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TRANSITION TO RESPONSIBLE FISHERIES

POST HARVESTING PRACTICES AND RESPONSIBLE FISHERIES: CASE STUDIES

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POST HARVESTING PRACTICES AND RESPONSIBLE FISHERIES

CASE STUDIES

Directorate for Food, Agriculture and Fisheries
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
2, Rue André-Pascal, 75775 Paris Cedex 16

FOREWORD

The Committee for Fisheries decided in 1997 to embark on a major study of the economic and policy implications associated with a move to responsible fisheries. Entitled *Transition to Responsible Fisheries – Economic and Policy Implications*, the Study covers four distinct areas of work:

- Fisheries Labour and Adjustment to Responsible Fisheries
- Post-Harvesting Practices and Responsible Fisheries
- Government Financial Transfers and Resource Sustainability
- Modelling the Transition to Responsible Fisheries

In carrying out this Study the Committee relied to a large extent on the submission of country case studies and special studies. Separate volumes containing this material have been published for each of the four areas of work. The documents are also available on the OECD fisheries web site (www.oecd.org/agr/fish). The papers contained in this volume were submitted as case studies for the part of the transition study dealing with Post-Harvesting Practices and Responsible Fisheries.

When finalising its Study in March 2000 the Committee for Fisheries decided to make the material available to the public. The main Study – in the form of four synthesis reports and a Statement adopted by the Committee for Fisheries – is available as an OECD publication for sale entitled *Transition to Responsible Fisheries – Economic and Policy Implications* (OECD, 2000).

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THE EUROPEAN UNION

I. Introduction

The objectives and principles of the FAO's Code of Conduct for Responsible Fisheries are the basis for an international commitment to responsible fishing: it is now accepted that the right to fish carries with it the obligation to do so in a responsible manner. This has become widely recognised as the demand for fisheries products continues to grow whilst the resource remains limited. Like other countries, the European Union is still in the process of following up all the practical implications of the Code of Conduct but it is clear that post-harvesting practices are an essential part in achieving its objectives.

The responsible use of resources is a concept that extends beyond conservation policy to encompass the whole fisheries chain. Fishing is not an end in itself but is destined for consumption and it follows that market behaviour has an effect on supply. Maximising the economic benefit of the fishing activity through market management policies has a direct impact on yields, and therefore on production. As the interface between the consumer and the resource, the market can play a significant role in encouraging responsible production practices.

This paper outlines the key areas where the European Community has developed its market support regime to encourage a more efficient post-harvest use of resources. The policies of the European Union's common organisation of the market are designed to increase market stability, which in turn increases the value of the limited resource. These market management measures play an important role in improving transparency, in reducing market volatility and in minimising waste. In order to contribute to the debate on the effect of post-harvest policies on responsible fishing, this paper also describes some of the Commission's proposed reforms to the common organisation of the market.

II. The Community's Common Market Organisation and Trade Policy

2.1 Common Marketing Standards

Common marketing standards are a core part of the Community's common market organisation: only products satisfying agreed quality and size standards may be marketed. These standards apply to both EU production and imported products and, so far, have been adopted for around forty species of sea fish and shellfish, which between them represent the bulk of the species sold for human consumption on the Community market. The standards define harmonised commercial characteristics for products throughout the Community for each class of product in order to keep products of an unsatisfactory quality off the market and facilitate commerce based on fair competition.

2.2 Producers' Organisations

A central feature of the common organisation of the market is the decentralisation of much day-to-day fishing management to Producer Organisations (POs). POs are formed by fishermen voluntarily associating in order to take measures that will "ensure that fishing is carried out along rational lines and that conditions for the sale of their products are improved"[1]. Only the members of POs can qualify for Community financial compensation and assistance when stabilisation measures are taken in line with market organisation rules (see below). However, POs do not confine their activity to merely redistributing market support funds to their members but have to contribute towards adjusting supply to market requirements.

While membership of POs is voluntary, once a member, fishermen have to respect rules in their production and marketing operations. The common organisation of the market provides for additional instruments to reinforce the position of POs should the need for action arise. These include the option to grant exclusive recognition to one PO for a given area to avoid the risk of a multiplication of small unrelated organisations. The Community also provides for financial assistance to improve quality, which is designed to cover part of the cost of running plans to improve quality and marketing. The aid is granted on a decreasing scale over three years. Such measures are optional and may be implemented at the discretion of the Member States under Commission supervision.

Other financial assistance available to POs includes a start-up aid intended to meet part of the operating costs of POs. The aid is granted on a descending scale for a maximum of three years and is subject to a double ceiling based on the value of production marketed and the overheads of the PO.

2.3 Market Intervention Mechanisms

Given the unpredictable nature of fishing, which affords limited control over catches, some imbalance between supply and demand is inevitable. The Community has developed mechanisms to correct the worst effects of these fluctuations.

Withdrawal Following Market Disturbance

Intervention through withdrawal has historically been the main method by which the Community has maintained price stability on the market and contributed towards responsible fishing by preventing the price of fish from falling to such low levels that would encourage over-fishing. Guide prices are fixed annually for a number of species on the basis of average prices registered over the previous three years in representative ports. Today, these prices are largely aligned with the international market prices. The guide prices are then used as a reference to set withdrawal prices, which represent only a proportion (between 70-90%), of the guide price depending on the quality of the product. If the price falls below this level, POs may then take products off the market. The relatively low level of the withdrawal price means that it is unsustainable as an economic support measure for fishermen. The prime function of the intervention price mechanism is to prevent market collapse.

Community pricing policy applied to fishery products has always endeavoured to reflect market realities rather than maintain artificially high prices. The intervention mechanism works as a safety net that

[1] Article 4 of Council Regulation (EC) No 3759/92 on the common organisation of the market in fishery and aquaculture products (as amended).

operates only at the margin. The effect of guide prices for fishery products in terms of isolating producers from competitive pressures should not therefore be exaggerated.

The fact that the existing intervention mechanism is essentially a safeguard measure to protect against local but serious market disturbances can be illustrated by the limited financial support provided under Community legislation[2]. Financial compensation is paid for quantities withdrawn from sale whose price has dropped below the level of the withdrawal price, up to a maximum of 14% of the annual quantities put up for sale. The level of compensation is linked to the quantities of fish withdrawn; the higher the volume taken off the market, the lower the compensation paid:

- 87.5% of the withdrawal price is reimbursed if less than 7% of the annual quantities put up for sale is withdrawn.
- 75% is paid if between 7% and 14% are withdrawn.
- No compensation is paid for volumes over 14%.

Community financial support for market intervention is marginal in terms of total production: the Community spent on average €16m in 1997 and 1998 on intervention measures, or approximately 0.6% of the value of EU species eligible for intervention.

Carry-Over Operations and Other Intervention.

Products taken off the market are not automatically transformed into fishmeal or destroyed: POs can take other steps to ensure that maximum value is extracted from excess supplies of fish. The Community provides some financial assistance for so-called "carry-over" operations where the product is stabilised until the demand has improved. The aid is a flat rate to cover stabilisation and storage costs and bank charges and amounts to a small proportion of the total spent on intervention measures cited above. The aid may be granted for a maximum of 6% of the quantities placed on the market. Other stabilisation measures include:

- Provision for autonomous intervention for products for which it is not possible to fix a withdrawal price because of extreme regional disparities and/or the fact that the product is limited to certain areas.
- Private storage aid applicable to products frozen on board fisheries vessels in the event of a serious market disturbance.
- The compensatory allowance for tuna, which is paid to POs when the market price and import price fall below a threshold of 91% of the Community production price.

Discouraging Small Sizes and Lower Quality Fish

The Commission has reduced the withdrawal prices for smaller sized fish for certain species in order to discourage their capture. Reducing the withdrawal prices means that there is less protection for excess production, which has the effect of discouraging trade in small fish. Similarly, the Community will

[2] Article 12 of Council Regulation (EC) No. 3759/92 on the common organisation of the market in fishery and aquaculture products (as amended).

stop paying compensation for lower quality ("B") products from 1 January 2000[3]. This is part of the Community's policy to encourage trade in the best quality fish in order to extract the highest returns from the limited resource and to reduce waste through poor quality.

2.4 Trade with Non-Member Countries

External Tariff Policy

In the past twenty years the EU market has become increasingly dependent on imported fisheries products, which now account for almost 60% of total human consumption. This major structural change has been reflected in the Community's external tariff. While the average theoretical bound tariff rate is 11.7%, approximately 70% of EU imports are imported at zero or reduced tariff under preferential arrangements, with the result that the average applied tariff rate for imports from all countries is under 4%. The Community market, unlike that of some other OECD Member countries, is also characterised by its acceptance of direct landings: there are no restrictions on direct landings of fisheries products from third countries in the EU.

The Community also applies some of its tariffs flexibly in order to improve the balance between supply and demand and thus stabilise the Community market. Autonomous tariff quotas and tariff suspensions reduce the tariffs for certain imported products and thus can counterbalance changes in domestic supply. The Community has a structural deficit for white fish and so recent tariff suspensions have recognised the need to meet demand for these species. For example, in the first 7 months of 1998 the Community halved the tariff for Alaska pollack from the bound rate of 15% and then further decreased it to 3%. In the light of demand, this low tariff remains at 4% in 1999. Similarly, the Community opened an autonomous tariff quota for hoki for 5 000 tonnes at 6% in 1998 and 20 000 tonnes at 3.5% in 1999 (from a bound tariff of 7.5%).

Stability of supply is also assured by some of the Community's bilateral agreements. For example, significant imports of white fish from Norway and Iceland in the framework of the EEA agreement help to meet Community demand.

Regional Fisheries Organisations

Regional fishing organisations are an essential instrument to enable States to co-operate in order to promote responsible fishing. Much progress has been made in the last decade in setting common objectives for responsible fishing and responsible trade in fish products. The Community supports the crucial role they play by implementing international recommendations designed to meet these objectives.

Ensuring compliance with international conventions on conservation and management of specific resources is at the heart of the Community's trade policy. As a Contracting Party to several regional fisheries organisations[4], the Community works internationally to ensure responsible fishing through trade. The Community encourages its trading partners to comply with international standards on trade in fish and fishery products including those that have an effect on the conservation of resources. For example, the Community has recently implemented an ICCAT recommendation to ban the import of Atlantic blue-fin

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[3] Council Regulation (EC) No. 2406/96 of 26 November 1996 laying down common marketing standards for certain fishery products.

[4] Including NAFO, NEAFC, IOTC, NASCO, IBSFC, CCAMLR and ICCAT.

tuna from Belize, Honduras and Panama[5]. This recommendation was taken after ICCAT had identified these countries as fishing in a manner prejudicial to ICCAT's conservation and management policy for Atlantic blue-fin tuna. Other examples of commercial measures under examination by regional fisheries organisations to stocks include the proposed ICCAT action plan for swordfish and CCAMLAR discussions on Patagonian toothfish. The Community subscribes to such measures, and encourages its trading partners to do the same, as they are clearly in the interests of sustaining an exhaustible resource.

Preferential Trade Agreements

Similarly, the Community uses its autonomous trade arrangements to encourage a more responsible use of resources. The General System of Preferences (GSP) grants preferential trade arrangements to developing countries on the condition that they respect the rules of regional fisheries organisations. The preferential arrangements can be withdrawn if the developing countries do not meet their obligations under international fisheries conventions. Under the new GSP regulation[6], the Community's powers in this respect have been increased; the Commission will itself be able to initiate a procedure against a third country that does not respect the rules of regional fisheries organisations rather than only being able to act when requested.

2.5 Controls

The enforcement of Community legislation is an essential part of effective fisheries management and thus in improving responsible fishing. Control ensures compliance with regulations, deters fraud and contributes towards sustainable fishing in the post-harvest sector. A recently-adopted amendment of the Community's control regulation[7] extended the domain of monitoring action to include the assessment of the implementation of marketing provisions (amongst other areas of competence). Thus, all operations from fish landing and marketing to storage and transportation can now be inspected. Those involved must, at all times, hold proper documentation detailing the origin, nature, quantity and quality of fish involved in the transaction, in order to cross-check data contained in log-books and from other sources such as fish auctions. Member States are responsible for proper enforcement of common fisheries policy measure in the waters and territories of their jurisdiction but there is also an inspection service at Community level to ensure that enforcement is carried out effectively, fairly and equally across the Community.

2.6 Information

It is worth noting that not all policies to encourage responsible fishing are at the Community level since some Member States carry out national information campaigns which encourage consumers to purchase certain types of fish. The campaigns against the consumption of small fish in both Spain and Belgium are good examples of Member States directly influencing their consumers towards responsible fishing. The Spanish information campaign, "Respect the cycle of life in the sea", aims to promote awareness of the problem of catching under-sized fish.

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5 Council Regulation (EC) No 1435/98 of 29 June 1998 prohibiting imports of Atlantic blue-fin tuna originating in Belize, Honduras and Panama.

6 Council Regulation (EC) No. 2820/98 of 21 December 1998 applying a multiannual scheme of generalised tariff preferences for the period 1 July 1999 to 31 December 2001.

7 Council Regulation (EEC) No 2846/98 of 17 December 1998 amending Regulation (EEC) No 2847/93 establishing a control system applicable to the common fisheries policy

III. Proposed Changes to EU Post-Harvesting Policies

The common market organisation must continue to adjust to the ever-changing market. Recent developments such as the increasing globalisation of the market, the re-structuring of the industry and changing consumer demands have led the Commission to propose a number of reforms[8] to its existing market management measures. The challenge facing the sector is not to fish more but to fish better, to market better and to satisfy the demand for high quality production and the heightened awareness of the need for responsible fishing.

It should be emphasised that these proposals are currently under discussion in the Council of Ministers. They should not, therefore, be taken as Community policy but as the Commission's assessment of the kind of measures that would improve the effectiveness of market management.

3.1 Obtaining More Value from a Limited Resource

Reinforcing the Role of Producers' Organisations in Market Management

The Commission proposes to further increase the role of POs in the marketing chain by delegating greater responsibility to operators to achieve a more effective management of resources and consequently, improved returns. It has suggested three measures to achieve this: operational programmes, pre-sale contracts and inter-branch organisations.

The Commission considers that POs should guide the production of their members towards meeting market requirements and should foster conditions that will ensure the best possible returns on their catches. It proposes to create a new obligation on POs to plan supply at the beginning of each fishing year and to regulate the deliveries from their members in advance. These operational programmes would indicate how POs intend to fish their quotas over the season and how they intend to deal with any market imbalances. A second aspect of the proposed market reform is support for pre-sale contracts where POs will be encouraged to find new markets for a significant part of their landings, especially through contractual sales. Finally, the Commission has also proposed that new types of producer and inter-branch organisations, better matched to a more integrated Community market, be recognised under the Common Market Organisation (and become eligible for Community financial support under the structural aid programme).

The financial aid proposed for the above measures would be, like the current aids, of a limited nature and granted only on a temporary basis.

Reducing the Withdrawal of Fisheries Products

The Commission's proposed market reform seeks to encourage producers to only use the withdrawal mechanism when absolutely necessary. It proposes to reinforce the incentive to avoid withdrawals for destruction by reducing the financial support available. Both the eligible quantities for compensation and the rate of financial support would be significantly reduced.

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8 Commission proposal for a Council Regulation (EC) on the common organisation of the markets in fishery and aquaculture products: COM (1999) 55 final

Clearly, an effective post-harvest policy to improve responsible fishing should encourage the reduction of any waste. The Commission is proposing to encourage greater use of the carryover mechanism so that withdrawn fish can be marketed later under more favourable conditions. Consequently, the Commission has proposed to increase the financial support and quantities eligible under this mechanism.

Taken together, these proposals would imply a reduction in the already limited financial support given to the fishery industry through market intervention mechanisms.

Trade Measures

As noted, the Community has a structural trade deficit for several fisheries species and so needs to import a high proportion of fish consumed. It is the Commission's opinion that this balance between supply and demand could be improved. In order to ensure more competitive and stable supplies to the processing industry, particularly of species which the Community market cannot provide or only in small amounts, the Commission has proposed autonomous total or partial suspensions of duty for an indefinite period. The main species that warrant tariff reduction according to the Commission include Alaska pollack, cod, surimi and blue grenadier.

3.2 Protecting the Consumer

Transmitting Information through Labelling

Labelling regulations applying to the first sale of both Community and imported fish products are intended to harmonise the conditions of competition, to increase the transparency of market transactions and to improve the quality of the products. In its proposal, the Commission suggests extending the present requirements so that the retail sale of live, fresh and chilled fishery products would be subject to labelling requirements concerning the commercial name, production method and place of capture. These measures are designed to prevent consumers from being misled by giving them better information on which to base their purchasing decisions.

It is equally important to make consumers more aware of the high quality of fresh fish. Community financial support for voluntary initiatives aiming the improvement of quality and better market communications systems are included in the Community's proposal to reform the structural funds for the fisheries sector (the Financial Instrument for Fisheries Guidance). This assistance is designed to increase the value of the fish products and thus contributes towards avoiding waste.

Eco-labelling

Eco-labelling is not included in the Commission's proposed reform of the Common Market Organisation but the subject is still under consideration (see 4.2 below).

IV. Other Issues

4.1 Extending the use of Common Marketing Standards

In a global market for fisheries products, local rules on the minimum sizes used to restrict the over-exploitation of local species can only have a limited effect, particularly when similar species can be imported that are not subject to the same minimum size limits. International agreement on minimum sizes is the only way to ensure the full effectiveness of this market measure. Setting minimum size standards, which take into account the specific biology of different stocks, would improve the success of regional policies on responsible fishing. This is a new area for fisheries co-operation agreements to explore.

4.2 Eco-labelling

Eco-labelling has the potential to provide a financial incentive to make producers behave more responsibly towards the environment. The aim is to harness consumers' purchasing power in order to achieve certain ecological objectives. Whereas fisheries conservation policy has traditionally focused on managing production, the purpose of a fisheries eco-labelling scheme is to create a demand-led incentive to influence producer behaviour.

The Commission is still considering the potential benefits of such schemes for responsible fishing within the Community but it is already clear that there would have to be certain conditions for them. It might be necessary for public authorities to regulate eco-labelling initiatives in order to ensure that they are soundly based, transparent and non-discriminatory. There are also a number of technical difficulties that would need to be resolved whether in devising criteria for defining sustainability or in issues relating to the traceability and control of the eco-labelled product.

The main interest of the public authorities in the operation of eco-label schemes is to ensure fair competition and objective consumer information in a market where non-governmental organisations are already developing such initiatives. Such schemes must be voluntary, their eligibility criteria objective and verifiable, and their assessment structure must be independent and transparent.

The impact of eco-labelling schemes in assuring responsible fishing is, however, limited as consumer power on its own cannot achieve sustainable fishing. A fisheries eco-label can only be a complementary measure designed to encourage environmentally friendly practices. It remains the responsibility of the public authorities to protect the natural resources. It is therefore clear that the precise contribution eco-labelling can make towards responsible fishing has yet to be fully identified.

V. Conclusions

Some of the features of the Community's common market organisation, such as reducing the withdrawal price for small size fish, explicitly promote responsible fishing. Other policies do so indirectly as they help to stabilise the market and consequently ensure that the limited resource is valued highly on the market.

While it may be true to say that price controls can distort the market, it is important to recognise that in the fisheries sector such distortions may be limited in scope and may confer other advantages, such as more effective conservation of scarce resources. The marginal character of the Community's market intervention mechanisms is a case in point: the economic impact of intervention is limited since the level of withdrawal in the EU is well below the average market price and the level of reimbursement is not

sufficient to compensate fishermen fully. A transparent and limited intervention policy, such as that of the EU, can itself contribute towards responsible fishing by preventing the price of fish from falling to such low levels that would encourage fishermen to make up for the loss in income by over-fishing.

Account must also be taken of the level of competition on the Community market from third country imports. The high percentage of imports onto the Community market, including from direct landings, and the low level of applied tariffs for most fisheries products result in a relatively open market where prices are in line with world market prices. In respect of these imports, the Community uses its external trade policy where appropriate to ensure that they have been fished in a responsible manner.

ICELAND

I. Introduction

The Icelandic economy depends heavily on fisheries. In 1997, marine products export constituted 71% of commodity exports and 47% of all national foreign currency earnings. The fishing industry's direct contribution to GDP was 14.4% in the same year, but the total contribution goes up to 40% when indirect contributions (backward and forward linkages of the fishing industry) are taken into account. [1]

In 1997, the total Icelandic catch was 2.2 million tonnes, with a value of ISK 56 billion (USD 789 million.)

Table 1. Total landed catch 1992-1997, by volume and by value

Total landings (from all banks)	1992	1993	1994	1995	1996	1997
by volume ('000 tonnes)	1 568	1 699	1 511	1 605	2 055	2 199
by value (ISK million)	48 689	49 718	49 023	54 095	57 388	54 467

Source: Icelandic Fisheries Association: Utvegur 1992-1997

In 1997, the number of vessels was 1 993 and the fisheries employed 10% of the workforce, 5 840 persons in harvesting and 6 680 persons in the processing sector.

In Iceland, economic welfare depends critically on continual operation of the fisheries and its international competitiveness. The government ended its official support of marketing monopolies for fish export in 1980. Hence, the fisheries in Iceland do not receive any direct subsidies from the government. But, nevertheless the government is heavily involved in securing favourable operating conditions for the fishing industry.

The fishing industry is a major determinant of personal incomes and income distribution, especially in coastal regions. Therefore the fisheries management is one of the major component of Iceland's economic and regional policy. Currently the fisheries are managed by a system of individual transferable quota shares (ITQ) which was introduced in 1984. Under this system all fisheries are subject to vessel catch quota where the quotas represent shares in the total allowable catch (TAC). They are

[1] Arnason, R. (1995). *The Icelandic Fisheries: Evolution and Management of a Fishing Industry.* Fishing New Books, Oxford.

permanent. Despite of the ITQ system, stocks of many species have declined, including that of the cod. This is especially alarming, as cod is by far the most commercially valuable species fished in Icelandic waters. In 1995, the government therefore adapted a new method for calculating the TAC of cod each year. This new method appears to be an improvement over the previously used one as the cod stock was 58% larger in 1998 than it was in 1995.

II. Post Harvest Practices

1. Main Commercial Species and Fisheries Management Instruments Used for those Species

1.1 Main Commercial Species

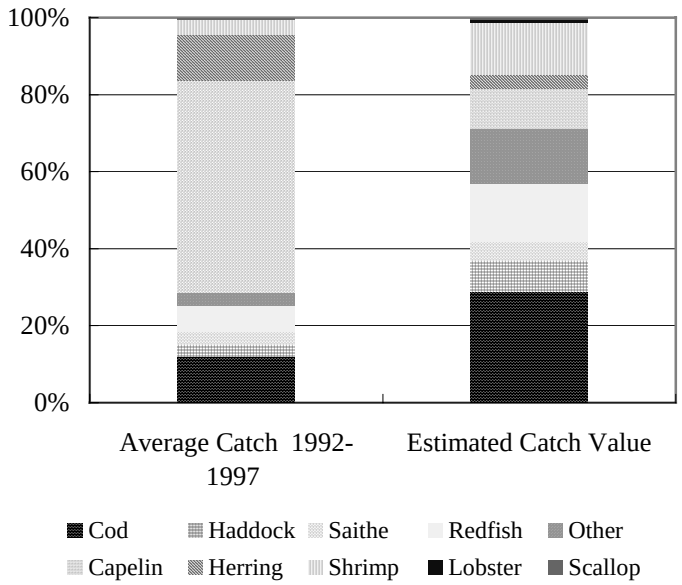
The most important Icelandic fishery is the demersal or groundfish fishery, which in 1997 made up 71% of the value of landed catch. Cod, haddock, redfish and saithe are the main demersal species. Pelagic fisheries based on capelin and herring are also valuable, yielding 14% of the total catch value. In addition to demersal and pelagic fisheries, shrimp, lobster and scallop fisheries have also significant commercial value, amounting to 15% of the total catch value.

Table 2. Icelandic Fisheries: Catch and Value Data

	Average catch ('000 tonnes) 1992-1997	Estimated catch values* (USD million)
Demersal species		
Cod	208.1	217.6
Haddock	51.8	59.7
Saithe	55.7	37.1
Redfish	117.9	114.0
Other**	60.4	106.6
Total	493.9	535.1
Pelagic species		
Capelin	947.4	77.9
Herring	204.0	26.8
Total	1 151.4	104.7
Crustaceans		
Shrimp	65.5	101.7
Lobster	1.8	5.9
Total	67.3	107.6
Shellfish		
Scallop	8.0	3.8
Grand Total	1 720.7	751.3

Notes: * At 1997 average unit catch prices and exchange rate (1USD=70.98 ISK,
Hagtölur mánaðarins)
** Mainly Greenland halibut, wolffish, tusk, ling and plaice.
Source: Fisheries Association of Iceland, Utvegur 1992-1997

Figure 1. Percentage Breakdown of the Catch and Value Data



1.2 Fisheries Management Instruments[2]

In Iceland the current fisheries management system is based on a system of individual transferable quota shares (ITQ). This system was first adopted in 1984 and has been instituted at different times and in different forms in various fisheries. It was made uniform for all the species under quota regulation by the Fisheries Management Act in 1990, which took effect in 1991. Currently, the species subject to quota regulation in Iceland are cod, haddock, saithe (pollock), redfish (ocean perch), Greenland halibut, plaice, dab, Icelandic scallop, nephrops (Norway lobster), shrimp, herring, capelin, wolffish and witch. Some 98% of catch landed in 1997 were subjected to ITQs.

The individual quota shares represent shares (percentages) in the total allowable catch (TAC), within the fishing year, of all regulated species. The catch quota of each vessel is therefore a multiple of its quota share and the TAC. Every vessel that fishes in the Icelandic exclusive economic zone (EEZ) must hold a commercial fishing permit. Furthermore, in order to fish the regulated species, the vessel must posses catch quota derived from the quota shares, or catch quota transferred from another vessel.

The quota shares were initially allocated in 1984 according to vessels catch performance during the three previous fishing seasons. Shares are permanently attached to the vessels, but can be divided up and/or transferred. The quota share remains unchanged from one year to the next unless quota shares have been transferred. The allocated catch quota of each vessel however, changes from one year to the next, depending on the TAC for the species in question. The catch quota within each fishing year is transferable between vessels holding commercial fishing permits. Under current law, the TAC for regulated species for the fishing year is set by the Minister of Fisheries based on recommendations from the Marine Research Institute (MRI).

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2 The main source of this section is Arnason, R. (1995). *The Icelandic Fisheries: Evolution and Management of a Fishing Industry*. Fishing New Books, Oxford.

All Icelandic fishing ships are subject to the ITQ system with one exception. A number of vessels under 6 GRT fishing with hook and line are either subjected to a limited number of fishing days or to a catch maximum in cod.[3] The system is quite flexible in the individual quota constraint each year. Current rules allow a quota holder to exceed his annual quota for each species by 5% subject to a corresponding reduction in his quota next year. Similarly the quota holders are allowed to postpone the harvesting of up to 20% of their annual quota until next year. Finally, it is permitted to switch up to 5% of the annual quota (in value terms) from one species to another within the year.

Until 1999, under this system, only vessels with prior fishing experience could acquire quotas. But in that year the Supreme Court of Iceland ruled that this regulation is a violation of the citizens' basic constitutional right of equal access to employment opportunities. Consequently, the rule was changed so that now all registered seaworthy vessels can receive a license to fish stocks that are not regulated by quota limitations. However, the vessels need to acquire a quota for all other species.

1.3 Other Fisheries Management Methods

1.3.1 Area Closures

Many fishing areas in Iceland are subject to temporary and permanent closures to protect immature fish and spawning grounds. The use of special gears is prohibited or limited in certain areas. For example fishing with trawls is basically prohibited inside 12 miles from base line. MRI has the authority to close fishing areas temporarily without prior notice if the proportion of small fish in the catch exceeds certain limits.

1.3.2 Seasonal Closures

Many fisheries, e.g. inshore shrimp, are subject to seasonal closures. The main objective is to protect the spawn of other species. Furthermore, fishing in the spawning areas of cod is prohibited during the spawning season.

1.3.3 Gear Regulation

There are many restrictions on fishing gear such as the number of allowable nets, mesh sizes, etc.

Table 3. Minimum Mesh Sizes

Fishing gear	Mesh size
Bottom-trawl	135 mm
Danish-seine	135 mm
Gillnets	139.7 mm

Source: Ministry of Fisheries: fisheries regulations.

[3] This might change in the next couple of years as it is likely that all the fisheries will be under the ITQ system.

1.3.4 Minimum Size of Catch

The goal of these restrictions is the protection of the juvenile fish. However, the minimum size of catch limitations for demersal species were cancelled as they encouraged the discarding of undersized catch. If a certain amount of fish in the catch is smaller than the reference size, the fishing area is closed.

Table 4. Reference Size of Caught Fish for Closing Areas

Species	Minimum size	% of catch
Cod	length 55 cm	25
Haddock	length 45 cm	30
Saithe	length 55 cm	30
Redfish	length 33 cm	20
Herring	length 28 cm	25
Inshore Northern shrimp	length 13 mm	30
Offshore Northern shrimp	length 15 mm	30

Source: MRI.

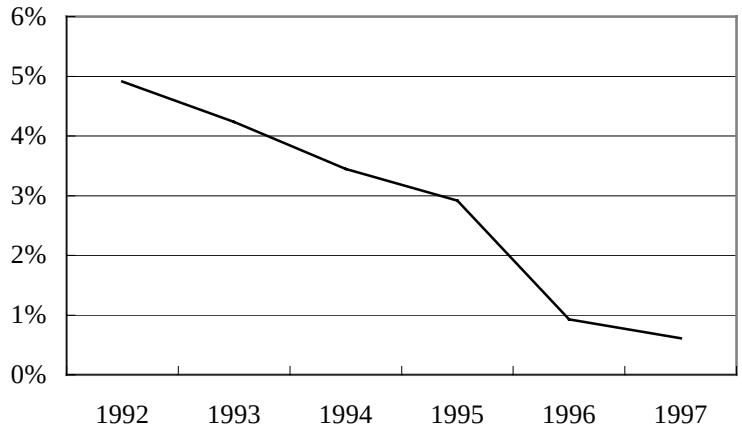
1.3.5 Catch Rule for Cod

A new management scheme for cod has started to be implemented from the beginning of the 1995-96 fishing year. From this date on, cod catches are limited to 25% of the average of the estimated fishable stock of that fishing year, however, with a minimum catch level of 155 000 tonnes. The objective of this new application is a rational utilisation of the cod stock.

2. Proportion of Catch Landed Direct from Harvesters and "At Sea" Processors to Foreign Ports

The value of catch from Icelandic grounds sold in foreign ports constitutes only a small proportion of the total value of landed catch. This proportion has been decreasing steadily and was 0.53% in 1997. High fish prices in Iceland are an important explanation for this trend together with the increased production on board of the fishing vessels.

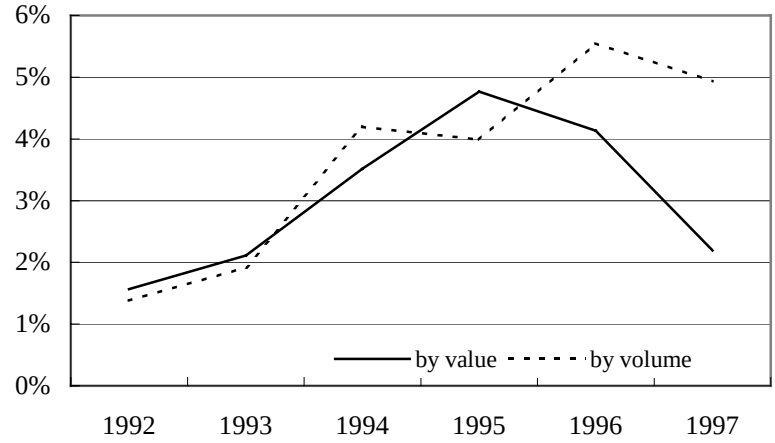
Figure 2. Percentage of Catch Landed to Foreign Ports in Total Landed Catch



3. Proportion of Catch Landed at Domestic Ports from Foreign Flagged Harvesters and "At Sea" Processors

Landings in Iceland increased rapidly after the Icelandic government relaxed the restrictions on the landing of fish by foreign registered vessels in 1992. Landings, measured in tonnes, increased almost continuously up to 1996, whereas the value of the landings decreased in 1996, mainly because the volume of the more valuable demersal species declined while that of the less valuable pelagic species such as capelin, rose. Both the volume and value of the foreign landings decreased in 1997.

Figure 3. Percentage of Catch by Foreigners in Total Landed Catch



4. Share of the Catch Processed "At Sea" and "On Land"

Fish processing takes place either on land or at sea. The land-based processing can be divided into freezing, salting, drying, canning and the production of fishmeal and oil. Most of the fish is processed

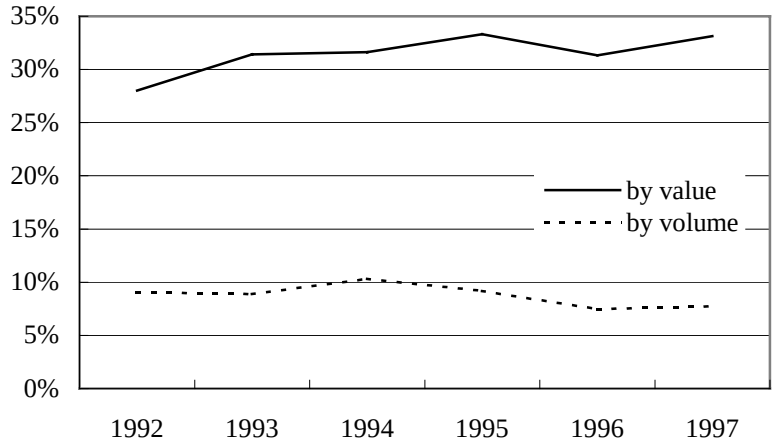
on land, with the land-based factories accounting for between 90-93% of the total production of catch from Icelandic banks in the years 1992-97. In 1997, output amounted to 2 million tonnes of fish, with a catch value of 34 billion ISK (USD 479 million). This amounted to 63% of the total catch value of fish that year.

Freezing is the dominant process at sea. The volume processed at sea varied between 7 to 10% of the total volume in 1992-97. The value of the fish processed at sea on the other hand is higher or 28 to 33% of the total value.

In Iceland, the same firm often both owns fishing vessels and operates processing plants. As a consequence, most of the fish landed in Iceland is brought directly to processing plants, thus bypassing completely the local fish markets. In 1997, 44% of total landed catch, in value terms (81% in tonnes), went to domestic processing directly from harvesters.

The supply of the catch to the processing sector improved drastically with the introduction of the wetfish auction markets in 1986. In 1997, 15.4% of the total catch was auctioned at these markets, creating a more efficient alternative for independent boats. All the wetfish auction markets use specially designed computers systems. These systems not only connect local auction markets to each other but also serves as an information database. The supply of fish to these markets, sales on auctions and detailed information about buyers and sellers are some of the important information recorded by the computer systems. Almost all the auctioned fish is sold for domestic processing but a small percentage of it is exported in containers.

Figure 4. Proportion of Catch Processed at Sea



Since most of the fish, processed or fresh, is exported, the export companies are quite important in the marketing and distribution of fish products. The sale and marketing of the fish products for export is mostly in the hands of a few large sale organisations. These marketing firms are not independent; they are owned by the processing firms and they serve the marketing needs of the processing sector. The main sales and marketing organisations are: Icelandic Freezing Plants Corporation, the largest exporter specialised on frozen seafood products; Iceland Seafood International plc, another big exporter of frozen seafood products; the Union of Icelandic Fish Producers (SÍF), which concentrates on saltfish exports. Numerous smaller exporters operate alongside these large sales and marketing organisations.

6. Effects on the Commercial Flows of the Management Instruments Applied

One important aspect of the ITQ system was to end the free access, the competitive arrangement of the fisheries. The competitive fisheries management, given that the TAC is limited by the size and regenerative capacity of the fish stocks, is economically wasteful; *i.e.* generates very little or no net economic benefits. The ITQ system in Iceland has provided the economically appropriate signals and incentives for the fishing industry. The rate of expansion of fishing fleet decreased, the fishing effort has been lowered and the quality of catch increased in many cases.

There are, however, some problems in terms of final demand adjustment under TAC quota and ITQ system. The proper adjustment to final market demand requires a change in the quantity, quality and species composition of the catch. But, the aggregate supply of catch is mainly determined by the TACs for individual species based on biological considerations rather than demand fluctuations. Moreover, under ITQ fisheries management system, quota prices normally adjust to ensure that the TACs are approximately met. Therefore, the aggregate supply and species composition of the catch is fairly inflexible over the year.

III. Post Harvest Policies: Description and Effects

1. Price Controls Set on Landings or at any Other Place in the Post Harvest Sector

From 1961 to 1987, the Fishing Industry Price Determination Board set the price for every significant species and quality of fish. In 1980's the system came under considerable criticism. As a result, in 1987 a special legislation that allowed wetfish auction markets was passed. The market was, however, not completely free as from 1987 to 1991 the Fish Price Determination Board set the minimum wetfish prices.[4] Since 1991 market forces have been completely respected.

In spite of no officially determined fish price, the actual wetfish price is not always competitively determined, as most of the catch is not sold in competitive wetfish markets. Instead, it is transacted between the harvesting and processing departments of the vertically integrated fishing firms. However, the value of the fish that goes to the wetfish markets has been increasing and as a result the wetfish prices have become more competitive.

2. Measures Applying to Export Flows

Until quite recently, the government granted de facto export monopolies to the large marketing organisations by its reluctance to issue export licences to others. But lately this policy has been changed and licences to export fish products are now generally granted to reputable applicants. The current official fish export policy is therefore best characterised as controlled laissez faire.

3. Measures Applying to Import Flows

The import flow measures practised in Iceland used to be very restrictive. In 1992, Icelandic government relaxed these restrictions which led to a rapid increase of fish landings by foreign flagged harvesters, especially from non European Union countries. From 1999 on, Iceland has a common border with European Union (EU). Therefore the EU import rules apply in Iceland. How this change will effect

[4] The wetfish price is the price of landed catch.

the foreign landings in terms of composition and in terms of the origin of the landings is unclear. It should be noted that all imported fish is processed in Iceland and exported, none goes to domestic consumption.

4. Measures to Reduce Post Harvest Losses and Waste, to Improve the use of By-catch and to Minimise the Environmental Impact of Post Harvesting Activities

The Ministry of Fisheries, the Marine Research Institute (MRI) and the Icelandic Fisheries Laboratories (IFL) have jointly undertaken measures to reduce post harvest losses and waste, improve the use of by-catch and to minimise the environmental impact of post harvesting activities. MRI explores new possibilities for harvesting and provides advice for the long-term sustainable harvesting of fish stocks. The IFL have the role of promoting the advancement of Icelandic fishing and fish processing through a variety of research and development projects. MRI and IFL have implemented many projects in the past and there are many ongoing projects. In Iceland, all parties are well aware of the importance of resources: the fisherman, the processing industry, the export organisations and the general public.

Among the recent projects that have been implemented is the establishment of a committee that is entrusted with the task of making recommendations to the ministry for improved handling of marine resources. Its main tasks are to promote improved utilisation of resources, and to minimise by-catch and discarding of catches by proposing standards on *e.g.* gear riggings, mesh size, use of sorting grids or on other sorting devices. In the spring of 1996 a bill was adopted by the Icelandic parliament, the Althing, which was the result of the committees proposals. Concerning responsible treatment of commercial marine stocks, the bill specifies clearly what actions are permissible and what actions are not. Abusive practices such as discarding fish, avoiding weighing-in of catch or fishing in excess of quotas will not be tolerated. There are clear provisions in the new law as to the responsibility of all parties involved; not only the vessel owners and crew, but port employees, drivers of transport vehicles, etc. are all liable. Punishment for infringements have been made more severe and become heavier still in the case of repeated violations.

The "By-Catch Bank" was one of the projects implemented under ministry supervision. Its role was to buy from vessels species that otherwise would be discarded, and find processing opportunities and markets for these by-catches. Its other activities included organising restaurant promotions of new catch items, in co-operation with leading chefs.

There are many other ongoing projects, not only implemented by the ministry but also by the processing firms that aim to minimise the losses. The use of pressured water to clean the bones in order to get more meat from harvested fish is only one of them. Every processing and exporting firm is aware of the importance of the maximum utilisation of resources and emphasise the practices applied in their firms.

IV. International Trade Flows

1. Export Flows in Terms of Value, Volume, and Composition

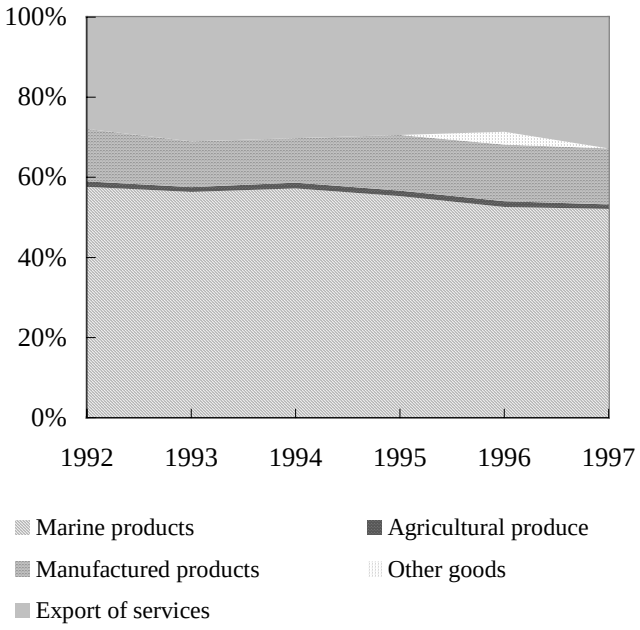
In 1997, the total volume of exports of marine products amounted to 795 000 tonnes, with a value of ISK 95 billion. This represented a 1.4% increase in weight and 3.2% increase in value at constant exchange rates from the previous year. In Iceland, fish exports constitute a very large share of the total export of goods. In 1997 they accounted for 71.4% of total export of goods, but 52% of all exported goods and services. The export of marine products is also an important source of foreign currency earnings. In 1997 the earnings from fish exports amounted to 47% of total foreign earnings.

Table 5 Exports of Goods (fob) and Services by Industries 1992-97, ISK Millions at Current Prices

	1992	1993	1994	1995	1996	1997
Marine products	69 881	74 571	84 838	83 873	92 582	93 684
Agricultural produce	1 632	1 620	2 132	2 055	2 550	2 105
Manufactured products	15 924	15 125	16 525	21 040	25 000	25 039
Other goods	1 195	1 942	4 645	5 679	5 520	6 704
Export of services	33 764	41 036	44 782	44 643	50 457	59 010

Source: Icelandic External Trade, Commodities and Countries 1997, Statistics Iceland

Figure 5.1. Percentage Breakdown of Exports of Goods and Services by Industries 1992-1997



Main export categories of fish products are frozen products, salted fish, fishmeal and oil and fresh iced fish.

Table 5.2 Classification of Fish Exports by Volume (thousand tonnes)

Years	Frozen	Salted	Iced	Dried	Meal & oil	Canned	Other	Total
1992	190.4	51.3	89.6	6.4	210.3	2.8	19.2	569.9
1993	201.9	50.3	75.2	6.8	275.4	2.7	23.1	635.4
1994	244.5	60.5	62.2	6.2	263.0	2.8	0.8	640.1
1995	224.4	59.8	47.9	6.1	264.7	2.1	2.6	607.5
1996	269.5	67.5	48.1	5.7	387.7	2.4	2.9	783.8
1997	280.1	61.9	55.6	7.7	382.1	3.2	4.4	794.9

Source: Fisheries Association of Iceland: Utvegur 1997

Table 5.3 Classification of Fish Exports by Value (ISK millions)

Years	Frozen	Salted	Iced	Dried	Meal & oil	Canned	Other	Total
1992	42.154	12.021	8.390	794	5.766	1.399	784	71.308
1993	46.737	10.912	7.620	975	7.535	1.521	792	76.091
1994	55.699	13.410	8.047	779	7.579	1.779	249	87.540
1995	53.685	13.892	6.977	669	8.295	1.521	694	85.734
1996	54.556	16.131	7.460	694	13.993	1.463	1.003	95.300
1997	53.239	15.486	8.007	1.003	15.838	1.820	1.133	96.498

Source: Fisheries Association of Iceland: Utvegur 1997

Domestic consumption of fish products was 6.259 tonnes in 1997 or only 0.3% of the total amount produced.

Figure 5.2 Relative Export Volume of Fish Products by Type of Processing

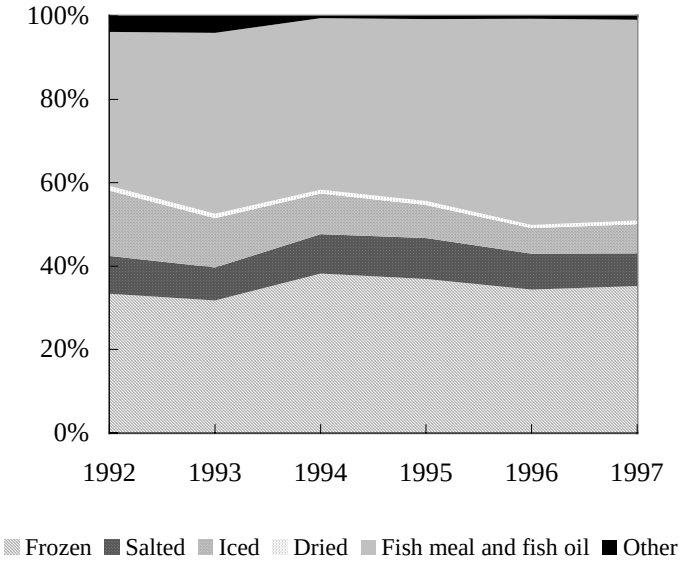
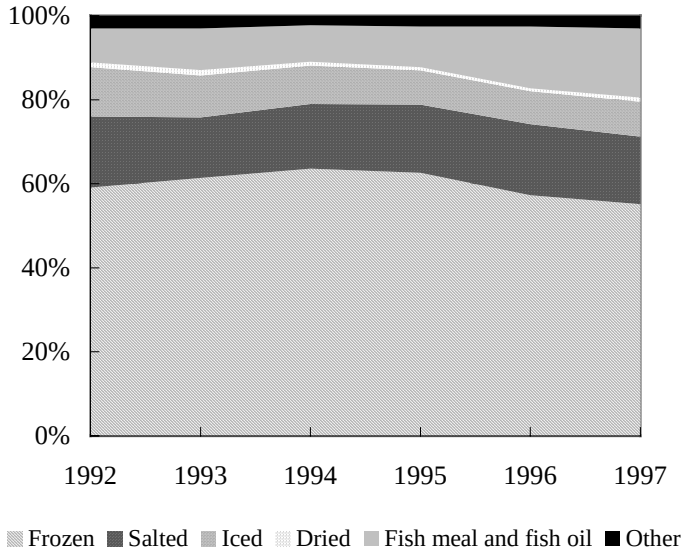
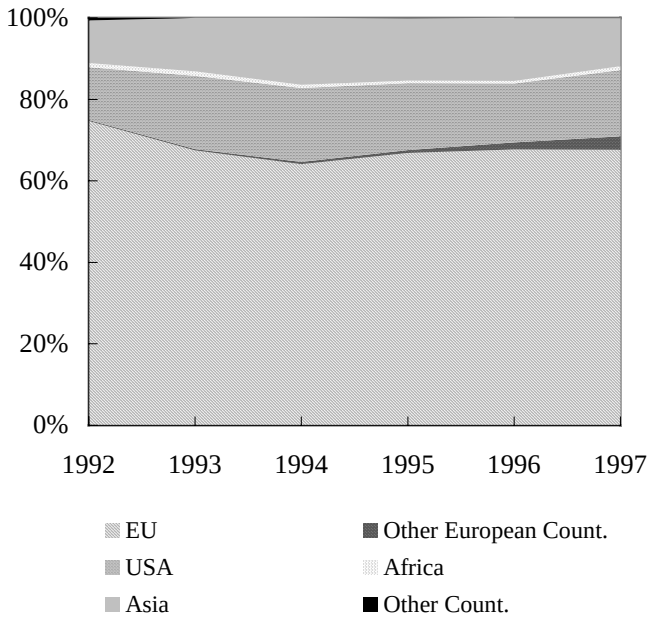


Figure 5.3 Relative Export Value of Fish Products by Type of Processing



Most of the fish product exported to EU countries, the United States and Japan.

Figure 5.4 Percentage Breakdown of Marine Products by Market Area



2. Import Flows in terms of Value, Volume, and Composition

The imports of marine products are small relative to the amount exported. Thus, in 1997 the imports were only 6.5% of exports in terms of volume and 2.5% in terms of value. Moreover, the volume of imported fish products decreased by 52.7% in 1997 from the previous year. The corresponding decline in value was 12.5%.

Table 5.4 Foreign Fishing Trade Balance 1997

(Volume: '000 tonnes; Value: ISK Million)

Product	Imports		Exports		Balance	
	Quantity	Value	Quantity	Value	Quantity	Value
Total fish and fish products	55	2.316	795	96.498	740	94.181
Total edible	19	2.107	414	80.712	394	78.605
Fresh, chilled fillets	*	0.3	9	3.425	9	3.425
Frozen whole	10	1.138	145	13.210	137	12.072
Frozen fillets	0.2	63	85	22.824	84	22.761
Frozen blocks (minced fish)	0.06	0.8	4	286	4	285
Salted, dried and smoked fish	0.6	139	72	17.364	71	17.225
Shellfish	6	569	19	5.302	12	4.733
Canned or prepared fish and shellfish	0.3	97	29	13.664	28	13.567
Fish oil	0.03	5	131	4.612	131	4.607
Fish meal	0.2	7	250	11.174	250	11.166
Other	36	296	49	4.636	13	4.340
Total	129	6.740	2.004	273.707	1.874	266.967

Source: Fisheries Association of Iceland

V. Consumer Information

1. Labels Specifying Country of Origin

All fish consumed domestically in Iceland comes from Icelandic waters. The home market is small and consumers are well informed about the fish origin, freshness, species, etc. Therefore labels are not necessary for the local market.

The situation is different, on the other hand, in the international markets or in export markets where consumers do not have enough knowledge about the fish. It is important for Icelandic exporters that the consumers have the correct information about the origin of the product. Therefore both producers and exporters support efforts to enforce that the correct labels are used to specify the country of origin. For the Icelandic fishing industry the quality of the fish is of foremost importance. Consequently, the exporters are eager to have the quality of their products reflected in these labels.

2. Eco-labelling Schemes

In Iceland it is widely supported that consumers should be better informed on the products they purchase, for instance, what species it is, where it was caught, how the stock in question is utilised and in what condition it is. One way of informing the consumers about the above matters is to eco-label fish products that fulfil a set of criteria.

Defining criteria for eco-labels is not the task of a closed interest group. Impartial parties and public authorities must do it where scientific advice on the condition of stocks is the basis for their rational exploitation, together with credible surveillance of fishing. Trust-worthy environmental certification needs

to focus on condition of the stock and the quality of the products. Political questions concerning the management of the fishery, such as how the fish is carried out, who fishes, and where the catch is processed, should not affect the assessment as to whether the stock is well utilised or not.

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Statistical Bureau of Iceland Icelandic External Trade, 1997

APPENDIX

Table A.1 Imports by Major Products and by Country, 1997

		Quantity	Value
301	Fish, crustaceans, molluscs and other aquatic invertebrates		
	Russia	10 385	1 047 931
	Norway	2 046	237 420
	Canada	1 693	198 540
302	Fish, fresh/chilled		
	Russia	508	52 139
	Faroe Islands	211	14 077
	Greenland	60	2 717
303	Fish, frozen, excl fish fillets and other fish meat		
	Russia	9 363	934 033
	Denmark	381	32 638
	Germany	307	61 108
304	Fish fillets and other fish meat – fresh, chilled or frozen		
	Russia	81	17 936
	Norway	65	26 183
	Spain	47	8 911
305	Fish, cured; smoked		
	Faroe Islands	420	72 384
	Norway	149	43 163
	Canada	36	17 947
306	Crustaceans w/n in shell, live, fresh		
	Canada	1 523	144 439
	Norway	1 616	140 608
	Estonia	648	57 524
16	Prep of meat, fish or crustaceans, molluscs etc		
	Thailand	157	35 390
	Norway	70	31 059
	Philippines	32	7 060
1604	Prepared/preserved fish; caviar and caviar substitutes prepared from fish eggs		
	Thailand	153	32 786
	Norway	70	31 059
	Philippines	32	7 052
1605	Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved		
	Great Britain	4	3 264
	Denmark	11	2 977
	Thailand	154	2 604
2301	Flour etc. of meat, meat offal, fish, crustaceans		
	Faroe Islands	131	4 635
	Russia	68	1 839

	Lithuania	38	725
1504	Fish/marine mammal, fat, oils		
	Faroe Islands	18	2 681
	Great Britain	9	2 041
	Norway	1	10

Source: Fisheries Association of Iceland

Table A.2 Exports by Products, 1997

		Quantity	Value
03	Fish & crustacean, mollusc & other aquatic invertebrate		
0302	Fish fresh/chilled exc 304		
030212	Salmon Pacific Atlantic & Danube	864	240 806
030219	Salmonidae nes	151	58 406
030221	Halibut	1 159	317 268
030222	Plaice	3 082	419 483
030223	Sole	97	21 154
030229	Flatfish nes	2 250	245 738
030231	Tunas albacore or longfinned		
030232	Tunas yellowfin	*	2
030233	Skipjack o stripe-bellid bonito		
030239	Tunas nes	*	61
030240	Herrings	2 413	33 904
030250	Cod	5 314	705 008
030261	Sardines	2	118
030262	Haddock	6 236	612 936
030263	Coalfish	472	25 528
030264	Mackerel	926	37 975
030265	Dogfish & other sharks	48	5 295
030266	Eels		
030269	Fish nes	22 770	1 677 380
030270	Livers and roes	6	1 633
0303	Fish frozen excl fish fillets & other fish meat in 0304		
030310	Salmon Pacific	10	430
030321	Trout	224	49 207
030322	Salmon Atlantic and Danube	191	46 702
030329	Salmonidae	89	12 627
030331	Halibut	11 028	3 132 130
030332	Plaice	209	36 852
030333	Sole	25	5 258
030339	Flatfish nes	2 875	341 513
030341	Tunas albacore or longfinned		
030342	Tunas yellowfin		
030343	Skipjack or stripe-bellid bonito		
030349	Tunas nes		
030350	Herrings	14 583	574 406
030360	Cod	1 249	161 619
030371	Sardines sardinella		
030372	Haddock	38	3 289
030373	Coalfish	22	3 238
030374	Mackerel		
030375	Dogfish and other sharks	1	32
030376	Eels		
030377	Sea bass		
030378	Hake		

		Quantity	Value
030379	Fish nes	111 114	7 918 286
030380	Livers and roes frozen	6 109	924 424
0304	Fish fillets & other fish meat fresh chilled or frozen		
030410	Fish fillets and other fish meat	9 176	3 425 341
030420	Fish fillets frozen	84 581	2 282 4074
030490	Fish meat nes minced or not frozen	3 711	285 709
0305	Fish cured; smoked fish w/n cooked		
030510	Fish meal fit for human consumption		
030520	Livers and roes	1 486	522 559
030530	Fish fillets	15 684	3 816 801
030541	Salmon Pacific Atlantic and Danube	241	207 732
030542	Herrings smoked	9	2 807
030549	Fish nes	2	1 179
030551	Cod dried	9 014	1 512 002
030559	Fish nes dried	2 959	729 363
030561	Herrings	1 742	98 352
030562	Cod	33 019	9 372 150
030563	Anchovies		
030569	Fish nes salted and in brine	7 726	1 101 489
0306	Crustaceans w/n in shell live fresh		
030611	Rock lobster & other sea crawfish		
030612	Lobsters nes	727	536 267
030613	Shrimps and prawns	15 610	3 653 137
030614	Crabs		
030619	Crustaceans nes		
030621	Rock lobster & other sea crawfish		
030622	Lobsters nes+B126	*	18
030623	Shrimps & prawns	*	24
030624	Crabs		
030629	Crustaceans nes	33	2 493
030710	Oysters		
030721	Scallops including queen scallops	52	45 512
030729	Scallops including queen scallops	1 533	964 414
030731	Mussels		
030739	Mussels		
030741	Cuttlefish and squid		
030749	Cuttlefish and squid	338	25 350
030751	Octopus		
030759	Octopus		
030760	Snails (ex sea)		
030791	Molluscs nes	147	20 212
030799	Molluscs nes	236	54 580
16	Prep of meat fish or crustaceans molluscs etc		
1604	Prepared/preserved fish; caviar & caviar subst prepared from fish eggs		
160411	Salmon	105	54 539
160412	Herrings	1 507	328 972
160413	Sardines sardinella & brislg o sprats		

		Quantity	Value
160414	Tunas skipjack & Atl bonito		
160415	Mackerel		
160416	Anchovies		
160419	Fish nes	44	23 613
160420	Fish	143	57 572
160430	Caviar and caviar substitutes	1 272	1 000 637
1605	Crustaceans molluscs and other aquatic invertebrates prepared/preserved		
160510	Crab		
160520	Shrimps and prawns	25 728	1 2198 988
160530	Lobster	*	17
160540	Crustaceans nes		
160590	Molluscs and other aquatic invertebrates		
2301	Flour etc of meat meat offal fish crust		
230120	Flour meal & pellet of fish crust	250 379	11 173 507
1504	Fish/marine mammal fat oils		
150410	Fish-liver oils & their fractions	1 682	321 947
150420	Fish fats & oils & their fractions exc liver	129 970	4 339 886
150430	Marine mammal fats & oils & their fract		

Source: Fisheries Association of Iceland

JAPAN

I. Fisheries Management

The fisheries management instruments used for the main commercial species in Japan, *i.e.* Japanese pilchard, horse mackerel, mackerel, Alaska pollack, snow crab and Japanese common squid, are:

- TAC Control,
- Fishing effort control, e.g. license, fishing period, light power restriction, mesh size restriction, etc. that are set each fishing method.

For other species a variety of fishing effort control measures are in place *e.g.* license, fishing period, light power restriction, mesh size restriction, etc. which are set each fishing method.

II. Processing and Marketing

The share of the catch processed (excluding frozen) "at sea" and "on land" in 1997 were respectively 22 919 tons of sea processed products compared to 3 303 019 tons processed on land. Frozen "at sea" amounted to 798 311 tons in 1997 and in the same year 2 529 904 tons was frozen "on land".

The marketing channels are given in Figure 1.

Insofar as price determination is concerned, basically, fish prices are decided through auction in wholesale market.

III. Export and Import Measures

Basically there are no export restrictions in Japan. However, in the case of exports of fish products to the EU countries and the USA, each require that the fish products meet their particular sanitary standards. Only authorised processors can export to these countries. The Ministry of Health & Welfare provides authorisation that their facilities meet the sanitary standards.

Certain fish species, for example certain species listed in CITES Appendix, are restrained from international trade by government ordinance.

Import tariff rates are between 0% and 15%. Certain fish species, e.g. those listed in CITES Appendix, cannot be imported by government ordinance.

Import quotas are applied for herring, cod, yellowtail, mackerels, sardines, horse mackerels, saury, Japanese scallop and squid. Quotas are by quantity and released to the importer. If imports are

intended for aquaculture stocking the importer shall submit certification on infectious disease and get permission from Ministry of Agriculture, Forestry and Fisheries.

IV. Measures to Reduce Discard and to Improve Utilisation of Incidental Caught Fish

In order to improve the utilisation of sharks caught incidentally in tuna long-lining, studies are being conducted to prevent discard and promote effective utilisation of the resource. Two areas are studied *i.e.* raising the value of the product and on the possibility of using sharks as food through developments in processing.

V. Measures to Minimise the Environmental Impacts of Post-Harvest Activities

Processing fish produces wastes and polluted water. In Japan processors must dispose of waste appropriately according to the law on garbage disposal and cleaning. Furthermore processors must meet the quality of the drainage to the standard provided by the law on prevention from water pollution. As regards stench, processors must meet the quality of the drainage to the standard provided by the law on prevention from stench.

Furthermore, regarding the utilisation of wastes, these have so far been used for the production of fishmeal but technological developments are under way aimed at promoting a more advanced utilisation of them (*e.g.* extract chemical products).

VI. Market Information and Product Labelling

Market information, including information on supplies and demand of frozen fish products, is provided at the Internet homepage of Ministry of Agriculture, Forestry and Fisheries. Newspapers also have provided market information.

Nowadays, consumers are demanding more information including information on the origin of the foods that they purchase. Therefore, it is the Government’s intention to amend related laws and impose obligation to label origin of food products. As of April 1, 1999, the scheme is under discussion in the Diet.

Figure 1

Japan : distribution channels for fish and fish products

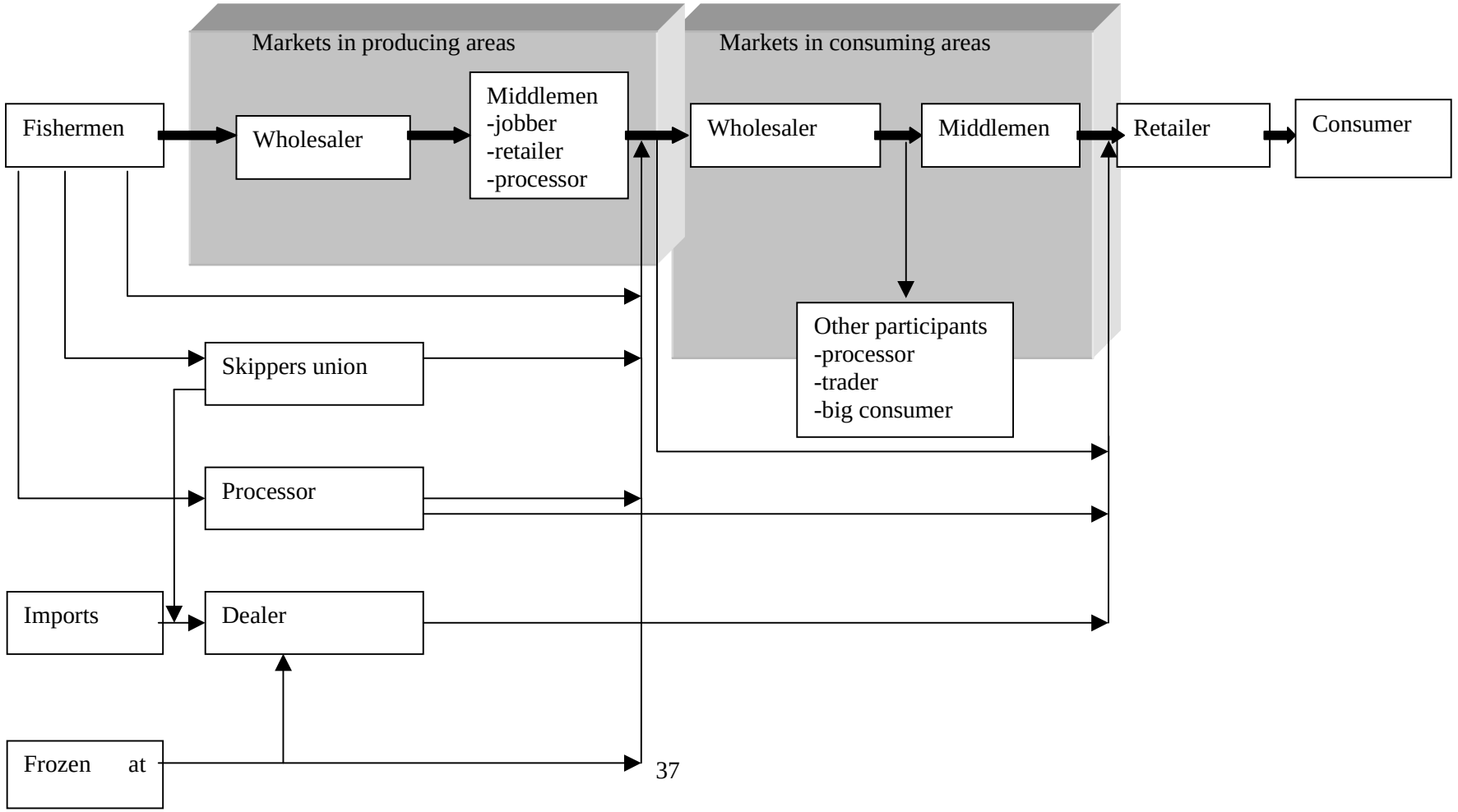


Table 1. 1997 Exports

	Quantity (tonnes)	% (%)	Value (million yen)	% (%)
Aquaculture pearl	38	0	23 284	17
Tunas and swordfishes	57 908	17	14 972	11
Japanese scallop	6 784	2	10 460	8
Fish paste	12 537	4	8 772	6
Skipjack	43 178	13	5 265	4
Salmon and trout	34 514	10	3 730	3
Squid	27 110	8	3 607	3
Mackerel (excluding can)	49 315	14	3 262	2
Flatfishes	5 912	2	2 317	2
Saury	19 329	6	2 254	2
Other	86 740	24	57 986	42
Total	343 365		135 909	

Table 2. 1997 Imports

	Quantity (tonnes)	% (%)	Value (million yen)	% (%)
Shrimp, prawn	281 765	8	393 007	20
Tunas and swordfishes	279 670	8	203 445	10
Salmon and trout	208 785	6	118 882	6
Eel products	55 276	2	115 228	6
Crabs	123 966	4	108 892	6
Octopus	79 056	2	55 524	3
Cod	188 132	6	53 727	3
Cod egg	49 885	1	48 543	2
Pearl	30	0	37 864	2
Fishmeal	432 032	13	35 638	2
Other	1 712 762	50	774 863	40
Total	3 411 359		1 945 613	

KOREA[1]

I. Introduction

The growth in fisheries activities and the increasing share of processed products in total fisheries production have encouraged new and innovative post harvest activities. However, while increased production volumes have given rise to some economies of scale, profitable investment in new post-harvest technology requires cost-reducing technical innovation.

The volume of catch is determined in large by natural growth rate and fishing technology. Thus, unlike the changes in fishing methods, yield increases are not possible through post-harvest technical changes unless there are opportunities to increase output by reducing losses at post-harvest stage, consistent with the goal of minimising depletion and preventing ocean pollution.

Post-harvest practices include many activities including landing, processing, marketing and trade, storage, and inspection. Raw fish is distributed and transformed in a variety of ways to maximise economic surplus. In the course of post-harvest practices, there is a constant flow of market information between fishing sector and post-harvest industries. Market signals are transmitted to fishermen, who in fact make decisions on how much and what species are to be caught and where/when to catch.

Korea has experienced substantial post-harvest losses every year, estimated at around 10% of the total fish production. In particular, as imports increase over time, the rate of rejected foreign fishery products goes up. This often causes lost volume and value and associated pollution problems in the disposal process.

This paper reviews the Korean post-harvest sector and seeks to identify its links to harvesting activities and the impacts on responsible fisheries. It provides useful information about fishery management instruments, distribution and trade, inspection and consumer affairs.

II. Characteristics of Korean Fisheries

Korea is one of the world's major fishing countries for both production and trade: the tenth largest harvester as well as exporter. Korean fisheries sector has had, and continues to have, a dominant position and impact on the national supply of animal protein food although livestock meat and certain non-meat foods have, in recent years, claimed an increasing share of the diet.

In spite of stagnating production, per capita consumption of fish and fish products has continued to increase until the Foreign Exchange Crisis around the end of 1997. Allowing a certain percentage of waste in the course of distribution and marketing, 2 055 000 tonnes of supplies seem to be sufficient to maintain the current level of per capita consumption (44.25kg/year) for the Korean population of

1. Paper prepared by Mr. Seong-Kwae Park, Korea Maritime Institute.

46.4 million. In fact, current production is more than enough to meet the domestic demand. A substantial portion is exported. At the same time imports are rapidly increasing.

Korean fishing operations take place throughout the world's oceans. Adjacent waters are the most important. Capture fisheries in domestic waters account for 42% of the total production, mariculture for 31% and distant water fishing for 27%. Some 75 000 vessels are engaged in a variety of fishing activities. Small-scale fishing households, operating engine-free boats less than 10 tonnes, makes up 88% of fishery management units. During the last couple of decades, over-capacity, marine environmental degradation and international fishery regulations have severely constrained the entire Korean fisheries.

In particular, the Far Eastern ocean sphere, consisting of East Sea, Yellow Sea and East China Sea, forms a single vast marine ecosystem that requires co-operative fishery resource management among the coastal states (*i.e*, Korea, Japan and China). New Fishery Agreements among the three coastal nations, which have been recently concluded, laid out an important legal basis to create new orders for the ocean of the East Asian region.

Even though the overall fishery environment has deteriorated, production value has continued to increase, albeit with a reduction in the relative contribution (some 0.5% in 1997) to the gross national product.

III. Post-Harvest Practices

3.1 Main Commercial Species and Fisheries Management Instruments

Korean waters are located in monsoon climate area and there exists a great diversity of fish species that are regularly and widely consumed. Excluding seaweeds, more than 150 species are considered to be of commercial value including 60 fish, 10 crustaceans, 17 shellfish, 7 molluscs, and 56 other marine animals. Major species include Alaska Pollack, hair tail, redlip croaker, mackerels, anchovy, sardine, flounders, file fish, squid, and cuttlefish.

There are more than 30 different fisheries that exploit adjacent living resources. Four large-scale fisheries (large otter trawl, large purse seine, offshore stow nets and anchovy dragnets) produce more than 50% of the total domestic catches. Fishing gear and methods are quite diversified among each individual fishery.

The management instruments used vary according to fishery and place of harvest. The entire Korean fishing fleet is subject to a permit and license system. Permits are applied to all fishing vessels as well as to mariculture, while a license scheme is applied only to mariculture. Permits specify boat names, GRT, fishing gears and fishing areas. Licenses specify the place to farm, the species/acreage to be cultured and the period of farming.

Korea Maritime Police Agency, which was established upon the birth of the Ministry of Maritime Affairs and Fisheries (MOMAF) in 1996, is responsible for monitoring and surveillance all fishing vessels and control their "port-in and out activities". The central and provincial fishery extension boats complement surveillance of fishing activities.

The fisheries administration has long observed that the conventional input controls are no longer effective in restoring overexploited fish stocks. In 1998 the government introduced an output control instrument *i.e.* Total Allowable Catch scheme into the existing fishery management system. To implement this instrument, the Law of Fisheries and Fisheries Resource Protection Law were amended in December

1995 and in December 1996, respectively. The 1982 UNCLOS, which by 1994 had received 60 ratifications, and the bilateral fishery agreements among Korea, Japan and China[2] provided a momentum to employ the new fisheries management system. In 1998 the Korean government initiated a sort of TAC game for large purse seine fishery which mainly captures mackerel. A pilot program for 5 species (*i.e.*, mackerel, sardine, jack mackerel, red large crab and spanning mackerel) is to be implemented from 1999 to 2000. Based on the results of the experiment the TAC system will be expanded to most commercial species from 2001.

In implementing resource management practices, regulators will have to face the burden of enforcement and monitoring costs, while importers will benefit from enhanced opportunities to do their own business with increased market share. Furthermore the introduction of the TAC system will require structural adjustment in the distribution sector. It is expected that there will be changes in way of fish utilisation.

3.2 Distribution System

Korean fish and fish products are subject to a complex distribution system, which can be largely divided into two categories: one takes place at landing ports and another in areas of consumption. Distribution at landing ports takes place through fishery co-operative auction markets and the Pusan common fish market, which are always located at water fronts, while distribution to consumption areas is made through whole sale markets, inland joint sale and direct-sale markets and retailers.

With the exception of the traditional (so called 'jaere' in Korean) market, there are 330 official fish markets in Korea: wholesale corporations (20), joint markets (6), co-operative auction markets (232), common fishery market (1), and direct sale markets (71).

3.2.1 Distribution Channels

Fish production is very susceptible to ocean climate changes, which causes a wide range of yearly and/or seasonal fluctuation. It is often difficult to predict correct catch volume and associated prices. Thus, it is much more difficult to make a production planning than for other commodities like agricultural crops. In addition, distribution mechanism is relatively complex and diverse because of the characteristics of fish *i.e.* perishability and one-time mass catch. Small-scale distributions are prevailing with little transparency.

There are three distribution channels: two channels are associated with domestic fishery production and the rest with distant-water catch, see the following graphic presentation.

However, large portion of adjacent catch still goes to the traditional fishery markets, which embrace many problems such as a deficiency of information about product flow, statistics, taxes, the lack of transactional transparency and market information distortions.

[2] Fishery Agreement between Korea and Japan was concluded in October 1998, between Korea and China in November 1998, and between Japan and China in November 1997. As a result, new fishery orders were formed in the far Eastern region.

Table 1. Fishery Markets

	Total	Wholesale corporation	Joint market	Auction market	Common fishery market	Direct sale market
Total	330	20	6	232	1	71
Seoul	14	3	1	2	-	8
Pusan	10	-	-	7	1	2
Taegu	5	2	-	1	-	2
Incheon	9	-	-	4	-	5
Kwangju	8	1	-	-	-	7
Taejeon	2	2	-	-	-	-
Kyungki	18	4	3	8	-	3
Kangwon	38	-	-	25	-	13
Chungbuk	2	2	-	-	-	-
Chungnam	22	-	-	21	-	1
Cheonbuk	25	2	1	18	-	4
Cheonnam	66	-	-	60	-	6
Kyungbuk	32	2	-	22	-	8
Kyungnam	58	2	1	50	-	5
Cheju	21	-	-	14	-	7

Figure 1. Regular Marketing System

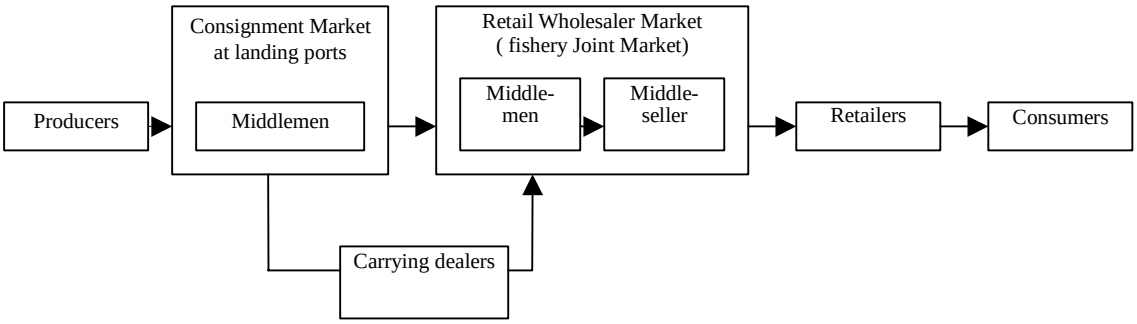


Figure 2. Fisheries Co-Operatives Distribution System

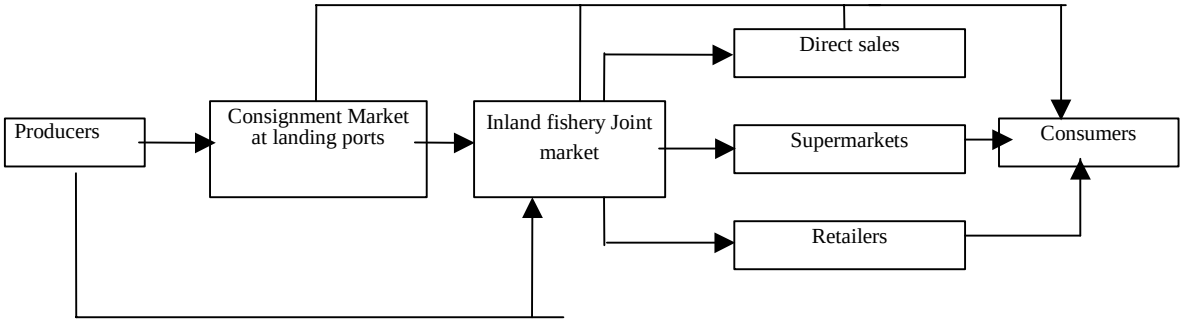
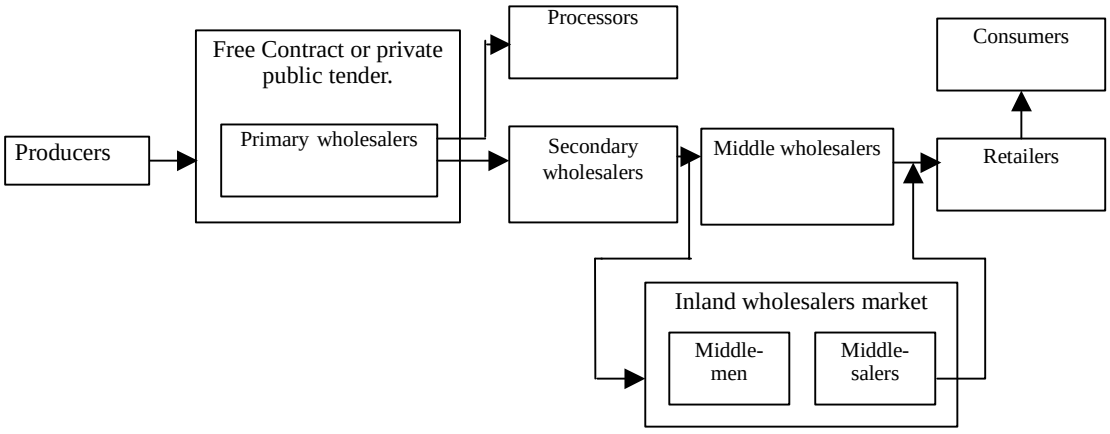


Figure 3. Distant-Water Fisheries: 4 or 5 Stages



3.2.2 Transactions between South and North Korea

The 1988 Special Presidential Declaration provided an important momentum to facilitate the trade between South and North Korea. Since then, the South-North fishery trade has rapidly expanded and it has been regarded as internal transactions rather than international ones.

Fishery trade between the two Koreas has been under the control of two laws: (i) Law about South-North Exchange and (ii) External Trade Law. At present imports of 7 out of 390 items of North Korean origin still requires government permission because the products compete with domestic species and the increasing import volume may lower domestic market prices which can result in reduced fishing households' income.

From 1989 to 1997 South Korea imported 31 721 tonnes (USD 36.67 million) of fish products from the North. As seen in Table 2, the import volume and value are on a rapidly increasing trend. However, it is not expected that North Korea can continue to meet such increasing South Korean demand for fish due to the serious lack of entire fishery production capability.

Table 2. Fishery Products from North Korea

(tonnes and '000 USD)

Year	1989-93	1994	1995	1996	1997	Total
Volume	15 285	3 140	1 250	3 941	8 105	31 721
Value	8 582	2 723	2 692	9 101	14 572	36 670

Source: Ministry of Maritime Affairs and Fisheries

3.3 Processing

Korean people tend to maintain their traditional food consumption habits. In Korea there still exists a deeply rooted tradition of enjoying cooking raw fish. This has been one of the factors, retarding the advancement of fish processing technologies and, consequently, a large portion of raw product goes to very preliminary processing plants that simply transform fresh fish into frozen products.

About 87% of the total raw fish supplies are utilised for processing purposes. Low degree of processing accounts for much larger proportion than highly processed production. However, Korean consumers show a changing preference toward highly processed fish products. This phenomenon seems to be attributed to advanced processing and packaging technologies related to convenience, safety and nutritional factors.

In 1996 total processed fish production reached 1 730 000 tonnes of which frozen fish accounted for 40%. Main species include tuna, mackerel, croakers, sardine and the like. Fish paste-based products like Kamaboku are increasingly popular. Canned fish (*i.e.*, tuna, oyster, Bai top shell, etc) have also shown increasing market shares.

4. Post-Harvest Policies

4.1 Price Policies

Food pricing is an integral part of national food policy. It usually emerges in response to multiple objectives including:

- Overall economic growth, of which the efficient growth of fisheries is one component;
- Distribution goals, which often encompass a desire to promote rural employment and welfare, while maintaining the income status of politically influential, usually urban, groups at the same time; and
- Food security, that is, the provision of sufficient and stable food supplies.

Table 3. Production Trends of Processed Fishery Products

(000 tonnes)

(Adjacent Fisheries)

	1993	1994	1995	1996	96/95 (%)
Total	794 (100)	898 (100)	910 (100)	1,086 (100)	119.3
High degree of Processing	278 (35)	303 (34)	309 (34)	289 (27)	93.5
Frozen Fish Paste Canned Fish Oil, meal Seasoned Agar	73 99 49 46 10 1	75 109 64 42 12 1	74 108 63 49 14 1	55 116 62 43 12 1	74.3 107.4 98.4 87.8 85.7 100
Low–processed	516 65	595 66	601 66	513 63	132.6
Frozen-Round Seaweed Dried Salted, pickled Others	337 109 50 13 7	416 117 40 10 12	430 94 50 17 10	319 135 34 17 8	134.2 93.6 170.0 123.5 260.0

(000 tonnes)

(Distant-Water Fisheries)

	1993	1994	1995	1996	96/95 (%)
Total	691	816	882	641	82.0
Frozen, of which -- Round -- Processed Fish Oil, Ground	686 671 15 5	810 788 22 6	71 733 38 11	633 600 33 8	82.1 81.9 86.8 72.7

The objectives of the fish price policy in Korea are price stabilisation and income distribution. Income distribution objectives have played an important role in shaping the price policies. Distribution measures, however, have often been motivated by political factors rather than equity consideration. Especially, this is apparent in the case of squid price policy over the last several years.

In recent years adjacent squid anglers have been facing a dilemma: more catch, lower market price. The government has participated in the market by purchasing a substantial amount of squid at higher price to support the landing price and fishermen's price of squid. The squid purchased by the government is resold later at lower price than purchase price. The main purpose of this policy is to stabilise producer's price. However, instead of alleviating price uncertainty, government tends to get another burden, which is trapped in a sort of treadmill by providing producers with an incentive to increase squid capture.

It seems apparent that price uncertainty is lessened to some extent under the current price stabilisation policy. However it is not much help to solve fishermen's price-induced income deficiency problem because most fishermen compensate income reduction by increasing production. This may be considered a kind of "poverty supply dilemma".

In general, standard economic theory postulates that supply price and quantity move in the same direction. But Korean fisheries, in general, tend not to respond to market price changes as economic theory predicts. Thus, government price policy does not tend to have desirable downside effect on fishery resource management and hence does not help encourage responsible fishing practices. As a result, price policy of fishery products just transfers deficit burden to taxpayers, even though such government policies are, of course, implemented under a certain degree of national consensus.

4.2 Measures Applying to Distribution and Trade

Securing food safety has long been considered one of the government responsibilities. That safe food is an important consumer's concern is hardly debatable. But it is also a producer's concern. In fact, whenever there is a consumer health threat, producers of live fish and processed fishery products should withdraw them from the market.

The perishability of fish products and their proclivity for carrying bacteria and transmitting diseases have been the central public policy concern with seafood safety. Perhaps the most hazardous health risk related to food safety is botulism (food poisoning). Vibrio problem occurs often in summer, which is an organism, usually found in marine environment.

As trade liberalisation of fishery products expands, the sanitary and phytosanitary (SPS) issues have drawn more public concerns. Demand for SPS inspection increases with the trade volume/value. In particular, the rate of imported seafood inspection has gone up rapidly as shown in Table 4.

Ministry of Health and Welfare manages most of the sanitary and food safety regulations. MOMAF only provides supports for seafood safety issues like HACCP (Hazard Analysis Critical Control Point), EU factory registration, etc.

HACCP is adopted in order to meet the international sanitary standards. With the announcement of safety critical-control foods, MOMAF has designated fish and shellfish (excluding seaweed) as main target items for HACCP. Also, "Seafood Safety and Quality Promotion Plan" gives the NFPIS (National Fishery Products Inspection Station) and the NFRDI (National Fisheries Research and Development Institute) the rights to inspect "target items" from production stage to marketing level.

National Fisheries Products Inspection Station (NFPIS) has the authority to control seafood safety. KFDA (Korean Food and Drug Administration) is a principal government agency whose mission is to ensure that foods are safe, sound, wholesome and well labelled and that medicines used for mariculture are safe and effective with little side effects.

Table 4. Fishery Product Inspection

	Total			Export			Import			Domestic Consumption		
	Number of cases	Quantity	Value	Number of cases	Quantity	Value	No of cases	Quantity	Value	No of cases	Quantity	Value
1985	9 295	203 937	404 497	9 295	203 937	404 497	-	-	-	-	-	-
1986	12 484	274 937	688 742	12 484	274 805	688 742	-	-	-	-	-	-
1987	13 508	322 628	857 952	13 508	322 628	857 952	-	-	-	-	-	-
1988	13 171	301 607	915 318	13 171	301 607	915 318	-	-	-	-	-	-
1989	10 749	256 275	730 894	10 749	256 275	730 894	-	-	-	-	-	-
1990	10 304	246 760	698 551	10 304	246 760	698 551	-	-	-	-	-	-
1991	11 097	356 703	915 700	10 032	240 991	795 580	1 065	115 712	120 120	-	-	-
1992	13 575	437 447	1 032 471	9 097	222 843	782 720	4 478	214 604	249 751	-	-	-
1993	13 217	378 462	797 371	5 932	119 617	479 213	6 916	248 126	290 290	369	10 719	27 868
1994	17 286	374 261	825 628	3 837	84 638	318 744	12 950	262 202	443 635	490	27 421	63 249
1995	17 448	355 980	741 898	1 890	64 982	200 694	15 088	263 271	479 432	470	27 127	61 772
1996	23 448	473 570	927 653	2 604	69 436	191 051	20 771	376 486	680 635	214	27 648	55 967

Note:
1. Annual average of won/dollar exchange rate is applied as follows; ('92) 780 won/USD, ('93) 802won/USD, ('94) 803won/USD, ('95) 771won/USD and ('96) 804won/USD
2. Exports Inspection: In 1993, by an alleviating measure, obligatory items are reduced to 31 items. In 1994, adjusted to 13 items.
3. Import Inspection: In 1991, Imported Fisheries Inspection is committed by National Quarantine Station.
4. Domestic Consumption Inspection: In 1993, by improvement of Fisheries Inspection system, this item has been separately accounted.

Korean Food and Drug Administration (KFDA) and Local Food and Drug Offices are also responsible for regulating cosmetics, vaccines, blood products, medical devices and radiation-emitting products. Regarding fisheries trade, NFPIS is a unique government authority in charge of inspection and government-sponsored institutes take charge of research and surveys food specification. Through recent regulatory reforms a number of standards and regulations are to be harmonised with the international standards like Codex Alimentarius.

In 1997 NFPIS inspected 721 items. Inspected volume of importation were 333 973 tonnes, which accounted for 0.7% of the total. The rejected fishery products were 2 362 tonnes (0.7% of inspected volume). Most of them were frozen products. Recently, HACCP has been introduced. The EU registered factories of exporting products to the EU region should be in compliance with HACCP. Also, manufacturers, processors and sanitary managers are annually educated with manuals on the basis of the article 27 of the Food Sanitation Law by the sanitary agency concerned.

Table 5. Results of Inspection (1997)

(tonnes and '000 USD)

	Total Inspection			Rejections		
	No. of cases	Quantity	Value	No. of cases	Quantity	Value
Total	23 532	333 973	885 924	258 (100)	2 362 (100)	6 345 (100)
Live Fish, Shellfish	3 997	15 750	54 443	22 (8.5)	121 (5.1)	178 (2.8)
Fresh Chilled	7 515	8 561	45 204	24 (9.3)	21 (0.9)	134 (2.1)
Frozen	10 303	286 174	738 852	142 (55.0)	1 742 (73.8)	4 595 (72.4)
Dried	596	2 300	17 170	56 (21.7)	232 (9.8)	1 251 (19.7)
Salted	1 101	20 959	29 783	14 (5.4)	246 (10.4)	187 (3.0)
Seaweed	16	221	359	-	-	-
Agar	4	8	113	-	-	-

Source: National Fisheries Products Inspection Station, Annual Report of Fisheries Products Inspection, 1998

In addition, in order to export fishery products to U.S. markets, the seafood company or factory should get a verification that they operates under HACCP system and sanitary programmes that are in accordance with the U.S. FDA's seafood HACCP regulation 21 CFR 123.

Fishery products to be exported to EU should meet the health requirements in compliance with the directive (91/493/EEC). Also processing plants, factory vessels, and freezing vessels shall be registered to EU. EU certifies that the provisions of the Republic of Korea on health inspection and monitoring of fishery products may be considered equivalent to those laid down in Directive 91/493/EEC and that the NFPIS and its laboratories are capable of effectively verifying the application of the regulations in Korea. So, Korea belongs to country list 1, which nominates Korea as one of the countries or territories covered by a specific decision under Council Directive 91/493/EEC. Up until now Korea has registered 30 processing plants and 34 factory vessels to EU.

4.3 Quality Certification System

The Quality Certification System started in 1993. It has been applied to the traditional and geography-specific fishery products. NFPIS carries out qualification tests and give the producers the right to use mark "Pum (Qualified)" or their own trademarks. Until 1997 nineteen geography-specific fishery products obtained the Quality Certification. They include dried, salted, and seasoned products.

4.4 Labelling the Origin of Products

The purposes of labelling product origin are to provide consumers with accurate information about where products originate and to mitigate the information asymmetry problem between buyers and sellers. In general it is applied to tariff policies. But in Korea it is used to prevent transaction frauds. There are many cases where sellers or importers deceive origins of goods as domestic ones to gain unfair windfall gains. In addition, Quality Certification on traditional seafood is authorised by MOMAF. This is aimed to cherish inherited traditional seafood processing technologies and to standardise them.

With respect to eco-labelling policy on seafood Korea does not have such schemes at present. But consumers are gradually recognising the value of non-polluted foods and eco-friendly produced fishery products. Some mariculture products (*e.g.* laver, oyster, etc.) are marketed under the name of "Products Cultured in the Clean Seas," Korean consumers tend to show preference to eco-like-labelled products.

To prevent label fraud practices, Food Sanitary Law (FSL) and its regulations define that the false of label in product name, manufacturing date, distribution period, weight of raw material and content, and warning tip for storage is regulated by law.

V. International Trade Flows

In 1997, fish products were exported to more than 80 countries. Export volume was about 509 090 tonnes (USD 1 493 million). Major export targets were Japan (68.2%), the peoples Republic of China (7.7%), U.S.A. (4.7%), Thailand (3.1%) and Spain (3.0%). On the other hand, Korea imported 522 381 tonnes (USD 1 045 million). Over 70% of imports of fishery products came from the People's Republic of China (26.0%), Russia (16.8%), and U.S.A. (12.5%). Korean fisheries sector realised the substantial trade surplus of USD 448 million.

Table 6. Trade Balance of Fish Products (1997)

(million USD)

	Export (A)	Import (B)	Balance (A-B)
Fish products	1 493	1 045	448
Adjacent fishery products	998	1 025	-27
Live, Fresh, or Chilled	299	108	191
Frozen	167	694	-527
Seaweed Salted & Pickled	199	38	81
Canned, prepared	100	29	71
Others	313	156	157
Deep-Sea Fish	495	20	475

Source: MOMAF, Annual report of Fisheries Product Trade, 1998

On July 1, 1997, Korea liberalised imports of fish products so that all fish products can be imported subject only to some necessary safety inspections. Since, however, some structural adjustment problems of small-scale fisheries have emerged and given rise to very sensitive political implications, Korea was therefore allowed another 8-year delay before the full market liberalisation plan came into force.

Table 7. Import Liberalisation Trend

Total Items	Until 1994	1995	1996	July 1997
390	334 (86%)	6 (87%)	19 (92%)	31 (100%)

Note: parenthesis contains cumulative rate of liberalisation by each year.

From the trade perspective, Korea has paid much attention to the fact that the dramatic increase in the exploitation of living marine resources threatens the sustainability of these resources throughout the world. In response to this threat, Korea, as one of the CITES member countries, is taking unilateral and multilateral fishery resources management measures that impose restrictions on trade, directly or indirectly. Such measures include prohibition of, or restrictions on, trade in endangered or threatened species; restrictions on incidental impacts on protected species; restrictions on commercially harvested species to ensure compliance with conservation and management measures relating to that species; and protection of ecosystems.

VI. Consumer Information

Concerns for consumer welfare in Korean society have grown considerably, particularly, at the beginning in the 1990's. Consumers expect the government to provide more protection and guidance for food safety. When it comes to consumer rights, four rights seem reasonable enough to address food safety problems: the right to safety, the right to choose, the right to be informed, and the right to be heard.

Food safety and health risk issues are becoming a more important social concern. In 1998 the Ministry of Maritime Affairs and Fisheries made an official announcement 1998-1 regarding "Labelling Origin of Fish and Fish Products". This official document mandates all fishery economic entities to label origin of products on almost all fishery products including domestic and imported seafood.

It is believed that most Korean consumers prefer domestic seafood to foreign. The monitoring authorities often report deceiving origin of products. For any deceptive activity, government imposes severe punishment-like fine or imprisonment. To monitor commercial fraud related to origin of products, civil monitors, consumers' organisations and NFPIS to undertake spot checks.

Eco-Labelling has been launched in 1992 for industrial products in Korea. An Eco-Labelling Committee is composed of consumer group, environmental movement group, and academic specialists. Eco-labelling helps allow price and quality differentiation in the market.

There are some keys to successful implementation; fairness of verifying quality, consumers' keen awareness, consumers' willingness to pay usually higher prices for Eco-labelled products and eagerness of producers to follow. The third party like non-governmental organisations may verify the eco-friendly produced seafood. If consumers are aware of and prefer them in spite of being a bit more expensive, it may stimulate producers to get verification on their products.

Korea Consumer Protection Board (KCPB) carries out a variety of activities to protect consumers' interests. Its major function is to settle consumer disputes and it reviews unfair transactions, contracts, and exaggerated labelling and illegal advertisement.

SPAIN

I. Characteristics of Fishing in Spain

Spain is a major fish-consumer country. The consumption per inhabitant, in excess of 32 kg per year, is one of the world's highest. This is due to a gastronomic tradition that is mainly based on wide access to coastal areas.

An effect of this tradition is that consumption of an enormous variety of species takes place, although only the biggest economic value is concentrated on a small part. This tradition has also produced the development of a varied fishing activity and a complex transformation and commercial activity.

Spain has the biggest fishing fleet in the European Union and the fourth in the world. Almost 19 000 ships, 75 000 direct jobs and a half-million indirect jobs in transport, transformation, trade, etc. They all compose the Spanish fisheries production fabric.

Spanish ships operate in nearly all the world's major fishing grounds. The production reaches 1 400 000 tonnes and the value of catches is over ECU 2 000 million per year.

Be that as it may, the Spanish fleet clearly suffers the basic problem of a lack of sufficient fishing grounds. Its fishing capacity is far higher than the overall yield of Spanish fishing grounds. For many years the fleet has undergone a restructuring process based on setting up joint ventures with major fishing-ground countries. An important part of the Spanish imports in fact, comes from these joint ventures.

But in spite of its relative importance on the world scene, in Spain the fishing industry contributes with a reduced value to the country's Gross Value Added. Table 1 shows how this contribution is below 0.5%.

Table 1. Contribution of the Fishing Industry to the National GVA

Year	Percentage Total GVA
1987	0.54
1989	0.44
1991	0.42
1993	0.45

Source: Renta Nacional de España y su distribución regional. Fundación BBV

II. Post Harvesting Practices

2.1 Main Commercial Species and Fisheries Management Instruments Used for these Species

Spain presents a great diversity of species that are regularly and widely consumed. Species that can be considered to be commercial in Spain include 141 fish species, 39 crustacean species and 58 mollusc species. Consumption also encompasses, among other less-common species, 65 fish, 22 crustaceans and 12 molluscs. In all, a tremendous variety of products that are not always readily recognised by consumers.

The main species are as follows: hake, octopus, shrimp, halibut, yellow-fin, squid, sardine, anchovy, cod, albacore, horse mackerel, skip-jack, Norway lobster, big-eye, mackerel, bluefin tuna, cuttlefish and clams. These species represent annual catches that, are worth over a thousand million ESP annually, and in some cases reaching ESP 55 billion.

The instruments used vary widely from one species to another, and also depend on the places where the fish are caught.

The entire Spanish fishing fleet is subjected to a closed census of ships. These ships need a license to operate, which consists specifies the fishing gear used, the dimensions of the boat and the places where they are authorised to operate in (fishing grounds).

In addition to this requirement, they face other limitations depending on the fishing grounds.

In the case of the fisheries in the Atlantic waters of the EU (including those of the Spanish EEZ) the main species are subjected to TAC's that are determined every year base on scientific approaches. The Spanish government tolerates the offsetting between fishing boats of surpluses and deficits in relation to each TAC in order to capitalise the fishing activity. Those transfers have permitted a 50% reduction in the operating fleet since 1986.

In the case of the Mediterranean, a set of technical measures that very strictly affect the schedules of fishing also sets out forbidden areas and marine reserves.

Finally in international or third-country waters, the control measures are fixed as a function of the international agreements (in their main part decided by the European Union) or by international organisations to which Spain is subjected (ICCAT, etc.).

2.2 Proportion of Catch Landed Direct to Foreign Ports from Foreign Harvesters and "At Sea" Processors. Proportion of Catch Landed at Domestic Ports from Foreign-Flag Harvesters and "At Sea" Processors

Spain is structurally a deficit country in its fish trade balance. As a result, the volume of catches obtained in Spanish waters that go to foreign ports is practically insignificant. The prices in the Spanish ports are usually very attractive. Moreover, there are no Spanish water resources, outside of the Atlantic area shared with the European Union that are not fully exploited by the Spanish fleet.

However, the volume of captures of foreign fleets landed in Spain is important. This oscillates between 10 and 20% of total sales. An important part of these landings corresponds to mixed companies which, being subject to agreements in third countries, have forced Spanish ships to give up the Spanish flag for the domestic reception flag.

2.3 Share of Catch Processed "At Sea" and "On Land"

On-land processing corresponds basically to the canning sector, which produces about 230 000 tonnes p.a. of sardine, white tuna, tuna, mackerel, anchovy, mussels, cephalopods, cockles and bonito. Their value ascended in 1997 to ESP 112 billion. The total value of processed fish is 30% of the total value of landings. Therefore it represents a sub-sector of strategic importance for Spain.

At-sea processing corresponds basically to the frozen sector, which is frequently non fish-scale, filleted, packed, etc. The production of frozen fish is usually recorded as part of total catches, making it difficult to give exact figures on its total volume. This amounts to 400 000 tonnes. The most important frozen products are hake, cuttlefish, northern short-fin squid, octopus, prawns, shrimp, cusk eel and sole.

2.4 Diagram Different Marketing Schemes

Given their non-durable nature, fish products require a very effective commercial structure. This requires a very short lead time (measured in hours) from the ship's hold to the consumer's plate.

The distribution system of fishing products in Spain is highly developed. Traditionally the flow of the fishing products goes from the landing ports (over 225 throughout the entire Spanish coast) to the consumer through a complex distribution chain.

Figure 1 shows a commercial flow diagram of that process. At the source we have the traditional ports, but also fish farming operations, transformation centres and imports.

A small part goes directly to retail outlets and restaurants through the 225 fish-auction markets located at dockside or outside this traditional channel if situated beyond the legal framework. This last case, although present, is marginal in Spain ("sport" fishing, pensioners, etc.).

The most important part of the landings goes through asentadores or wholesale merchants to the chain of Mercas (in total 14 of the 22 Mercas or wholesale markets in Spain have a fishing products section). From there the product is distributed to the big supermarket chains and retail outlets, and a small part goes to export markets. Imported products also make their way through the Mercas. In total, the Mercas move ECU 2 billion worth of fishing products per year.

Table 2. Distribution of Landings through Mercas

Merca	Percentage Handled
Merca Madrid	41.0
Merca Barcelona	18.6
Merca Valencia	14.3
Merca Bilbao	6.5
Merca Zaragoza	5.3
Merca Sevilla	5.3
Merca Granada	3.2
Merca Iruña	1.4
Merca Córdoba	1.3
Merca Salamanca	0.9
Merca Murcia	0.8
Merca Badajoz	0.6
Merca León	0.4
Merca Las Palmas	0.2

From this structure one can assume the major role as pricing orientation points of Madrid (Atlantic) and Barcelona (Mediterranean) within the whole of the fish production structure. The product volume marketed through the Mercas has grown year after year.

The consumer obtains the fish product through specialised stores (fish markets), the municipal markets or through large supermarket chains. The latter group has posted non-stop growth in the last years (Continente, El Corte Inglés, Pryca, Alcampo, etc.).

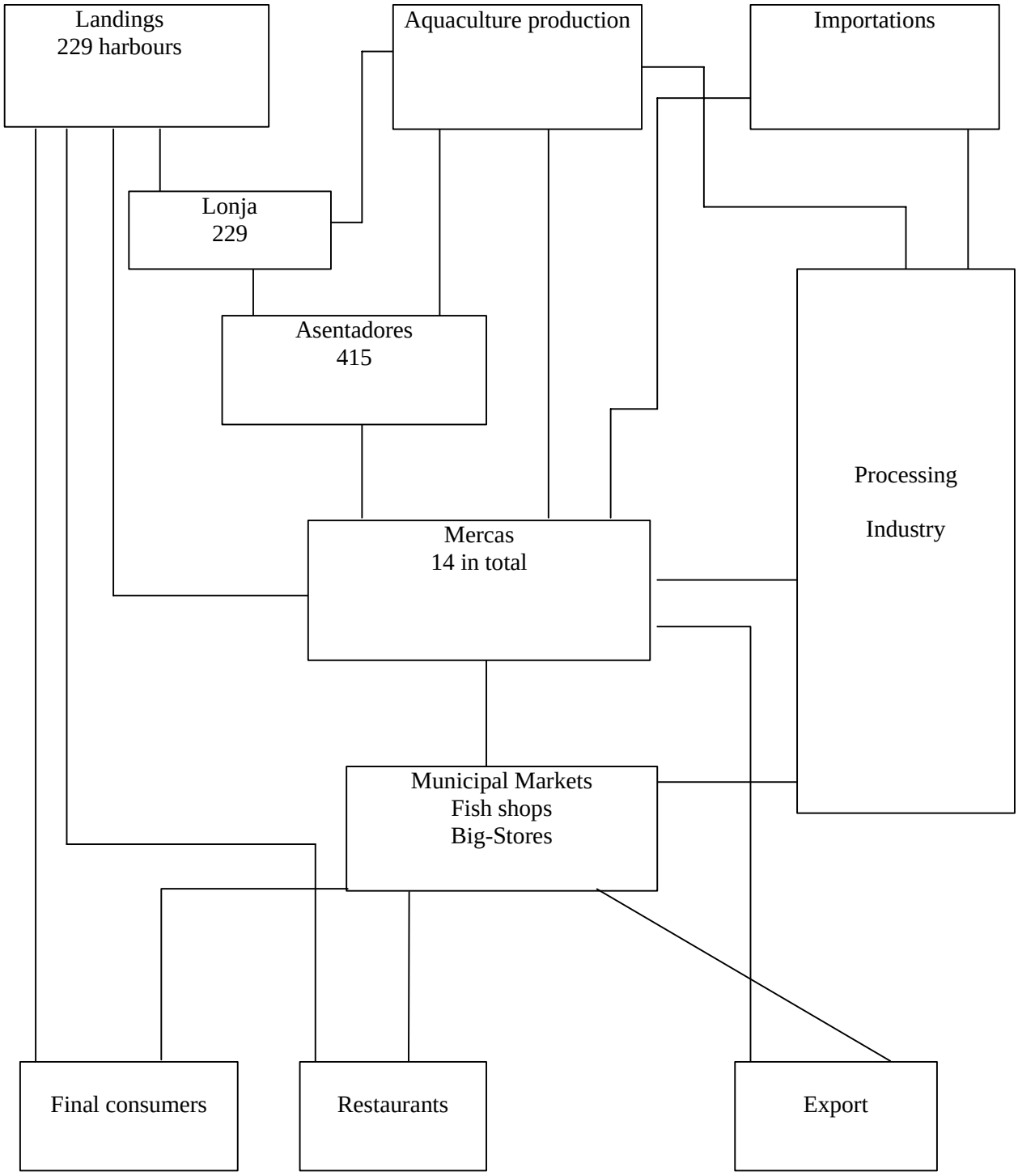
Fish are presented in different forms: fresh, frozen, smoked, salted, prepared food, etc.

The companies responsible for the transport and commercialisation of the fish are the asentadores or wholesalers. There are a total of 415 companies of this type. Their size can be considered based on the product volume moved per year, reflected in the following table:

Table 3. Wholesalers by Business Volume

Tonnes/Year	Wholesalers
From 0 to 250	57
250-500	73
500-1.000	107
1.000-1.500	89
1.500-2.000	30
2.000-3.000	27
3.000-4.000	14
4.000-6.000	11
Over 6.000	7
Total	415

Figure 1. Diagram of Commercial Flow of Fishing Products in Spain



The predominant commercialised product continues to be in the form of fresh fish, but frozen fish is getting an increasing portion of the share. Of the 477 000 tonnes turned over in 1993, 60% corresponds to fresh fish, 17% to fresh shellfish and 23% to frozen fish products of all types.

The temporal evolution of commercialisation reveals a certain seasonal trend, with volume dropping to the lowest levels in August (indeed, direct sales in harbours and big cities empties during the summer holidays), and reaching maximum levels in December (with the Christmas holidays driving peak consumption levels). Even so, seasonal divergences are moderate, ranging from a minimum of 32 000 tonnes to a maximum of 47 000 tonnes. Variations are broader in frozen products and fresh shellfish (partly due to fisheries).

The structure of markets in Spain shows a high degree of development allowing production to be moved quickly. The supply meets traditional demand with adequate quality levels and health guarantees. A large number of outlets allow the stepped but quick daily flow of an enormous mass of production that has to arrive to the consumer quickly.

The process makes the product more expensive, but the cost of the transport, conservation and manipulation of the product, with high risk of loss, probably justifies this margin.

From the point of view of the commercial flow there is little room for improvement, other than the modernisation and concentration of dockside auction markets, which is taking place in an irreversible way.

The main weakness of the system is in product presentation and changes in consumer habits, both of which have worked to the detriment of traditional fish markets and municipal centres in benefit of the big commercial areas.

The boom of the latter is directly linked to the difficulties and closings of the former, especially in the big industrial cities.

Consumers demand a bigger transformation of the end products. This requires an increase of supply on the part of the transforming industry, which has to face high prices of the product in origin for most of the products.

At present, some attempts are being made to pack the product at the source in containers with transformed atmospheres or salting, etc. There is also a drive to promote “appellation d’origine” brands to increase consumer awareness levels and to protect production of fishing tackle that is respectful of the marine medium.

In the end, what most matters to consumers are speeding up the selling process and making product consumption easier. This target can be reached by semi-transforming, *i.e.* packing in boxes purchasable by the end consumer (small dimension) with appropriate labelling.

However, at the moment fresh fish continues to be the product of reference in Spanish fishing products market.

2.5 Effects on Commercial Flows of the Handling Instruments Applied

The Spanish market is regulated by the EC regime that determines that the market should be opened further. Given the characteristics of the Spanish trade balance, such a broader opening up of the market is a necessity to satisfy the important internal demand.

Inevitably, some of the systems used by the administration produce a reduction in the supply of fish products at certain times of the year. These are the TAC and the closing seasons. This negative impact for demand is compensated by an increase in imports. Even so, a reduction of consumption takes place, especially in the case of fresh fish.

The absence of management measures would cause a long-term drop in production because of over-fishing, and a bigger harmful effect for consumers. All that makes final consumers and the to be more readily accepting the importance of the applied measures. However, debates on TAC levels are frequent, since it is difficult to set their dimension with absolute certainty, and on the concrete periods of closed seasons, since the most proper biological or administrative moments do not always coincide with the most appropriate times for the market.

III. Post Harvesting Policies

3.1 Price Controls Set on Landings or any other Place in the Post-Harvesting Sector

Market policies are regulated in agreement with the Common Markets Organisation of the European Union.

The actions on prices in the fishing sector are very narrowly targeted or have little impact. They are designed to act against sudden dips in prices at landings and to facilitate their integral profit (financing storage or transformation).

Aids to the Producer Organisations (FEOGA-guarantee) in 1997 reached only ECU 11.3 million. This is less than 0.5% of the value of the catches.

The aids to the processing industry (first as a FEOGA orientation and now as part of the IFOP) is a minor amount and dedicated to the improvement of their productive structures and to facilitate their rationalisation.

The application of safeguard measures exists as a possibility. The goal would be to monitor markets in such a way that does not translate into years of effective application of restrictive measures at the borders. Safeguard measures are a legal instrument seeking to avoid commercial dumping. They have never been applied directly, but the reporting of products that incur in dumping opens a process involving the examination and negotiation of the issues with all the parties. Only after a rigorous examination and negotiation with the involved parties, the Council of Ministers of the European Union (not the member states) proceed to apply a restrictive measure. In practice this occurred, many years ago, without being applied to fishing products. The last time any such measure was adopted was in relation to fish-farming products (Norwegian salmon).

In fact, given their low level of usefulness, the current revision of the Common Market Organisation (OCM) is thinking about repealing this procedure.

3.2 Measures Applying to Export and Import Flows

Commercial policy falls within the competence of the European Commission. The control of the external market of the fishing products is based on tariff measures. Tariffs on fishing products are very low, and they will continue to drop in the setting of the WTO agreements.

Imports are subjected to health checks at the landing ports. These checks are consistent with Directive 91/3 of the Council of Hygienic and sanitary conditions of access to European Union fishing products markets. This directive can be applied to products produced by EU fishermen as well as to imported products.

3.3 Measures to Reduce Post-Harvesting Losses and Waste, to Improve the uses of By-catch and to Minimise the Environmental Impact of Post-Harvesting Activities

Thus far, Spain has not developed special measures to prevent fishing commercial levels from suffering as a result of the negative impact of commercial practices on the environment and resources.

The Spanish State needs to apply the recommendations and agreements of international organisations that regulate the exploitation of fishing resources.

Spain understands that the Code of Conduct for Responsible Fisheries CAM (1995), recommends the states to develop a legal framework dealing with the problems of sea refunds, accessory captures and environmental deterioration, all as a consequence of trade.

At present, it has only developed a law affecting containers and waste that with an impact on industrial production as a whole ("Ley de envases y residuos de envases, 11/1997 24th April 1998").

Spanish-flag fleets both in and out of national waters must fulfil the fishing regulations relating to fishing procedures, technical measures, on board conservation, etc.

IV. International Trade Flows

4.1 Export-Import Flows in Terms of Value, Volume, and Composition

Spain has a fish deficit due to the high level of consumption of fishing products: almost 2 million tonnes per year. Despite this, Spain has a certain export capacity, basically canned and frozen fish products.

In 1996 the Spanish trade balance of fish and fishing products continued to be negative for Spain, as with previous years. The covering rate is around 46% (39% in 1995).

Imports

The total volume of imports amounts to 1.05 million tonnes, with a value of ESP 361 billion representing a 3.4% rise in weight and an 8% drop in value on the previous year.

92.8% of the volume and 98.5% of the total value of the imports are destined to human consumption (92% and 98% in 1995). France and England are the main EC suppliers. Argentina and Namibia are the main non-EC suppliers. Of the total of imports, two major groups are worthy of note:

- Crustaceans and molluscs, representing 31% of the volume and 29% of the total value of imports. 329 000 tonnes were imported, for a value of ESP 162.7 billion (2% in weight and 4.7% in value less than the previous year). 33% of these imports (18% in value) were squid and northern short-fin squid. 24% (45% in value) were shrimp. Morocco, Italy and Argentina are main suppliers.

- Fresh, refrigerated and frozen fish: this category represents 41% of the volume and 34% of the total value of the imports. 441 000 tonnes were imported, with a value of ESP 137.3 billion (5.5% more in weight and 3% more in value than in 1995). 22% of the total of these imports is frozen tuna (11% in value). France, Argentina and the UK are the main countries of origin of imports in this category.

Exports

In 1996, total exports reached 550 000 tonnes, worth ESP 185 billion. This represents an increment of 20% in weight and 22.6% in value on the previous year. 95% of the volume and 98.5% of the total value of the exports are destined for human consumption (97% and 98% in 1995). Portugal, Italy and France are the main export destination countries. Two groups of products are worthy of note:

- Frozen fish. This category represents 38.5% of the volume and 23.3% of the total value of exports. 215 682 tonnes were exported, with a value of ESP 43 751 million (10% more in weight and value than in 1995). 53% of the total of frozen fish exports is tuna (36% of the value).

- Crustaceans and molluscs: this category represents 25% of the volume and 27% of the total value of the exports.

In total, 141 000 tonnes were exported with a total value of ESP 54.8 billion, representing an increase of 20% in weight and of 35% in value on the previous year. 48% (30% in value) were squid and cuttlefish. Italy, Portugal and France are the main export destination countries of crustaceans and molluscs.

Table 4. Foreign Fish Trade Balance (1996)

(Volume: Tonnes; Value: ESP 000)

HS Code	Origin	Imports		Exports		Balance	
		Volume	Value	Volume	Value	Volume	Value
03.01	Total	1 480	3 208 007	3 933	3 037 942	2 453	-170 065
Live fish	EC	1 015	2 097 185	3 897	2 704 715	2 882	607 530
	Other	465	1 110 822	36	333 227	-429	-777 595
03.02	Total	189 125	83 552 152	67 340	25 245 512	-121 785	-58 306 640
Fresh	EC	143 004	63 405 852	60 754	19 188 613	-82 250	-44 217 239
or refrigerated	Other	46 121	20 146 300	6 586	6 056 899	-39 535	-14 089 401
03.03	Total	252 008	53 730 568	215 682	43 751 749	-36 326	-9 978 819
Frozen	EC	35 398	10 182 193	134 513	31 362 426	99 115	21 180 233
fish	Other	216 610	43 548 375	81 169	12 389 323	-135 441	-31 159 052
03.04	Total	98 428	34 639 342	23 474	11 837 289	-74 954	-22 802 053
Fillets and	EC	17 439	9 572 442	18 108	6 968 871	669	-2 603 571
other meats	Other	80 989	25 066 900	5 366	4 868 418	-75 623	-20 198 482
03.05	Total	48 882	21 736 283	9 980	6 332 189	-38 902	-15 404 094
Salted	EC	15 129	8 021 904	8 509	5 404 937	-6 620	-2 616 967
fish	Other	33 753	13 714 379	1 471	927 252	-32 282	-12 787 127
03.06	Total	105 346	93 512 734	11 511	12 996 253	-93 835	-80 516 481
Crustaceans	EC	32 577	24 528 548	10 926	12 370 705	-21 651	-12 157 843
	Other	72 769	68 984 186	585	625 548	-72 184	-68 358 638
03.07	Total	222 889	69 214 896	129 027	41 789 739	-93 862	-27 425 157
Molluscs	EC	70 685	23 028 471	101 037	26 080 695	30 352	3 052 224
	Other	152 204	46 186 425	27 990	15 709 044	-124 214	-30 477 381
16.04	Total	41 905	17 988 940	52 315	28 673 680	10 410	10 684 740
Fish	EC	10 103	4 633 744	44 778	23 430 191	34 675	18 796 447
preserves	Other	31 802	13 355 196	7 537	5 243 489	-24 265	-8 111 707
16.05	Total	15 569	12 508 393	18 099	8 508 646	2 530	-3 999 747
Pres. crust.	EC	9 110	6 390 106	14 274	6 384 875	5 164	-5 231
and molluscs	Other	6 459	6 118 287	3 825	2 123 771	-2 634	-3 994 516
15.04	Total	14 487	1 063 796	7 034	1 199 478	-7 453	135 682
Oil and	EC	8 916	721 187	4 822	555 922	-4 094	-165 265
fat	Other	5 571	342 609	2 212	643 556	-3 359	300 947
23.01.20	Total	62 159	4 943 467	20 502	1 564 032	-41 657	-3 379 435
Fish	EC	17 223	1 589 685	19 263	1 477 414	2 040	-112 271
flours	Other	44 936	3 353 782	1 239	86 618	-43 697	-3 267 164
Total	Total	1 052 2	396 098 578	558 897	184 936 509	-493 381	-211 162 069
Products	EC	360 599	154 171 317	420 881	135 929 364	60 282	-18 241 953
	Other	691 679	241 927 261	138 016	49 006 145	-553 663	-192 921 116

Source: MAP, DG Fishing Markets (1998), General Sub-bureau of Fishing Commercialisation

Table 5. Spanish Fish Trade 1996

(Volume: Tonnes; Value: ESP 000)

Countries	Imports		Exports	
	Tonnes	Value	Tonnes	Value
France	92 558	38 422 603	66 220	22 620 696
United Kingdom	63 502	33 326 054	24 523	7 636 948
Denmark	50 384	20 089 493	2 947	1 213 148
Portugal	49 636	16 826 886	161 874	41 718 949
Italy	41 112	13 188 142	138 946	50 715 148
Netherlands	24 837	15 809 953	3 426	1 439 509
Ireland	22 530	8 836 042	890	136 759
Others	16 035	7 671 471	22 072	10 323 180
Total EU	360 594	154 170 644	420 898	135 804 337
Argentina	101 155	27 651 701	1 214	648 257
Namibia	56 769	17 845 498	128	20 545
Morocco	54 891	23 501 341	555	181 749
Chile	36 981	11 604 803	1 231	133 903
Mexico	32 940	7 514 012	236	220 573
Ecuador	32 710	16 856 772	10 688	1 032 965
Falkland Islands	31 247	5 058 008	—	—
Panama	29 838	5 020 013	50	24 594
Norway	24 348	8 378 934	140	49 046
Peru	21 403	2 553 924	37	25 153
Others	269 412	115 942 936	123 731	46 795 395
Total Non EU	691 694	241 927 942	138 010	49 132 180
Total	1 052 288	396 098 586	558 908	184 936 517

Source: MAP, DG Fishing Markets (1998), General sub-bureau of Fishing Commercialisation

V. Consumer Information

5.1 The Need for Labels

Consumers and the processing industry have always been at the mercy of the annual cycles of fishing and of the natural oscillations of resources. However the globalisation of the economy has brought about changes.

The globalisation of the fisheries markets has had positive and negative effects.

In the positive sense for Spanish consumers, it has allowed them to gain access to a wider flow of products that has allowed them to dispose of more fish, in longer seasons and with lower prices, contributing to reduce inflationary pressures. However, some negative effects have appeared:

- Incomes of Spanish fishermen have decreased as a result of overall price reductions.

- The control of the production has become more complex because there is the possibility of commercialising products whose capture is forbidden. In this way, catches subjected to minimum or forbidden sizes are difficult to control in the markets (beyond the moment of the landing).

- The attractive price obtained in the Spanish market has led to non-sustainable exploitation levels worldwide, which in the future might endanger regular supply to consumers and processing industries. For instance, the canning industries are presently experiencing difficulties obtaining sardines or anchovies of a proper size for the canning process.

- Consumers are finding it increasingly difficult to identify the product that is being purchased: freshness, origin, species, etc. Frequently their expectations are frustrated and this causes a reduction in the consumption of fish products.

All of this makes it especially appropriate to develop a correct identification of the fishing product that arrives to the consumer. Labelling is becoming more and more a necessity for fishermen, consumers, administrations and merchants alike.

5.2 Measures Adopted to Prevent Commercial Fraud, Especially in Relation to Product Origin

Spain, together with the European Union, is attempting to improve the control systems on fishing production. Products landed in Spain must be registered in the entry market through a sale sheet. This sale sheet must include species, volume, price, ship, salesperson and buyer. This is the form taken by product control at the source.

This information has yet to be centralised, although the compiling procedure from the Regions, the Spanish State and finally the European Commission has begun.

This information helps to control catches (regarding TAC, minimum sizes, etc.), quality control (freshness, species, etc.) and administrative control of commercial operations.

However, it does not seem that for the moment this can be directly useful in terms of consumer information. Obviously, it is impossible to control the exchange of this information. At any rate, various initiatives are being developed to make up for this shortcoming.

5.3 Deficiencies in Information Received by Consumers

The end-consumer has changed in the last years. The massive incorporation of women in the job market has led to a loss of the fishing culture among consumers. This results in bigger difficulties in distinguishing freshness, species, etc. However, their demand level increases: the consumer wants to acquire a fish that maintains the habitual standards of quality.

This desire is frequently frustrated. In this way frozen fish is defrosted and sold as fresh fish. The consumer doesn't notice the difference in the market, but at home, even when cooked in the same way, it offers different results (breaks when cooked, loses flavour, etc.). This problem also appears with the introduction of confusion in the denominations. Frequently similar species of fish are marketed as traditional species, although they have a different behaviour in their preparation.

On one hand, all of the above is causing certain reservations in fish consumption. On the other hand, it causes consumers and fishermen to demand from the government that truthful information to the consumer are assured.

5.4 Eco-Labelling Schemes

In the Spanish State, various initiatives are currently being developed to meet this demand on the part of society at large.

On one hand, transformed-product companies develop a strategy of defence of their quality brands, associating a consumption standard to their company brand.

On the other hand the Administration promotes the development of denominations adjusted to certain standards. These denominations are regulated according to their validity, at the European Union, Spanish State and Autonomous Community levels.

The agency charged with registering these denominations is the National Institute of Denominations of Origin (INDO), part of the Ministry of Agriculture, Fisheries and Livestock (MAPA).

Some of the denominations that have been implemented in the past few years include:

- Bonito del Norte, for the Atlantic Bonito caught using traditional gear in the Cantabrian coast. Promoted by the Secretaria General de Pesca Marítima, of the Spanish Government.

- Mexillon de Galicia, for the mussel production cultivated in the coast of Galicia. Promoted by the Xunta de Galicia, government of the Autonomous Community of Galicia.

- Rodaballo de Galicia, for the turbot production cultivated in the coast of Galicia. Promoted by the Xunta de Galicia, government of the Autonomous Community of Galicia.

- Llagostíns del Delta de l'Ebre, for the triple-grooved shrimp cultivated in the Ebro river delta. Promoted by the Generalitat de Catalunya, government of the Autonomous Community of Catalonia.

- Peix blau de Tarragona, for pelagic fish (sardine, anchovy, etc.). Promoted by the Generalitat de Catalunya, government of the Autonomous Community of Catalonia.

As can be observed, most of these denominations effect farming products. Although well appreciated by consumers this label type affects the minimum volume of Spanish fishing production. These labels are not sufficient to provide correct information to the consumer. Sales, however, undoubtedly show that they are a good instruments of information. With this source information, the Administration has a good instrument to serve fishermen and consumers. In and of itself it is probable that initiatives developed by the Administration will make this information available in other ways to the end-consumer.

ARGENTINA[1]

I. Commercial Species

The principal economic indicators for Argentina are given in Table 1 and main commercial species are listed in the Table 2. The most important home consumption species are Argentina hake, followed by squid, silverfish, fresh flounder, atherine, croaker and blenny. Hake is preferred in every socio-economic level, especially as fillets.

In economically prosperous areas, hake consumption is not so significant but is replaced by more expensive varieties such as atherine, flounder, squid, salmon, tuna, blenny, etc. The shellfish market is not important, as 60% of the population does not buy such product.

The consumption of fresh water fish (whole or in parts), is concentrated on four species (large fresh-water catfish, "boga", dorado and "pati"). A peculiarity of fresh water fish is the importance of subsistence fisheries. Direct sale by fishermen represents 48% of the total consumption.

Domestic production of canned products (anchovy, sardine, tuna fish and club mackerel) is entirely for the home market. Other products destined exclusively for home consumption are salted and maturated anchovy and dry salted fish (of hake, Argentina angel shark, etc.), the latter with an important seasonal consumption during Lent and the Holly Week.

II. Fisheries Management Instruments

The legislative framework is contained in Fishery Federal Law N° 24.922. That law creates, as the highest politic organism, the Fishery Federal Counsel (CFP) that decides on the fisheries management arrangements and measures according to each species, each gear and each fishing zone. The CFP is made up by representatives of the five provinces with a coastline and by the same number of representatives from the National Executive Branch.

The National Institute of Fishing Research and Development (INIDEP) function as a technical-scientific advisor for all the administrative-political structure. INIDEP is responsible for making research campaigns, for establishing the maximum catch levels per specie and for recommending technical measures e.g. fishing gear, when and where each species can be fished. These recommendations are then turned into regulation by decision of the CFP.

The above mentioned Law modifies the present regime of licenses and fishery management that is based on a maximum catch per species. The new fisheries management regime is based on Individual Transferable Quotas per species, per vessel, per fishing area and per type of fleet.

1. Argentina is not a Member of the OECD but participates as an Observer in the work of the OECD's Committee for Fisheries.

In 1973 Argentina and Uruguay signed the Agreement of Rio de la Plata and their Maritime Front, creating a Common Fishery Zone with a surface of 218.718 km2, off which 109.622 km2 to Argentina and 109.622 km2 to Uruguay. The Agreement establishes an exclusive jurisdiction segment adjacent to the coasts of each Part of the River where each party observe the fishing activities, keep reciprocal information and, when necessary, agree on maximum catch levels, that subsequently are distributed equally between them.

The Common Fishery Zone represents for Uruguay the totality of its EEZ, while for Argentina it represents less than the 10% of its EEZ. The main species in the area are hake, croaker, sea trout, squid and anchovy. The most exploited is hake followed by croaker and squid.

The proportion of Argentina vessels that land in foreign ports is insignificant compared to the landings in Argentina ports, because the major part of the fleet fish within the EEZ.

The landing of foreign vessels in Argentina ports is not allowed by the Fishery Federal Law, except if there are special agreements giving that possibility.

III. The Share of Catch Processed "at Sea" and "on Land"

Based on 1997 information, 60% of the fleet landed and processed 40% of the total catch on shore. On the other hand, the other 40% of the vessels processed on board the remaining 60% of catches.

The fleets that have their catches processed on shore works mainly in the following cities: Mar del Plata, Puerto Madryn and Comodoro Rivadavia. The freezer trawlers land their production in Puerto Madryn, Puerto Deseado, Ushuaia, Punta Quilla and Mar del Plata.

On board processing vessels elaborates a number of products including headed and gutted whole fish, fillets, surimi, while red shrimps and squid are processed in different ways. The on shore factories process the fish landed by ice trawlers though they can also process on board frozen fish.

The landings of the coastal artisan fleet are mainly destined for the domestic fresh fish market and indirectly as raw material for on shore processors. A part of the catch is processed for export.

172 factories registered in 1996 carry out processing on shore. A major part of their production is exported to important markets including Brazil and the United States. The production of the freezer fleet is mainly destined for export. A large part of the fleet is commercially related to on shore processing plants through various kinds of association.

VI. Marketing Channels

During the last years, there has been an important transformation of the retail market resulting in an increased concentration of seafood sales in supermarkets. In 1970 traditional retailers accounted for 90% of the sales, while supermarkets and self-service shops accounted for 10% of the retail sales. In 1990 supermarkets and self service retailing accounted for 56% and five years later, they participated with 63% of the total sales. Seafood is sold at municipal markets, peddling stands, fish shops, supermarkets and/or hypermarkets, restaurants and catering service. Fish and fish products are sold fresh, frozen, smoked, salted, in prepared meals, etc.

The Capital City and the Buenos Aires surroundings account for 33.6% of the population but for 59.2% of fish and shellfish consumption. In these areas distribution of fresh and frozen products is mainly done through street or municipal markets.

The main wholesalers have a strong link with the suppliers and in this way they participate in the marketing chain. They import directly, they distribute frozen products, have retail outlets and sometimes restaurants. Wholesalers have an important function in the determination of market behaviour. Wholesalers that are not vertically integrated face more difficulties, especially with the appearance of supermarkets. Diagram 1, 2 and 3 provides an overview of Domestic Commercial Flow and of External Commercial Flow for fresh and frozen fish.

V. Post Harvest Policies

Price Control in the Post Harvest Sector

Seafood prices are freely determined by supply and demand and there is no government intervention in price setting.

However, the number of enterprises that trade exclusively in the domestic market is limited. Moreover, they are small, and as they do not participate in harvesting they are dependent on the price setting at the first hand sale level and on the supply of raw material.

Larger enterprises attend not only to domestic market but also to foreign market. Due to the low per capita consumption (8.5 Kg per capita, per year) these enterprises have to export the major part of their production.

Measures Applying to Exports and Imports

The Argentina Ministry of Economy and Public Works and Services is responsible for trade policies.

A Common Customs Extern Tariff for fish and crustacean, molluscs and the other aquatic invertebrates and for preparing of fish, crustacean, molluscs and canned products have been set up by MERCOSUR. Furthermore, a Mercosur Common Nomenclature (NCM) has been established.

Within the Agreement of Asuncion (Mercosur), Resolution 40/94, the Common Market Group approves technical rules about species identification and quality of fresh fish. This is carried out in order to eliminate obstacles related to sanitary control measures due to the different sanitary regulations applied in each of the Mercosur countries.

In Argentina there are two organisations that attend to sanitary control of seafood: The SENASA (National Service of Food Sanity and Quality) and the INAL (National Food Institute). SENASA regulations are in force for fishing, processing, conditioning, storing, imports and exports of sea products and products thereof. INAL looks after the register for unprocessed products for direct sale, produced locally, imported or exported.

Measures to reduce post harvest losses and waste, measures to improve the use of by catch use and measures to minimise the environment impact of post harvest activities.

The Argentina Republic applies the recommendations and agreements of international organisms that regulate the exploitation of fisheries resources.

Argentina signed the Agreement of the United Nations Convention on the Law of the Sea (UNCLOS) on 5th October 1984, and the National Congress ratified it on 17th October 1994 through Law 24.543.

The Argentina Republic up-dated and adapted its legislation with the UNCLOS through the Law on Maritime Space N° 23.968 the 5th September 1991 that improved important features such as the Territorial Sea, the Adjacent Zone, the Exclusive Economic Zone and the Continental Shelf.

The New York Agreement on Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks was founded on the UNCLOS. It establishes a possible framework for fisheries regulation and the conservation in the area adjacent to the Exclusive Economic Area. The National Executive Branch let it to the Congress for its legislative approval a requirement necessary for its later ratification. It is important to recall that for its full effectiveness the Agreement requires the ratification of thirty states.

Moreover, it is important to mention the "Agreement to promote the compliance of international measures of conservation and ordering by the fishing vessels in high seas", approved by the FAO in November 1993, which incorporated the Code of Conduct for Responsible Fisheries. Law 24.608 of 7th December 1995 approved this Agreement for every vessel fishing on the high sea subject to the UNCLOS rules. Argentina ratified the Agreement the 26th May 1996, though it is not internationally in force yet (it will be so after receiving the 25th approval instrument).

The follow up, the control and the surveillance of fisheries are essential components of the fishing order and of the post harvest policies. In this respect the following measures have been taken:

- Observers. The Under-secretariat for Fishery foresees the shipboard of observers designed by it and who depend on the INIDEP, in any of the fishing vessels with a license in force.

- Vessels register: Fishing vessels are included on the Fishing Vessels Register when they are of national flag and on the Register of Foreign Vessels and Naval Appliances when the fishing vessels are flying other flags but managed by local ship owners. Fishing vessels with Argentina flag remain registered by their name, registry, and kind of vessel, base port, ship owners and kind of license.

- Enforcement: In the Exclusive Economic Area enforcement is carried out by the Argentina Army and the Argentina Naval Prefecture with naval and air capabilities. As a consequence vessels flying foreign flag that have broken the Argentina fishery legislation have been stopped and severely sanctioned.

- Satellite Control: In the last years the Argentina fisheries authority has progressively incorporated the national fleet into a satellite monitoring system (MONPESAT). In 1998, the majority of the majority of the vessels in the national fishing fleet had been incorporated to the satellite system that has bases in the Argentina Naval Prefecture, the Argentina Army and the Argentina Under-secretariat for Fishery.

Seafood inspection system, labelling requirements, and other consumer protection programmes have influenced the incidence of illness, costs and prices.

Argentina requires high quality levels for seafood. It is important to underline that the on shore processing facilities and processing vessels must take into account the Hazard Analysis of Control Critical Points (HACCP), approved by SENASA. Argentina does not have any requirements related to product labelling.

International Trade Flows

Export and import values and volumes as well as composition of trade are provided in Table 3. National landings are destined, mainly, to foreign market. The result of this produces more than one billion dollars yearly in export earning. The main products for export are frozen fish, in particular fillets, H&G, red shrimps, squids and surimi. Of the total 1995 catch 71% was destined for exports while the remaining 29% was destined for the domestic market. The relative importance of the two markets, domestic and foreign, changes over time.

As for imports, prepared and canned products are the most important. In 1997, they represented 70% of Argentina seafood imports. The origins of the prepared and canned products were Thailand with 29%, Ecuador with 25%, Brazil with 18%, and finally Mexico with 11%. At present, salmon imports represent a third of the total Argentina seafood imports. The origins of these imports are Norway, the Mercosur member countries, Ecuador, Chile and Spain.

Table 1. General Economic Data

Area	2 779 741 km2
Continental Shelf (up to 200m)	796 400 km2
EEZ	1 164 500 km2
Coastal Length (excluding ocean islands)	4 989 km
Population (1992)	33 377 000 (inh.)
GDP(1997)	USD 323 billion
Consumption expenditure per capita (1997)	USD 7 964

Table 2. Argentina Landings, 1997

Main Species	Landings (tonnes)	(%)
Argentina hake	584 048	44
Squid	411 684	31
Southern blue whiting	79 945	6
Hoki	41 835	3
Anchovy	25 197	2
Croaker	26 108	2
Kingclip	21 917	2
Patagonian tooth fish	5 974	0.4
Red shrimp	5 202	0.4
Others	146 882	9.2
Total	1 339 614	100

Source: SSP according to Statistics Department.

Table 3. Argentina Fish Trade Balance, 1997

	IMPORTS		EXPORTS	
Country	Tonnes	USD '000	Tonnes	USD '000
Brazil	34 022	7 441	68 624	102 311
Chile	15 536	6 095	716	3 101
China	0	0	48 271	39 514
Ecuador	40 807	8 074	31	440
France	47	17	8 739	16 032
Germany	203	167	5 796	9 074
Greece	0	0	6 560	6 522
Hong Kong	0	0	454	2 118
Israel	9	0	8 140	9 425
Italy	125	9	23 853	34 198
Japan	2	4	101 553	164 382
Netherlands	311	73	61 149	68 336
Singapore	0	7	16 081	9 992
South Africa	0	1	5 090	4 158
South Korea	0	0	35 473	29 235
Spain	14 630	2 905	143 260	190 538
Taiwan	15	1	108 703	105 254
Thailand	27 410	5 690	126	215
U.S.A.	841	170	23 993	68 660
Uruguay	3 499	923	7 131	5 329
Other countries	12 344	3 659	16 156	20 548
TOTAL	149 808	35 245	689 908	889 393

Source: Sub-secretariat of Fisheries

Diagram 1. Domestic Commercial Flow

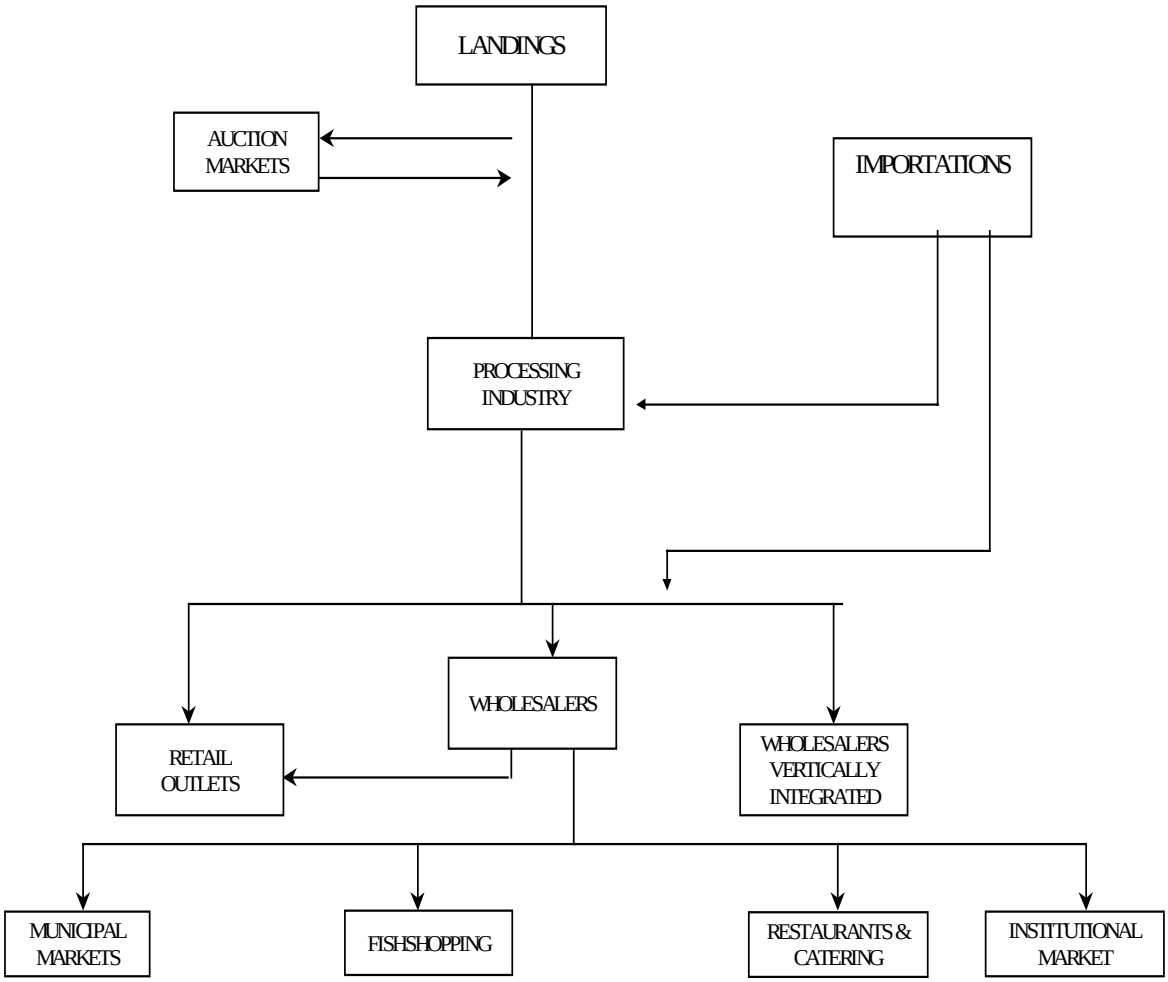


Diagram 2. External Commercial Flow Fresh Fish

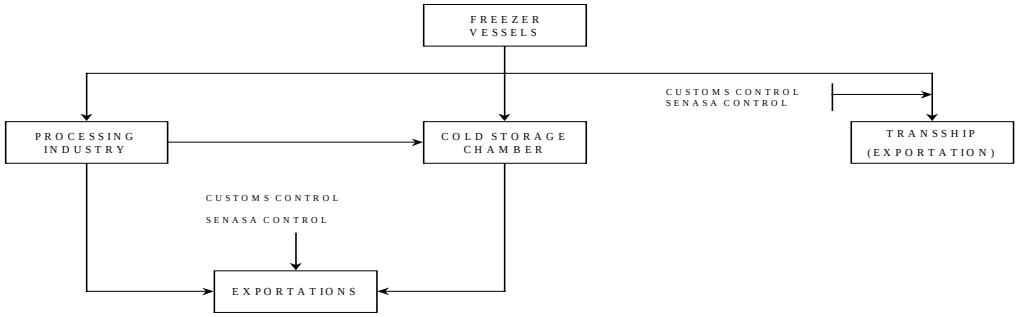


Diagram 3. External Comercial Flows Frozen Fish