmon</u> <u>farming (carried out in 2016)</u>





Source: <u>Aquahoy (February 2018)</u>

MARINE STEWARDSHIP COUNCIL (MSC)

- The sustainability label best known to consumers is the Marine Stewardship Council (MSC) label. The MSC is the international program for the certification of sustainable and well-managed fisheries, aiming at a standard of sustainability and fish eco-labelling.
- The MSC label certifies fisheries according to three principles:
 - Sustainable fish stocks (i.e., avoiding overfishing)
 - Minimization of the environmental impact (e.g., limiting destructive fishing gear and bycatch)
 - Effective management and governance
- However, the MSC certification has no consideration of social or economic impacts nor environmental impacts beyond the local marine ecosystem.



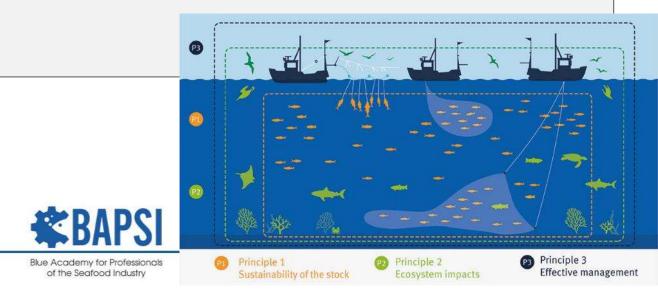




MARINE STEWARDSHIP COUNCIL (MSC)

Mission:

- Use our <u>ecolabel</u> and <u>fishery certification program</u> to contribute to the health of the world's oceans by recognising and rewarding sustainable fishing practices, influencing the choices people make when buying seafood and working with our partners to transform the seafood market to a sustainable basis.
- The blue MSC label is only applied to wild fish or seafood from fisheries that have been certified to the MSC Fisheries Standard, a set of requirements for sustainable fishing:
 - Only fishing healthy stocks
 - Being well-managed so stocks can be fished for the long-term
 - Minimising their impact on other species and the wider ecosystem



AQUACULTURE STEWARDSHIP COUNCIL (ASC)

- The <u>Aquaculture Stewardship Council</u> (ASC) developed a program for the international certification of sustainable and well-managed farms, aiming at a standard of sustainability and fish ecolabelling.
- This label certifies aquaculture farm-raising according to responsible environmental impacts of farming, according to requirements for workers' rights and protecting communities surrounding the certified farms.

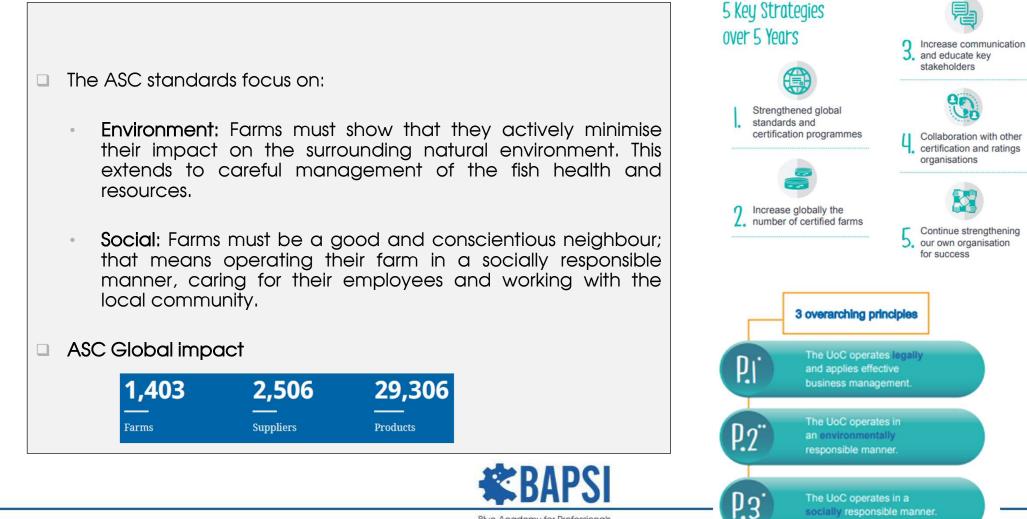




of the Seafood Industry



AQUACULTURE STEWARDSHIP COUNCIL (ASC)





2017-2021 Strategic Overview

Aquaculture Stewardship Council (asc-aqua.org)

MONTEREY BAY AQUARIUM'S SEAFOOD WATCH

It is one of the best-known fish and seafood guides and provides consumer advice for particular species, with each species and harvest method graded as "best choice", "good alternative", or "avoid". It does not examine social or economic or even environmental impacts of fish products.

This guide follows four criteria:

- Impacts on the species under assessment
- Impacts on other species
- Management effectiveness
- Impacts on the habitat an ecosystem

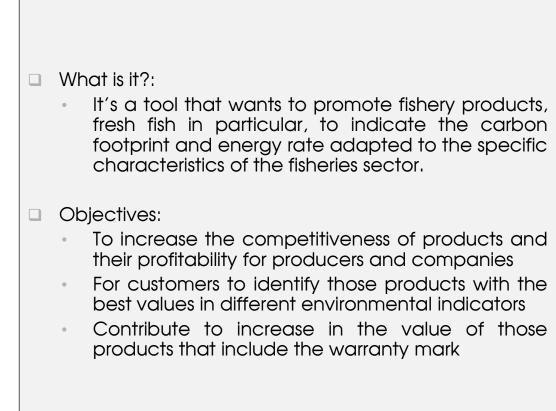
Monterey Bay Aquarium





The Monterey Bay Aquarium Seafood Watch program creates science-based recommendations

PESCA EN VERDE



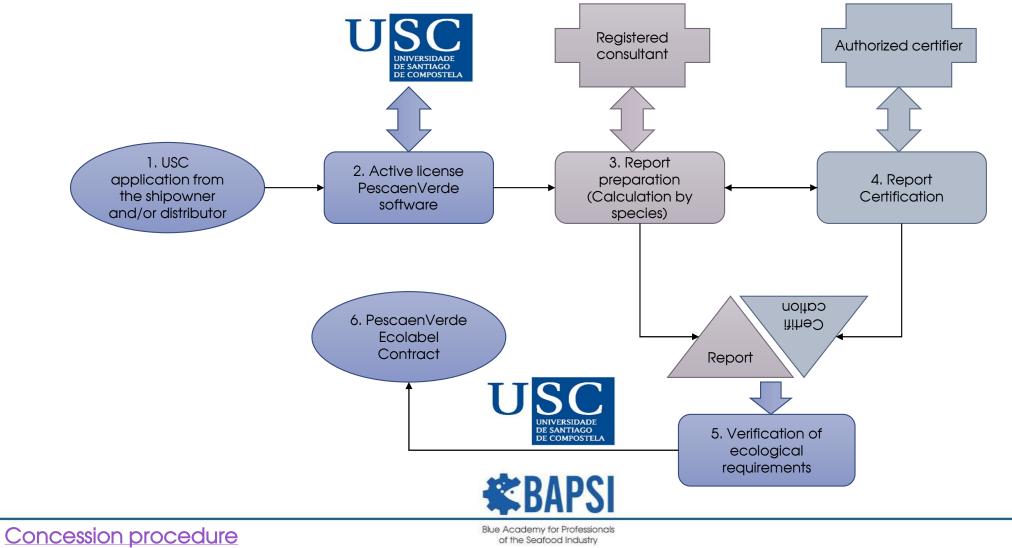


Carbon footprint: Amount of GHGs emitted into the atmosphere over the life cycle of a product measured in units of equivalent CO2 weight Edible protein energy return on investment ratio: Quotient between energy obtained in protein form and energy invested to obtain such a product (throughout its life cycle)

Eco-label <u>Pescaenverde</u>



PESCA EN VERDE- CONCESSION PROCEDURE





PESCADERÍAS

What is it?:

Identity mark which promotes and defends fish and shellfish from the small-scale fleet whose quality and diversity go beyond our borders.

Objectives:

- Distinguishing clearly those products that come from the small-scale fleet
- Guarantee the freshness and quality of the products
- Distinguish the freshness and quality of the product in the current competitive market
- On the graph are the specific eco-effect indicators of species and minor arts in national caladoiro (coast of Galicia) certified

Specific eco-effect indicators of species and minor arts in national caladoiro (coast of Galicia) certified

Grupo Biolóxico	Pegada de Carbono Límite de referencia kgCO _{2(eq)} /kg	Taxa de Retorno Enerxética Límite de referencia (%)	Especies Pescaderías pescadeRías conraiseros
Peixes	2,14	7,12	Agulla Alerique, Anguía, Boga, Bertorella de rocha, Bertorella de lama, Congro, Choupa, Doncela, Escarapote de pedra, Escaraporte de pintas, Pescada, Faneca, Fodón, Bonito do norte, Raia, Xurelo, Xarda, Piarda, Sardiña, Maragota, Melgacho, Ollomol, Pancho bicudo, peixe sapo, xuliana, castañeta, robaliza, coruxo, rodaballo, abadexo, Sargo coún, escachos, acedía, linguado, linguado da area, linguado de pintas, lirio, muxos, saboga, salmonete de rocha, salmoinete de lama, sarrán cabra , sanmartiñoi, solla, corvina real, barbada de area, prago, dourada, bolo vermello, bolo verde, chaparella, lirpia raida, cherna, mero escuro, rapapelo imperial
Gasterópodos	4,24	0,44	Caramuxo, lapa común, peneira
Cefalópodos	5,41	3,34	Polbo, choco, choquiño, lura, pota común
Crustáceos	8,82	0,57	Boi, camarón común, cangrexzo común, centola, cigala, lagosta, lumbrigante, nécora,percebe, santiaguiño
Equinodermos	0,99	1,46	Ourizo
Algas	0,17	-	Argazo, argazo bravo, golfo, touca, cinta, sulse
Antozoos	4,11	2,84	Ortiguilla



FRIENDS OF THE SEA (FOS)

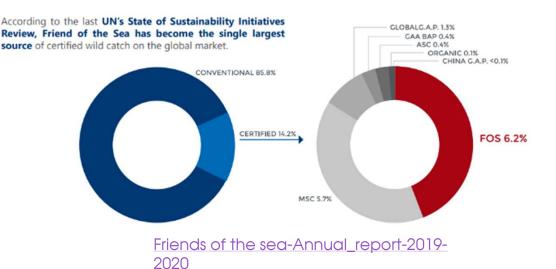


It is the leading certification standard for products and services which respect and protect the marine environment. The certification awards sustainable practices in Fisheries, Aquaculture, Fishmeal and Omega 3 Fish Oil.

Requirements:

- non-overexploited target stock according to FAO, Regional Fishery Bodies and National Fisheries Authorities
- no significant impact on the seabed
- selective fishing gear (max 8 percent discard)
- no bycatch listed as `vulnerable' or worse in the IUCN Redlist
- compliance with legal requirements (including TACs, no IUU, mesh size, minimum size, etc.)
- waste and energy management
- social accountability

It also promotes pilot projects related to restaurants, sustainable shipping, whale and dolphin-watching, aquaria, ornamental fish, UV creams and others.



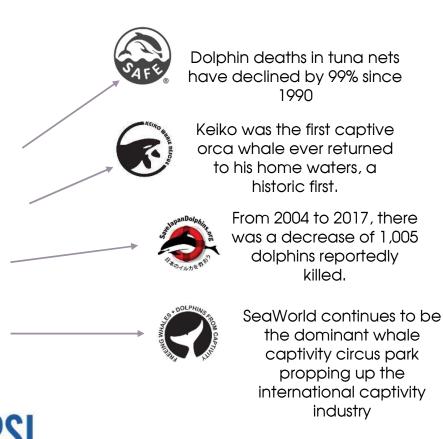


INTERNATIONAL MARINE MAMMAL PROJECT

- Project of the non-profit environmental organization and fiscal sponsor <u>Earth Island</u>.
- It has led the fight to protect dolphins, whales, and the ocean environment:
 - Pioneered the "Dolphin Safe" tuna fishing standard, stopping the intentional chasing and netting of dolphins and preventing many deaths every year.
 - Directed the historic rescue and release of the orca whale Keiko, made famous in the movie Free Willy.
 - Fighting to end the tragic slaughter of dolphins in Taiji, Japan, as featured in the Academy Award winning movie The Cove.
 - Campaigning to stop all trade in live dolphins and end the captivity of whales and dolphins for circus performances.







International Marine Mammal Project

GLOBAL SUSTAINABLE SEAFOOD INITIATIVE

GLOBAL SUSTAINABLE SEAFOOD INITIATIVE (GSSI)

- Mission: Ensure confidence in the supply and promotion of certified seafood as well as to promote improvement in the seafood certification schemes.
- GSSI recognized': This means that they are `in alignment' with all 186 Essential Components and thus aligned with the FAO Code of Conduct for Responsible Fisheries, FAO Ecolabelling Guidelines (for fisheries or aquaculture) and FAO Technical Guidelines for Aquaculture Certification for aquaculture.



GLOBAL SUSTAINABLE SEAFOOD INITIATIVE (GSSI)

- GSSI provides a global, multi-stakeholder platform for collaboration and knowledge exchange to address sustainability challenges that have an environmental, economic and social impact.
- GSSI operates the Global Benchmark Tool to provide confidence in certified seafood and promote improvement in certification schemes.
- GSSI collaborates with the Sustainable Supply Chain Initiative (SSCI) to develop a seafoodspecific social compliance benchmark

THE BENCHMARK PROCESS MONITORING OF CONTINUED ALIGNMENT 礟 RECOGNITION DECISION BY STEERING BOARD PUBLIC CONSULTATION BENCHMARK COMMITTEE MEETING **OFFICE VISIT** DESKTOP REVIEW APPLICATION WHO IS INVOLVED? Scheme Owner Steering Independent Benchmark Public GSSI Steering Board Experts Secretariat **Board Liaison** Committee



RESPONSIBLE FISHERIES MANAGEMENT (RFM) – ALASKA SEAFOOD

- RFM (Responsible Fisheries Management) is a voluntary and internationally accredited assessment of whether a fishery meets strict criteria to be certified as meeting "responsible fisheries management."
- The model is practical, verifiable, transparent and incorporates the criteria and procedures outlined in the FAO Code and Guidelines.





Sustainability - Alaska Seafood

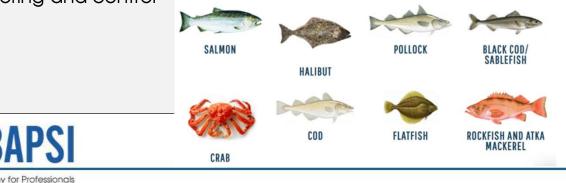
RESPONSIBLE FISHERIES MANAGEMENT (RFM) – ALASKA SEAFOOD

- □ The RMF Certification is the first certification program to be benchmarked against the Global Sustainable Seafood Initiative's (GSSI) Global Benchmark Tool and achieve recognition.
- The program consists of two seafood certification standards that fisheries and the supply chain are assessed against:
 - FISHERIES STANDARD (FS)
 - CHAIN OF CUSTODY STANDARD (COC)

Key components evaluating fisheries:

- 1) The fisheries management system
- 2) Science and stock assessment activities, and the precautionary approach
- 3) Management measures, implementation, monitoring and control
- 4) Impacts of the fishery on the ecosystem

The following Alaska fisheries species have earned the Alaska RFM Certification:



RFM Certification - Alaska Seafood

ICELAND RESPONSIBLE FISHERIES FOUNDATION (IRFF)

The certification mark is a trademark owned by the Iceland Responsible Fisheries Foundation (IRFF) and is only released to organisations or individuals that have a written agreement with the IRFF.

The **main purpose** of the programme is to:

- Preserve the fisheries management principles adopted by the international community
- Document well-managed Icelandic fisheries to the highest level of assurance
- Promote community consensus behind good discipline in fisheries management
- Offer our customers a choice in certification







- a public-private partnership lt is aimed at improving the competitive of Icelandic industries in position foreign markets and stimulating economic growth through increased export.
- Is responsible for marketing and promotion of the IRF programme and supporting the companies in the programme.



ICELAND RESPONSIBLE FISHERIES FOUNDATION (IRFF)

Cod The common size of cod in the catch is in the range of 55 to 90 cm. It has been sustainably sourced from pure waters around Iceland, processed to the highest standards, and received optimal treatment all the way to the market. Delicious, natural, sustainable, and wild, Icelandic fish is an inviting treat.



Saithe

The largest markets are Germany, France and Spain where there is a long tradition of eating salthe.



Golden redfish

The size of golden redfish in the catch is seldom larger than 40 - 50 cm.



Herring

Common size of full grown herring is 30 cm, but they can reach 50 cm.



Haddock

The largest individual, caught in Icelandic waters was 14 years old and measured 109 cm.



Ling

Common size of ling is 60-80 cm. Its length can reach two metres. Most fish caught are between 5 and 9 years old.



Lobster

The Icelandic nephrops lobster is mostly caught from April to September.



Tusk

Tusk in the catch is in the range of 40 til 75 cm. The largest individual caught in Icelandic waters was 120cm. They can live up to 40 years.



Blue Academy for Professionals Iceland Responsible Fisheries for the benefit of future generations Seafood Industry

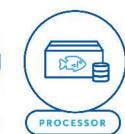
BEST AQUACULTURE PRACTICES

- □ It is based on achievable, science-based and continuously improved performance standards that assure healthful foods produced through environmentally and socially responsible means.
- □ It is the only third-party aquaculture certification program that encompasses the entire production chain, including the processing plant, farm, hatchery and feed mill.



THE BAP PROGRAM COVERS THE 4 STAGES OF THE AQUACULTURE **PRODUCTION CHAIN**







BORD LASCAIGH MHARA (BIM)

- Bord lascaigh Mhara helps to develop the Irish Seafood Industry by providing technical expertise, business support, funding, training and promoting responsible environmental practice.
- Mission: To support and enable an increase in value creation of an Irish sustainable seafood sector, across the supply chain, from catch to consumer.

pool for the sector credentials STAWABILITY **Estimated GDP of Irish Seafood Industry** INNOLATION LENDERSHIP STRATEGIC PRIORITIES Domestic Consumption Private Investment 3 37010 Maximising the COMPETITIVENES GDP beneficial impact €1.09bn* that Irish seafood Developing new has on its host and smarter ways communities and of doing business on the national economy Creating the means of Exports - Imports Government Investment reliably benchmarking the economic performance of 63 Irish seafood so changes can be made that will have the most impact on * Actual total €1,085m value creation 2020 figures

Demonstrating

and environmental

effective differentiation

BIM - Supporting the Irish Seafood Industry

Blue Academy for Professionals of the Seafood Industry



Creating a professional

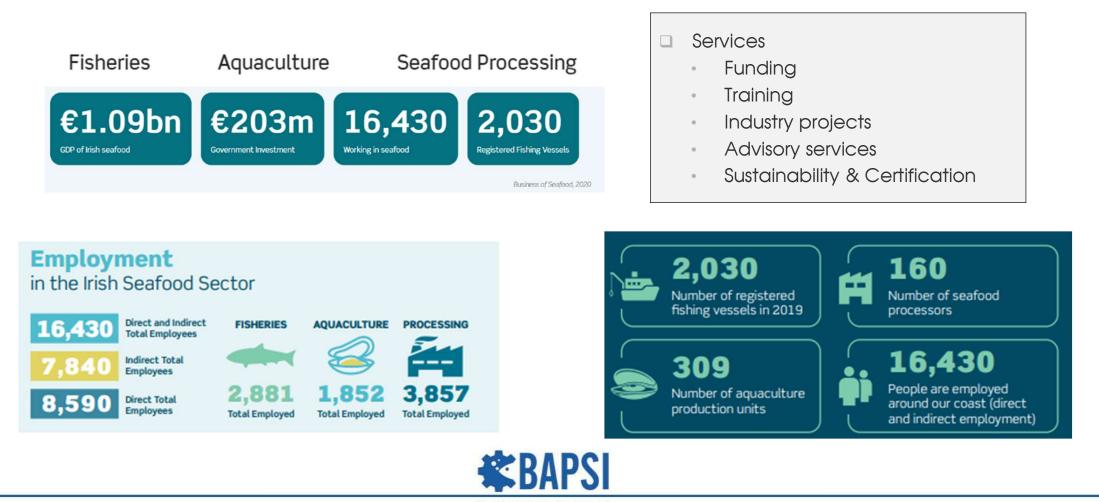
and educated talent

It focuses on the following five key strategic priorities:



BORD LASCAIGH MHARA (BIM)





The Business of Seafood 2020 (March, 2021)

BORD LASCAIGH MHARA (BIM)

Pieces of fresh hake, captured with hook in the mythical fishing grounds of Gran Sol. It is accredited with the certificate of social and environmental sustainability of Friend of the Sea and the Galicia Calidade brand, in addition to being distinguished two years ago with the Food Award of Spain.















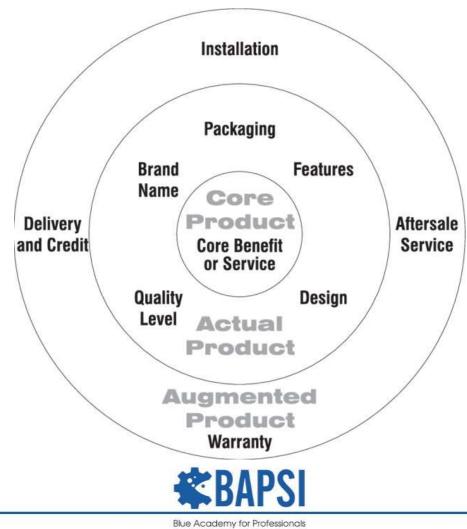
3. MATCHING CONSUMERS NEEDS

Additional material





CONCEPT



of the Seafood Industry



NEW FISH PRODUCTS

THE LIFECYCLE

Introduction



Maturity



Growth



Decline



NEW FISH PRODUCTS

THE LIFECYCLE

□ Farm-raised fish species are able to move through the product life cycle faster than wild caught fish.

The advantage of farm-raised fish is that they are more likely to be available in adequate supply and can be raised at a competitive price.

The fish farmers have the ability to influence the growth stage of the product life cycle of fish species, by becoming actively involved in the promotion of and education about the product among potential consumers. They can push the species of fish through the product life cycle. For example, through innovative actions that can influence and increase the demand for the fish and fish products.



NEW FISH PRODUCTS - THE LIFECYCLE

EXAMPLE

Tilapia fish: a new fish species that reached a long maturity stage

- It was successfully farmed across the world and heavily distributed to the restaurants. The ample supply entered the restaurant channel as more and more consumers tried the white, mild-tasting fish. Then, supermarkets noticed that the restaurants were selling tilapia with large success and began to stock their own counters with this new species.
- Given that tilapia is farm-raised, the supply was consistent in time, and the price of this fish is affordable for consumers.
- Nowadays, tilapia can be found not only at the seafood counter at supermarkets, but also in the prepackaged section.





NEW FISH PRODUCTS - THE LIFECYCLE

EXAMPLE

Chilean Sea Bass: a new fish species that did not reach the maturity stage

It quickly became a popular menu item in restaurants but overfishing of the wild caught species caused a decrease in availability. When the supermarkets began to offer this new fish species, the price was too high for the average consumer to afford and purchase it.

- Therefore, the Chilean Sea Bass, did not achieve the sales level that the supermarkets had planned, and many of the supermarkets stopped carrying and commercializing this species.
- If the availability of the fish species would have been large enough and the price competitive, the Sea Bass might have been more successful in the supermarket.





FORMATS

FORMATS	CHARACTERISTICS		
Supermarket	Self service store designed to meet total needs for food and household products. Includes numerous product lines. Have less than 800 square meter sales area.		
Hypermarket	Self service store designed to meet tota I needs for food and household products, as well as non-foo products like clothing, furniture or home appliances. Have more than 800 square meter sales area. Ar often located at suburban shopping agglomerations, with sufficient parking facilities.		
Discounter	Offer lower prices by offering poor services and operating in a warehouse-like facilities in heavily commercial areas. Low markup, low margin and high volume of products.		
Specialty food store	Short product line and broad deep assortment. High markup and low volume of products. Offer high qua lity, exc lusive or traditiona I products.		
Open/closed markets	Carry out the commercialization and selling of fresh and perishable food products. Usually controlled and managed by the public administration.		
Convenience stores	Small stores in residential areas that carry a limited products' line of high-turnover convenience good Could open seven days a week (24/7)		
Department stores	These retailers carry a wide variety of product lines, and customer services remain their key differentiation		
Shopping mall	A shopping center with a large structure managed by a single company, housing a variety of retail sho and services, located in a suburban setting.		
Outlet	Offer prices 30 - 50 % below retail on a wide range of off-season items. Offer branded products at substantial savings.		
Category killer	Giant commercial size space that carries a very deep assortment of branded products of a particular product line.		



FORMATS

- Supermarkets: the most frequently shopped type of retail store. The conventional supermarkets are self-service stores offering a wide range of items for covering the needs for food and household products (Kotler et al., 2008). These stores have less than 800 square meter sales area. In addition, they usually have a broader and deeper assortment, while offering a broader range of customers' services More precisely, supermarkets often use their assortment diversity as the main selling proposition and as a differentiation variable (Cleeren et al., 2010). Examples are Mercadona in Spain or Tesco in the UK.
- Hypermarkets: mostly differ from supermarkets in size, with more than 800 square meter sales area (Levy & Weitz, 2009), offering wider assortments, and often located at suburban shopping agglomerations, with sufficient parking facilities and easy traffic access. They carry an even larger products' assortment of frequently purchase goods and non-food products like clothing, furniture or household appliances (Kotler et al., 2008). Examples are Carrefour in France, Hipercor in Spain, or Wal-Mart in the USA.



FORMATS

Discounters: These stores are able to offer lower prices by offering poor services and operating in a warehouse-like facilities in heavily commercial areas. Discount retailers or discounters-could be defined as retailers that offer a broad variety of products, limited service and low prices (Levy & Weitz, 2007).

They have strong price focus, which forces them to use a quite simplified store format characterized by very low-level prices, lean and narrow assortments directed at the most primary consumption necessities, limited poor merchandising and promotional activities inside the store (Aggarwal, 2003), combined with great austerity in customer service and limited advertising. That is, discounters offer standard merchandise at lower prices, by accepting lower profit margins and selling higher volume of products (Kotler et al., 2008).

In addition, they distinguish themselves from traditional retailers by offering a small number of product categories, and by a heavy reliance on their own store brands, which make up a major share of the store assortment (Aggarwal, 2003). However, in the recent years and due to a more intense competition, these stores have improved their store environment and increased their services, keeping prices low through efficient operation.



FORMATS

Specialty food stores: These outlets offer narrow product lines but with a great product assortment. These stores are characterized by carrying a deeper product line than conventional stores, in order to attract a segment of consumers who are particularly interested in certain unique product characteristics, such as high-quality, product exclusiveness, high quality or traditional processing and distinctiveness (Zhao and Huddleston, 2012).

In numerous specialty stores, consumers need the salespeople to help them through the purchasing process – for example, when buying deli sliced cheese or meat–; and in turn, these stores offer a good customer service. Examples are Wholefoods in the US, and "El Club del Gourment" of El Corte Inglés in Spain.

Open/closed markets: buildings where retailers carry out the commercialization and selling of fresh and perishable food products. The market is usually controlled and managed by the public administration with a highly traditional management (Anaya Sánchez, 2014). The open markets are located in open places or in commercial areas.



FORMATS

Convenience stores: These are small stores that carry a limited and short products' line of high-turnover convenience goods (Kotler et al., 2008). These retailers are located near residential areas and remain open for long hours until late and in some countries with more relaxed legislation, these stores could open seven days a week (24/7).

They satisfy an important consumer need in a niche segment, because consumers in this segment use convenience stores for emergencies or fill-in purchases outside normal hours or when are short of time (the variable is time-pressure). Consequently, these consumers are willing to pay, even a premium price, for the convenience of location and opening hours. Examples are OpenCor stores in Spain, 7-Eleven in the US, or the stores located in the gas station.

Department stores: These retailers carry a wide variety of product lines, and customer services remain their key differentiation factor (i.e., «money back if you are not satisfied» campaign by El Corte Inglés). Examples are El Corte Inglés in Spain, Harrods in U.K., Saks in the USA or Galeries Lafayette in France. Nowadays, department stores have squeezed their market share, due to more focused specialty stores on

one hand, and more efficient low-prices stores such as discounters.



FORMATS

Shopping malls: an enclosed shopping center with a large structure managed by a single company housing a variety of retail shops and services, surrounded by a parking area and situated in a suburban setting, with a global adoption of design and retail mix. Usually, the shopping malls use an «anchor» such as one or more popular department stores or hypermarkets. Nowadays, due to the competence of online shopping some shopping malls are closing in some areas, giving rise to the "dead mall" phenomenon.

Outlets: they offer prices 30 to 50 per cent below retail on a wide range of items. Most of the outlet shopping malls combine manufacturers' outlets with off-price retail stores and clearance outlets from department stores (Kotler et al., 2008).
Manufacturers send the last year's merchandise. While discounters purchase at regular wholesale prices and accept lower profit margins to keep their prices down, off-price retailers, such as the outlet stores, purchase at lower than regular wholesale prices and then charge consumers less than retail. Consumers are able to purchase branded products at substantial saving.

Category killers: superstores that are specialty stores. These retailer stores feature a giant size space that carries a very deep assortment of branded products of a particular product line. Category killers have been prevalent in a wide range of product categories such as books, electronics, furniture, toys, home supplies, sporting goods, etc. Examples are Fnac, Mediamarkt or Interflora.

Nowadays, category killers are growing fast, due to the increasing use of market segmentation and product specialization has resulted in a greater demand for specialist stores that focus on specific products or segment.

