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AUCTION MARKET FOR FISHERIES IN ICELAND INCREASING CATCH VALUE & ENFORCEMENT IN FISHERIES

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ABSTRACT

The fish auction market in Iceland has been serving users for the last 10 years, since it was established in 1987. This paper explores and analyses why the fish auction markets are well accepted in Iceland.

The modus operandi of the fish auction markets are analysed carefully to obtain the real force of its acceptance. Analysis and comparison of prices were made between auction markets and direct selling, gutted and un-gutted catch, according to fishing gear and also by region. From the analysis, the fish auction markets have become a tool to increase the catch value based on supply and demand. The establishment of fish auction markets has made enforcement in fisheries easier. The fish auction markets are well accepted by the fishermen in Iceland because they need a place for them to sell their catch as soon as it landed at the 'right price'. Most importantly the establishment of the fish auction market is supported by the main users, the fishermen and fish buyers.

Keywords: *fish auction market, Icelandic fisheries, auction theory and fisheries enforcement.*

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1 INTRODUCTION

This study is entitled 'Auction Markets for Fisheries in Iceland : Increasing Catch Value and Enforcement in Fisheries'. This study examines how the fish auction markets work in Iceland, with regard to price formation and enforcement of fisheries regulations.

Fish auction markets are well accepted in Iceland and their significance is well recognized in the Icelandic fisheries industry. The results of this study can be used as a benchmark before a country decides to develop a fish auction market.

This study is basically a descriptive analysis and field work. The data collection is divided into three stages: Observation, interviews and from websites of related instituition. The observation of the fish auction market and the interview with the managers were conducted in Olafsvik, Stykkisholmur and Reykjanesbaer. For the monitoring and enforcement information interviews were conducted with the Directorate of Fisheries in Reykjavik. An interview was also conducted with the Fresh Fish Price Directorate in Akureyri.

Respondents from the fisheries sector, like the boat owners (big/small) organisation, fishermen organisations, captain organisation, engine organisation and buyers' organisation regarding the performance of the fish auction markets were also obtained through questionnaire via email. Most of these organisations referred to a recent report on the performance of the Icelandic fish auction market.

The data on pricing were obtained from the website of the Fresh Fish Directorate and from the Fisheries Statistics, Hagstofa Islands. All the analysis on values and pricing were done using graphs. Comparisons using the graphs were also made between the auction markets and direct selling.

This paper is divided into eight sections. At the end of each section in this paper are the findings. The second section gives an overview of the Icelandic Fisheries. Section three and four are brief theoretical review on price formation and auction market theory. The purpose of having this theoretical part is to give a clear idea on what pricing and auction markets are. Section five goes into auction markets in Iceland in detail. This section explains how the auction system works. For this section flow charts and photos are used to simplify the explanations. Section six is on fisheries management; this section explains how the enforcement is being conducted, the tools being used to monitor and the cost of the fisheries management in Iceland. Section seven discusses catches and value. In this section a thorough analysis of the price of the demersal species is done. This is to indicate the price differences between auction markets and direct selling. Finally section eight provides the conclusion. The conclusion is drawn based on all the findings obtained during the study.

2

3 ICELANDIC FISHERIES

Iceland is an island located in the North – Atlantic Ocean, just south of the Artic Circle. The warm Gulf Stream and the cold East Greenland current create favourable situation for marine life around the island (Arnason, 1995)

Icelandic fisheries expanded rapidly after World War II. In the absence of other natural resources (except for abundant hydro and geothermal power), the economy depends heavily on the fishing industry (Arnason 1995). In 1999 Iceland was the 13th largest fishing nation in the world, contributing 1.9% of world catch (Ministry of Fisheries 2002b). The average annual catch from 1994 – 2000 was 1.8 million metric tons (Hagstofa Islands 1999 and 2000).

Today Iceland is one of the countries where the living standard is among the highest in the world (Ministry of Fisheries Iceland 2002a). The driving force behind those changes is the development of the Icelandic fishing industry. According to Bjarnason (1996) Iceland has one of the biggest per capita consumption of fish in the world. In spite of that only 1% or 2% of the total catch is consumed domestically and the rest is exported. The most important categories of fish products for exports are frozen and salted products.

Iceland's economy is market oriented with an extensive welfare system, low unemployment and relatively even distribution of income. Out of a population of 280,000 people, almost 191,000 are participating in the labour force. Of these 191,000 only 8% work in the fishing industry; 7,300 in the fishing sector and 8,200 in the fish processing sector. (Hagstofa Islands 2003).

In 2001 fishing and fishing processing contributed 12.5% of the Icelandic Gross Domestic Product (GDP) (Figure 1), but contributed 50% of total export earnings. According to Ragnar Arnason (1995) 1% increase in the output value of the fishing industry will eventually lead for 0.45% increase in GDP. The economy remains sensitive to declining fish stocks as well as to drops in world prices for its main fish products.

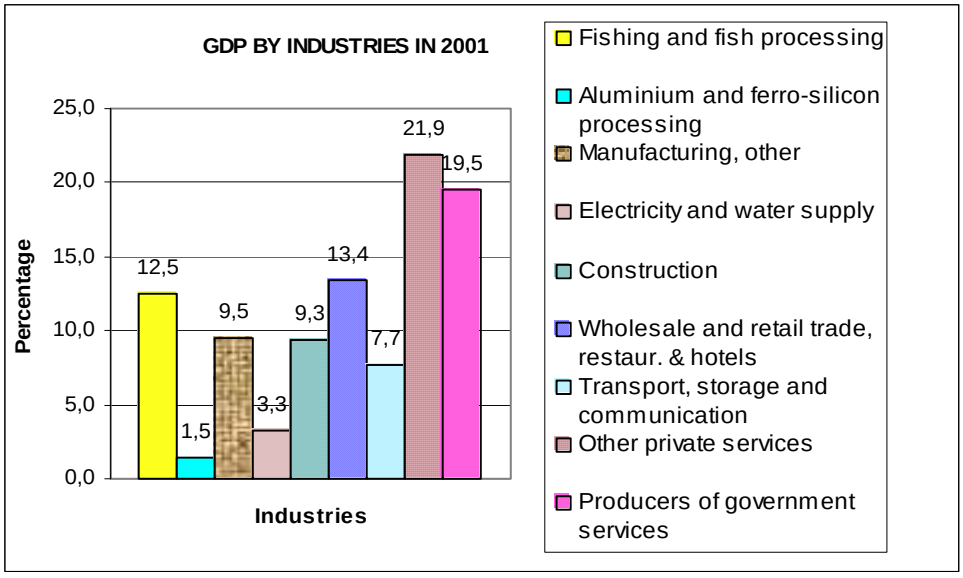


Figure 1: GDP by industries in 2000 (Hagstofa Islands 2001).

The Icelandic fishing industry is capital intensive. Figure 2 shows the value of fixed assets at the end of 1990 – 2000. The value in Figure 2 is according to current prices. The value is slightly decreasing for fishing but increasing for the fish processing industry. The fishing and fishing processing in 2000 comprises 6% of the total fixed asset for the country. This percentage is almost the same as the transport and storage sectors and the electricity and hot water supply sectors in Iceland in the same year.

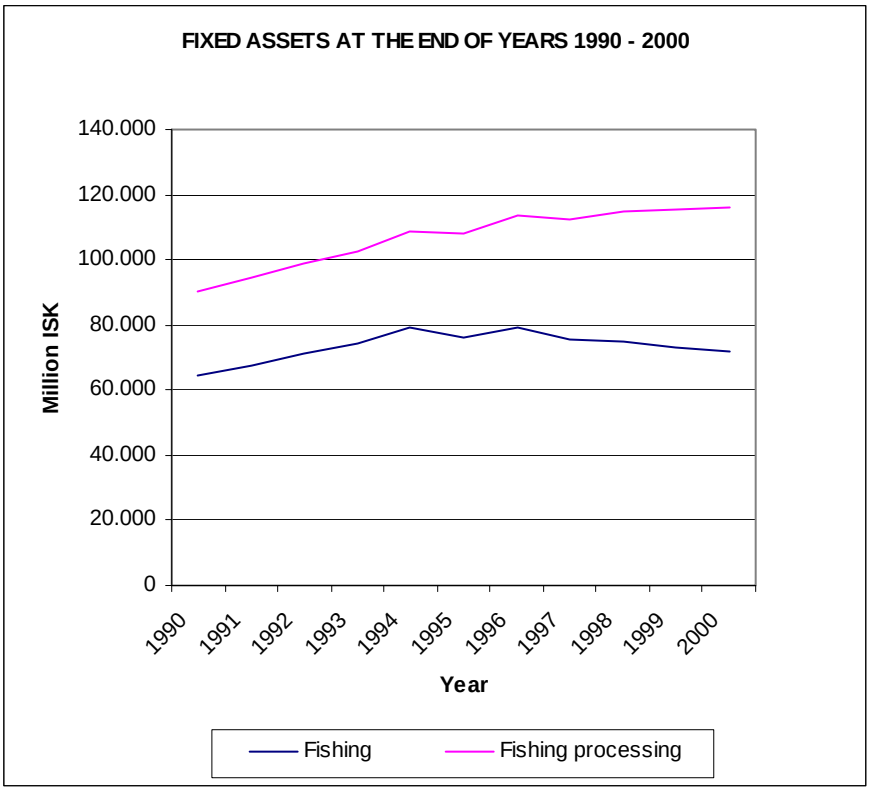


Figure 2: Capital assets in fisheries at year end 1998 – 2001 (Hagstofa Islands 2001).

Fisheries in Iceland are categorized into three sectors; 'harvesting', 'processing' and 'marketing' (Arnason 1995). In the harvesting sector the most important Icelandic fishery is the demersal or the ground fish fishery. In recent years this fishery generated about 80% of the total landing value. The most important demersal species are cod, haddock, redfish and saithe. The pelagic fisheries (capelin and herring) are also valuable but they are harvested mostly for fish-meal and fish oil products. Crustaceans and shellfish are also important for Icelandic fisheries.

Iceland's main markets for seafood products are Europe, United States and Asia (Japan). Salted fish is mostly exported to European countries; fish fillets, fresh fish, frozen fish to United States and frozen fish to Japan (Zoega pers.com).The advances in maintaining the production of good quality product and effective transportation system have created a more supportive trading environment for Iceland.

From the above it can be said that Iceland's main natural resources and main source of income is the fisheries sector and it is a capital intensive industry. The fisheries sector is sensitive to changes in stock size and prices; and can have great impact to the Icelandic Gross Domestic Product (GDP).

4 PRICE FORMATION

In economies the 'right price' is obtained from harmony and coordinated decision from sellers and buyers (Gwartney and Stroup 1995). As the study will be focusing on the trading of fish in the fish auction market a clear picture on price formation and what the´ right price' is will be discussed briefly in this section. Economic theory maintains that price formation in a competitive market economy is based on supply and demand as shown in Figure 3a.

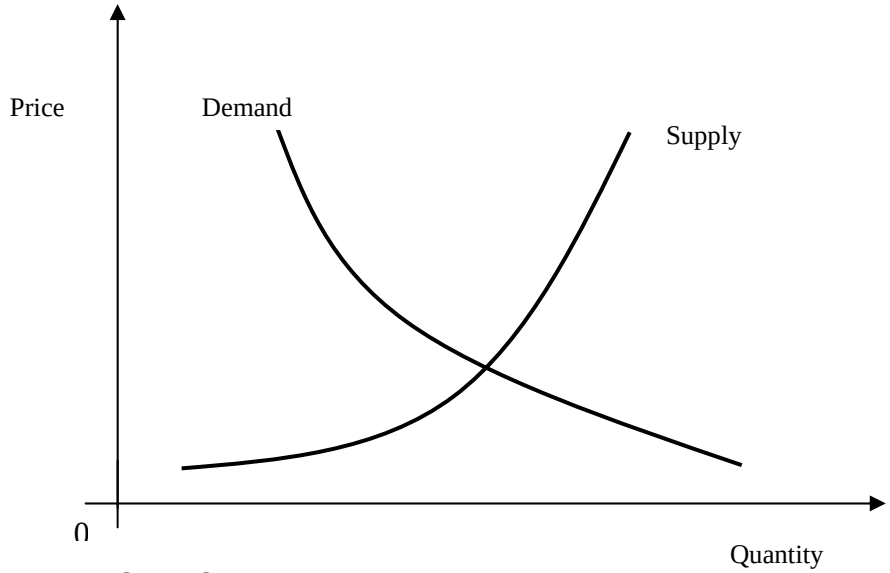


Figure 3a: Demand, Supply Curve

Demand is the quantity of commodity that the buyer will purchase at different prices for a given time and place. Supply is the quantity that will be offered on the market at a various prices (Reynolds 1988). The law of demand formalizes the relationship between quantities purchased and alternative prices. The most important demand in marketing is the effective demand. The demand that is backed up by purchasing power. The law of supply formalizes the direct relationship between the price of a good and the amount of it offered for sale (Gwartney and Stroup 1995).

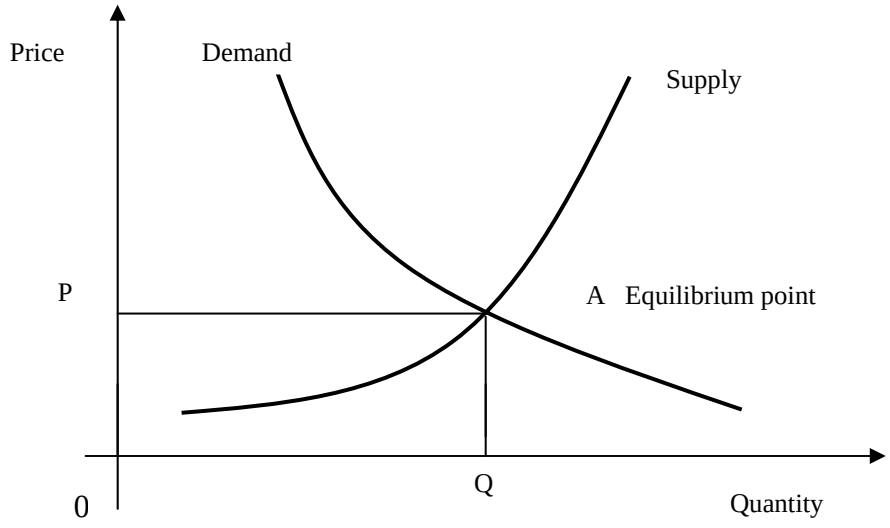


Figure 3b: Demand, Supply, Equilibrium Price

As shown in Figure 3b , the intersection of the curves defines a price 'P' and quantity sold 'Q'. The intersection is the equilibrium point. The price at 'P' is the only price that precisely 'clears the market', the only price at which the consumers are willing to buy exactly the equal amount producers want to sell.

4.1 What affects the price formation?

In a free or competitive market, buyers and sellers are free to enter or leave the market. There is no collusion among buyers or sellers to control the price, and no price-fixing by government. The price is formed in the market by supply and demand. This situation was explained in Figure 3a and Figure 3b using basic economy theory.

The equilibrium will change if there is interference in the supply or demand. An example is when government imposes a ceiling price and floor price in the market. As illustrate in Figure 3c, if a floor price is imposed, the price will be at 'P1', the consequence will be surplus of supply because the price is high and the buyers are reluctant to pay more. The price will be at 'P1', and the consequence will be a surplus of supply in the amount of Q1 – Q2. If ceiling price is imposed the price will be at 'P2', the consequence is that there will be shortage of supply. As due to low price the producer is reluctant to produce more. This situation will urge the eager buyers to bid for a high price, rather than go unsatisfied. Both situations will create disequilibrium.

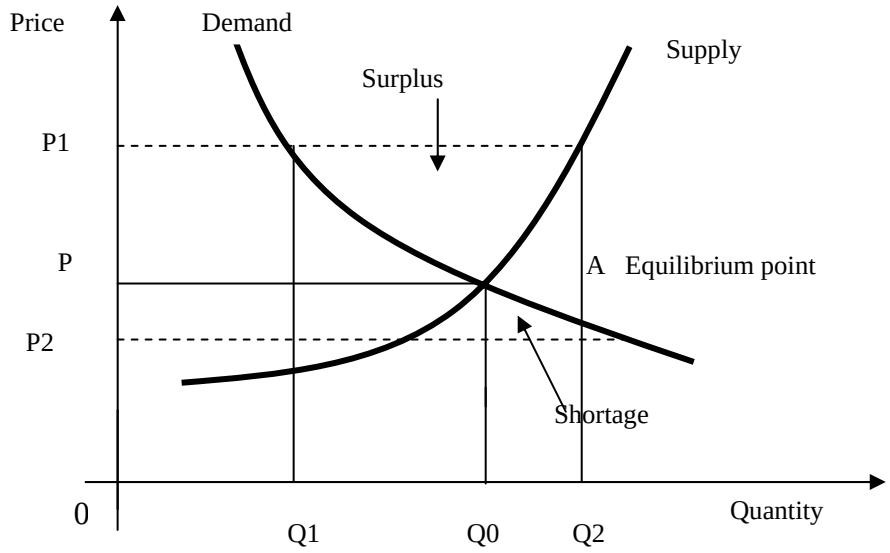


Figure 3c: Interference - Demand, Supply, Equilibrium Price.

Basic economic theory has shown us that in order to get an equilibrium price, firstly it should be a perfect or free market, secondly with many buyers and sellers and lastly no restriction or interference in the market.

Markets can be in several forms, for example farmers market, retail market, hyper market and auction market.

4.2 Price in the auction market

The main players are seller and buyer. In the auction market price paid for the same species might differ because of different quality. The quality of the supply is known from the information gathered by the buyers. Information such as the availabilty, of the supply will give differences on the price in the auction. All information gathered for the bid is kept by the bidder himself until the bidding is made. If the bidder really knows the quality of the supply, he has the advantage to bid the ´right' price (Milgrom and Weber 1982).

Similar to the previuos conclusion, the auction market like any other market will give an equilibrium price, that is the 'right price'of the product for both buyer and seller.

An assumption from the above is that the ´invisible hand' of market prices will direct individuals and resources into areas where their production is valued most (Adam Smith 1776). They will get the right price according to the quality they produced. The next section will discuss the auction market theory.

5 AUCTION MARKET THEORY AND PRACTICE

The design and conduct of auctioning instituitions has been practised over thousands of years. It was first reported around the fifth century B.C. by the Greek historian Herodotus. A single object was sold to one of several bidders. Bidders are assumed to behave competitively, therefore the auction is treated as a noncooperative game among the bidders (Milgrom and Weber 1982).

In auction theory and in actual practice, there are a number of different types of auctions. Commonly there are four types of auction being practiced, namely English 'ascending bid' auction, Dutch 'descending bid' auction, the first – price sealed – bid auction and the second - price sealed – bid auction (Milgrom and Weber 1982).

In the English auction, the auction ends when no one is willing to raise the bid. The bidder who gave the highest price will win the bid. Whereas in the Dutch auction, the auctioneer initially calls for a very high price and then continuously lowers the price until one of the bidders stops the auction and claims the product for that particular price.

The first – price auction is a sealed – bid auction in which the buyer making the highest bid claims the object and pays the amount he has bid. As for the second – price auction is a sealed – bid auction in which the buyer making the highest bid claims the object, but pays only the amount of the second highest bid. This arrangement does not necessarily entail any loss of revenue for the seller, because the buyers in this auction will generally place higher bids than they would in the first – price auction (Milgrom and Weber 1982).

Like any other markets the ownership of the fish auctions varies from governmental ownership/involvement, fisher and/or processor interest or totally private ownership. The structure and the practice of the fish auctions varies according to their establishment. According to Kaplan (2000) and Armstrong (2001) the model frequently used for fisheries auctions are the English "ascending bid" auction and the Dutch "descending bid" auction. Whereas the Price Sealed bid auction are commonly used in the government sector.

Economic auction theory predicts the auction should conclude with the same price if both parties buyers and sellers are independently competitive and free from the elements of risk. However there are variations within each type of auction model and the deviations are critical for influencing the flow of information and auction outcomes.

According to the Revenue Equivalence Theorem (RET), all type of auctions will give the same result, provided the following assumption hold (Armstrong 2001).

- The bidders are risk neutral.
- Bidders have independent private values for the item being auctioned, as opposed to common values in the instance of possible resale.
- Bidders are symmetric. That is, all bidders are the same to the seller and to each other.
- Payments are a function of bids only.

Relaxing one of the assumptions above will invalidate the revenue equivalence theorem. This will create differences in choices of auctions preferred by buyers and sellers.

5.1 The effect of relaxing the assumptions of the RET

This section will discuss the effect of relaxing the assumptions of the RET in fish auction. This study was made by Armstrong 2001 on two fish auctions in Norway.

a. Risk neutral
Each bidder only knows the value of the fish to himself but does not know the value of the fish to other bidders. If a bidder knows the value of the fish to himself, he has a straightforward dominant strategy, which is to bid actively until the price reaches the value of the fish to him. Sometimes risk neutral will become risk aversion. Risk aversion is usually important when the item being sold is very valuable, making bids large relative to the bidder's asset. In a situation where processors bid for catches on a daily basis, the issue of risk aversion is not so relevant for fisheries. In some specialised fisheries risk aversion may be present due to limited catches. If the risk neutral assumption does not hold it will affect the type of fish auction being selected.

b. Independent private values.
The buyers in the auction have individual values reflecting differences in demands. In the case of a fish auction, the demands is determined by the seafood producer which in term is determined by the consumer demand for seafood. Relaxing this assumption, makes the English auction being preferred by the seller.

c. Symmetry
Is defined as observable differences between the bidders. To some degree the auctions are differentiated, whereby each different product for example herring for oil/meal is auctioned in one specific auction while herring for consumption is auctioned in another specific auction. Resulting in different production costs and finally obtaining different market prices. Different prices are determined from each type of fish production. Fish quality is often determined by the usage, and where the product is sold. Within an auction the agents can be seen to be symmetric. Relaxing this assumption has indeterminate effects.

d. Payments as a function of bids only
Payments depend on travel distance as well as the bid. That is, bid minus transportation cost gives the final payment to the fisher. The seller's will choose the bid that gives him the maximum net revenue.

From the above section it can be concluded that by relaxing assumption 'a' 'b' and'd' the buyers and sellers will have different preferences in English or Dutch auction but the effect is indeterminate for relaxing assumption 'c'.

5.2 Others

Displaying or not displaying the product during the auction will also create difference in pricing during the bidding. The auction environment and openess, technology and the role of the government are all factors that effect both real and imagined fairness or otherwise in the marketing process (Kaplan 2000) Although technology (electronic auction) is implemented, the perception of fairness, both real and imagined by auction participants, is critical to the success of an auction. The growth of "trust" in auction is very important in determining the success of the system.

From the above the conclusion that can be made is that as long as the economic auction theory holds, the auction will give the right price whether choosing the 'ascending' or 'descending' or 'sealed-price' bidding. As long as the price is right for both parties, (sellers and buyers), price is considered fair.

6 AUCTION MARKETS IN ICELAND

There are 19 fish auction markets operating in 30 locations in Iceland (Figure 4). They are connected by computer into one auction network (Tengil) with an Icelandic and English version, as there are foreign buyers participating in the market. The system is developed according to the fish auctions' requirements. Extracted from the fish market website, www.islmark.is (Islandsmarkaður) the operations are conducted daily where 200 – 300 buyers purchase fresh fish in real time. According to the office manager in the auction market, during a slow day the number of buyers decreased to 39 buyers and 46 sellers.
The auction market is owned by four fish auction companies (83%) and two investing companies. The auction market management is responsible for collecting payments from buyers, disbursing it to sellers, harbours and government. Sales volume in 2000 was 98 thousand metric tons (11, 6 billion ISK).

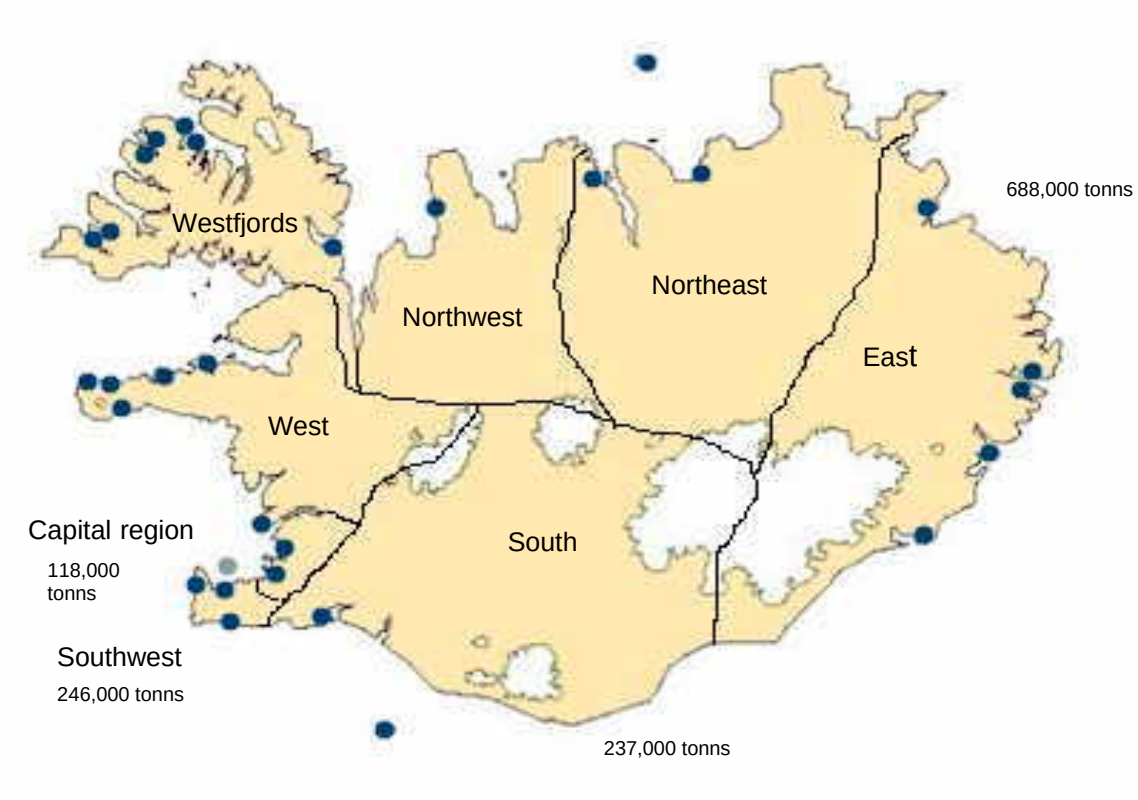


Figure 4: Distribution of Auction Markets in Iceland www.islmark.is (Islandsmarkaður).

6.1 Distribution of Auction Markets

Iceland is divided into 8 regional boundaries (Figure 4): Capital region, Southwest, South, East, Northeast, Northwest, Westfjords and West. All the auctions markets as shown in Figure 4 are located in various fishing ports. The distribution of auction markets are relatively more concentrated on the west coast of the country.

According to the Fisheries Statistics (Hagstofa Islands 2001), in the year of 2001, out of 1.9 million MT landed in Iceland, 688 thousand MT came from the east region and 237 thousand MT came from the South region. Out of that, total of 43 thousand MT were demersal catch in the East region and 50 thousand MT were in the South region.

Although the Capital region only landed 118 thousand MT and the Southwest region only landed 246 thousand MT, the catch for demersal species are 77 thousand MT and 72 thousand MT respectively, the highest in the country.

6.2 Why is the Auction Market implemented?

The first fish auction in Iceland was founded in 1987. The reason for having the auction market was to create a method/tool that could set the right price which could satisfy the fishermen and the boat/ship owners. It was also to meet the demand of the individual operator. The development of the fish auction market is fully supported by the fishermen association as fishermen's salaries are based on the values of the catch.

6.3 Requirements for an Auction Market

Based on the interview with the fish auction market and the Directorate of Fisheries, the auction markets are privately owned. The selection of location is based on the commercial value and the accessibility of the location to fishermen and buyers. There is no government involvement in providing the facilities for the auction markets. According to the Directorate of Fisheries, in order for a company to obtain a license to operate they have to fulfil these conditions; they must have buildings, must have a sanitary declaration and weighing license. The operations of the Auction Fish Markets are based on the laws on the Fish Auction Market 1989 nr. 123 28. December, distributed by the Ministry of Fisheries. The law consist of 9 Articles describing who can operate a fish auction and how it should function.

6.3.1 The Auction Market Management structure

Basically the structure of an auction market company is similar to any other private limited company (Figure 5). The main decision on operation and management of the company will be made by the Board of Directors and the daily operation of the company will be lead by the Managing Director/Chief Executive Officer (CEO). Every head of the department will report to him. The substitute of the CEO varies from one company to another, though it is normally is the Administrative Manager or the Financial Manager.

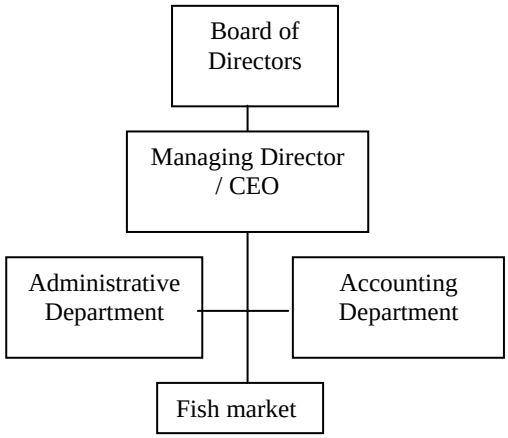


Figure 5: Basic Structure of the Private Limited Company. For the fish market analysis Fiskmarkadur Islands hf will be studied. The company is selected as it is considered the biggest fish market in Iceland.

At Fiskmarkadur Islands hf, the Auction Manager will act as the Managing Director / CEO if the actual CEO is not around. Each outlet of the fish market is led by the outlet manager. The company appointed one chief outlet manager who will be responsible for all the fish markets´ outlet, his main task is to ensure all the fish markets follow all the guidelines made by the company and the government. He will also handle any problems regarding buyers, sellers, services, complaints or any other matters related to the fish market directly. Figure 6 shows the structure of fish market for Fiskmarkadur Islands hf.

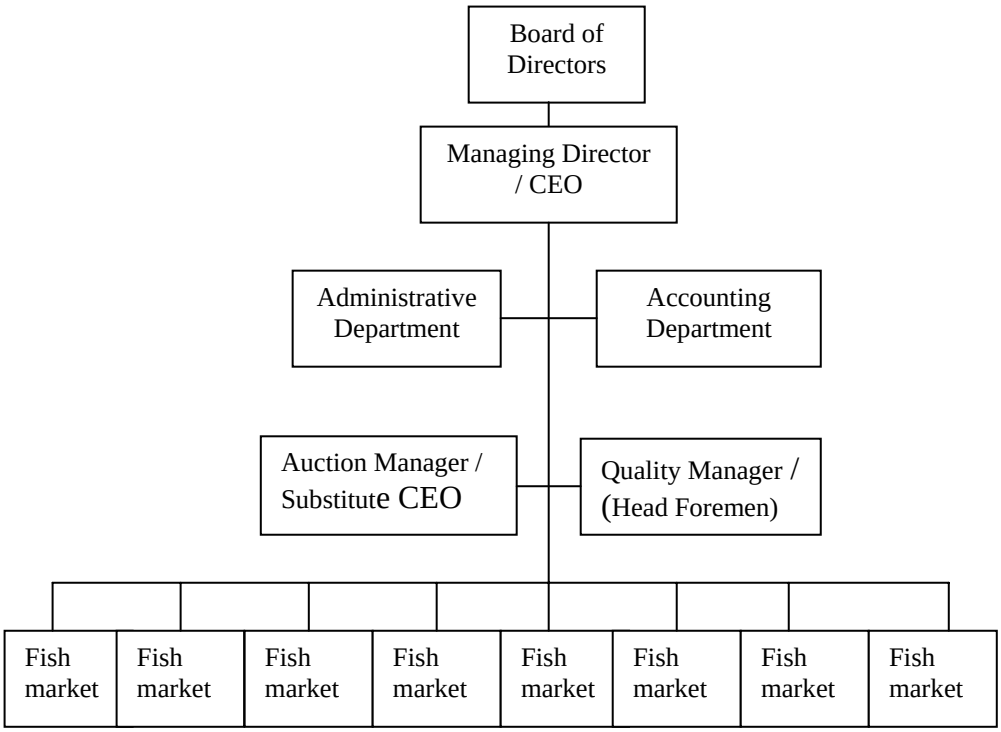


Figure 6: The structure of Fiskmarkadur Islands Hf.

6.4 The actual practise of the Auction Market in Iceland

The actual practise mentioned below is obtained during the observation and interview with the manager of the fish auction market in Olafsvik, Stykkisholmur and Reykjanesbaer.

6.4.1 Bidder pre-requisite requirement

There are some pre-requisite requirements for the bidder to fulfil before joining the auction. The first condition, and most important, is that they must have letter of credit or bank guarantee. The terms and regulation can be found easily by browsing on the net. The registration can easily be done through the net, provided the first condition credit term - is fulfilled.

6.4.2 Pre- auction

The staff of each auction market will enter into the computer all the information about the ships and catch to be auctioned off before the auction begins. They are also responsible for entering information into the computer about the costs associated with the sales, like the transportation, service charges and other relevant information. The information is received via phone, fax, or email from the vessels. There is a time limit for registering fish for auction each day. If the vessels fail to register their catch in time, the catch will not be listed for auction until the following day.

The information from all the fish markets is centralised in one centre in Reykjanesbaer. When all the relevant data is been entered into the computer the data

will be accumulated, and appear as a list. The list is transmitted to all fish markets connected via the net. The related operator/staff from each fish market will print out an auction list which the buyer/bidder can use for the bidding on that day. The list (Appendix 1 and 2) describes each lot that is going to be auctioned. This information includes the name and the number of the vessels, the type of fishing gear, the fish's condition, and size, duration of trip, average weight, and total weight.

Before the auction starts the bidder will take the list from the fish market and assemble in a room that is provided for them. Each bidder has their own number on a small hand held sign; they will raise the number when they want to participate in the bidding. Figure 7 shows two buyers during an auction. One of them is holding sign 35 which indicate he is participating in one of the biddings.

Figure 7: Bidder at the fish auction market

6.4.3 The auction

All the registered catch will be auctioned at the same time. During the auction, the auctioneer who is located in Reykjanesbaer will use both computer system and the phone system. The participants can be located in 30 different places around the country. They are connected by way of teleconferencing in order to hear the auctioneer's voice as he counts up the price. As each lot is being auctioned the operator at each location enters into the computer the number of buyers who are bidding, for example '2' for two or more buyers, '1' for one buyer and '0' for none. During the observation the auction is using the 'ascending' system, where the price for the bidding is increasing. When there is only one bidder left the computer signals the auctioneer who then stops counting. At the same time another staff member sitting beside the auctioneer using another terminal will check the credit limit / balance or bank guarantee of each bidder who wins the bid. If the bidder is not financially fit, the bidding is disqualified. In terms of touching the credit limit, the buyer can always pay earlier than payday in order to expand the buying limit. The progress of the sales during the auction is stored and upgraded (buyers' and sellers' data base) using the

computer, so that at the end of the auction all sales information will be ready. Figure 8 shows the auctioneer at work.

Figure 8: Auctioneer on the auction day.

6.4.4 Post-auction

Once the buyer has purchased the catch documents must be signed at the fish markets where they are making the bidding, regarding the amount they have to pay. Monetary transaction does not take place at the fish market. The flow of money and catch through the auction is shown in Figure 9, the payment or the clearing will be made by one centre, which centralizes all the fish markets. The centre prints out invoices for sales that occurred on all the fish markets in that week and mail them to the buyers. All payments from each fish market will be made by this centre. If an invoice is overdue then the participation in the next auction is automatically stopped. The seller will receive their payments within 8 to 15 days after the transaction. The catch can be collected in two ways: either the buyer will collect the catch from the related location by his own arrangement; or the fish markets will arrange for transportation with charges.

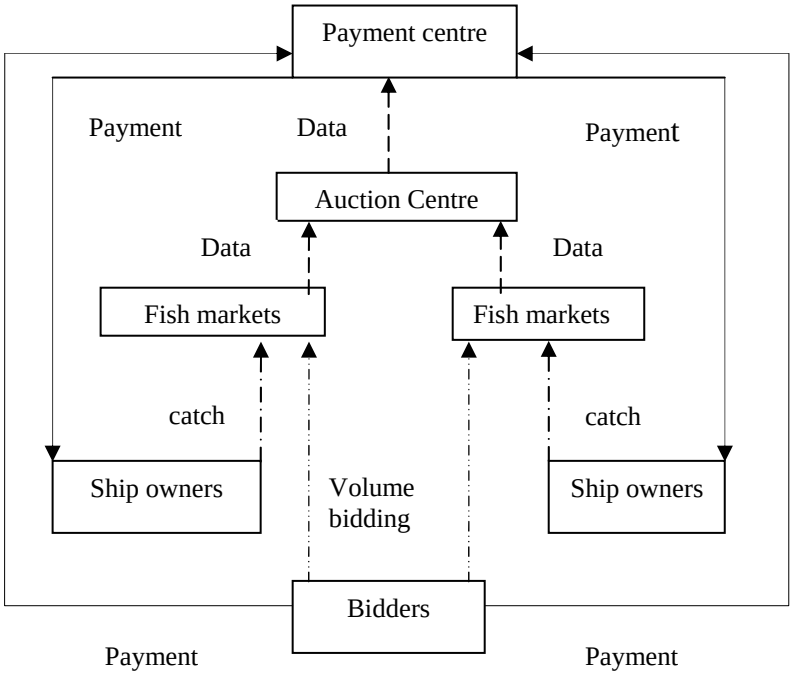


Figure 9: The flow of money and catch through the auction, based on observations during the field work.

6.4.5 The sales system in the Auction Market.

A proper sales system is very important in order to keep track of every transaction during the auction. It is used for printing out invoices that are sent to the buyers, keeping track of payments and the status of each buyer's bank guarantee, and for paying the ship owners for the fish they have sold. The sales system being used, automatically deducts the required amounts that ship owners have to pay various government funds, loans and harbours. The ship owners also can instruct the fish markets through the sales system to pay to individuals and companies any payments that need to be paid. In other words the services are reliable to cater the needs of the buyer and seller. In order to attract more sellers to use the auction market especially the small scale boat owners the auction market management also provides other services like financing, fishing gear, bait and other services related to the fishery. The

charges of the services will be deducted from the value of their catch. The charges for landing and auctioning off the catch are 4% of the value of the catch plus 0.75 ISK (handling charges) for every kilogram.

6.4.6 The catch

When the catch is landed it will be weighed (gross weight) by the landing harbour authority. When it enters the fish markets it is again weighed using the fish markets´ scale (net weight) whereby 15% of ice content from the weight of the catch will be deducted. Normally the catch landed or received are in boxes or containers (Figure 10).

Figure 10: Catch in the containers at the fish market receiving area.

In order to get a better price for the catch the fishermen must ensure that the quality of the catch is given a priority because they are competing with the other sellers. By using the proper method of fishing, they will be rewarded with high price. According to the manager of the Fiskmarkadur Islands hf, based on good track record (on the quality of the catch) and trust between the sellers and the buyers, has created the environment that almost 75% of the catches are sold before they are landed.

6.4.7 The development of the Auction Market

The auction market will enter a new phase in April 2004 whereby the buyers can participate in the bidding through the internet. In April the auction market will use the Dutch (descending) auction system. This is a quiet system, only the detail from the screen of the computer will speak. The buyers will know their own credit limit, without enquiring the payment centre. This system will create larger market both for buyers and sellers.

6.5 The quality system

In order for the buyer and seller to benefit from the auction, the fish market has set up several ways or guidelines to ensure the quality of the catch is given priority. The guidelines are the standard that all the fish markets will have to follow in order to earn trust from the buyers. One of the quality systems used by the fish market is the 'Hazard Analysis Critical Control Point' (HACCP). The system is used as a tool to ensure safety. The management will make a spot check at all fish markets under the company's control to ensure that the quality systems adopted are being followed.

6.5.1 Handling the catch in fish market

One of the quality systems regarding the catch is how to handle the catch when it arrives at the fish market. The process starts from the time the catch arrives at the fish market until the tubs or boxes are delivered to the sellers/fishermen. The system is illustrated using the flow chart in Figure 11.

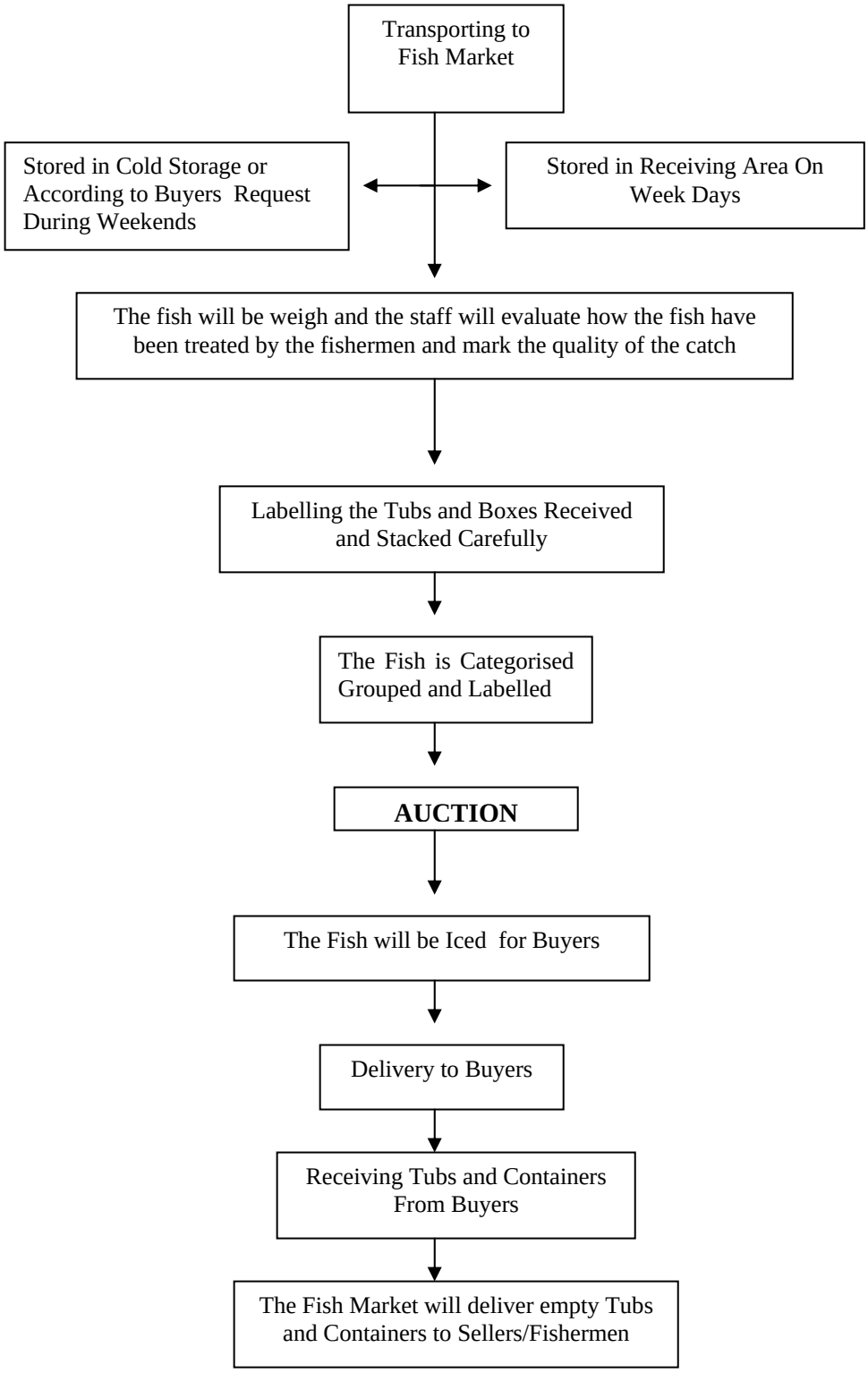


Figure 11: Handling the catch in the auction fish market

6.5.2 Standard procedures of fish markets. (Fiskmarkadur Islands Hf)

The standard procedures mentioned below are translated based on the company's manual. All the fish markets under Fiskmarkadur Islands Hf. (FMI) are installed with the quality handbook which acts as the manual for the fish markets. The handbook explains the standard procedures which the fish markets are supposed to comply with. According to the manual, the companies are trusted to manage the auction between the sellers and the buyers and to create right price for the catch without bias. The standard procedures of the fish markets which are relevant to the study are as follows:

a. Notification of sale to market

Ships/boat owners that intend to market their catch have to notify the quantity, combination, location of landing, arrival time and how the catch will be landed. Boats/operators have to notify at least 24 hours before landing if catch is to be sold in the market. For boats that go out fishing and come back on the same day, the boat has to notify one (1) hour before landing. Sellers must deliver to the doors of FMI building. The catch must be grouped according to species, and the information about whether if it was bled dead or alive the time of captured must be indicated. Average weight of each species shall be indicated if the catch is not grouped by size. Fish shall preferably be labelled by days. If disputes rise between buyer and seller because of "wrong" information, complaint shall be delivered directly to FMI which will decide what to do.

According to law, all catch shall be weighed on the port's authority scale and again weighed on FMI's scale (Figure 12). Buyers and sellers have the right to watch the weighing process if they wanted to. FMI will solely handle weight and handling of catch after sale. Payment to the seller will be made according to worth of the catch. It will be paid according to the seller's name that the fish market received during the notification. If any claim rises for the same catch that have been sold from another seller, the disputes parties will have to settle the problems by themselves or seek another solution from the official authorities (using the judicial system). The fish market will not be involved in this type of disputes/misunderstanding.

Figure 12: Weighing the catch using the fish market's scales

b. Promissory

When seller has notified to sell its catch to FMI, the seller must accept the price that will be formed during the auction. When the notification is confirmed, changes or withdrawal cannot be made. FMI is responsible for all the catch that will be sold but not for the price it is sold for. In order to get good price the unloading of the catch is done immediately after the ship/boat arrives, this is to ensure that the freshness and quality of the catch is preserved. The seller must inform the right location of the landing in order to avoid extra cost. During the auction for the catch of the same species, the auction will be conducted in the sequence of first in first out (FIFO). The buyers must return all packaging to the seller within 72 hours from sale, if failing to do so FMI can add extra charges on the buyers and that the rate of charges shall be according to the rate of 'The Packaging Dissemination Limited'(The fish markets is bench marking the rate of charges according to this company). Neither sellers nor buyers can use packaging from FMI for their own good except to transport fish to and from FMI.

c. Non-performances

If disputes a rise on size or quality of catch that is sold during the auction, the fish market employee of FMI will immediately try to settle the argument. If the claims made by the buyers are reasonable, the sellers have to pay compensation, but if vice versa the buyers have to bear the cost. If there is great difference between the

descriptions of the catch on the auction list with the catch the buyer has bought, the buyer is entitled to revoke the sale. On losing the sale the seller is not excused from paying the fee of the sale to the FMI. If information proves to be wrong and the sale is revoked FMI is not responsible for selling the catch. If arrival time of seller differs by four (4) hours or more from notified time, buyer are entitle to claim compensation for the waiting hours. The claims are not valid if the delay is due to unmanageable factors and FMI is informed earlier by the sellers. If FMI received repeated complaints on the same ship/boat/operator, FMI has the right to cease further business with that specific ship/boat/operator. Buyer is obliged to accept the catch in containers/tubs if the sale of the catch is done with the catch in containers/tubs. Buyers must assure that the containers/tubs of the catch must be returned within 72 hours (Figure 13). Buyers are fully responsible for any mishandling, if part of the packaging is lost or damaged.

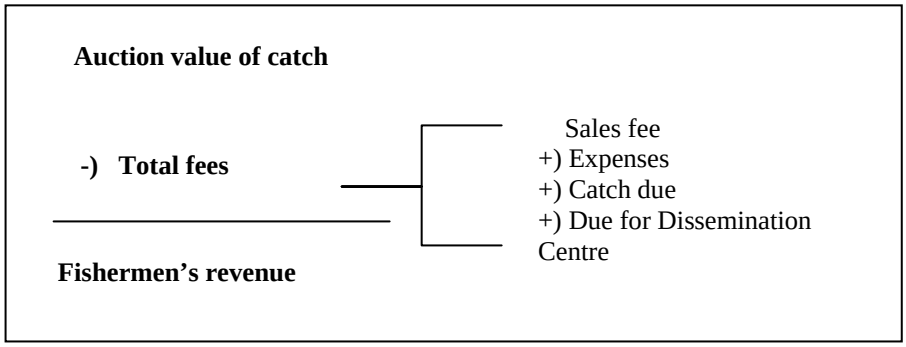
Figure 13: Packaging (tubs, containers) are returnable to the sellers.

d. Fees

Fee of FMI is according to list of charges at each time. FMI managing board determines the sales fees and FMI list of charges shall be published at each auction place. The method of calculating the fees is as follows:

It is based on the auction value of catch, subtract (sales fee plus expenses plus catch due plus due for dissemination centre) as shown in Table 1. The balance is the fishermen's/seller's revenue on that day.

Table 1: Calculation of the fishermen revenue



e. Other terms

FMI has the right to change the rules and procedures according to the suitability and with the consent and approval of the Minister of Fisheries.

From section 5.1 it is clearly indicate that fish auction markets are situated near the fishing ports and are more concentrated at the west coast where more demersal catch, which is one of the important species, is landed.

The fish auction market is privately owned. The establishment of the fish auction market is highly supported by the fishermen association. The government only set up several guidelines for the fish auction market to abide by. There is no government involvement in setting up the infrastructures or the price of the fish. The price is obtained from the market during the auctioning process. The main point of having the auction market is to clear the catch as soon as possible at the right price. A committee appointed by the government concluded that the fish auction markets are important for the Icelandic Fisheries but it needed improvement in product quality. This demand for better quality comes from the buyers who have to pay relatively high prices because of supply shortages. The committee have representative from all interest group in fisheries (Ministry of Fisheries, pers.com).

As a privately owned company, competition in giving services to both buyers and sellers is very stiff and at the same time they have to satisfy the shareholders. The competition is not only on the domestic auctions but also foreign auctions. The fish seller is the main asset to the fish auction market; this is because the main supply comes from them. In order to attract more sellers and buyers to use the services, the fish auction market has to keep the fees and the cost down, but still gain adequate profit.

Each fish market has their own marketing strategy to attract the users (buyer/seller). One of the most important and outstanding is the quality system to ensure the assurance of the catch when the catches arrive at the fish markets. By having the quality system the fish market will earn trust from the users (buyer/seller). In order to be more diversified and value added in giving the service the fish market is now offering services such as paying the loan by deducting from the sellers' value of catch

with the consent of the sellers, supplying baits, fishing equipment and others that are related to the fishermen. ´

To be more global and efficient in the auctioning, the fish auction market, will soon implement the auction system through the net. This system will create larger market for both sellers and buyers. It is more convenient and user friendly. By using this system the buyers are able to key-in the bidding in their own premises compared to the existing auction whereby the buyers have to present themselves at the fish market to do the bidding. It will also benefit the media itself, because there will be minimal operating costs in terms of computer processing and paper work involved in selling the fish. All that is needed to connect to the fish market is a personal computer and modem.

7 FISHERIES MANAGEMENT

Generally, fisheries management system consists of a wide range of activities including the strategic management involved in the formulation of legislation, policy and plans; the development of new fisheries, infrastructure and fishing methods; the acquisition of knowledge about the natural and human systems, and use of that knowledge to provide advice (Charles 2001).

According to Einarsson (1992*)*, total concept of fisheries management, consist of three main factors. First factor is the fisheries management system itself, secondly monitoring the control and surveillance conducted and lastly legal sanctions or fisheries judicial system. August Einarsson (1992) stressed that the fisheries management system is concerned with organising the fisheries. Monitoring, control and surveillance may include coast-guard activity, on-board monitoring, shore-based government quality control at the landing and processing stage and export control. Government sanction need to be well defined within the context of fisheries judicial system which is organised in such a way as to attain the goals set by the fisheries management regime.

The three factors mentioned above (management, monitoring and sanction), make up the framework within which the organisations in the fishing industry must operate in order to achieve their own objectives.

7.1 Icelandic Fisheries Management development

Fisheries management of Iceland has developed in two distinct phases. The first period is from 1901 – 1976; when Icelanders campaigned to gain control of the country's fishing grounds. By gaining control, Iceland has the sole right to protect its fishing ground.

The second period is from 1976 to the present day. This period is a process of adaptation to the requirements of a management system for biologically and economically sustainable fisheries. The Fisheries Management Act of 1990 is the pillar of the present fisheries management system.

Four main public agencies are responsible for implementing the Icelandic Fisheries Management; the Ministry of Fisheries, the Icelandic Directorate of Fisheries, the Marine Research Institute and the Coast Guard. The position of the agencies in the fisheries system is shown and explained in Figure 14 (MOF 2003).

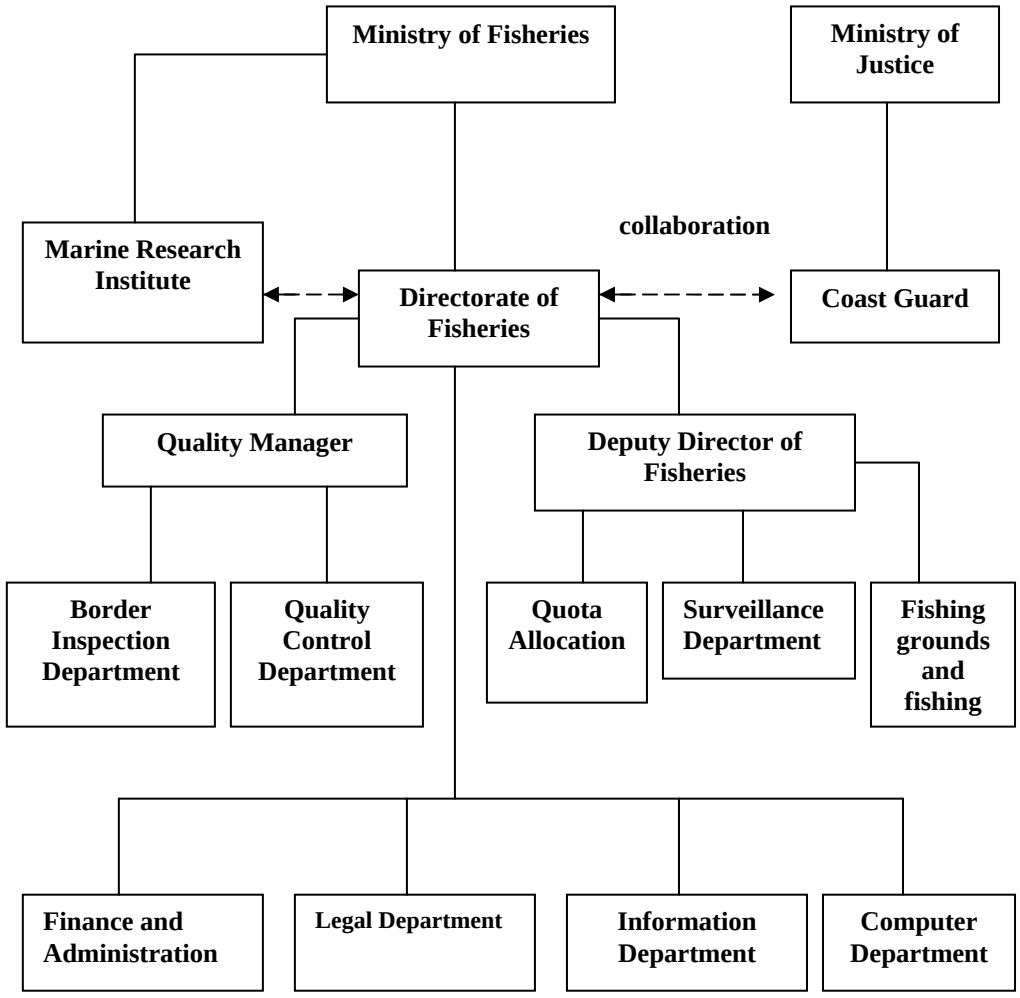


Figure 14: Icelandic Fisheries Management System, Directorate of Fisheries

The Ministry of Fisheries is responsible for management of the Icelandic fisheries and implementation of the legislation. This body will react accordingly to the Fisheries Management Act which was passed by the parliament. The Ministry of Fisheries is responsible for implementing by initiating new or revised fisheries legislation, issuing fisheries regulation and determining the annual Total Allowable Catch (TAC). The Ministry is also directly in charge of Marine Research Institute and the Directorate of Fisheries. The Coast Guard reports to the Ministry of Justice (Directorate of Fisheries).

The Marine Research Institute (MRI) task is to estimate the size of the fish stock, and recommend Total Allowable Catch (TAC). Based on scientific research, MRI recommended different harvesting rules for different species to the Ministry. In 1995 based on the recommendation made by the MRI, the Minister of Fisheries, adopted a formal TAC rule for cod. The rule stated that annual TAC should be 25% of the fishable biomass (i.e., 4 years and older), but not less than 155,000 tons (Danielson *et al*. 1997).

The Directorate of Fisheries is responsible to the Ministry of Fisheries. Its task is continuous monitoring of compliance covering various aspects of the fisheries. Its main function is to monitor the harvesting process, especially landings of catch, to

administer and enforce the fisheries management system, to collect and process data on the operations of the fishing industry, and to provide advice to the Ministry of Fisheries concerning the fisheries management system. It also maintains a continous quota registry based on quota issues and quota transfers. Another role of the Directorate of Fisheries is official supervision of the handling of catch and processing of products. One example of the activities of the Directorate of Fisheries is that all catches landed in Iceland are weighed on scales and the data transmitted directly to the Directorate (Directorate of Fisheries).

The Coast Guard's function is to monitor fishing operations and enforcement of fisheries regulations at sea. This involves protecting the fisheries jurisdiction against foreign encroachment and enforcing domestic fishing regulations such as fishing gear restrictions, area and seasonal closures (MOF 2002).

7.2 Enforcement

Generally, fishery enforcement is a difficult part in the management system. Its rationale lies in the realisation that some degree of illegal fishing can be anticipated as a response to a regulatory framework designed to limit fishing activities. In the absence of penalties the illegal fishing activity in terms of economic is profitable to the fishers. Illegal fishing and misreporting of catch levels in an environment of insufficient enforcement have caused serious over fishing as well as errors in stock assessment (Charles 2001).

7.2.1 Enforcement in the Fisheries Management System

In Iceland, legislation is prepared taking into consideration the opinion of the fishermen association and the boat owners association. They are put in a committee to discuss and free to voice their view. The authority has the right to reject any suggestion made by them. The Directorate will write the legislation, but the ultimate decision is from Parliament. As explained in the previous section the Directorate and the Coast Guard are responsible for ensuring compliance with the Fisheries Management Act. Although under different ministries, when necessary there is always collaboration between the Directorate and the Coast Guard. To gain a clearer view of the Directorate, Table 2, explains the function of each department.

Table 2: Main task of the Directorate of Fisheries by Departments. Zoega pers.com.

Quota Allocation Issues fishing permits to Icelandic vessels. Issues fishing permits to foreign vessels inside Iceland EEZ. Allocates quotas. Administrates qouta transfers. Administrates the Quota Exchange. Cooperation with international fisheries authorities (NEAFC / NAFO.) 6 employees	**Surveillance Department** Monitors fishing and catch composition. Monitors landing, weighing and recording of catches. Monitors processing of catches. Vertinary checks of fish imports. Issues health certificates for exported fisheries products. 53 employeess
Information Department Collects and communicates data on catches. Administrates publications. Administrates the web–pages of the Directorate. Queries and reports. 8 employees	**Finance and Administration** Supervises the Directorate´s finances. Purchases goods and services. Collects service fees and fisheries Development Fund fees. Supervises the Directorate´s archive, premises and vehicles. 7 employees
Legal Department Levies penalties for illegal catches Legal procedures Legal charges Fishing permits withdrawal Legal advice Recommendation of admendments to laws and regulations 3 employees	**Computer Department** Provides computing services for the Directorate, the Ministry of Fisheries and Marine Reserach Institute. Software design and maintance. Supervises networking hardware and software. Data management General user services 10 employees

The above indicates that the Surveillance Department and the Information department are directly involved in monitoring that the rules and regulations passed by the Minister of Fisheries are abided by the fisheries sector. As the fishing industry is the backbone of the country, the collecting and reporting of the catch data is very

important. To achieve the aim of preservation of stocks and maximization of the economic return from the fishery, the Ministry of Fisheries has imposed certain regulations to prevent unresponsibile activities. Without proper tool of enforcement the marine fish stock will be at stake. The tool that is used by the Directorate to monitor the catch and fishing effort is explained in the next section.

7.3 Tools of monitoring

Based on the interview with the Direcorate of Fisheries, the main tool being used to monitor fishing activity is by monitoring the catch data of landings.

7.3.1 Reporting and Collecting Catch Data

There are four groups of people who are responsible for the reporting of data: registered vessel captain, ports of landing, fish market and buyer/processor. Every registered vessel is required to have and responsible for fishing logbook which describes their activity throughout the years. The logbook is in triplicate fishing. It is the duty of the fishermen to send a carbon copy of the logbook for every catch to the Directorate. Failure in performing this will result in losing their license. This data will be transmitted to the Marine Research Institute for research and stock assessment purposes, and to the Directorate for quota monitoring.

For the catch, the reporting will start once the catch is landed; it will be weighed using the harbour scale at the ports of landing. Port authorities are responsible for correct weighing and recording of the catch and for transmitting this information to the Directorate. At this stage only the gross weight will be recorded, not the species. All landed catch is weighed on certified scales by licensed operators who are employed by the local port authorities. Every day the Directorate will receive data from sixty ports of landing throughout the country.

If the catch enters the fish markets, it will be weighed once again using the fish markets scales but 15% of the ice contents will be deducted. This data will be transmitted to the ports authority. All the trading and transaction information that took place during the day will be compiled and the information (about the buyer, seller, the catch) is be transmitted to the Directorate once a month.
Similarly, if the catch enters the processing plant, the processor is responsible to report the received material, condition of material and processing method to the Directorate. For the Icelandic fishing vessels that sail directly to markets in Europe, the catches are monitored by records of sales transmitted from the importing country to the Directorate of Fisheries.

All the information and data received will be stored in the database of the Directorate and it will be circulated to the Marine Research Institute, Statistics of Iceland and Office of Fish Prices and Fisherman Salaries for future use.

From the above it can be seen that there are double entries in recording the weight. According to the Directorate, this is to ensure the reporting is correct. If reported figures do not match, then a closer look is taken. Necessary steps will be taken according to the seriousness of the variation. The flow chart in Figure 15 shows how the data is being transmitted.

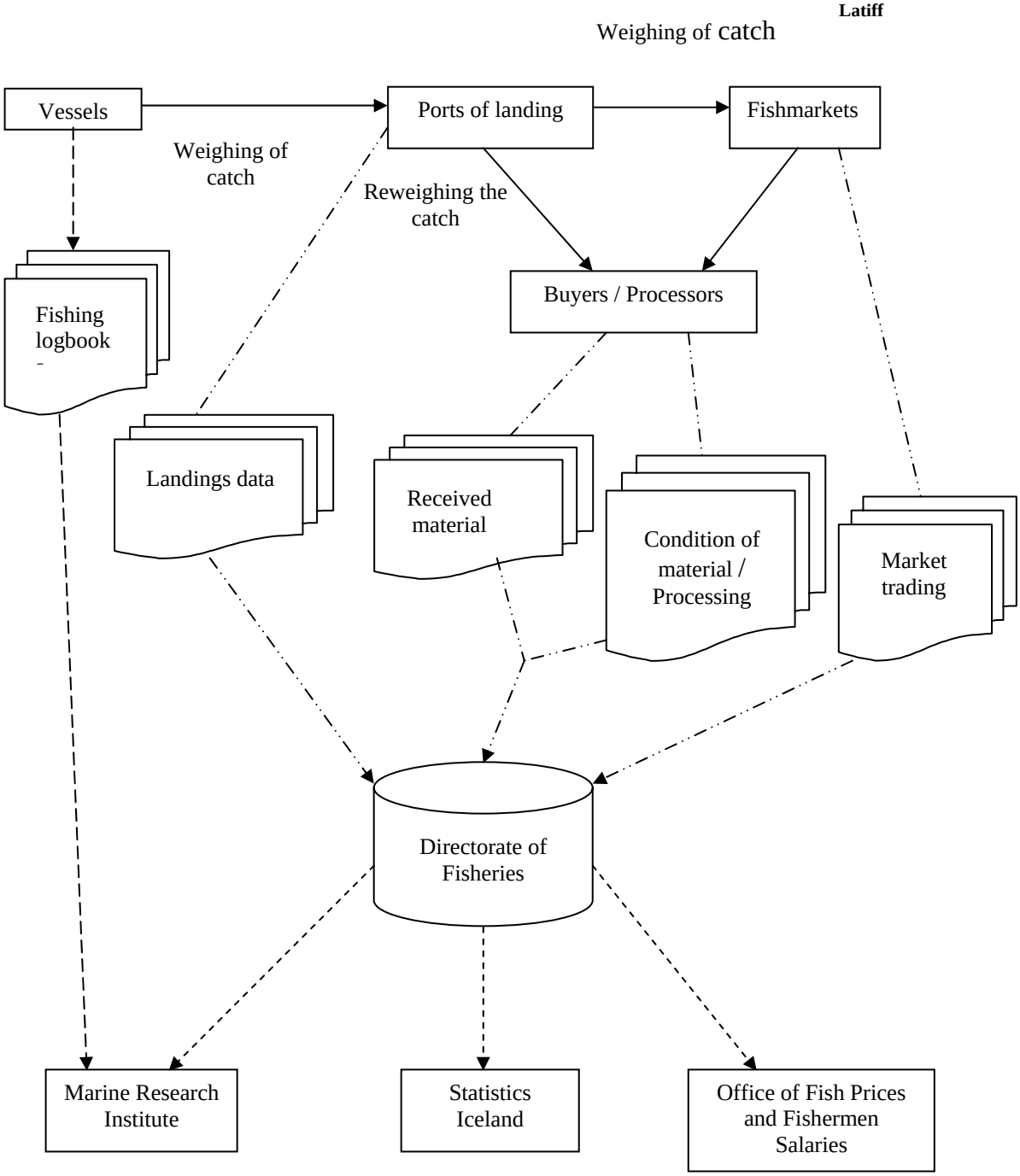


Figure 15: The flow of collecting the catch data, Directorate of Fisheries.

7.3.2 Surveillance

If there is variation in the catch data received, the Directorate can monitor a specific vessel of port of landing or a specific processor. An inspector may also be placed on board. These inspectors are experienced in fishing, often former captains of fishing vessels. To ensure that the fishermen are complying with the regulation, there is always close cooperation between the Coast Guard and the Directorate. Monthly meetings are conducted between the two ministries to discuss what actions should be taken in order to reduce non-compliance by fishermen. Normally the collaboration involves discarding and the use of fishing gear-mesh size.

If fishermen or processors do not comply with the regulations, the surveillance department will issue a notice. If the situation does not improve the licence will be withdrawn for two weeks for the first time, six weeks for the second time and one year for the third time. The withdrawal will take place by court order. The withdrawal of the license is made by the Directorate upon the surveillance department's recommendations.

7.4 The cost of Fisheries Management in Iceland

According to Arnason *et al.* (1999), governments spend money on fisheries for purposes other than fisheries management. Grants and subsidies are example of expenditures which are not due to fisheries management. The expenditures on the fisheries management in Iceland in recent years are about 3% of the value of landings (Arnason *et al.* 1999). However the rate of management costs has risen more than the value of the catch. This increase is explained by increased research and enforcement activity while the landed values have remained fairly steady. The single most expensive fisheries management in the country is monitoring and enforcement at sea which is being done by the Coast Guard. The second largest is marine research, related to stock assessment and prediction. According to Arnason *et al.* (1999), the expenditure on marine research in Iceland is comparable to the Coast Guard. As for the Directorate from 1990 – 1996 the expenditure is just over 1 million USD (88.000.000 ISK). Finally the cost associated with the Ministry of Fisheries (1990 – 1996) it is estimated 3 million USD (264.000.000 ISK) annually. In spite of the above the fisheries management costs are decidedly lowest in Iceland (Arnason *et al*. 1999) compared to Norway and Newfoundland. The comparison between management costs in Norway, Newfoundland and Iceland for 1990 -1996 is shown in Table 3.

Table 3: Comparison between management costs in Norway, Newfoundland and Iceland (1990 – 1996), (Arnason *et al.* 1999).

	1990	1991	1992	1993	1994	1995	1996
Coast guard/Enforcement and surveillance							
Million USD							
Newfoundland	19.8	20.2	18.6	20.2	18.7	18.1	17.2
Norway	49.3	47.6	49.6	44.6	48.5	52.0	55.0
Iceland	7.3	8.4	7.8	6.7	11.9	11.1	8.4
Percent of Catch Value							
Newfoundland	8.34	9.05	11.71	13.41	11.85	7.38	8.55
Norway	5.97	4.97	4.96	4.77	4.37	4.32	4.36
Iceland	0.89	0.97	0.93	0.99	1.71	1.43	1.07
Ministry of Fisheries							
Million USD							
Norway	3.3	2.8	3.4	3.3	3.2	3.6	3.7
Iceland	3.1	2.9	3.4	2.3	2.5	3.2	3.3
Percent of Catch Value							
Norway	0.40	0.30	0.34	0.36	0.29	0.30	0.30
Iceland	0.38	0.34	0.40	0.32	0.35	0.41	0.43
Marine research							
Million USD							
Newfoundland	16.85	20.83	21.68	15.47	14.03	14.51	13.54
Norway	36.60	28.62	26.20	25.00	24.08	27.47	30.91
Iceland	8.60	8.70	8.50	9.00	5.67	8.99	8.98
Percent of Catch Value							
Newfoundland	7.09	9.31	13.66	10.28	8.89	5.93	6.74
Norway	4.43	3.00	2.62	2.67	2.17	2.28	2.45
Iceland	1.05	1.01	1.01	1.23	0.81	1.15	1.15
Directorate of Fisheries/Regional administration							
Million USD							
Newfoundland	6.0	7.9	6.4	5.8	5.0	5.1	4.6
Norway	12.1	13.4	14.3	12.1	12.3	14.8	15.1
Iceland	1.2	1.4	1.1	2.6	2.2	1.6	2.8
Percent of Catch Value							
Newfoundland	2.54	3.55	4.05	3.83	3.18	2.10	2.31
Norway	1.47	1.40	1.42	1.29	1.11	1.23	1.19
Iceland	0.15	0.16	0.13	0.36	0.31	0.20	0.36

The above section stressed that strategic management in Fisheries Management is needed to promote sustainable fisheries in this global environment. The opinion of the users is taken into consideration before preparing the legislations. This is to ensure that the legislation is accepted by the users. The enforcement is very important to ensure that the law is complied with. This is very vital for a country that generates most of its income from this sector. The main tool that the Directorate is using to detect violation of the law is by monitoring the catch data from all landings. The catch data is also circulated to all agencies and organisations in fisheries. In terms of the cost in the Fisheries Management, the expenditure is largely on marine research.

In a positive way the fish auction market has helped the enforcement in the monitoring of fishermen. The trading data from the fish market which is transmitted

to the Directorate can assist the Directorate in double checking the catch data receive from the ports of landing. The data received can help or give some clues to the enforcement of the fishermen regarding the quota, the boats or any illegal activities.

8 LANDINGS, CATCH AND VALUE

Fish landings are classified into 9 different categories. They are landed (1) for domestic processing, (2) for export in containers, (3) landed abroad for fish meal and oil production, (4) frozen at sea, (5) to auction market for domestic processing, (6) to auction market for export in containers, (7) frozen at sea for domestic reprocessing, (8) salted at sea and (9) sold fresh from vessel abroad.
The total catch for all landings from Icelandic fishing grounds for the years 1998 – 2000 is shown in Figure 16.

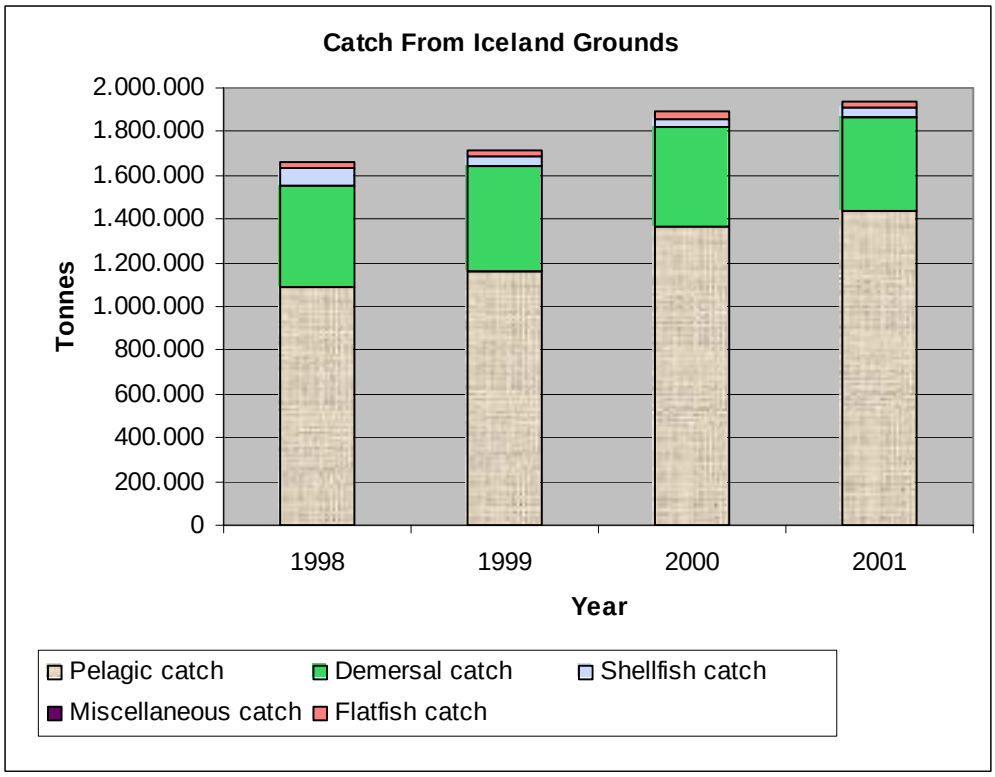


Figure 16: Total catch from Icelandic fishing grounds (Hagstofa Islands 1998, 1999, 2000 and 2001).

The catches are mainly pelagic, demersal, shellfish and flatfish. In 1998 -2001 the total catches were 1.67 million MT – 1.94 million MT. The biggest contribution is from pelagic catch. Pelagic total catches are between 1.09 million MT and 1.44 million MT. The second biggest is the demersal catch contributing 467 thousand MT, 480 thousand MT, 460 thousand MT and 431 thousand MT respectively for the same years. The total catch for these species is decreasing.

The species that are mainly traded through the auction are flatfish and demersal. The trend is discussed in the next section.

8.1 The trend of catch from 1998 – 2001

Figures 17 and 18 will illustrate the trend of catch for demersal catch and flatfish. In the Fisheries Statistics (Hagstofa Islands 1998 – 2001), demersal catch is a category consisting of several species; for example cod, haddock, saithe, redfish, catfish, ling,

monk and others. Whereas flatfish catch is mentioned as a category consists of species such as halibut, Greenland halibut, plaice, lemon sole and others.

a. Demersal catch

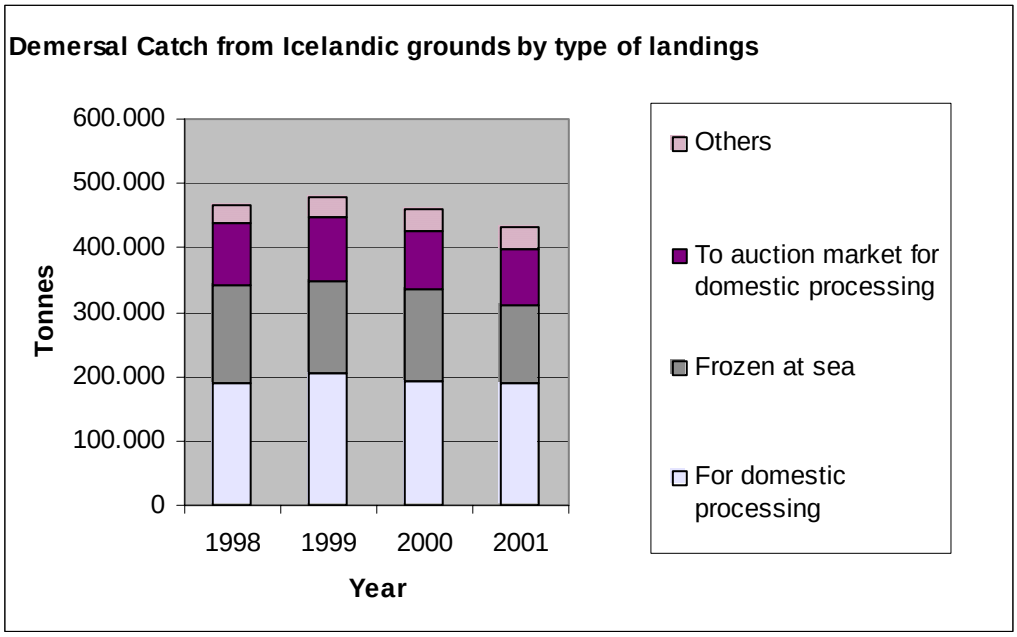


Figure 17: Demersal Catch from Icelandic fishing grounds by type of landings, (Hagstofa Islands 1998 – 2001).

Assume in Figure 17, about 40% - 44% of the demersal catches are for domestic processing, 28% - 32% are frozen at sea and 20% of the demersal catch goes to the auction markets for domestic processing. Although the total tonnages are slightly decreasing, the trend of distribution of the catch has not changed.

b. Flatfish catch

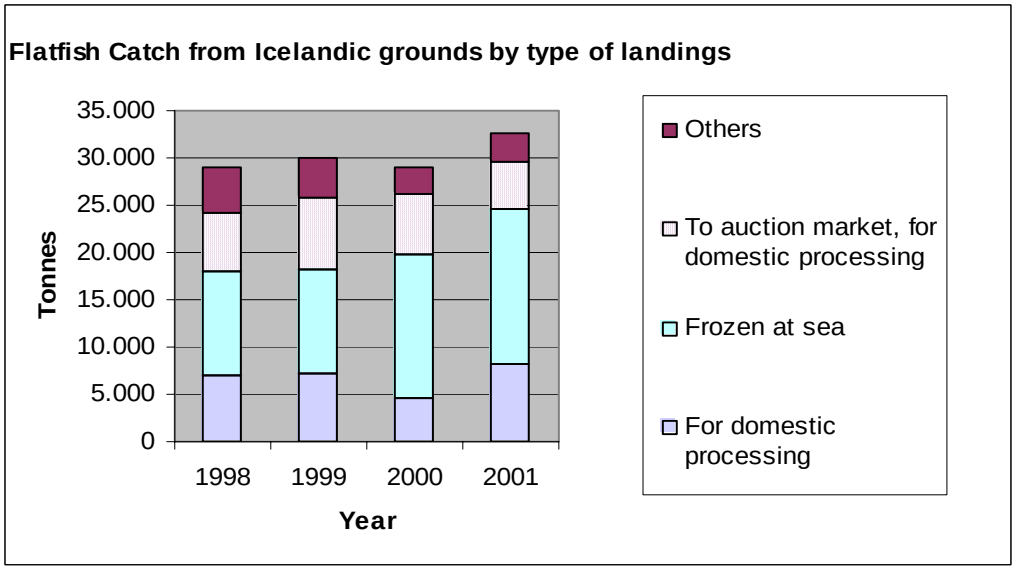


Figure 18: Flatfish catch from Icelandic grounds by type of landings (Hagstofa Islands 1998-2001).

As for flatfish the total tonnage is slightly increasing between 1998 -2001. Majority of the catch is frozen at sea, 24% - 25% is for domestic processing and only about 15% - 22% of the total tonnages are traded on auction markets for domestic processing.

8.2 The trend of landings for ground fish from 1998 – 2001

a. To auction markets for domestic processing

Figure 19 illustrates the three types of landings for the ground fish in Iceland.

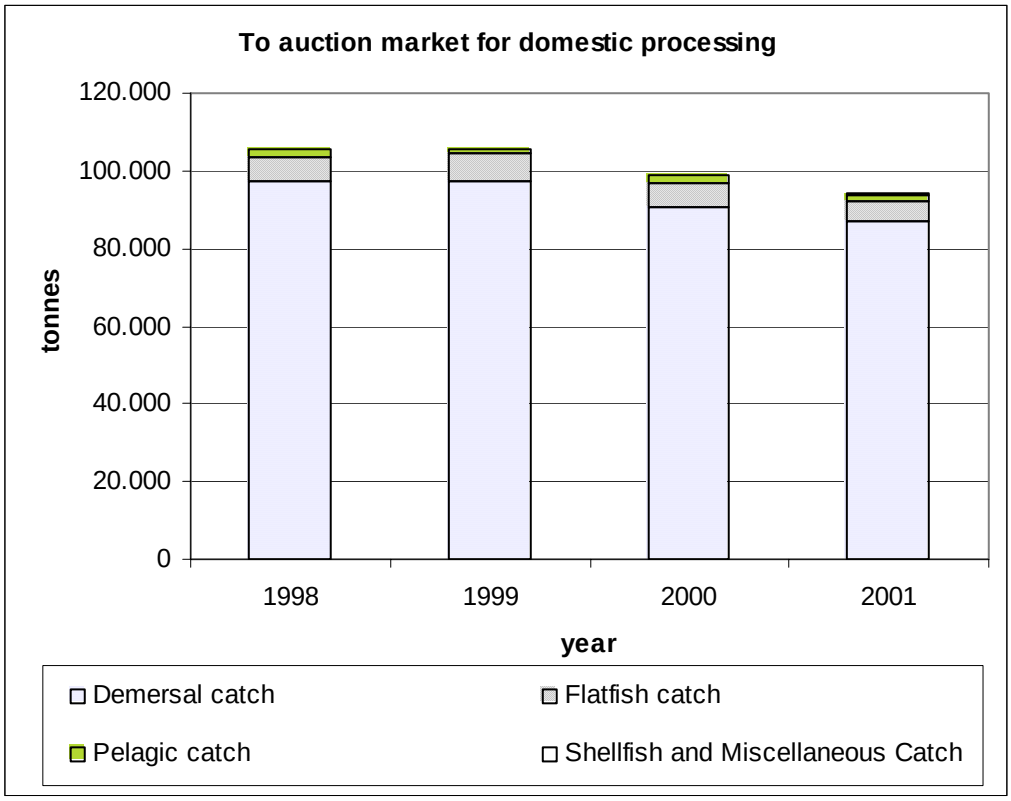


Figure 19: To Auction Market for domestic processing (Hagstofa Islands 1998-2001).

Figure 19 clearly shows that the demersal species dominate with 92% and flatfish about 5% of the contribution in the auction market.

b. To auction market for export in containers

Figure 20 shows the catch sold in action markets for export in containers.

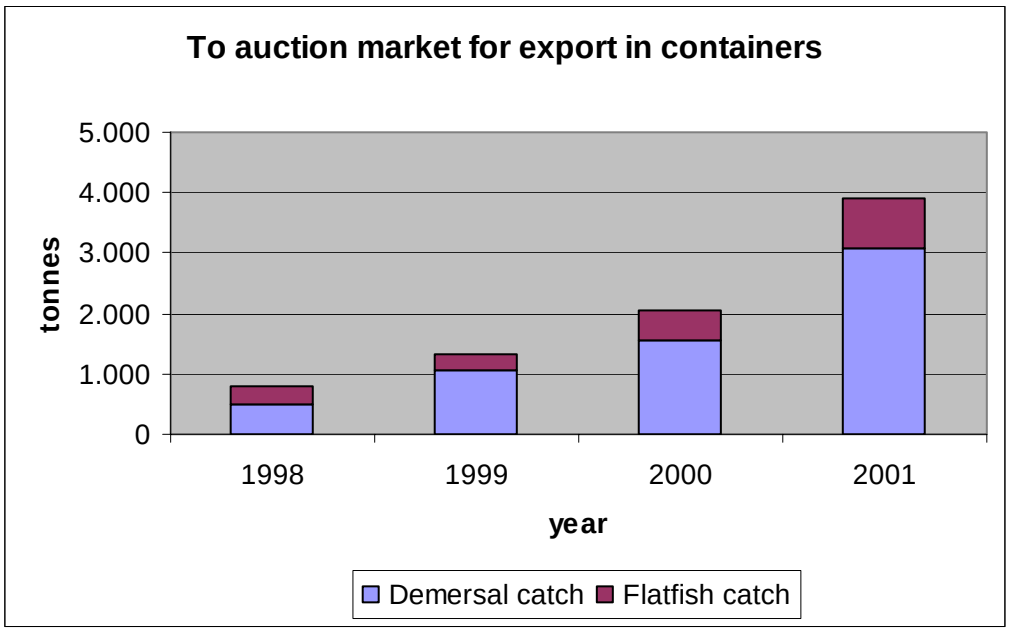


Figure 20: To Auction Market for export in containers (Hagstofa Islands 1998-2001).

Of the total catches landed less than 1% of demersal catch went to auction markets for export in containers in 1998 -2001.

c. Fresh fish sold from vessel abroad

Figure 21 shows the amount of fresh fish sold directly from vessels abroad.

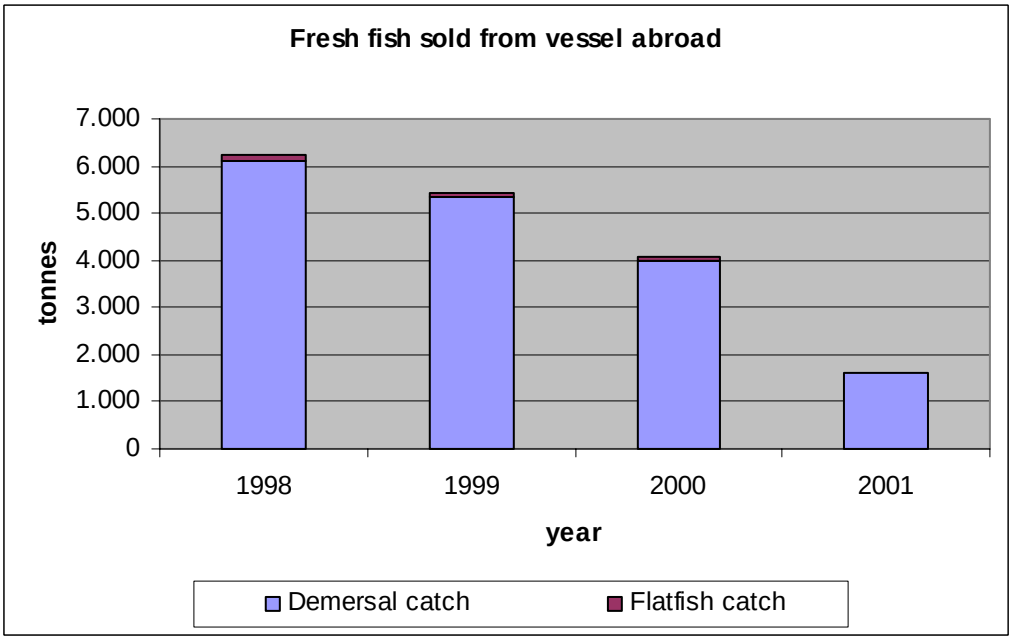


Figure 21: Fresh fish sold from vessel abroad, (Hagstofa Islands 1998-2001).

Landings of demersal and flatfish catch sold from vessels abroad are decreasing.

8.3 Total value of all catch.

Value of all catch is shown in Figure 22.

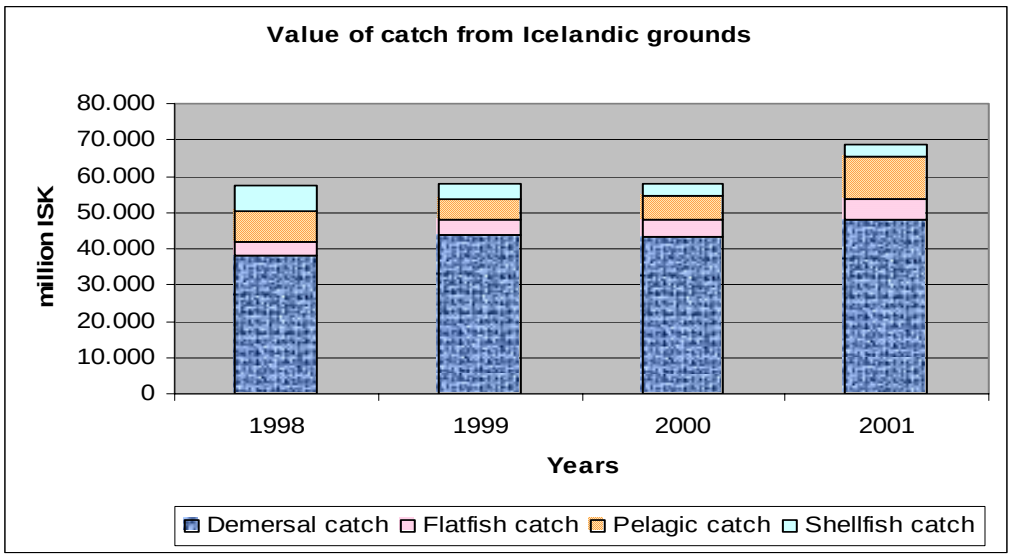


Figure 22: Value of catch from Icelandic grounds, (Hagstofa Islands 1998-2001).

Pelagic species contribute the most tonnage (more than 1.000.000 tones) from 1998 – 2001 as can be seen in Figure 16, compared to demersal which contribute around 400.000 to 500.000 tones. In terms of the value as shown in Figure 22, the value for demersal catch is higher compared to others.

8.3.1 Value of species from demersal catch

Figure 23 shows that cod is the most valuable species, followed by haddock, redfish, oceanic redfish, saithe and other demersals.

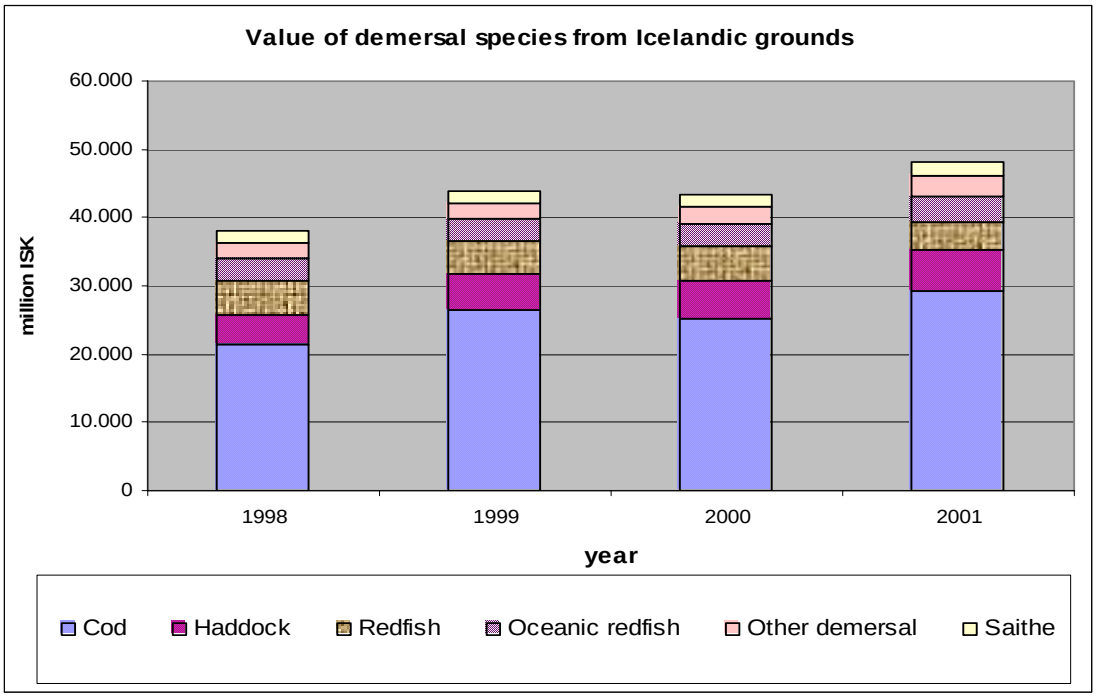


Figure 23: Value of demersal species from Icelandic grounds (Hagstofa Islands 1998-2001).

8.3.2 Species for the Auction Market

Demersal and flatfish catch plays a dominant role in the fish auction markets. The trend shows that in terms of tonnage demersal species are mostly landed to auction markets for domestic processing but the majority of flatfish is frozen at sea. In 1998 – 2001, the percentage of demersals going to auction markets (for domestic processing) is higher (approximately 20 percent) than for exports in containers (less than one percent).

Though pelagic catch contributed most of the volume the value is lower compared to the demersal catch. Pelagic are mainly landed for fish meal and oil production. As shown in Figures 22 and 23, the most important and valuable species are cod, haddock, saithe and redfish.

8.4 Development of price formation for the fish landed in Iceland.

From 1961 until the inception of the first fish auction market in Iceland in 1987 the 'Fish Industry Price Determination Board' set the minimum fish prices for every significant species of fish in Iceland (Bjarnason 1996). The representatives of the board comprised of an equal number of boat operators and buyers. In the late 1980s, this system was heavily criticised for its lack of response to varying demand and supply condition (Arnason 1995). The board is still in existence but inactive.

The introduction of the fish auction markets in 1987 has changed the pricing scene. The prices at the auction markets have generally been higher, than the registered prices of fish traded directly between fishermen and processors. In 1998 in accordance with law the Fresh Fish Price Directorate (FFPD) was formed. The functions of the Directorate are (1) to monitor the fish price and the payoff to the crew and to conduce the right fresh–fish price for them (2) act as a mediator between the

fishermen and the ship owners. In 2001 a law about goals (to fix the minimum price) was passed to the FFPD by the government. The implementation is due to the strike of the fishermen. This is the turning point in Fish Price Decision scenario in Iceland whereby the minimum price is obtained from a collective agreement.

According to the FFPD the fish price decision (the goals) is a collective agreement between the Committee of fishermen (3 organisations) and the Federation of Icelandic Fishing – boat owners. The committee of fishermen consists of the captain association, engine crew association and seamen association. The chairman of the committee is an independent person, a judge. The flow of the events and the collective agreement is simplified in Figure 24, to show how the collective agreement is obtained.

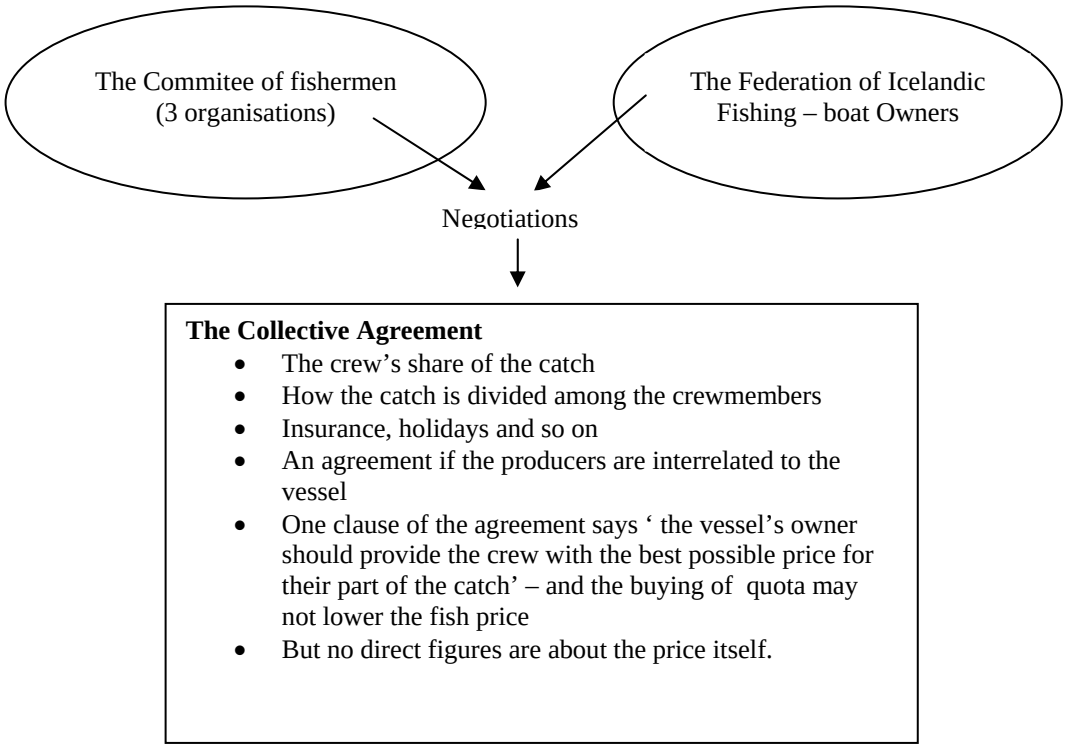


Figure 24: Flowchart of the negotiation between the Fishermen and the Federation of Icelandic Fishing–Boat Owners to obtain the Collective Agreement, Fresh Fish Price Directorate.

It can be seen that the main task of the FPPD is to keep a good relationship between the fishermen and the boat owners. The institute acts as a mediator and will not influence the committee that will effect the price decision The flowchart above indicates that the most important part is that the vessel's owner should provide the crew with the best possible price for their part of the catch and the buying of a quota may not lower the fish price.

8.4.1 Auction and direct selling

About 24% - 28% of fish landed from the Icelandic fishing grounds enter the auction markets. The percentage is considered low. This section will make a comparison between the auction and direct selling. Before further discussion on every subsection

a brief analysis of the yearly trend between domestic use and export will be made, and then the discussion will go into details on the domestic auction and direct selling. The main comparison will be made on the price of both markets. The main reason for the comparison is to determine which market will give a better price.

8.4.1.1 Average price of cod 1998 – 2001. (Figure 25)

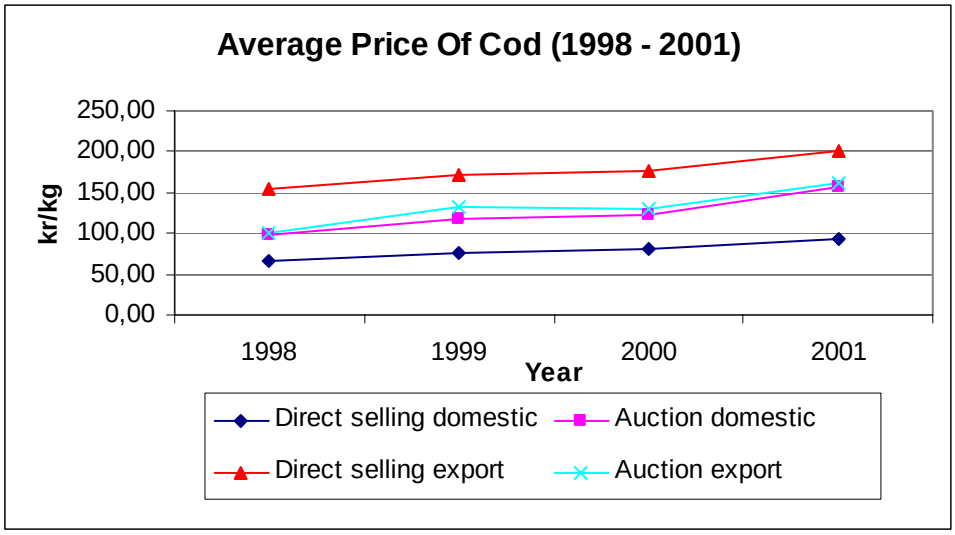


Figure 25: Average price for ungutted cod (1998 – 2001 (Hagstofa Islands 1998-2001).

a. Domestic and export: For auction and direct selling

There are obviously differences (Figure 25) between the domestic and export prices. The prices in direct selling export, is much higher compared to the auction export. This is contradicting with direct selling domestic where the price is lower compared to the auction domestic. The trend of the prices and the difference between the prices of each trade is constant. All the lines indicate that the prices in the auction are higher than for direct selling.

b. Domestic: Auction Market

From Figure 26 it can be seen that the price in the auction is higher than in direct selling with similar trend. The trend showed that the price is higher in middle of March to middle of May and middle of August to middle of November. In Iceland the months mentioned are before winter and summer. There are months where there are fewer small boats going to the sea. An explanation for this situation is that the supply is not enough to cater the demand therefore the price is higher in that particular period. In other words the price can go up and down in the auction market but never low than the price of direct selling.

The price at the auction market tends to fluctuate according to the supply and demand. Figure 26 illustrates that the regression line for auction is steeper and the R^2 shows that the fluctuation is higher than in the auction for ungutted cod. Whereas the R^2 in the direct selling are close to 1 and the line is very close to the straight line. This indicates that the fluctuations in the direct selling are lower. In other words fluctuations for the auction prices are higher than the fluctuations for direct selling.

Figure 26: Monthly average price for ungutted cod (1998 – 2001), Fisheries Statistics 1998 – 2001, Hagstofa Islands.

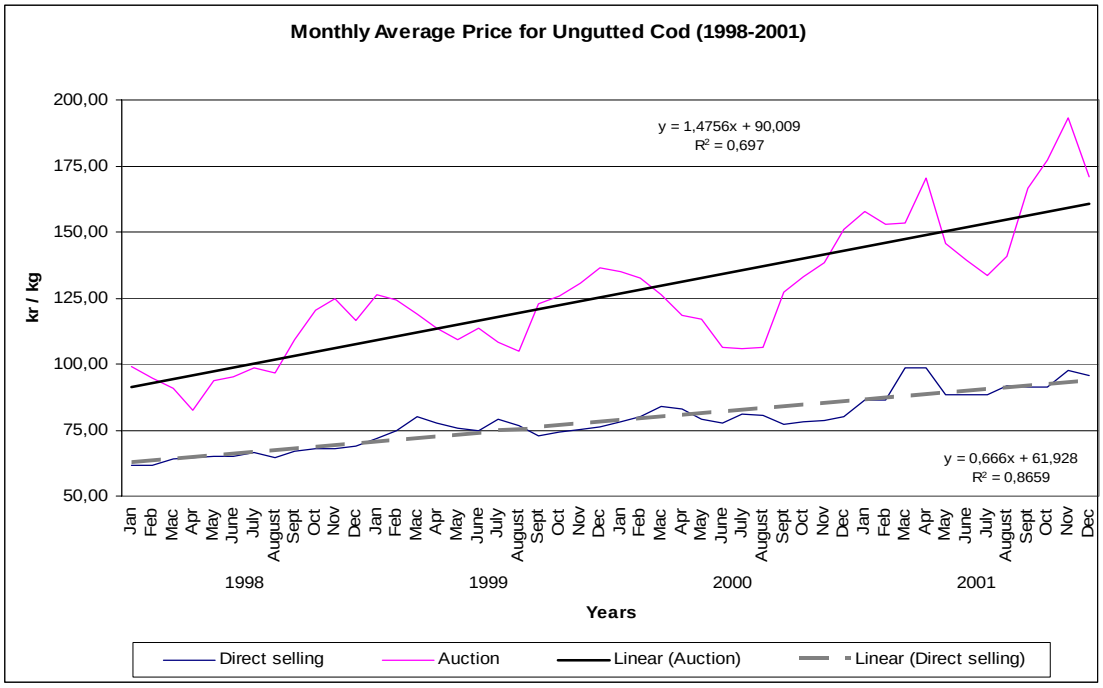


Figure 26: Monthly average price for ungutted cod (1998 – 2001) (Hagstofa Islands 1998 – 2001).

8.4.1.2 Average price of haddock (1998 – 2001)

a. Domestic and export: For auction and direct selling

The situation is a bit different for haddock than cod (Figure 28). The price for the Auction Domestic is higher compared to the Auction Export.

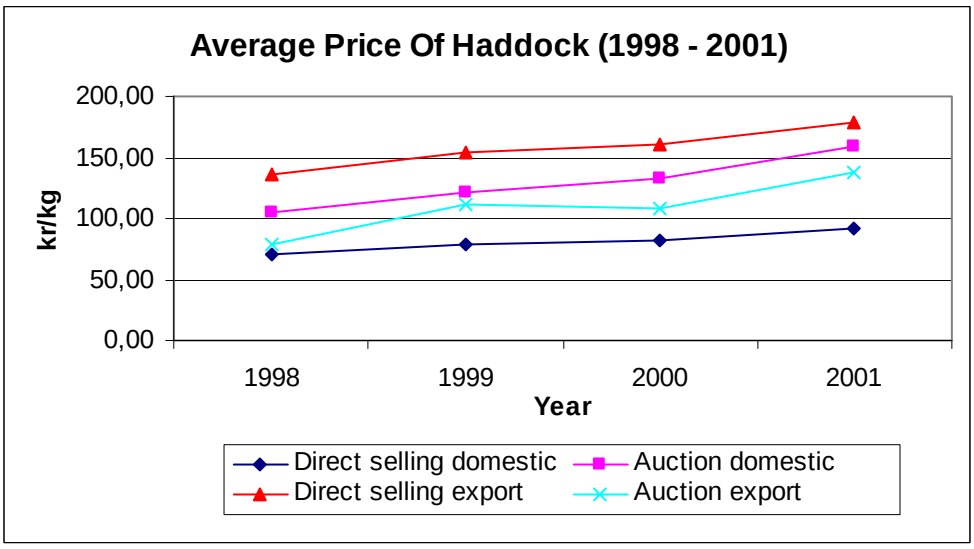


Figure 27: Average prices of haddock (1998 – 2001) (Hagstofa Islands 1998-2001).

b. Domestic: Auction market

Figure 28 illustrate that price of haddock and cod move similarly and are at the same level. These trend shows that the prices in the auctions are higher in the middle of April and November. This are the months where fewer small boats go fishing. The main suppliers for this period are the big boats. Similarly to cod the cause of the situation is due to less supply.

The regression equations in Figure 28 illustrate that the fluctuations on the auction prices are higher than the fluctuations for direct selling.

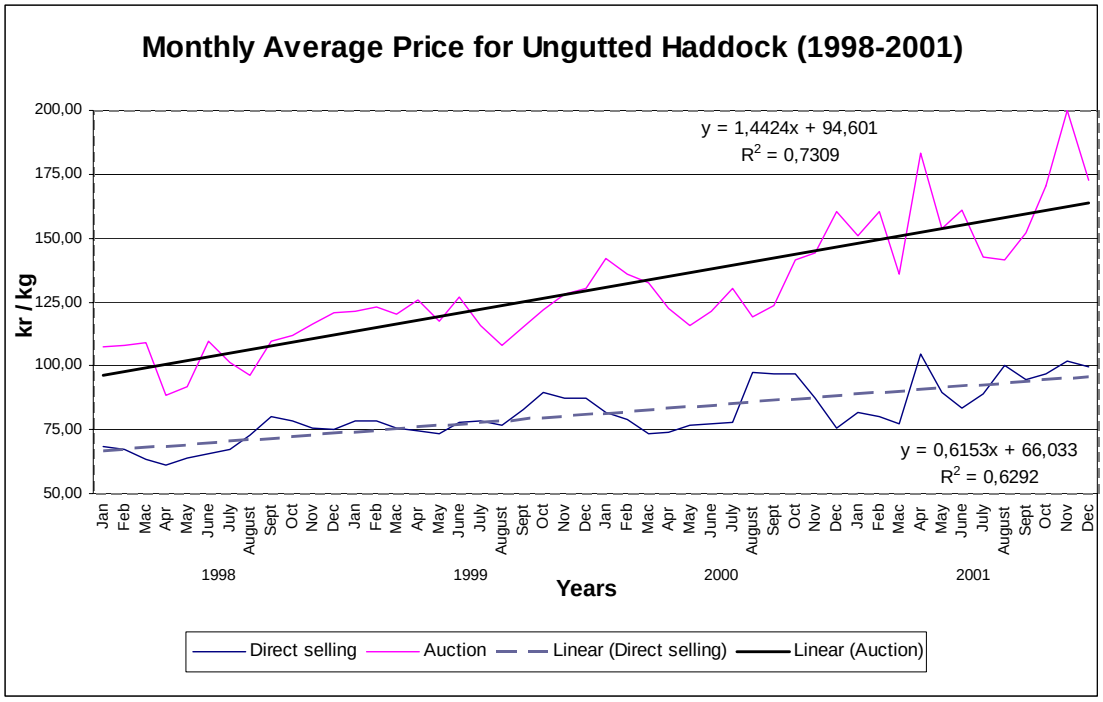


Figure 28: Monthly average price for ungutted Haddock (1998 – 2001) (Hagstofa Islands 1998-2001).

8.4.1.3 Others

The above situation is also similar for redfish and saithe where the prices in the auction are relatively higher compared to direct selling. The analysis of these two species is not significant because the tonnage trading in the domestic market is low. Redfish is less than 5 tones and saithe is less then 10 tones, compared to cod, although decreasing ranges from 54 thousand tones (1998) to 48 thousand tones (2001) and for haddock ranges from 16 thousand tones (1998) to 17 thousand tones (2001).

8.4.2 Analysis on price of cod

The objective of this section is to study the effect of prices, between auction and direct selling of the same species. As cod is the most important demersal species in the Icelandic fisheries, the analysis on the price trend in the auction market and direct selling will only be concentrated on this species. The analysis will be made within

these categories; by fishing gear, by regions, by gutted in auction, by gutted in direct selling, by ungutted in auction and ungutted in direct selling.

8.4.2.1 Fishing gears

For this sub-section five types of fishing gear and individual types of fishing gear for fishing cod will be discussed. The five types of fishing gear selected for this discussion are bottom trawl, nets, line, Danish seine and hooks on hand line. The comparisons between fishing gear by regions will be made to compare the effect on price of the same species using different type of fishing gears and different place of landings. The analysis will be divided into (1) gutted cod in direct selling vs. auction market (2) ungutted cod in direct selling vs. auction market.

8.4.2.1.1 Five different types of fishing gears

Figure 29 indicates that the price for gutted and ungutted cod has a similar trend. The trend depends on the supply of catch. The price is higher for the gutted cod in the auction compared to ungutted in the same market. Gutted prices are higher in the auction market because the portion of the catch that can be used for the processing is more and less waste compared to ungutted catch. For ungutted catch, the processor needs to add extra cost for example for work force and machinery to gut the catch. There are portions of the catch that need to be thrown away because they cannot be used for processing.

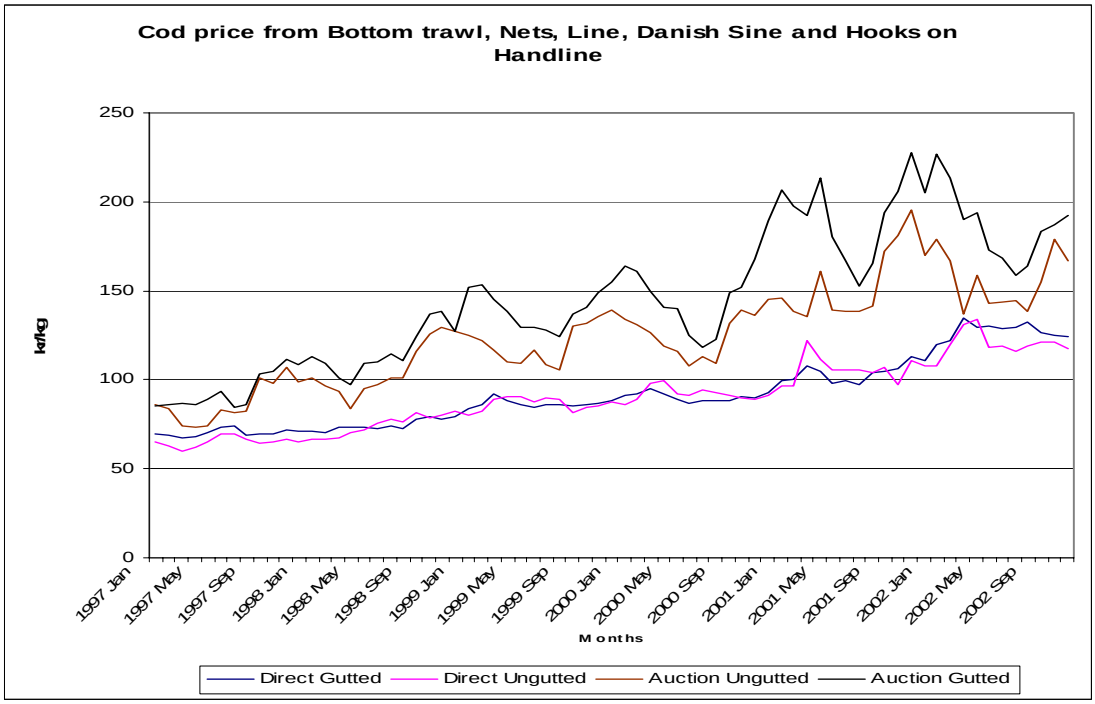


Figure 29: Cod price, (Fresh Fish Price Directorate 2003)

a. Gutted cod

i) Auction: Five fishing gears, gutted cod by all regions

Figure 30 indicates that the price for gutted cod using five different fishing gears of all regions in the auction market have similar trend in price. The fluctuations have increased in the past few years, but are still similar in all markets. The prices tend to be higher in the South, Reykjavik and Reykjanes regions. Possible explanation for this situation might be that these three regions are near to Keflavik and Reykjavik airports. The transport charges for them to export the catch from Iceland from the three auction markets are lower compared to buying the catch far away from the airports. In order to reduce the transportation cost, the buyers are willing to pay higher prices at these three regions during the auction as long as they can obtain the catch but still have profit from the auction.

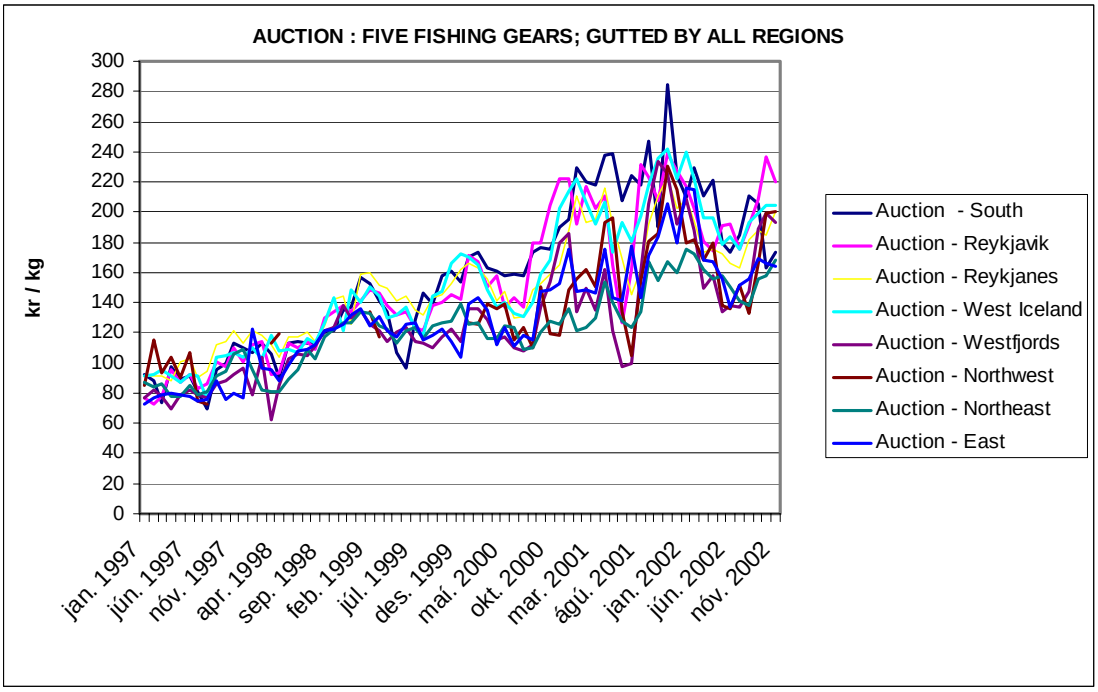


Figure 30: The price of gutted cod in auction market using five different types of fishing gear by all regions (Fresh Fish Price Directorate 2003).

ii) Direct selling: Five fishing gears, gutted cod by all regions

Figure 31 shows that the prices are higher between December and April, but the fluctuations in prices are relatively small compared to the auction market. The differences in prices between the regions are smaller. This is due to the fact that the price is negotiated through the unions and calculated with the assistance of the (Fresh Fish Price Directorate 2003)

Ungutted cod

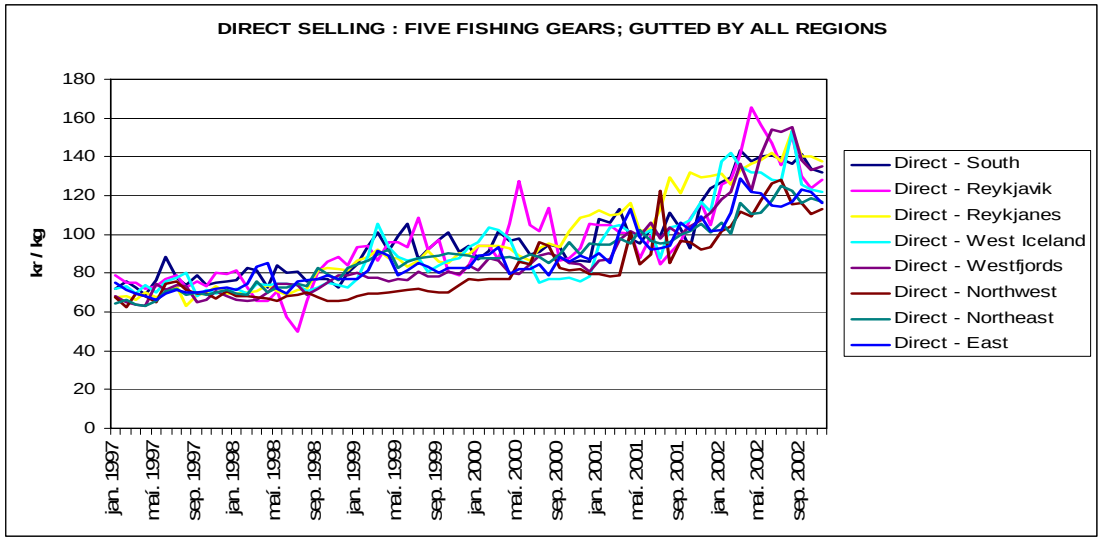


Figure 31: The price of gutted cod in direct selling market using five different fishing gears by all regions (Fresh Fish Price Directorate 2003).

i) Auction: Five fishing gears, ungutted cod by all regions

From Figure 32 we can see that the trend is more or less similar to Figure 30, the fluctuations are relatively high in the auction. By comparison between the same markets for ungutted cod (Figure 32) and gutted cod (Figure 30) the fluctuation are relatively high for the gutted cod. The price tends to be higher in Reykjanes, West Iceland and South regions, because the buyers are more concentrated in these regions, and transportation is much cheaper and easier. The location has created an advantage to the catch as more buyers have to bid higher prices in order to get the limited supply. The buyers are willing to pay at higher price because if the catch is far away from the processing plant they have to pay a much higher cost for transportation and the delivery of the catch might take longer.

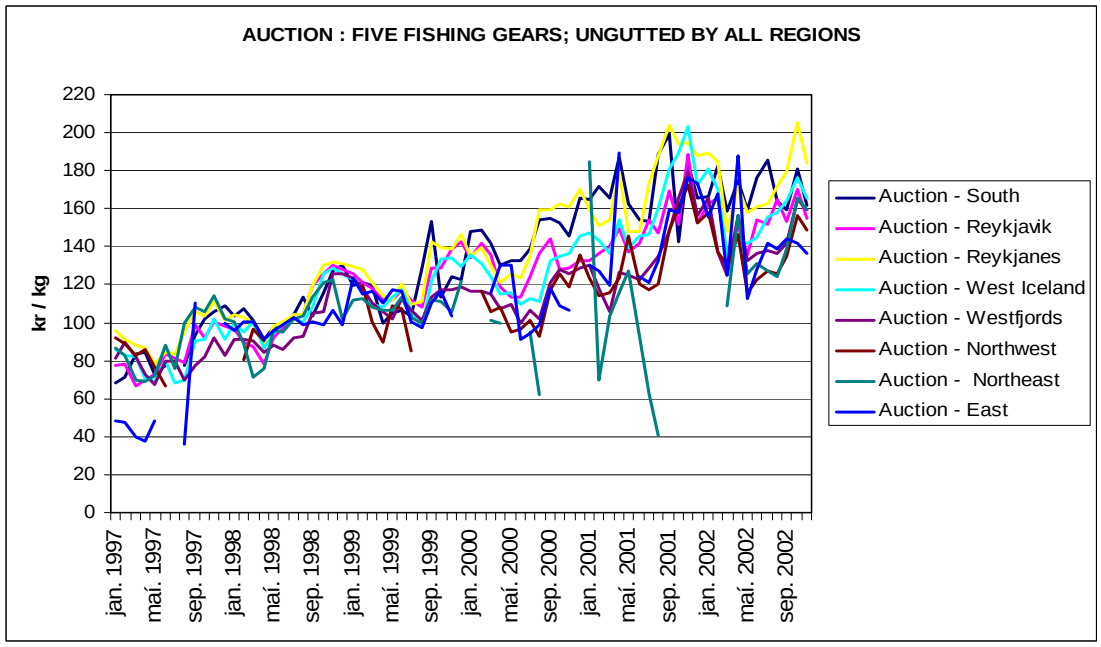


Figure 32: The price of ungutted cod in auction market using five different fishing gears by all regions (Fresh Fish Price Directorate 2003).

ii) Direct selling: Five fishing gears, ungutted cod by all regions

Figure 33 similarly illustrates that prices are moving closely to each other and the fluctuation are relatively small. Within the same market, it is obvious that the price for the ungutted cod is higher than the gutted cod in the direct selling market. The price is higher in this market might be depending on the freshness of the fish (this reasoning has not yet been proved in statistical research). Normally, the freshness of fish caught by day-boats that fish and land the same day is considered better even ungutted, compared to gutted catch that is kept longer on board. The processors that are concerned with the freshness will rather go for the ungutted fish that is on board less than one day after the catch. If several processors wanted the same catch, it is obvious the highest bidder will get the catch.

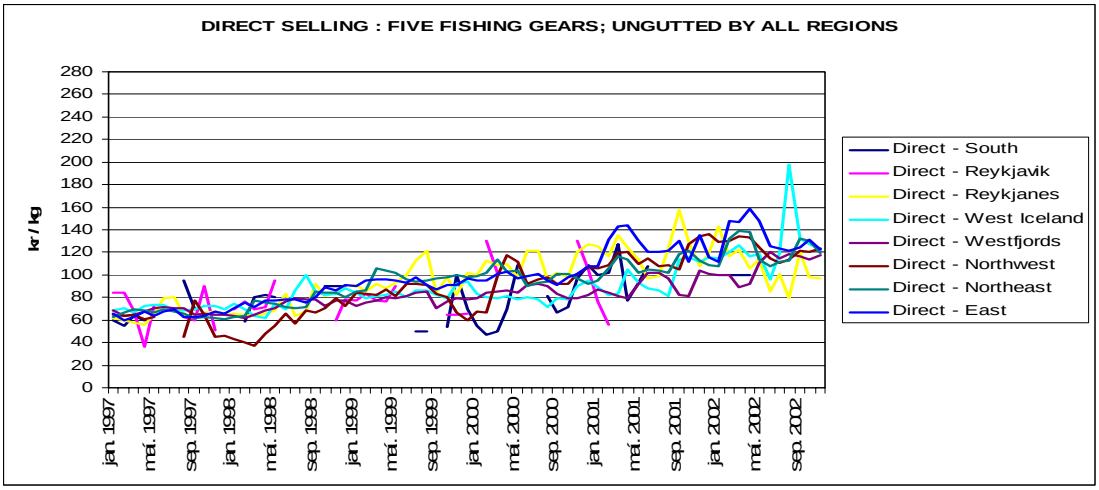


Figure 33: The price of ungutted cod in direct selling market using five different fishing gears by all regions, (Fresh Fish Price Directorate 2003).

By comparison from all the figures (30 – 33) for using five types of different fishing gears it is found that: (1) gutted cod in auction vs. direct selling, the price fluctuation is higher in the auction, (2) ungutted cod in auction vs. direct selling, the price fluctuation is higher in auction, (3) gutted vs. ungutted in auction, the price fluctuation is higher for gutted cod, (4) gutted vs. ungutted in direct, the price fluctuation is higher for ungutted cod.

8.4.2.1.2 Individual fishing gears.

a. Gutted cod

i) Auction: Comparison individual fishing gears, gutted cod by all regions

Figure 34 illustrates that the price in the auction is moving in a similar trend in all regions. The fluctuations are more or less the same for all types of fishing gear. Generally by comparison the price using hooks on hand line and nets fluctuate a bit more than the other fishing gear.

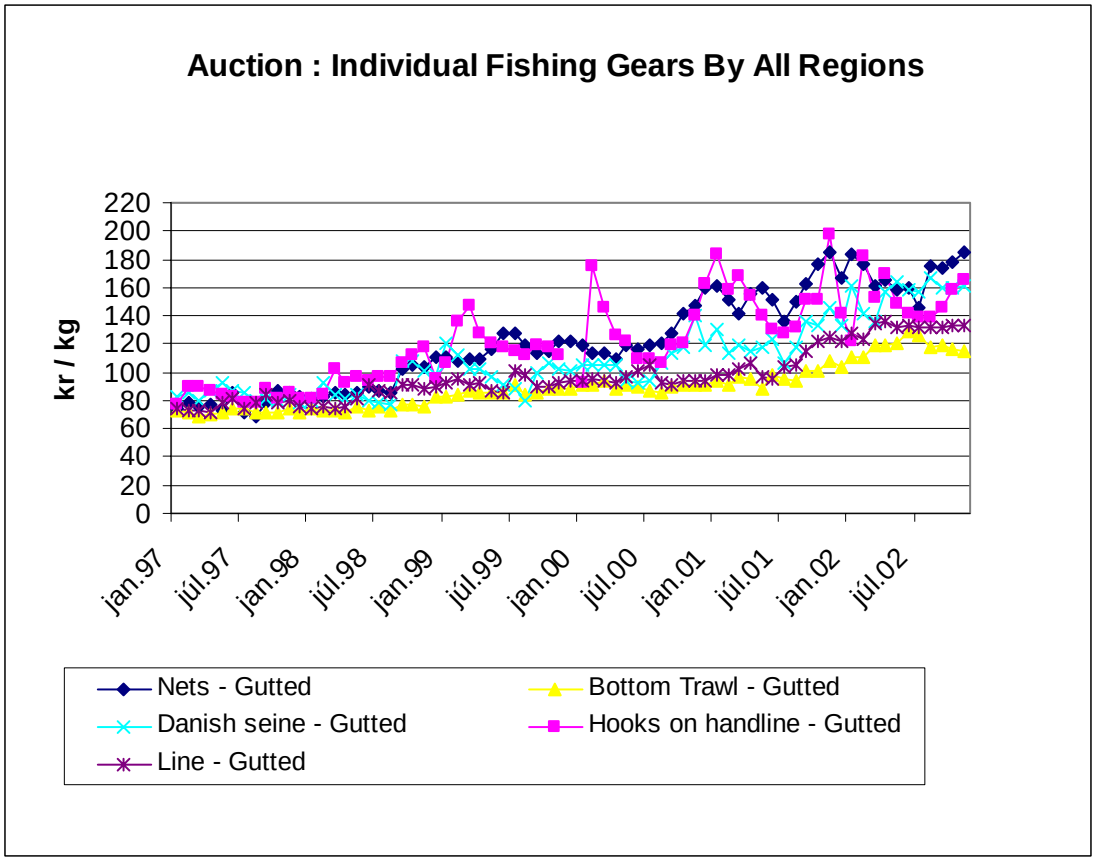


Figure 34: The price of gutted cod in auction market using five different fishing gears by all regions, Fresh Fish Price Directorate (Verðlagsstofa skiptaverðs, Akureyri. http://www.verdlagsstofa.is).

i) Direct selling: Comparison individual fishing gears, ungutted cod by all regions.

In Figure 35, the lines in the direct selling fluctuate less, but show the same trend in all regions. This trend is similar with the direct selling in Figure 31. The fluctuations are smaller and very similar. It can be seen in Figure 35 that price fluctuates more by using nets and Danish seine compared to the others.

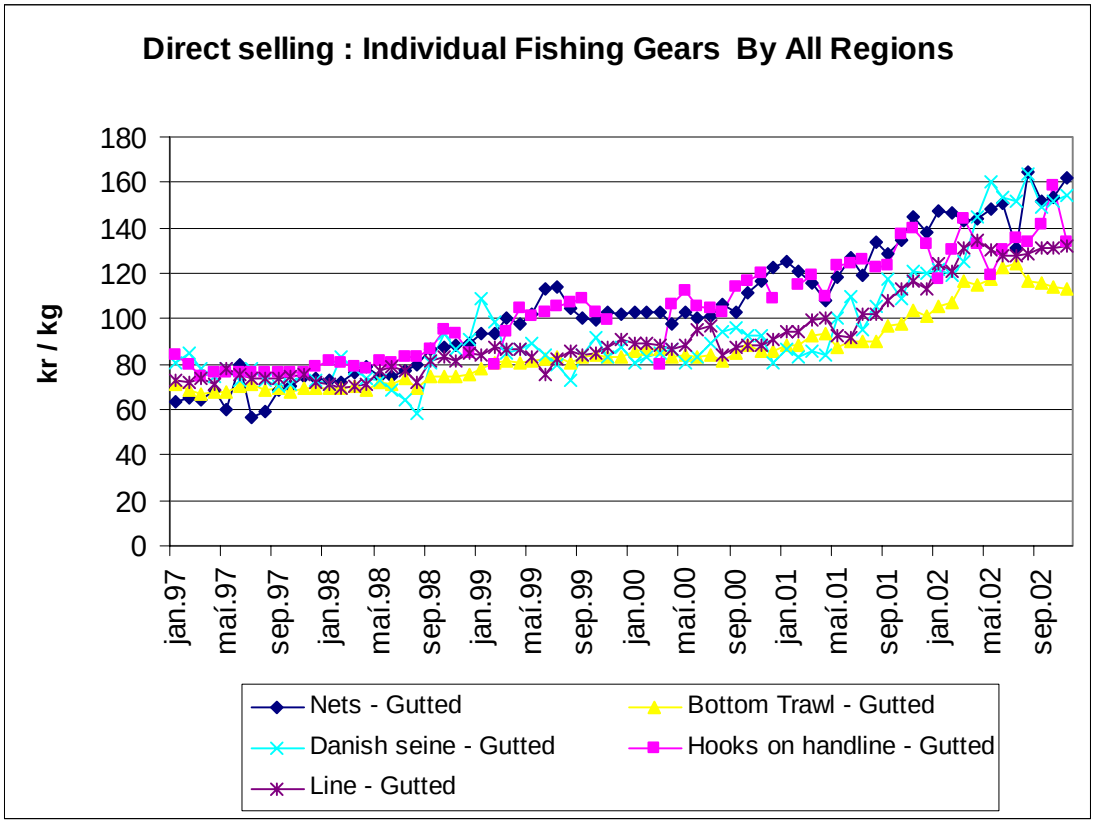


Figure 35: The price of gutted cod in the direct selling using five different fishing gears by all regions, (Fresh Fish Price Directorate 2003)

The figures for all fishing gear illustrate that generally the price for gutted cod in all regions shows the same trend for both auction and direct selling markets. The fluctuations are more in auction compared to direct selling. The price fluctuates most using nets, Danish seine, hooks and hand line fishing gears.

The price is high between December and April in each year. The reason for this is supply and demand. Between December and April fewer small boats going fishing. The main supply depends on larger boats. Therefore it can be deduced that most of the big boats are using nets, Danish seine and hooks on hand line. As the market is a seller markets this situation has increased the prices.

b. Ungutted cod

i) Auction: Comparison individual fishing gears, ungutted cod by all regions.

Figure 36 for the ungutted cod for all regions in auction indicates the same trend as in the gutted cod in the auction (Figure 34). The price is higher moving in the same direction. Similarly it also fluctuates more in the same direction. Danish seine, nets and bottom trawl seem to fluctuate more in the auction for ungutted.

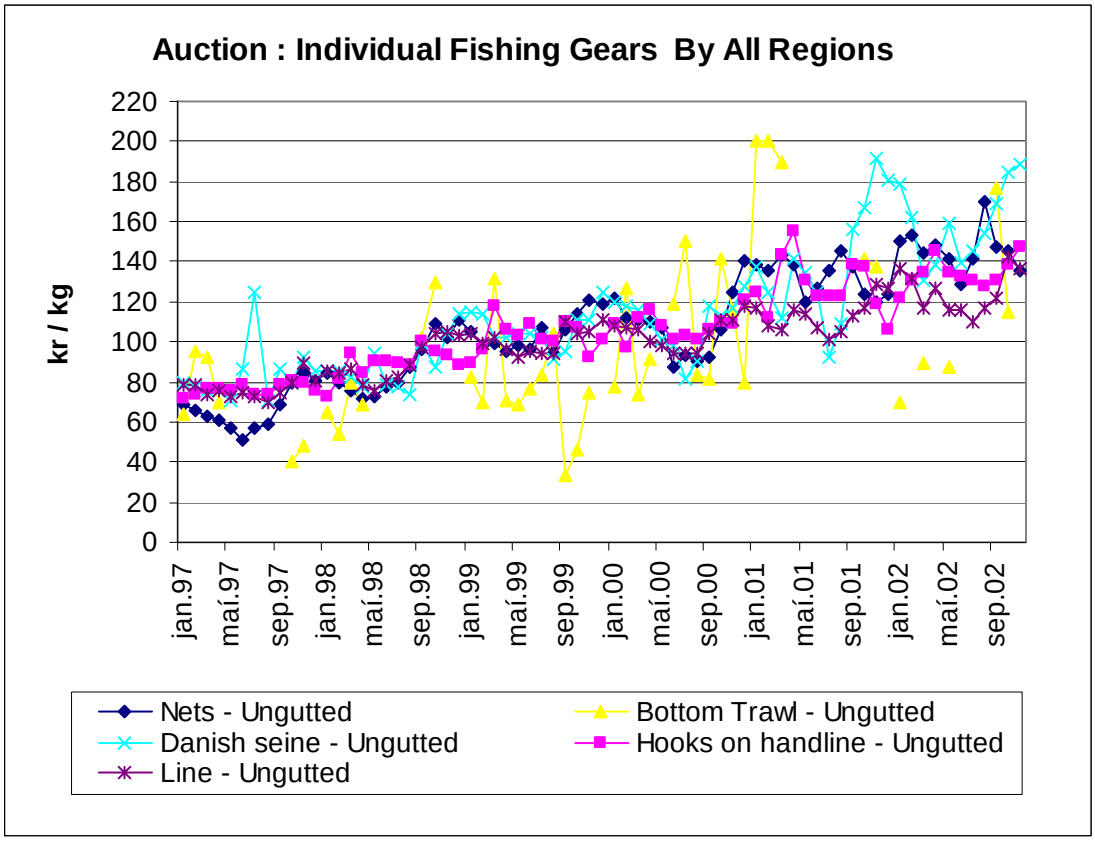


Figure 36: The price of ungutted cod in auction market using five different fishing gears by all regions, (Fresh Fish Price Directorate 2003)

Comparing fluctuations between the ungutted cod (Figure 36) and gutted cod (Figure 34) in the same market, it is obvious that the fluctuations are greater in the gutted cod in the auction.

ii) Direct selling: Comparison individual fishing gears, ungutted cod by all regions.

The ungutted cod in the direct selling also shows the same trend as the gutted cod in the same market by all regions. The fluctuations for the ungutted are smaller compared with the ungutted in the auction. Danish seine and nets fluctuates more than the others (Figure 37).

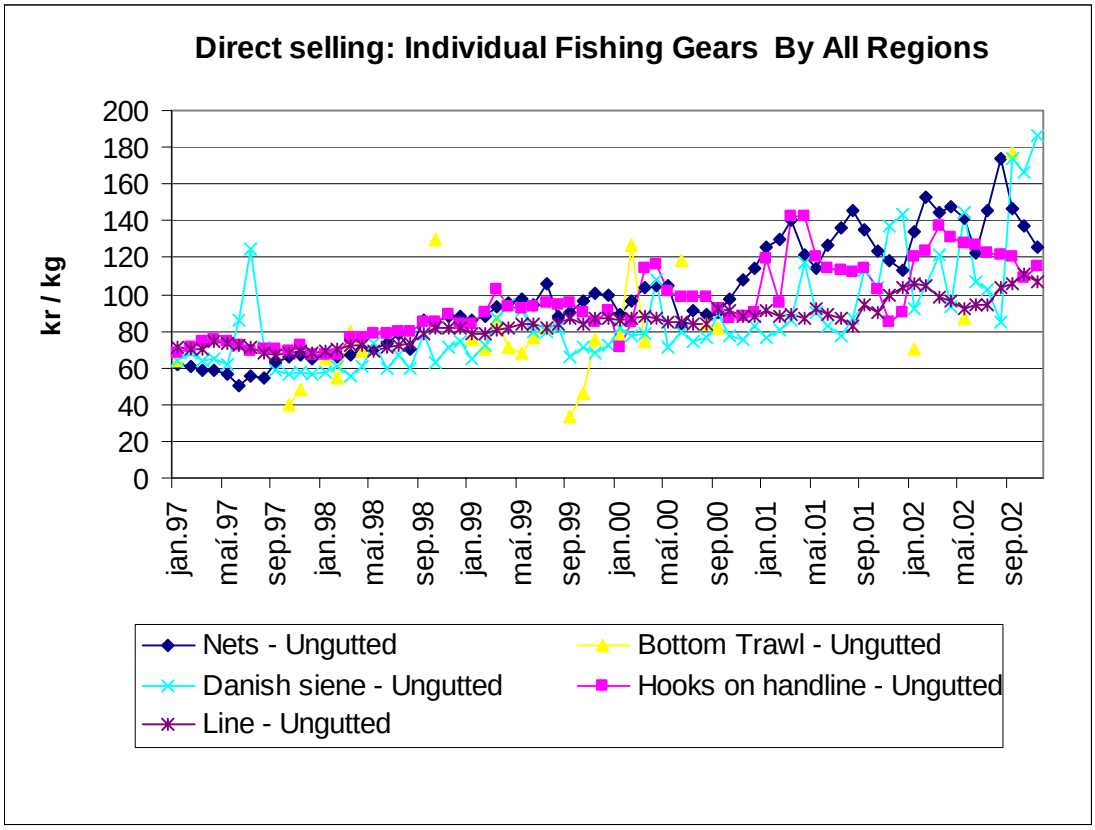


Figure 37: The price of ungutted cod in direct selling market using five different types of fishing gear by all regions, (Fresh Fish Price Directorate 2003)

Comparison the price of fish caught with Danish seine and nets fluctuates most for ungutted in auction, direct and gutted direct.

It can be seen that the fluctuations are higher in January and May in each year. High price being obtained might be during the winter most of the big boats are using this type of fishing gears. The excessive demands for that particular season have pushed the price higher. The buyers will have no choice but to pay the high price in order to obtain the supply.

The analysis using five fishing gears, individual fishing gears, gutted, ungutted cod in auction and direct selling markets by all regions indicates four similar situations in every Figure (29 – 37). (1) Generally the price for ungutted cod in all regions are showing the same trend for both auction and direct selling markets. The fluctuations are more in the auction compared in the direct selling. The prices are relatively high in the auction market. (2) By comparison in the same market that is the direct selling between ungutted and gutted cod the fluctuation in price is relatively high for the ungutted cod in the direct selling. The actual statistical reasoning or explanation for this situation is unknown. (3) By comparison in the same market that is the auction market between gutted and ungutted cod the prices are higher and fluctuates more for gutted cod in the auction market. (4) The fluctuation of all figures that are using only five fishing gears or using individual fishing gears did not show any difference. They move on similar trends. This indicates that using different types of fishing gear did not give great changes in the fluctuations of price.

These results (1 - 4) from the analysis of cod indicate that there is no obvious difference in prices, with the same species using different fishing gears. They tend to have similar price trend no matter where they landed. The price in the auction market is always higher and fluctuated more compared to the direct selling. For the same species, gutted or ungutted or for different types of fishing gears the prices in the auction are much higher.

This indicates that the fish auction markets are able to put higher value on the catch because the fish auction markets create a larger market for the catch and are able to give a high price for the catch. From all the findings for every figure in the auction market by all regions, it can be concluded that the success of the fish auction system in Iceland is because this organisation is able to increase the value of the catch in Iceland and the users trust that the price in fish auction market is the 'right price'. The price is not an issue in Iceland as the fish auction system is a centralised system and the price is well accepted by all users. What is an issue is the excessive demand compared to the supply. As mentioned earlier in section 7 (Figure 16) the total catch from Icelandic grounds of demersal fish from 1998 – 2001 decreased from 467 thousand MT to 431 thousand MT. This condition has made the fish auction market a sellers market.

From the discussion above it can be seen that using different fishing gears, gutted and ungutted of the same species did not influence in the trend movement of the price between the auction markets and the direct selling. Using fishing gears might be giving the effect on the harvesting before it affect the price, if for example by using Danish seine the catch will be mixed in size which can contribute to lower price. Using the wrong fishing gear will damage the catch and the method of handling the fishing gear will also affect the price of the catch.

The price analysis discussed in this report is not enough to show the affect on the price. To get a better answer for the affect of fishing gear on the price more detailed statistical research is needed.

9

10 CONCLUSION

The objective of this study is to evaluate and analyse the real force that encourage the fishermen in Iceland to utilise the fish auction market in Iceland. In Iceland there are about 19 fish auction markets operating in 30 locations. The fish auction markets were established in 1987 with full support from the fishermans association in Iceland. The initial purpose was to cater for small boats to sell the catch, but now it is accepted by all boat operators as a place where they can sell their catch for the 'right price'. Price changes every day according to supply and demand.

The goverment has no involvement in setting up the fish auction markets and does not interfere in the price formation during the auction in progress. The government only supports the infrastrucure of the harbours. The fish auction markets operate as private companies. Buildings of the fish auction markets are normally located near the harbour. The government supported the establishment of the fish auction market by recognizing the price during the auction and legallised the operation by issuing the license of commencement. To ensure that the users will receive maximum benefits from it, the government has provided several guidelines on how to operate fish auction markets. The guidelines also show that the government is supporting the fish auction market.

The fish auction markets in Iceland is a seller's market. This situation occurs because the supply is not enough to cater the demand. The price is influenced by the shortage of supply. Due to this reason the buyers are more concern with the value of the catch. The buyers demand the fish auction markets be strict in the quality system used and practices the quality systems at all times. The rationale of the request from the buyers is that they want to be satisfied that they are paying for quality catch.

In order to capture more market users the fish auction markets are now becoming more customers oriented, they are providing more services. The fish auction markets are now applying quality systems such as the hazard analytical critical control point (HACCP). This is to ensure that the users are satisfied with the services and to create a good lasting relationship with all the users. The fish auction markets are gaining more and more trust from those who are involving in the fisheries and the government.

The auction price from the fish auction markets have been accepted by those in the fisheries industry as the benchmark price for fish sold directly between vessels and processors.

Why is the fish auction market functioning and gaining more trust from the users? From the study it is obvious that the establishment of the fish auction market from the very beginning is well recognised and received full support from the fishermen; the important user of the fish auction market. The full support is given because the fishermen need a place to sell their catch as soon as possible. As for the buyers the fish auction markets have created a place for them to buy the fish according to their specific needs. During the study it was found that all catch that was sold through the auction markets obtained higher price compared to direct selling. This is because the supply and demand condition in which the fish auction market is the seller´s market have increased the catch value. The fish auction market have created larger market

for the catch. From a place to cater for the small boat operator, the fish auction market have developed to be a place for competition to earn more among the suppliers. As the result, after fifteen years the system is still operating successfully. The fish auction markets are becoming more recognised and accepted; and gaining more trust by all users and the government. With all the support from users and the authorities, the fish auction markets will be more relevant in the country's seafood industry .

Setting up an infrastructure is costly. Without the consent or support from the user, setting up or providing such facilities will bring frustration, wasteful investment and can have a bad impact on the authority involved. The rejection will reflect the weaknesses of the authority concerned.

In order to ease the problem, the authority will have to give more consideration to the needs and tastes of the target group. Perhaps the design of the facilities is not according to their needs; they may want the fish auction market to perform more services than just be a place for selling the catch; they may want the place to be more accessible or have a commercial value. There are several possibilities that should be taken into account before a project, is implemented. In other words the opinion and needs of the users must first be defined and given priority, to ensure the investment is beneficial to all parties.

In Iceland the establishment of the fish auction markets has made enforcement become possible. All the trading and transaction information from the fish auction market during the day is compiled; and the information (about the sellers, buyers, the catch) is transmitted to the Directorate once a month. All the data received from the port authorities and the fish auction markets is monitored by the Directorate. The directorate compares the reports. If there is any variance between the reports, necessary steps are taken. The data received by the directorate acts as one of the indicators to monitor if there is any illegal activity or non–compliance with the regulations. In Iceland this sector is sensitive to changes in stocksize and price and it can gives great impact to the Icelandic Gross Domestic Product and hence monitoring and enforcement is important part of the overall fisheries management system.

11

12

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APPENDIX 1: Example of list describing lots to be auctioned (extracted from Islandsmarkadur dated 3rd of December 2002)

FISKMARKAÐUR ÍSLANDS HF — UPPBOÐSLÝSING FYRIR 03.12.02 — STÆÐUR DAGSINS — Uppboð númer 1 kl 12:00

ÞORSKUR	ÓSLÆGT	Mþ Bl.smár 1,7-2KG		DRAGNÓT				
					SAMTALS ÓSL Mþ Bl.smár 1,7-2KG			5.640 **
ÞORSKUR	SLÆGT	8+ kg		LÍNA				
66 MARNES SEAFOOD EH	800111	FMVF	PATREKSFJ.	RAÐ/ÍSAÐ Í HÚSI	1-2 DAGA	10,40	104 /1	
ÞORSKUR	SLÆGT	8+ kg		NET				
67 BJÖRN KRISTJÓNS SH	1985	FMB	ÓLAFSVÍK	. .	1 DAGS		147 /1	
68 GARÐUR SH	2018	FMB	Grundarfjör	RAÐAÐ+ÍSAÐ	1 DAGS		108 /1	
ÞORSKUR	SLÆGT	8+ kg		DRAGNÓT				
69 REYKJABORG RE	2325	FXM	REYKJAVÍK	. .	1 DAGS	10,50	42 /1	
70 ÞORSTEINN SH	219	FMB	RIF	FLOKKAÐ/RAÐ/ÍSA	1 DAGS	9,45	1.388 /3	
ÞORSKUR	SLÆGT	8+ kg		BOTNVARPA				
71 RIFSNES SH	1136	FMB	RIF	. .	1-3 DAGA	10,30	1.339 /4	
72 SIGURÐUR ÓLAFSS SF	173	FISH	HÖFN-HORNAF	Í ;sþykkni	1-2 DAGA	9,20	189 /1	
					SAMTALS SLÆ 8+ kg			3.317 **
ÞORSKUR	SLÆGT	5+ kg		LÍNA				
73 - 75 SAMANTEKIÐ		FMB	STYKKISHÓLM	. .	1 DAGS	13,20	275 /2	
ÞORSKUR	SLÆGT	5+ kg		NET				
76 SMÁRI RE	1847	FXM	REYKJAVÍK	RAÐAÐ+ÍSAÐ	1 DAGS	7,40	934 /3	
77 SIGRÚN RE	1642	FXM	REYKJAVÍK	RAÐAÐ+ÍSAÐ	1 DAGS	8,40	265 /1	
					SAMTALS REYKJAVÍK			1.199 *
78 DAGRÚN ST	1184	SKST	SKAGASTRÖND	ÍSAÐ Á SJÓ (3%)	1 DAGS		180 /1	FMH
79 PORTLAND VE	102101	FMVM	VESTMANNAEY	. .	1 DAGS		32 /1	
ÞORSKUR	SLÆGT	5+ kg		DRAGNÓT				
80 RÓNA RE	2462	FXM	REYKJAVÍK	. .	1 DAGS	6,57	46 /1	
81 ÞORSTEINN SH	219	FMB	RIF	FLOKKAÐ/RAÐ/ÍSA	1 DAGS	6,30	3.895 /12	5-8kg
ÞORSKUR	SLÆGT	5+ kg		BOTNVARPA				
82 HELGA RE	2449	FXM	REYKJAVÍK	RAÐ.Í ÍSÞYKKNI	1-3 DAGA	6,70	2.880 /9	
83 HAMAR SH	253	FMB	RIF	. .	1-3 DAGA	7,10	670 /3	
84 RIFSNES SH	1136	FMB	RIF	. .	1-3 DAGA	6,70	1.005 /3	5-8kg
85 RIFSNES SH	1136	FMB	RIF	. .	1-3 DAGA	6,70	1.357 /4	5-8kg
86 RIFSNES SH	1136	FMB	RIF	. .	1-3 DAGA	6,70	1.435 /5	5-8kg
					SAMTALS RIF			4.467 *
ÞORSKUR	SLÆGT	5+ kg		.				
87 - 89 SAMANTEKIÐ		FMVM	VESTMANNAEY	. .	1 DAGS		146 /2	
ÞORSKUR	SLÆGT	5+ kg		LÍNA				
90 SJÖFN VE	1852	FMVM	VESTMANNAEY	. .	1 DAGS		128 /1	
					SAMTALS SLÆ 5+ kg			13.248 **
ÞORSKUR	SLÆGT	Mþ Stór)5KG		LÍNA				
91 MARNES SEAFOOD EH	800111	FMVF	PATREKSFJ.	RAÐ/ÍSAÐ Í HÚSI	1-2 DAGA	5,62	270 /1	
ÞORSKUR	SLÆGT	Mþ Stór)5KG		NET				
92 ÁSÞÓR ÁR	1621	FMS	NJARÐVÍK	ÍSAÐ Á SJÓ (3%)	1 DAGS	5,88	1.060 /3	

blc. 2

APPENDIX 2: Example of list describing lots to be auctioned (extracted from Islandsmarkadur dated 3rd of December 2002)

FISKMARKAÐUR ÍSLANDS HF — UPPBOÐSLÝSING FYRIR 03.12.02 — STÆÐUR DAGSINS — Uppboð nr.mer 1 kl 12:00

ÞORSKUR	SLÆGT	Mþ Stór >5KG			NET					
93	SIGRÚN RE	1642	FXM	REYKJAVÍK	RÁÐAÐ+ÍSAÐ		1 DAGS	5,30	578 /2	
94	HAFRÓ/ÁLABORG	601359	FSU	ÞORLÁKSHÖFN	RÁÐAÐ+ÍSAÐ		1 DAGS	5,60	146 /1	Lásétin-selbit.
95	DÓNNA SU	1175	FXM	Hvammst.	RÁÐAÐ+ÍSAÐ		1 DAGS	5,00	500 /2	+fl á FXM
96	BJÖRN KRISTJÓNS SH	1985	FMB	ÓLAFSVÍK	. .		1 DAGS	6,20	354 /1	4-8kg
	.....									
97	GUÐJÓN GK	6988	FMS	SANDGERÐI	DAUÐBL.		1 DAGS		160 /1	
ÞORSKUR	SLÆGT	Mþ Stór >5KG			DRAGNÓT					
98	ÖRN KE	2313	FMS	SANDGERÐI	RÁÐAÐ+ÍSAÐ		1 DAGS		370 /1	
99	FARSÆLL GK	1636	FMS	NJARÐVÍK	RÁÐAÐ+ÍSAÐ	0.50C 6%	1 DAGS	7,54	626 /3	
100	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA	7,00	1.853 /6	
101	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA	5,00	1.595 /5	
102	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA	7,10	1.895 /6	
103	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA		1.263 /3	
104	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA	5,00	1.970 /6	
105	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA	7,10	1.579 /4	
106	SKAKKANES EHF	842040	FMB	ÓLAFSVÍK	. .		1-3 DAGA	7,10	1.902 /6	
							SAMTALS ÓLAFSVÍK			12.057 *
ÞORSKUR	SLÆGT	Mþ Stór >5KG			BOTNVARPA					
107	SIGURÐUR ÓLAFSS SF	173	FISH	HÖFN-HORNAF	Í ísþykkni		1-2 DAGA	5,27	1.462 /4	stærð 4-8 kg
							SAMTALS SLÆ Mþ Stór >5KG			17.583 **
ÞORSKUR	SLÆGT	Mþ Bl.stór 3,5-5KG			LÍNA					
108	SAMHERJI HF	800317	FMS	SEYÐISFJÖRÐ	RÁÐAÐ+ÍSAÐ		2-5 DAGA		1.690	50-70CM ER Á SE
109	DALMAR EHF.	800280	FMDA	DALVÍK	RÁÐ/ÍSAÐ Í HÚSI		1 DAGS	4,77	329 /1	°2 kg. +
110 -	113 SAMANTEKIÐ		FMVM	VESTMANNAEY	. .		1 DAGS		410 /3	
ÞORSKUR	SLÆGT	Mþ Bl.stór 3,5-5KG			NET					
114	GULLFARI HF	2068	FMS	SANDGERÐI	ÍSAÐ Á SJÓ (3%)	1.90C 5%	1 DAGS	3,60	115 /1	
115	HAFRÓ/ÁSÞÓR AR16	601621	FMS	NJARÐVÍK	ÍSAÐ Á SJÓ (3%)		1 DAGS	3,57	50 /1	
116	DAGRÚN ST	1184	SKST	SKAGASTRÖND	ÍSAÐ Á SJÓ (3%)		1 DAGS	4,00	160 /1	FMH
117	ÞORSTEINN GK	926	FMDA	KÓPASKER	VEL ÍSAÐ Á SJÓ		1 DAGS	4,75	1.396 /4	+ Flutn.
118	ÞORSTEINN GK	926	FMDA	KÓPASKER	RÁÐ/ÍSAÐ Í HÚSI		1 DAGS	4,71	895 /3	+ Flutn.
							SAMTALS KÓPASKER			2.291 *
ÞORSKUR	SLÆGT	Mþ Bl.stór 3,5-5KG			DRAGNÓT					
119	ÞORSTEINN SH	219	FMB	RIF	FLOKKAÐ/RÁÐ/ÍSA		1 DAGS	4,50	593 /2	
120	SIGURBJÖRG BA	2475	FMVF	PATREKSFJ.	RÁÐ.Í ÍSÞYKKNI		2-4 DAGA	3,58	129 /1	
ÞORSKUR	SLÆGT	Mþ Bl.stór 3,5-5KG			BOTNVARPA					
121	HELGA RE	2449	FXM	REYKJAVÍK	RÁÐ.Í ÍSÞYKKNI		1-3 DAGA	4,70	2.400 /8	
							SAMTALS SLÆ Mþ Bl.stór 3,5-5KG			8.167 **
ÞORSKUR	SLÆGT	Mþ Bl.góður 2,7-3,5KG			LÍNA					
122	FERSKUR BA	7453	FMTA	TÁLKNAFJÖRÐ	Í KRAPA		1 DAGS		267 /1	
123	ÖTNAUST EHF	800245	FMTA	TÁLKNAFJÖRÐ	RÁÐ/ÍSAÐ Í HÚSI		1 DAGS		1.100 /4	