

Promoting a Sustainable North Sea

Best Practice in the Fish Catching Sector



Draft for approval

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Elle Dee Projects Ltd. February 2010

Contents

Page

1. Introduction.....	3
2. Methodology.....	4
3. Overview.....	5
4. Good Practice Guide by Country.....	13
Belgium.....	13
Denmark.....	15
England.....	18
France.....	23
Germany.....	26
Netherlands.....	28
Scotland.....	33
Sweden.....	39
5. Endorsements.....	41
6. Appendices.....	42

1.0 INTRODUCTION

The North Sea Regional Advisory Council (NSRAC) is a partnership organisation that brings together representatives from the fishing industry and other interested groups from around the North Sea who are affected by the Common Fisheries Policy. The aim of the NSRAC is to work towards integrated and sustainable management of fisheries in the wider context of the sustainability of the marine environment.

The NSRAC is a body of experts that make recommendations and suggestions related to fisheries management to the European Commission (EC) and member states. It also provides advice and information and highlights to the EC any problems related to the implementation of EC rules. They also act to promote the interests of their members by providing information regarding sustainability activities.

The members of the NSRAC have been working towards achieving a sustainable fishery in the North Sea for a number of years. In response they have introduced a number of practical and in some cases innovative measures to reduce catches and protect stocks. There are a number of activities underway however these are not always fully appreciated by many stakeholders and customers.

In order to highlight the range of conservation measures currently undertaken by its members, the NSRAC wish to produce a summary of all the best practice currently undertaken by its members. This will be available on the NSRAC website and will allow easy access to those wishing to understand what measures are currently being implemented and those that are in development. It is anticipated that potential users will be anyone with an interest in sustainability including buyers of fish and fish products, the industry itself, politicians, interest groups and the general public.

It should be noted that the information will be accurate at the time it is presented however it is important that it is continuously updated to reflect new and improved measures that will be ongoing to improve sustainability within the North Sea.

2.0 METHODOLOGY

The information included in the report was gathered by reviewing websites and by undertaking a number of telephone and face to face interviews. Daily news articles from throughout Europe were reviewed to identify any new and emerging practices.

The North Sea RAC secretariat provided a list of members to include in the research. The list included member organisations of the NSRAC and also other advisory and interest groups.

A list of websites reviewed is listed in appendix 1.

Details of people and organisations participating in an interview are listed in appendix 2.

Endorsements were sought from organisations identified as leaders in their field that have strong environmental credentials and an interest in sustainable fisheries.

Once the information was collated it was presented to all participating organisations for verification. The final document will be approved by the NSRAC Chairman and secretariat.

3.0 OVERVIEW

3.1 INTRODUCTION

The North Sea and its resources make an important contribution to jobs and growth in the countries surrounding it. The sea provides food and energy and vital transport links to the rest of the world and many coastal communities attract high levels of tourism. The sea and its resources must be exploited responsibly to ensure that all activities are undertaken in a way that will achieve sustainability of the environment, the economy and the communities linked to the sea.

Fishing is a vital part of most coastal communities. There are many towns and villages that are highly dependent on the sector for jobs, directly through catching and processing and indirectly by those businesses that provide services to the fishing industry and those working in it.

The stock levels of some fish species throughout the world has been an area of concern for a number of years; scientific evidence shows that many stocks are decreasing. There are a number of factors that result in reduced stocks of fish and fishing is one of those. It is vital that fish stock levels in the North Sea are maintained at levels that give sustainability of the environment, the economy and communities and fishermen recognise that they have a key role in ensuring this in the future.



The World summit on sustainable development held in Johannesburg in 2002, committed signatory countries to bring depleted fish stocks to a maximum sustainable yield (MSY) by 2015. Maximum sustainable yield identifies the maximum amount of fish that can be taken out of the sea whilst numbers continue to be replaced every year by new young fish.

Fishermen operating in the North Sea are working together through their national organisations, the North Sea Regional Advisory Council and with other stakeholders including environmental organisations to agree sustainability objectives and the steps required to achieve them.

There are a number of examples in this report that demonstrate how fishermen are making efforts to make fisheries sustainable now and into the future. Each country either individually or collectively is working towards sustainability.

3.2 FISHERIES MANAGEMENT

Common Fisheries Policy

All countries fishing in the North Sea are subject to management by the EU through the Common Fisheries Policy (CFP). The CFP is currently being reviewed and a new method of fisheries management will be introduced in 2012.

It is widely recognised that as it stands the CFP does not promote sustainability. Each country is allocated a fixed number of days at sea when they are allowed to fish and fish quotas; a Total Allowable Catch (TAC) that states the weight of each fish species that can be landed. This places a number of restrictions on fishermen and can place strain on the profitability and viability of some boats.



Many fishing organisations are looking for the review of the CFP to result in a more effective means of fisheries management that will allow stakeholders to take a bigger role in decision making and flexibility to customise management approaches to meet local needs and requirements.

Currently each EU country is given an allocation of fish to catch and a number of days in which to fish by the EU. The levels of fishing activity are based on the stock levels of fish in the sea. Scientists from each country provide information to the International Council for the Exploration of the Seas (ICES). This group of scientists collate all the information available and make

recommendations on fishing effort for the following year based on the scientific evidence presented. The findings of ICES are presented to the EU fisheries council who may decide to award fish quota based purely on ICES information but more often they make decision based on this and a number of other factors.

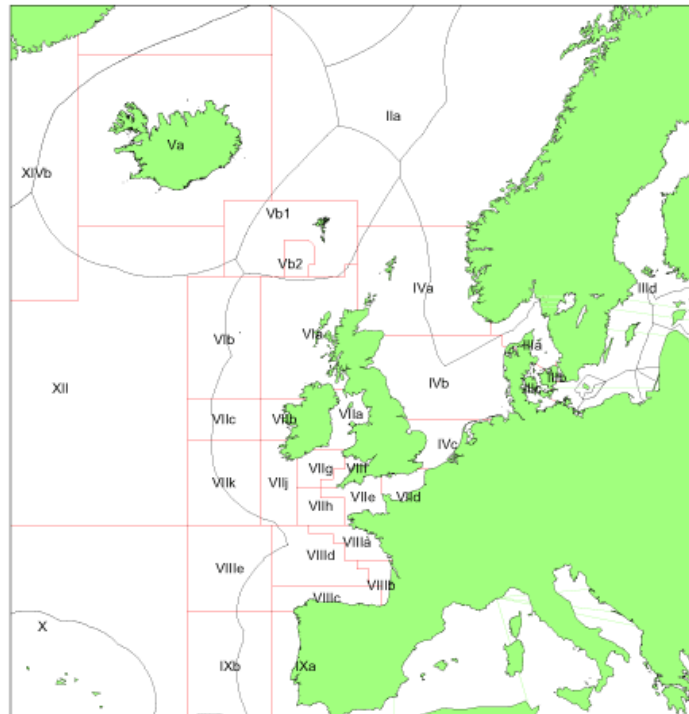
International Council for the Exploration of the Seas (ICES)

www.ices.dk

The International Council for the Exploration of the Seas (ICES) coordinates and promotes marine research on oceanography, the marine environment, the marine ecosystem and on living marine resources. There are 20 member countries that fund and support ICES which covers the North Atlantic area and surrounding seas including the North Sea.

ICES is a network of more than 1,600 scientists from 200 institutes linked by an international agreement (the ICES Convention) to add value to national research efforts. Scientists working through ICES gather information about the marine ecosystem. This information is shared and is used to develop unbiased, non political advice.

ICES is the prime source of scientific advice on the marine ecosystem to the EU, governments and international regulatory bodies. Scientific evidence presented by ICES is used by the EU to base the annual negotiations of fish quotas that can be caught in the North Sea.



Catching restrictions

In order to achieve sustainable stock levels members of the EU have agreed jointly, measures that will help to increase stock levels these include banning the capture of certain species such as spiny dogfish and porbeagle. They have also agreed that all vessels over 15 meters will monitor activities using an electronic log book by July 2011.

High grading has also been banned. High grading is when fishermen keep only the larger, fresher, better quality fish that will attract a higher market price and discard (return it dead to the sea) less valuable but still marketable catch. A high grading ban was introduced in the North Sea in January 2009. This makes it an offence to discard fish but only when a vessel has sufficient quota to cover the catch. Fish can continue to be discarded if a fisherman does not have any quota to cover the species of fish caught. A great deal of trust is placed on fishermen to implement the high grading ban whilst at sea but new technology such as on board CCTV will allow fishermen to demonstrate that they are landing all the fish they catch within the regulations set down.

3.3 PARTNERSHIP APPROACH

In the past people and organisations involved in fisheries did not work closely together. Each had an area of responsibility and sometimes worked in isolation. Moving forward to today and the situation has changed considerably; there is a great deal of cooperation between governments, fishermen, scientists, environmental organisations and consumer groups.



Scientists involve fishermen in the research, they include them in the design of the research projects seeking advice and guidance on where, when and how best to collect fish. Fishermen are commissioned to collect data and to trial new types of fishing nets.

Environmental groups are now an integral element of any forum regarding fishing and fisheries management. There are many examples of projects where environmental organisations have been involved in decisions by fishermen to reduce fishing in specific areas in order to maintain the balance within a habitat.

Government bodies and fisheries management organisations are now ensuring that all partners are involved in making advances in fisheries management. Now more than ever before there is increased cooperation with everyone working towards the goal of sustainability.

An excellent example of partnership is the Fisheries Innovations Group, an EU funded project running from 2007-2010. The project encouraged the sharing of knowledge and expertise in fisheries innovation. A fisheries innovations conference held in November 2009 brought together 120 fishermen, policy makers and scientists to exchange ideas and present challenges. In bringing together such an experienced group of people it gave participants access to novel approaches, technologies and ideas to help the fishing industry to transform into a sustainable and socially responsible sector.

3.4 TECHNICAL MEASURES AND INNOVATION

The North Sea is mostly a mixed fishery where different species such as haddock, cod, whiting and seabed fish such as sole and plaice are found living in the same area of the sea. When catching fish in a mixed fishery some by catch is inevitable. By catch are the plants and animals not targeted by fishermen but accidentally caught in fishing nets. By catch can also be fish of the correct species but too small to be legally landed. Some by catch is commercial and can be legally sold on but if the by catch is under sized fish or a species where the fisherman has no quota to allow him to land the fish then the by catch is returned, dead, to the sea. No one wants a by catch so fishermen try to fish as selectively as possible, targeting areas of the sea where they know that they have the best opportunity to land the type of fish they are looking for. They can also be helped through new technical developments to use fishing nets and ways of fishing that improves the selectivity of fishing, i.e. the net retains the type of fish targeted and releases those that the fisherman does not want. There are many examples of new developments where technology and innovation are being used to reduce by catch as much as possible.



3.5 ACCREDITATION SYSTEMS

Marine Stewardship Council (MSC)

The Marine Stewardship Council is a global not for profit organisation that works to promote responsible and sustainable fishing practices. It was established by Unilever and the Worldwide Fund (WWF) in 1997 and has worked as an independent organisation since 1999.

The MSC has developed an environmental standard for sustainable and well managed fisheries. This provides independent certification of commercially exploited fisheries and stocks. Seafood products from MSC certified fisheries are identified by an eco-label. This is displayed in food retailers and restaurants as an indicator that fish has been taken from sustainable sources.



Within the North Sea there are 11 MSC accredited fisheries, these are all listed below. Weblinks to further information on each individual fishery are given. There are also a number of fisheries currently working through the assessment process. The North Sea has the highest number of MSC certified fisheries of any sea in the world.

Approved MSC Fisheries in the North Sea

Pelagic Freezer trawler Association North East Atlantic mackerel pelagic	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/pelagic-freezer-trawler-association-ne-atlantic-mackerel/pelagic-freezer-trawler-association-ne-atlantic%20mackerel
Dutch Fisheries Organisation (DFO) gill net sole	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/dfo-gill-net-sole/dfo-gill-net-sole
North Eastern Sea Fisheries Committee sea bass	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/nesfc-sea-bass/nesfc-sea-bass-1
Pelagic Freezer-Trawler Association North Sea Herring	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/pfa-north-sea-herring/pfa-north-sea-herring-1
Astrid Fiske North Sea Herring	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/astrid-fiske-north-sea-herring/astrid-fiske-ns-herring
Germany North Sea Saithe trawl	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/Germany-North-Sea-saithe-trawl/Germany-north-sea-saithe-trawl
Danish Pelagic Producers Organisation North East Atlantic mackerel	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/DPPO-NE-Atlantic-mackerel/DPPO-NE-Atlantic-mackerel
Scottish Pelagic Sustainability Group Ltd. (SPSG) North Sea Herring.	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/spsg-north-sea-herring/fishery-name
Ecofish Group-North Sea twin rigged otter trawl plaice	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/Ekofish-Group-North-Sea-twin-rigged-otter-trawl-plaice/Ekofish-Group-North-Sea-twin-rigged-otter-trawl-plaice
Danish Pelagic Producers Organisation North Sea Herring	http://www.msc.org/track-a-fishery/certified/north-east-atlantic/DPPO-North-Sea-herring/DPPO-North-Sea-herring
Denmark Blue Shell Mussel	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/denmark-blue-shell-mussel/denmark-blue-shell-mussel

Fisheries in assessment.

Scapêche and Compagnie de Pêche de St Maol Saithe (Aug 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/Scapeche-and-CoPSM-saithe/Scapeche-and-CoPSM-saithe
Scottish Fisheries Sustainable Accreditation Group (SFSAG) North Sea Haddock (May 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/SFSAG-north-sea-haddock/SFSAG-north-sea-haddock-fishery
UkFisheries . DFFU Doggerbank Group saithe (June 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/UK-saithe/UK-saithe
North Sea Brown Shrimp	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/north-sea-brown-shrimp/north-sea-brown-shrimp-fishery-1
Scottish Fisheries Sustainable Accreditation Group (SFAG) North Sea nephrops (May 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/SFSAG-north-sea-nephrops/SFSAG-north-sea-nephrops-fishery/view
Danish North Sea Plaice (August 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/Denmark-North-Sea-plaice/Denmark-North-Sea-plaice
Sveriges Pelagiska Producent Organisation (SSPO) North Sea and Baltic Herring and sprats (Aug 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/sppo-north-sea-and-baltic-herring-and-sprats/SPPO%20North%20Sea%20and%20Baltic%20herring%20and%20sprats
Limfjord blue shell mussel and oyster dredge fisheries (April 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/Limfjord-Blue-Shell-Mussel-and-oyster-dredge/Limfjord-Blue-Shell-Mussel-and-oyster-dredge
Denmark Saithe (Aug 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/Denmark-saithe/Denmark-North-Sea-saithe
Skagerrak, Kattegat and Norwegian Deeps Prawns	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/skagerrak-kattegat-and-norwegian-deeps-prawn/Skagerrak-kattegat-and%20norwegian-deeps-prawn
Osprey Trawlers North Sea twin-rigged plaice (July 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/Osprey-Trawlers-North-Sea-twin-rigged-plaice/Osprey-Trawlers-North-Sea-twin-rigged-plaice
Southern North Sea nephrops	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/southern-north-sea-nephrops/southern-north-sea-nephrops-fishery
Netherlands blue shell mussel (Oct 2010)	http://www.msc.org/track-a-fishery/in-assessment/north-east-atlantic/netherlands-blue-shell-mussel/netherlands-blue-shell-mussel

4.0 GOOD PRACTICE GUIDE BY COUNTRY

4.1 BELGIUM



Fisheries Management

The Belgian producer organisation, Redercentrale, is responsible for working with fishermen, government and the EU in fisheries management. Redercentral provides advice to fisheries management recommending measures to optimize the activities of Belgian vessels. Increased sustainability is achieved by taking into account and avoiding spawning areas at certain times of year and managing the over-all sustainability of the different areas the Belgian fleet is operating in.

Partnership Approach

For a number of years there has been a constructive cooperation between the Belgian fishermen and the scientific agency ILVO (the Institute for Agriculture and Fisheries Research). This cooperation has resulted in several projects for which the ILVO provided scientific and technical support on board the vessels and onshore.

Technical Measures and Innovation

Alternative Beam Trawl

The Belgian fleet for decades was marked by many vessels using a traditional beam trawl fishing method. In recent years the traditional beam trawler has been criticised by environmental groups. In response to this the sector has recently tested a number of alternative beam trawls. Various technical adjustments have been made to the traditional trawl and the performance of these tested with positive results, including better selectivity of fish species leading to less discards, a lesser impact on the seabed, improved fish quality, better prices and reduced fuel consumption. Many vessels have now adopted this new method of fishing.

An example of this is the Hovercran trawl and its use in the brown shrimp fishery. It generates a specific electric pulse field close to the seabed. This induces a maximum startle response by the shrimp but does not stimulate any other fish. This causes the shrimp to jump up into the pathway of the net whilst other fish types remain on the sea bed and the net passes over them. Tests have shown a by catch reduction of 35% and seabed contact is reduced by 75%.

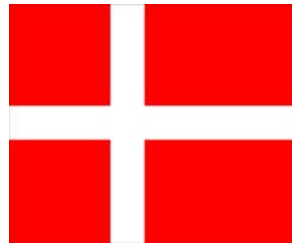
The effect of the alternative beam is a clear signal that the industry is serious about working towards a sustainable future. Some owners are now also examining the technical and financial feasibility of a full conversion of their vessel to an alternative beam fishing method.

Alternative Fishing Project

The fishing industry has tried through innovation to identify alternative fishing methods to beam trawling. A project commissioned 2 vessels to try non trawling fishing techniques. Methods tested include long line fishing with fishing hooks, long-lining and potting. The initial test project has been successful and is to be expanded to allow up to 6 vessels to test out new fishing methods. The results will give fishermen information that will allow them to judge what type of fishing technique will suit them best in future. They will be able to apply a technique that has been tested and make their assessment based on real results. Both alternative trawling (outrigger, twin-rigger, purse seine, etc.) and passive fishery are being assessed and are already being used by some owners.



4.2 DENMARK



The Danish fisheries have for many years been working to ensure that they can be sustainable now and in the future. The number of vessels in the fleet has been adapted to match the quantities of fish that is available. Flexible quota schemes have been introduced in order to avoid discards and new types of nets and technology have been introduced to allow more careful and selective fishing.

Fisheries Management

Individual Transferable Quota

In January 2007 Denmark began a system of individually transferrable quotas (ITQ), where national quotas are divided among the fleet and can be traded or pooled between vessels. The consequences of this has been dramatic; in 18 months the size of the fleet shrunk by 24% as smaller fishermen left the industry selling their allowance to those who remained.

Technical Measures and Innovation

Observation

All vessels now have satellite contact in place and report landings through an e-logbook system. Many Danish vessels now have on board CCTV which can monitor all activity whilst a vessel is at sea. It can show catch activity, sorting of fish into different species and size and gives excellent scientific information about when and where different species of fish are caught. A pilot project of 6 vessels demonstrated that by using CCTV the quality and precision of catch statistics was improved which will improve the quality of stock assessment and scientific advice. It also showed that cod discards were reduced significantly. This programme demonstrated that fishermen are fishing responsibly and managing catches with sustainability in mind.



The Danish Government have proposed that following successful trials of the camera monitoring scheme they will introduce a voluntary scheme that will require all fish caught to count against a vessels quota. The scheme will commence in January 2010 and will require fishermen to have observers or cameras on board their vessels to show that they are not discarding fish. In exchange for catching less fish they would be allowed to land more. The catch quota method ensures that all fish caught is counted against the quota. Writing off everything against the quota will reduce the motivation to discard small fish and induce incentive to fish selectively.

Accreditation Systems

Code of Conduct for the Danish Fisheries

A code of conduct was adopted by the Danish Fishermen's Association in June 2008. The code details practices to be followed in the industry and the goals for sustainable and responsible behaviour. Sustainability and environment are the main objectives of the code but it also includes working conditions for crew and co-operation with stakeholders. The rules of the code are in addition to existing national and European law and are binding to all members of the Danish Fishermen's Association. By adopting the code they have mutually promised to each other that they will work by its rules.

MSC – Marine Stewardship Council

In recent years there has been an increasing demand from consumers and the general public to increase sustainable fishing throughout the world. Danish fisheries are working to meet these requirements by working with the Marine Stewardship Council. The Danish Fishermen's Association have an aim that " all those Danish commercial fisheries where it is within our power to meet the requirements of the MSC standard are met by 2012".

Already certified are;

Danish Pelagic Producers Organisation North East Atlantic Mackerel

Danish Pelagic producers Organisation North Sea Herring

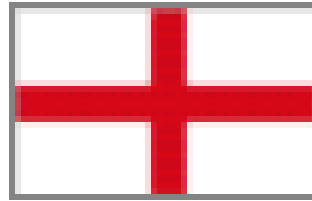
Denmark Blue Shell Mussel

In assessment;
Danish North Sea Plaice
Limfjorf blue shell mussel and oyster dredge fisheries
Denmark Saithe
Skagerrak, Kattegat and Norwegian Deeps Prawns

An assessment is ongoing of another 30 fisheries including species of flat fish, whitefish, crustaceans and fish meal fisheries which will allow a forward plan to be set out which will work towards the 2012 target for full accreditation.



4.3 ENGLAND



England has along with the other countries of the United Kingdom been moving forward with a number of actions to achieve sustainable fisheries. The fishing industry shares the goal with environmentalists of a sustainable fishery and can demonstrate in a number of ways steps that have been taken to achieve this. The industry is working very closely with scientists in partnership to improve stock assessments and to develop improved fishing systems that will increase selectivity. They are also committed to achieving internationally recognised sustainable fisheries and as a result the UK has more MSC accredited fisheries than any other country in the world.

Fisheries Management

The quota system is difficult to operate in a mixed fishery. Progress has been made refining the quota arrangements ensuring compliance within catch limits are met. This has included greater involvement of fishermen in the stock assessment process, tradability of quotas to allow a vessel owner the ability to buy quota to cover catches, avoiding discarding and tighter control measure over the registration of buyers and sellers of fish.

Marine Protected Areas

Moving to the future in English and UK waters there will be a network of Marine Protected Areas. These will be areas that have been identified as areas of special environmental and scientific interest and as such require protection. The aim of having such areas is to protect the natural environments and habitats. This may not mean a complete ban on fishing, some may be allowed, but it is likely that it will be limited and highly regulated aiming to achieve a balance between conservation and fleet viability. Fishermen working in these areas will be expected to demonstrate that their fishing practices are compatible with conservation requirements. Fishermen will engage with those organisations responsible for managing marine protected areas and it is likely that they will be expected to hold the Responsible Fishing Award and be monitored by satellite vessel monitoring systems.

Environmentally Responsible Project

From August 2008 to October 2009 a group of 30 inshore vessels less than 10 m in length participated in a project that allowed them to fish without quota. The aim of the project was to establish the real impact of fishing by this fleet as very little data and scientific information was held for it. This provided a more accurate picture for the scientists than they are able to access from landings information only. In return for this level of free access, participating fishermen had to install vessel monitoring systems and to keep detailed records of when and where they fished and what they caught. In addition participants kept detailed financial records, which once

analysed will give a true picture of the sector's economic importance as well as its environmental impact.

Partnership Approaches

Fishermen are working collaboratively with environmentalists in a number of areas. Collaborative work is ongoing with the WWF and the Royal Society for the Protection of Birds and Birdlife International. The fishing industry also works with the statutory conservation agencies; English Nature (Natural England) and the Joint Nature Conservancy Council.

Fisheries Science Partnerships

The Fishery Science Partnership has been in operation from 2003 with £1 million funding contributed each year. The objectives of the programme are to

- provide information from commercial fishing catches on key stocks to supplement data sources traditionally used in ICES assessments;
- investigate concerns raised by fishermen on scientific assessments or on stocks not currently assessed;
- investigate innovative scientific methods and or more selective/environmentally friendly fishing methods; and,
- support the work of Regional Advisory Councils.

Proposals for projects are sought from industry. A Steering Group of government officials from DEFRA, scientists from CEFAS and English fishing industry representatives review the proposals and DEFRA agree the projects to be undertaken.

Collaborative work is undertaken between fishermen and scientists from the CEFAS Laboratory, this allows scientists to share knowledge with experienced fishermen to obtain more accurate and informed ideas of the state of various fish stocks. Through the partnership commercial vessels are chartered to undertake jointly defined research trips. These complement the more formal assessment processes and have been very effective in building a more rounded and shared view of the state of the stocks. This common understanding of the resource is critical in providing a foundation for agreement on future effective stock management. Through the partnership there are around 10 projects per year taken forward.

An example of a project undertaken through the partnership approach is assessing the discard mortality of commercially caught Skates. The objective of the project was to improve current estimates on discard mortality so as to improve the assessment of stock measures, inform the development of any measures to increase survival rates and recommend good practice. The research will highlight where improvements can be made to fishing practices to reduce discard mortality.

Fishermen and scientists are continuing to work closely together through the annual fisheries reports. These are collated by fishermen and shared with scientists in order to plug any information gaps where scientists do not have enough information. This approach has been successfully piloted in the South East of England and will be rolled out into areas within the North Sea in the coming year.

Bycatch and Discards; management indicators, trends and locations. (BADMINTON)

This project is an example of fisheries scientists from CEFAS and fishermen working together in partnership to develop tools for fisheries management. The project commenced in July 2009 and will not be completed until March 2012. The project aim is to develop operational indicators and propose fishing methods that will reduce discards. The type and amount of fish discarded by fishermen is widely recorded but to date there has been little understanding of the factors that determine what and how much is discarded. Many gear modifications have been proven to reduce discards in field trials, this project takes the research to the next level to find out the way fishermen are using the modified gear and the real impact it has on catch and discards on the fleet. The project will do the following.

1. Complete an analysis of total catch in terms of species and size composition
2. Develop discard indicators
3. Analyse the factors that determine discard amounts
4. Investigate fisher's behaviour to understand how discarding is part of their fishing strategy
5. Based on all previous steps, recommend potential mitigation measures.

Seafish Responsible Sourcing Guides

Seafish Industry Authority the levy funded industry body for fish processing and catching has developed a range of responsible sourcing guides. These are aimed at both fish buyers and consumers. There are 25 species guides each containing characteristics of the species, information about stock assessment, conservation measures in place and management worldwide for the stocks. This information is available online to help fish buyers make sustainable sourcing decisions.

Case Study – Project 50%

Although this example is not from the North Sea it has been included as a best practice case study demonstrating how a true partnership approach can lead to significant improvements in fish sustainability.

Project 50% was a partnership between fishing boat owners and Seafish Industry Authority. The project allowed participating fishermen to take a lead in how they changed. Partners in the project agreed to the aim of reducing discards by 50% over a period of time. The fishermen were responsible for identifying and agreeing how they would achieve this aim. They introduced new trawl equipment, shared results and experiences and encouraged fellow fishermen to participate in the programme. The results were excellent with the majority of participants achieving or exceeding the 50% reduction target. In return for their efforts a PR agency was appointed to widely promote the success of the project and demonstrate to potential customers the improvements that had been made by the fishermen. This allowed for retailers to better understand what was happening in the fishery and work more closely with the fishermen to promote their product.

Technical Measures and Innovation

On Board CCTV

English fishing vessels have been working closely with the fisheries science organisation CEFAS to find out how installing CCTV on board vessels can help in gathering valuable information. 10 CCTV systems have been provided to the North Sea fleet to be installed and used to view different parts of the boat. Ways of activating the cameras when fishing equipment is in use have also been investigated. The trials have shown that this type of observation can be up to 4 times more effective than sending a human observer to sea to record the same data. The hope is that this will allow for much more information to be gathered and contribute to more accurate assessments of stock and catch levels leading the fishermen to become the collectors of scientific information in the future.

North Sea “Eliminator” Type Gear

The eliminator trawl is an innovative piece of fishing gear that won the WWF’s Smart Gear prize in 2007. It’s based on observing fish behaviour; haddock tend to swim upwards when disturbed and are caught in smaller net mesh, while cod swim down and escape through larger holes. Fishermen using this type of net have seen a 90% reduction in accidental cod catches.

Fishermen using gear adapted from the eliminator trawl expressed concern that as well as the net allowing cod to escape other fish species such as monk fish and other types of flat fish were also escaping. This presents a problem to the fishermen as catching these other species contributes significantly to the economic performance and viability of a boat. A number of trials have been carried out on variations of the “Eliminator” trawl to better suit different local variations within North Sea fisheries. To date the results have not addressed the problem of commercial losses but scientists are continuing to study the behaviour of fish in and around fishing gear. If clear differences in fish behaviour are found then it may be possible for the people who design fishing nets to produce one that avoids cod whilst retaining all the other commercially important species.

Accreditation Schemes

Responsible Fishing Scheme



Fishing Federations along with the Seafish Industry Authority have designed and agreed a scheme that recognises responsible fishing practices throughout the UK. Participating vessels are required to undertake an audit which establishes if they meet the required standards for responsible fishing. The scheme is intended to develop, promote and reward good practice including minimising discards, use of selective gear, traceability and catch handling. The scheme

is independently audited through an assessment of good practice of the vessel skipper and crew in their fishing operations. It covers four key areas;

- Fishing Practices
- Vessel Criteria
- Crew Competence
- Environmental considerations

In an era of increasing consumer awareness there is a growing need for fishermen to demonstrate that they do fish responsibly. Whilst not focusing on the sustainability of the fish stocks the Responsible Fishing Scheme offers a buyer of fish an assurance that the fish has been caught in a responsible manner and that quality handling practices are in place. Moving forward, Seafish hope to develop the scheme further, creating greater incentives for individual businesses to gain the award. There is a growing interest from retailers who consider the scheme to be a valid assurance mark to promote freshness and quality of fish.

MSC

Consumers within England are becoming more aware of the MSC award and its commitment to sustainability. To align with consumer needs the fishing industry are committed to increasing the number of accredited fisheries in the North Sea and other waters surrounding the UK. Within the North Sea the following fisheries have been approved or are in the process of assessment.

Approved MSC Fisheries in the North Sea;
North Eastern Sea Fisheries Committee sea bass

Fisheries in assessment;
UkFisheries . DFFU/ Doggerbank Group saithe
Southern North Sea nephrops



4.4 FRANCE



Fisheries Management

Observations at Sea – The Obsmer Programme

The programme is in response to the EU requirement to collect data and the French fishing industry wish to increase observation by an additional 1500 days at sea. This programme is run in association with the French fishing fleet and the French fisheries science organisation Ifremer. Information is collected to monitor the total catch of fish and also incidental catch of marine mammals such as dolphins and seals.

Specialist observers are trained and collect data on – board fishing vessels. They ensure that all information is correctly gathered. The information gathered during this programme will help to provide a much better understanding of fish stocks and catching patterns and lead to a more informed decision making process in the future.

Partnership Approach

Recopesca

This project provides a network of fishing boats collecting and providing information on fishing effort and other environmental parameters. Sensors are placed on board to collect environmental information such as temperature, salinity and depth. The sensors also record accurate information on the duration of fishing and location which is compared with the Vessel Monitoring System and log book. The aim of this project is to better understand fish behaviour and allow fishermen to make informed choices about what they catch in future.

Technical Measures and Innovation

SELECAB and SELECMER Projects

The aim of the SELECAB project is to improve the selectivity of artisanal trawlers working in the North Sea to limit the catches of cod whilst continuing to catch other fish species. SELECMER which ran from 2008 to June 2009 was a similar project which aimed to reduce catches of undersized whiting using a selective grid system. SELECAB began in September 2009 and will run for one year. Two types of selective gear will be trialled.

- A selective grid (double grid or two selective grids): a double grid to allow small sized whiting and big sized cod to escape or two successive grids; one for cod and one for whiting as previously tested during the SELECMER projects.
- A large mesh net which should not catch any cod.

If these trials are successful it is hoped that other fishermen will begin to use the new selective gear and reduce the catches of cod and undersized whiting.



Accreditation Systems

Pêcheur Responsable (Responsible Fisherman)



« Pêcheur responsable » : Une démarche volontaire identifiée par la marque Pêcheur responsable

The Pêcheur Responsable scheme was launched in early 2009 to recognise those people in the fishing industry that made an effort to comply and go beyond legislation requirements. It identifies those fishermen that take active steps to preserve the fishing resource, ensure the sustainability of their business and pass on their expertise to others.

Fishermen are allowed to display the Pêcheur Responsable certification mark once they can demonstrate best practice in the following areas.

- Resource
- Environment
- Enrichment
- Social

The certification applies to an individual fishing vessel and not a fishery. Membership is voluntary and is assessed against set criteria by an external auditing organisation. Re-assessment will be undertaken every 2 years to ensure that fishing vessels continue to meet the standards required of the award. The scheme is very new and as yet no fishermen have achieved it however there are many who are currently preparing for assessment.

Marine Stewardship Council

In response to the growing supply and demand for certified sustainable seafood in France, the Marine Stewardship Council (MSC) opened an office in Paris in October 2009. The office in France will have objectives to facilitate access and encourage participation of French fisheries, processors, retailers and food service in the MSC programme and continue to raise awareness of the logo.

There have been several recent developments in the French Seafood market for certified sustainable seafood including;

- 5 French fisheries are undergoing full assessment ; SARPC toothfish, Euronor saithe, Scapêche and Compagnie de Pêche de St. Malo saithe, Normandy and Jersey lobster, South Brittany sardine purse seine.
- 45 seafood processors in France have been certified for processing seafood from fisheries that meet the MSC environmental standard
- The number of MSC-labelled products available in France has increased from 57 products in October 2008 to 147 products in October 2009 – this represents a 158% increase for the 12 month period.

4.5 GERMANY



Fishing is a traditional part of the German economy; 4,300 people are employed in the fishing industry and 45,000 people work in business sectors that are directly dependent on fisheries. These jobs are located in mainly rural coastal areas that have little alternatives for employment. Germany is committed to achieve the goal of sustainability and is acting to take positive steps in the following ways.

Consumer Information

It is considered that well-informed consumers can make an important contribution towards supporting sustainable fishing by deliberately opting for products from sustainably managed stocks. The German government has taken a lead bringing together representatives from the fisheries sector and from environmental and consumer associations to agree on joint principles for the labelling of sustainably produced fisheries products. The labelling indicates the origin of the fish products and a fishing-zone map is available on the internet site of the German Fisheries industry fish information centre. Further work is being carried out in order to provide consumers and trade with further information on the condition of fish stocks and on the type of fishing used to catch the fish.

http://translate.google.co.uk/translate?hl=en&sl=de&u=http://www.fischinfo.de/&ei=4CdXS6TBBpPw0wSYwsz7BA&sa=X&oi=translate&ct=result&resnum=1&ved=0CBgQ7gEwAA&prev=/search%3Fq%3Dfisch-informationszentrum%26hl%3Den%26rlz%3D1T4SNYK_en-GBGB307GB309

By linking into the map each ICES area can be investigated and a report on the sustainability of each fish species can be found. The fish map and outline stock data has been presented at several food fairs in Germany with great success. It is an innovative tool to inform consumers about fish stock levels and sustainability developments.

Technical Measures and Innovation

Reducing Discards

It is important that the practice of discarding unwanted fish is reduced and where possible stopped altogether. With support from fisheries research the industry is looking at a number of possibilities including introducing discard bans ensuring that all fish caught are landed, developing highly selective gear that will reduce the levels of unwanted fish caught and the temporary closure of fishing areas that have high levels of young fish.

Beam Trawl on Rollers

The shrimp fishery was looking at ways to reduce costs and to lessen the impact fishing had on the environment. There were limiting factors; net mesh has to be small as the species is small and the nets have to be heavy enough to trawl along the seabed. The solution was to place rollers on the bottom of the nets. This has resulted in 10% less fuel consumption and far less disruption to the seabed.

Accreditation Systems

Marine Stewardship Council

Edeka Germany's largest retailer has announced that from 2011 it will only stock fish that have come from MSC accredited stocks.

Fisheries that have gained MSC accreditation;
German North Sea Saithe Trawl

Fisheries that are undergoing MSC assessment;

German North Sea Brown Shrimp



4.6 NETHERLANDS



The Dutch fishing industry has been working for many years to ensure that there is no overfishing or illegal fishery practices in the North Sea. The fisheries are properly managed by the fishermen's producer organisations and the European Union. However the Dutch industry recognises that there are ongoing challenges in fishing and are constantly working with environmental organisations to achieve a sustainable fishery. Fish species that are important to the Netherlands such as herring, plaice, sole and mackerel are fished in accordance with strict management plans.

The Dutch fishing sector has also reduced significantly over recent years, 10 years ago more than 400 beam trawlers were operating; now there are only 80 vessels. The aim of the fishing sector is to achieve maximum sustainable yield within a fishery, taking only the amount of fish that can be replaced to allow fish stocks to remain the same or grow. They are actively working to reduce seabed impact, increase selectivity and minimise by catch.

The link to the following film outlines the Dutch commitment to sustainable fishing and some of the steps they are taking to improve stock levels.

<http://en.sevenload.com/shows/European-Journal/episodes/GcxQall-European-Journal-The-Netherlands-Fight-for-Sustainable-Fishing>

Fisheries Management

Flatfish Management

Sole and plaice are very important species for the Netherlands, fishermen hold 75% of the North Sea sole quota and 37% for plaice. Both species are subject to a long term management plan which is working towards achieving a maximum sustainable yield. Although plaice and sole stocks are already recognised to be within the safe biological limits fishermen have agreed to reduce the fishing effort by 10% per year to give stocks a chance to grow.

Reduced Activity in Spawning Season

Dutch fishermen have taken a lead to reduce plaice landings by 30% in the first 3 months of the year. This is the spawning season for plaice and by reducing catching effort it gives fish the ability to reproduce successfully and maintain stock levels.

Multi Annual Responsible Fishing Plan

The Netherlands have an agreed set of objectives set out in a Multi-Annual Responsible Fishing Plan. Within the plan are activities that contribute to a more sustainable fishery, there are 9 engagements set out in the plan;

- Strive towards an economically sound sector as a foundation for the future.
- Stick to laws and regulations.
- Work on clarity and co-operation in the chain.
- Help to preserve natural resources and the ecosystem.
- Continue to improve the technology of fisheries, farming, processing and distribution.
- Treat employees and other stakeholders responsibly.
- Take into account the interests of society.
- Place food safety at the forefront in the chain and guarantee the consumer good quality fish.
- Work jointly on appropriate solutions for over-fishing, unwanted bycatch and the optimum management of the waters.

Partnership Approach

Research of Fish Stocks

Fishery biologists make annual assessments of the amount of fish in the sea. Based on research they can estimate how much young fish are in the sea and on the basis of landings information how much fish is being taken out. Fishermen and scientists run many collaborative projects where they complement each other on the basis of their own specialisations. Fishermen provide bycatch information and scientists are working closely with the industry to develop new catching methods that reduce the number of unwanted species caught and minimise seabed disturbance.

Shared Covenant (Societal Contract North)

A sustainable North Sea is valued by society in the Netherlands. To demonstrate this, an agreement or a shared covenant was signed by the Ministry of Agriculture, Nature and Food Quality, the fishing industry, the Fish Product Board the World Wildlife Fund and the North Sea Foundation.

The covenant sets out five themes and common goals each having a specific target; sustainable fish, communications, education, training, and protected areas in the North Sea.

The intention of the covenant is that each organisation in their own area of responsibility works with the others to establish a sustainable and socially viable North Sea in areas where collaboration will be beneficial. The agreement covers increasing biodiversity as well as fish stocks.

Examples of activities include information for consumers about “good fish” to buy, education programmes for fishermen and bringing fish stocks to within safe biological limits. There is also agreement by partners to join forces to achieve certification for fisheries including MSC.

Employment and Training.

A training programme “Fishing with Future” has been delivered to fisheries schools and is now available for experienced fishermen. The course promotes the theme of sustainable seas and sustainable fisheries and covers ecology, environment, economy and social acceptance. It promotes the concept that fishing is increasingly connected to the care of nature and the environment.

Technical Measures and Innovation

Fishermen try to fish as selectively as possible choosing their methods and fishing areas carefully. They are constantly improving their nets to avoid catching undersized fish and minimise impact to the sea bed. Many boats in the Dutch industry have previously used a beamtrawl, this method drags nets over the seabed to catch flat fish however it does cause seabed disruption uses high levels of energy and has a high bycatch. As a result the industry have tested and are using many different types of net that will reduce contact with the seabed, release small fish and improve selectivity.

Alternatives to beamtrawl being used are; twinrig, flyshoot and static nets.

New methods based on the traditional beam trawl sumwing, pulse trawl, hydroig and ecocatcher. All new methods score better in terms of seabed disturbance which leads to energy savings.

Flyshoot

This net is placed around the catch site and by gathering up the lines the fish is collected in the net. Seabed disturbance is minimal, there is less by catch and much reduced fuel consumption.

Sumwing

This type of fishing does not touch the seabed and is reducing costs by 20%.

Pulse Trawl

Fish are stimulated with very weak electric pulses. Young fish are stimulated less than older which means less of them swim into the net. The fishing gear has no contact with the sea bed which minimises disruption to other species and reduces the amount of fuel used by the boat. The use of this type of equipment has resulted in 50% less discards, 50% reduction in bycatch and 45% less fuel consumption.



Ecocatcher

This type of fishing creates a vacuum between the fishing gear and the seabed, which makes the fish swim into the net using a suction technique. The lighter gear has virtually no contact with the seabed and therefore limits damage and reduces fuel consumption.



Increasing Selectivity

The Twinson Project aims to increase selectivity of mackerel and horse mackerel. The mackerel quota is often used up before the horse mackerel. As both species are often found together there was a danger that mackerel would be caught alongside horse mackerel and any caught over quota would have to be discarded. Trials have been ongoing to assess the effectiveness of using twin sonar to assess the mix of species prior to catching and subsequently reduce the risk of discards.



Accreditation Systems

Responsible Fishing Scheme

The responsible fishing scheme is an independently audited standard that recognises that individual fishing boats are catching fish in a responsible manner and that they comply with all legal requirements. To achieve the certificate a fishing boat must pass an audit carried out by an external auditor. The scheme recognises quality aspects in fishing such as catch processing, onboard hygiene, catch methods, training requirements, fishing within quota and waste processing. The fishermen can use the Certificate to prove to purchasers that their fish have been caught in a responsible manner.

MSC

The Netherlands are fully committed to recognising sustainable fisheries and as such have made a commitment to achieving Marine Stewardship Council accreditation for many of their fisheries. From 2012 Dutch supermarkets will only sell fish that has MSC certification. Progress to date is;

Fisheries that have MSC accreditation;

Pelagic Freezer Trawler Association North East Atlantic mackerel pelagic

Dutch Fisheries Organisation (DFO) gill net sole

Pelagic Freezer-Trawler Association North Sea herring

Ecofish Group-North Sea twin rigged otter trawl plaice

Fisheries that are undergoing MSC assessment;

North Sea brown shrimp

Netherlands blue shell mussel.

4.7 SCOTLAND



Scottish Fishing Leaders are at the forefront of developing innovative approaches to increase sustainable fishing. There have been many activities trialled and tested over recent years to fish responsibly in a way that will ensure that the stocks remain viable in future years. The fishing industry vision is to achieve a more local approach to fisheries management that will involve stakeholders taking responsibility for management leading to a more responsive system developed for specific local needs.

There is a real commitment to sustainability within Scotland, over 50% of all Scottish fisheries by value are currently Marine Stewardship Council (MSC) certified or are in the full assessment process.

Fisheries Management

Fisheries Management in Scotland has recently taken a significant step in changing the way it is regulated. In previous years catch quota and days at sea were awarded by the EU countries and subsequently to fishermen on the basis of track record. A different approach has now been taken with the allocation of days at sea and quota given to the industry to decide how to use these in a way that will best protect fish stocks. The introduction of the Conservation Credits Scheme has brought in a system that will provide an incentive for fishermen to adopt practices that will reduce mortality of stocks at risk such as cod. Those demonstrating good practice are given additional quota or additional days at sea.

Scottish Conservation Credits Scheme

The Scottish Conservation Credits Scheme was introduced in February 2008. Its aim is to reduce cod mortality and general fish discards. This is achieved by providing a number of incentives to the demersal fleet (boats catching white fish such as cod, haddock and whiting) by rewarding conservation practices. The rewards for implementing conservation practices included exempting vessels from cuts in fishing effort and provided the facility for vessels to operate under an hours at sea scheme rather than the traditional days at sea regime. This gives vessel owners increased flexibility allowing them to better manage their time at sea to conserve fuel and operate vessels more safely.

The conservation practices being implemented as part of the Conservation Credits Scheme are Real Time Closures, Seasonal Closures, Introduction of Amber Areas, One Net Rule and Effort Management. The scheme is monitored closely by the Conservation Credits Scheme Group (CCSG). The Group meets monthly with representatives from the Scottish Government, Fisheries Research Services, the fishing industry and environmental groups. The group reviews the performance of all the actions and will if required make adjustments to programme criteria and

trigger levels. All vessels in Scotland are members of the scheme and report their landings to the CCGS, occasionally they also go to sea with an independent observer.

Real Time Closures

Scotland is the first country in Europe to implement such a voluntary scheme. Real time closures were introduced in September 2007. The aim of Real Time Closures is to protect concentrations of cod by closing an area to fishing for a short period of time.

Real Time Closures are triggered when a predetermined number of cod are caught per hours of fishing. This is currently 40 cod per hour however this figure is constantly being reviewed and subject to change. Once the trigger figure is reached the immediate area (49 square miles) is closed to all fishing for a period of 30 days.

There is a target of 150 closures per year and the catch trigger may be adjusted in order to achieve this. It is anticipated that real time closures will reduce the overall catch of cod by 11-12% in a year.

Real Time Closures are operating in Scottish waters however fishing partners from all EU Countries are recognising this measure to protect stocks and will not fish in a closed area.

Seasonal Closures

Seasonal closures are put in place when cod will be spawning in areas where sampling indicates that there are low levels of cod. Ongoing monitoring of fish levels means that the areas subject to seasonal closure can change. Currently seasonal closed areas are;

Pappa Bank (from 15 January to 15 March)

Coral Edge (from 15 January to 28 February)

Stanhope Ground (from 21 February to 30 April)

Introduction of Amber Areas

Amber areas are associated with cod abundance and are identified through sampling for each quarter of the year. Vessels are allowed to fish in amber areas but those who agree to remain outside these areas at all times qualify for additional days at sea.

One Net Rule

Vessels can take only one approved category of fishing net on board while they are fishing. Many nets have been adjusted to improve selectivity and reduce the catch of fish they want to avoid.

Effort Management

Effort management are the restrictions put in place that sets out how many days a fishing boat can go to sea to catch fish in a year. Each year fishermen are faced with the reality that they will be allocated fewer days at sea until stock levels increase to higher levels than at present found. This has resulted in year on year reduction of days at sea by levels of 10 – 15%. However incentives are in place for boats that are committed to catching less cod.

Boats that catch less than 2.5% cod are rewarded by receiving an additional 24 fishing days a year. Those that catch between 2.5 and 5% will also qualify for additional days provided they agree to fish in only in specific areas in the North Sea where less cod is found.

In the North Sea 50% of the main stocks are locked into a long term management plan with further stocks soon to be included. Long term management plans ensure that stocks are fished at a precautionary fishing mortality ensuring their sustainability over the long term.

Partnership Approach

Scottish Industry / Science Partnership

The Scottish Industry and Science Partnership was established in 2007. It is a collaborative approach, bringing together the fishing industry and scientists to take forward research and innovation. The Scottish Government Marine Directorate is funding research ideas to enhance the existing co-operation between the Scottish catching sector and fisheries science providers. Funding has been provided to deliver project ideas that come from a variety of sources including;

- individuals from the catching sector
- fishermen's associations
- non Governmental Organisations (NGO's)
- science providers

Projects involve biological or fisheries science but socio-economic projects will also be considered where they are linked to the fish catching sector. The objectives of the scheme are;

- Generate research ideas of common interest to industry and the Scottish Government
- Speed up or broaden current research work
- Improve industry / science relations.

Proposed projects are considered by a group of representatives from the Scottish Government, the Fisheries Research Services, industry and other interested parties. Industry participates fully in the project often with commercial fishing vessels being used to test new equipment or to collect information and data. Results from the projects are monitored closely by the management group and fed back directly to the fishermen concerned through newsletters or presentations delivered to them in port.

One example of a project that has worked well to meet the needs of all parties is the Monkfish assessment project. Monkfish stock data was not readily available and as a result it was likely that quota reductions could be introduced. The fishing industry and fisheries scientists met to design a new monkfish survey that would be undertaken on commercial fishing vessels. From the start fishermen were involved in the design of the survey identifying when and where best to take samples and which type of fishing gear to use. The results showed that stock levels of

monkfish were indeed higher than had been estimated and as a result quota levels were increased.

Fisheries Research Services

Fisheries Research Services are the government supported organisation based in Aberdeen that are responsible for taking forward scientific research linked to fishing. Previous projects include

- Developing new fisheries
- Improving gear design to reduce discards
- Reducing environmental impact of fishing
- Surveying stocks in inshore waters
- Researching closed areas
- Providing extra data for stock assessments
- Separating species during fishing
- Investigating fishing effort indicators
- Monitoring fish biology / distribution

Many projects are undertaken in partnership with the fishing industry.

Technical Measures and Innovation

On Board CCTV

A pilot scheme was undertaken in July 2009 with seven boats introducing CCTV on their boats. The aim of the project was to reduce discards. Each vessel carried 4 cameras that monitored activity and catches from a different part of the vessel including the net, reception hoppers, the fish handling system and the chute that is used to return unwanted fish to the sea. The aim of the project was to establish if CCTV could be used as an effective tool to collect information about the types and volumes of fish caught and discarded, to find out if it encouraged fishermen to discard fewer fish and if it ultimately reduced cod mortality.

The results from initial project have been positive and resulted in the Scottish Government funding an additional 30 sets of monitoring equipment to install on boats. For fishermen installing the CCTV equipment they will be able to provide excellent scientific advice to fisheries research organisations and will be given a share of 5% increased cod quota given to only those vessels using CCTV monitoring. This approach may also be extended to haddock and whiting in the near future.

North Sea "Eliminator" Type Gear

The Eliminator Trawl is an innovative piece of fishing gear that won the WWF's Smart Gear prize in 2007. It's based on observing fish behaviour; haddock tend to swim upwards when disturbed and are caught in smaller net mesh, while cod swim down and escape through larger holes. Fishermen using this type of net have seen a 90% reduction in accidental cod catches.

Orkney Trawl and Shetland Gear Trials

Whilst the Eliminator Trawl has proved to be successful it was found not to be as successful in certain fisheries. As a result local modifications have been made to account for local differences in fishing methods and environments. Scottish Government invested £95,000 for the development of highly selective gear known as the Orkney Trawl used in the whitefish fishery. The net has been amended to give a 50% reduction in the levels of cod caught but still keeps the same levels of haddock and whiting. The gear is now being used by whitefish boats to help them fish sustainably and to boost the number of days at sea they are allocated through the conservation credits scheme. Shetland Gear is designed to allow juvenile cod to escape the catch.

Large Diamond Mesh Panels

Tests to introduce large diamond shaped panels into the belly of commercial trawls have been undertaken. During 2008, catch comparison experiments were conducted to assess the potential for large mesh (800mm) to reduce the by-catches of cod by vessels operating in a mixed fishery area. The results showed that catch rates of haddock and whiting were not affected in any of the trials and the majority of the cod catches were significantly reduced. Catches of anglerfish, megrim and plaice were all significantly reduced as well.

Accreditation Systems

Responsible Fishing Scheme

125 Scottish fishing vessels are certified under the Sea Fish Industry Authority's responsible fishing scheme with more currently undergoing assessment. The scheme recognises good practice in all aspects of fishing, participating vessels are required to undertake an audit which establishes if they meet the required standards for responsible fishing. The scheme is intended to develop, promote and reward good practice including minimising discards, use of selective gear, traceability and catch handling. The scheme is independently audited through an assessment of good practice of the vessel skipper and crew in their fishing operations. It covers four key areas;

- Fishing Practices
- Vessel Criteria
- Crew Competence
- Environmental considerations

Marine Stewardship Council

Over 50% of all Scottish fisheries by value are currently Marine Stewardship Council (MSC) certified or are in the full assessment process.

The following Scottish North Sea fisheries have achieved MSC accreditation;

Scottish Pelagic Sustainability Group Ltd. North Sea herring

Scottish Pelagic Sustainability Group Ltd. Western component of North East Atlantic mackerel

These additional fisheries are currently undergoing full assessment;
Scottish Fisheries Sustainable Accreditation Group North Sea haddock
Scottish Fisheries Sustainable Accreditation Group North Sea nephrops
Osprey Trawlers North Sea twin-rigged plaice



4.8 SWEDEN



Fisheries Management

In 2009 Sweden agreed a target to reduce Sweden's capacity to catch cod by 50% by 2015. To help to achieve this target the EU have given three quarters of its funding for decommissioning to Sweden. Already 45 Swedish fishermen have applied for subsidies to scrap their boats.

Modern technology is being used to manage and monitor fishing activities, electronic log books and vessel monitoring systems are being introduced, vessel engine power is being controlled and there is a ban on transshipment of fish at sea.

Fishing Free Areas

Fishing free areas have been put in place to protect the biodiversity and whole ecosystem of a defined area of the North Sea. Sweden has introduced 3 fish free areas in spawning areas or areas where there are high levels of juvenile fish. These areas can have a permanent or temporary closure combined with gear restrictions set in place for fishermen.

Partnership Approach

Närfiskat

Närfiskat is an initiative to improve consumer confidence. It provides information to inform consumers exactly where and when the fish has been caught so they can identify locally sourced produce. Närfiskat will inform the consumer where the fish originated, which boat it was caught by and which processing company bought it. This information allows the consumer to make a more informed choice when buying fish and pay a better price for a higher quality product.

Technical Measures and Innovation

National Board of Fisheries

The National Board of Fisheries has a focus on monitoring fish stocks, developing fishing technology and the fishing environment. They are currently developing new selective and more environmentally fishing gear.

Electronic Log Books and VSM

Modern technology is being used more to monitor fish catching and allow a better understanding of how and where fish are caught. All vessels over 12meters long will shortly

required to use electronic log books and satellite vessel monitoring systems. The Swedish government have provided free software to test on 5 boats to make sure that the systems operate correctly and all vessels over 24 meters will have the software installed in the first half of 2010. This will allow them to report all fishing activity electronically using a system that is compatible with that also used by Denmark and Norway.

Accreditation Systems

Marine Stewardship Council

Within Sweden the Astrid Fiske North Sea Herring fishery has achieved MSC accreditation and the Sveriges Pelagiska Producent Organisation North Sea and Baltic herring and sprats is currently undergoing assessment.

In a recent project Swedish school-children were able to choose certified sustainable fish from their school menus. The Marine Stewardship Council's (MSC's) schools project encouraged awareness about sustainable fishing and the MSC in Swedish schools and developed the availability of sustainable seafood within the foodservice sector. The project – which launched in December 2008 was supported by PostkodStiftelsen (the Swedish Postcode Lottery Foundation)



5.0 ENDORSEMENTS FROM OTHER ORGANISATIONS

These organisations will be approached for a comment / endorsement once the final content of the report has been agreed.

WWF

RSPB

Marks and Spencer

Sodhexo

6.0 APPENDICES

Appendix 1. Websites Reviewed in Project

Organisation	Website Address
Birdlife International	www.birdlife.org
Comité National des Pêches Maritimes et des Elevages	www.comite-peches.fr
Danmarks Fiskeriforening	www.fiskeriforening.dk
Deutscher Fischerei Verband	www.deutscher-fischerei-verband.de
Federatie and Visserijverenigingen	www.visserij.nl
Fisheries Research Services	www.frs-scotland.gov.uk
Fisheries Innovation Platform	www.fisheriesinnovationplatform.com/conferences
ICES (International Council for the Exploration of the Sea)	www.ices.dk
Marine Stewardship Council	www.msc.org
National Federation of Fishermen's Organisation	www.nffo.org.uk
North Atlantic Fisheries College	www.nafc.ac.uk
OCEAN2012	www.ocean2012.eu
Productschap VIS	www.pvis.nl
Redercentrale	www.rederscentrale.be
Seas at Risk	www.seas-at-risk.org
Seafish Industry Authority	www.seafish.org
Seafood Scotland	www.seafoodscotland.org
Scottish Fishermen's Federation	www.sff.co.uk
Scottish Whitefish Producers Association	www.swfpa.org.uk
Sport Visserij Nederland	www.sportvisserijnederland.nl
Sveriges Fiskares Riksförbund	www.yrkesfiskarna.se
WWF Scotland	www.scotlandwwf.org.uk

Appendix 2

Interviewees

Name	Organisation
Carolyn Gamblin	Comité National des Pêches Maritimes et des Elevages
Barry Deas	National Federation of Fishermen's Organisations
Emiel Brockhart	Redercentral
Bill Turrell	Fisheries Research Scotland
Bertie Armstrong	Scottish Fishermen's Federation
Tom Rossiter	Seafish Industry Authority
Euan Dunn	RSPB
Mike Park	Scottish White Fish Producers Association