



Sustainable Fisheries

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Contents

| | | |
|----------|--|-----------|
| 1 | About this audit | 1 |
| 1.1 | The Dutch beam trawler fleet | 2 |
| 1.2 | Fisheries policy | 4 |
| 1.2.1 | European fisheries policy | 4 |
| 1.2.2 | Dutch fisheries policy | 5 |
| 1.3 | Financial importance | 6 |
| 1.4 | Audit objective and structure | 7 |
| 2 | Conclusions and recommendations | 9 |
| 2.1 | European quota policy | 9 |
| 2.1.1 | Conclusion | 9 |
| 2.1.2 | Background | 9 |
| 2.1.3 | Recommendations | 15 |
| 2.2 | Compliance and enforcement | 16 |
| 2.2.1 | Conclusion | 16 |
| 2.2.2 | Background | 16 |
| 2.2.3 | Recommendations | 18 |
| 2.3 | Innovation policy for the fishing industry | 18 |
| 2.3.1 | Conclusion | 18 |
| 2.3.2 | Background | 19 |
| 2.3.3 | Recommendations | 20 |
| 2.4 | Restructuring policy for the fishing industry | 21 |
| 2.4.1 | Conclusion | 21 |
| 2.4.2 | Background | 21 |
| 2.4.3 | Recommendations | 22 |
| 3 | Response of the Minister and the Court of Audit's afterword | 23 |
| 3.1 | Response of the Minister | 23 |
| 3.1.1 | Main conclusion | 23 |
| 3.1.2 | Quota policy | 23 |
| 3.1.3 | Compliance and enforcement | 25 |
| 3.1.4 | Innovation policy for the fishing industry | 26 |
| 3.1.5 | Restructuring policy for the fishing industry | 26 |
| 3.2 | Court of Audit's afterword | 27 |



| | | |
|----------|--|-----------|
| 1 | Introduction | 32 |
| 1.1 | Audit themes | 32 |
| 1.2 | Ecological sustainability in figures | 33 |
| 1.3 | Economic sustainability in figures | 35 |
| 1.4 | Financial importance of the fishing industry | 36 |
| 1.4.1 | Financial importance of the fishing industry | 36 |
| 1.4.2 | Financial accountability for fisheries policy | 37 |
| 1.4.3 | Government funds | 38 |
| 1.4.4 | European funds | 39 |
| 2 | European quota policy | 40 |
| 2.1 | Agreement of TACs and quotas | 40 |
| 2.1.1 | European Commission's reasoning | 40 |
| 2.2 | Results of the quota policy | 44 |
| 2.3 | Complicating factors | 45 |
| 2.3.1 | Margins of error in scientific advice | 45 |
| 2.3.2 | Other factors | 45 |
| 2.3.3 | By-catches | 46 |
| 2.4 | Relationship with nature policy | 48 |
| 2.4.1 | International and national agreements on biodiversity and sustainability | 49 |
| 2.4.2 | International and national water agreements | 50 |
| 2.4.3 | Influence of related policies on fisheries policy | 52 |
| 3 | Compliance and enforcement | 54 |
| 3.1 | Co-management: an integral part of Dutch fisheries policy | 54 |
| 3.2 | Enforcement policy | 55 |
| 3.2.1 | Objective of enforcement policy | 55 |
| 3.2.2 | Implementation of enforcement policy | 56 |
| 3.3 | Duty of enforcement | 56 |
| 3.3.1 | European obligations | 56 |
| 3.3.2 | National obligations | 57 |
| 3.4 | Enforcement capacity | 58 |
| 3.4.1 | Target enforcement/compliance level | 58 |
| 3.4.2 | Adequacy of enforcement policy | 59 |
| 3.4.3 | Solutions for the future | 60 |
| 4 | Innovation policy for the fishing industry | 61 |
| 4.1 | Experiments | 61 |
| 4.2 | Taskforce projects | 64 |
| 4.3 | Fisheries Innovation Platform | 65 |
| 4.4 | Other projects | 66 |
| 5 | Restructuring policy for the fishing industry | 67 |



| | | |
|-----|--|-----------|
| 5.1 | Development of fleet capacity | 67 |
| 5.2 | Impact of restructuring on economic sustainability | 69 |
| | Appendix 1 Enforcement and control provisions | 71 |
| | Appendix 2 AID enforcement target 2007 | 73 |
| | Appendix 3 Cutter fisheries restructuring regulations | 74 |
| | Appendix 4 Fishing techniques | 75 |
| | Appendix 5 Other audit office reports on fisheries policy | 77 |
| | Appendix 6 Audit approach and methodology | 81 |
| | Appendix 7 Definitions and abbreviations | 82 |
| | Abbreviations | 85 |
| | Literature | 86 |



Part I Conclusions, recommendations and response



1 About this audit

1

There is worldwide concern about the consequences of intensive fishing at sea. Many species of fish are being seriously overfished. More and more fish populations are falling below the biological minimum; they are no longer capable of sustaining themselves.¹ Marine biodiversity² and ecosystems³ are under threat.

The European Union (EU) presented a policy in 1983 to prevent overfishing in European waters. Its objective is the 'sustainable exploitation' of marine resources with respect for both the environment and the economy. As a member state, the Netherlands, one of the five largest fishing countries in the EU, is subject to the Common Fisheries Policy.

The Court of Audit has investigated whether the Netherlands is succeeding in implementing and enforcing this policy and whether the Dutch sea fishing industry is achieving the policy's sustainability goals. We concentrated on the cutter fleet equipped with special nets known as beam trawls (see figure 1 below).⁴

In part I we first provide introductory information on beam trawlers, the European and Dutch fisheries policies, the financial importance of the fishing industry and the objective and structure of our audit (sections 1.1-1.4). We then present the conclusions and recommendations that arose from the audit (chapter 2). The response to our audit by the Minister of Agriculture, Nature and Food Quality (LNV), the Minister of

¹ Nature Balance 2008 names offshore fishing as the most important cause of loss of biodiversity in the North Sea, ahead of climate change, poor water quality and the lack of spatial management and protected areas. There are also many other causes, such as marine pollution (oil discharges, waste), underwater noise and artificial light, sand and gravel extraction, oil and gas production, shellfish fishing, recreation and the increase in exotic species (Netherlands Environmental Assessment Agency, 2008).

² Biodiversity: life in all its forms: animals, plants and micro-organisms.

³ Ecosystem: all organisms in a particular area, the interaction between them and their habitat.

⁴ The audit scope is explained in section 1.1.



Housing, Spatial Planning and the Environment (VROM) and the Minister of Transport, Public Works and Water Management (V&W) are discussed in chapter 3. 2

Part II of this report considers the underlying audit findings. The audit methodology is presented in appendix 6.

1.1 The Dutch beam trawler fleet

Depending on the type of vessel, the kind of fishing gear and the fishing ground, the North Sea is fished by the trawler fleet, the offshore cutter fleet with beam trawls, the coastal beam trawler fleet, inland fishing and fish farming (aquaculture). Our audit concentrated on offshore fishing in general and the cutter fleet in particular. It is in this sector of the fishing industry that the sustainability of fish stocks, especially cod, plaice and sole, is particularly vulnerable. These fish species are in danger of being overfished and beam trawling (see below) is accompanied by undesirable side effects such as seabed disturbance and by-catches of non-target fish, most of which are thrown overboard (discarded).⁵ We consider this problem in section 2.1.1.

Most of the vessels in the cutter fleet are fitted with beam trawls. These vessels are of considerable economic importance within the fishing industry, another reason why we decided to concentrate on them.

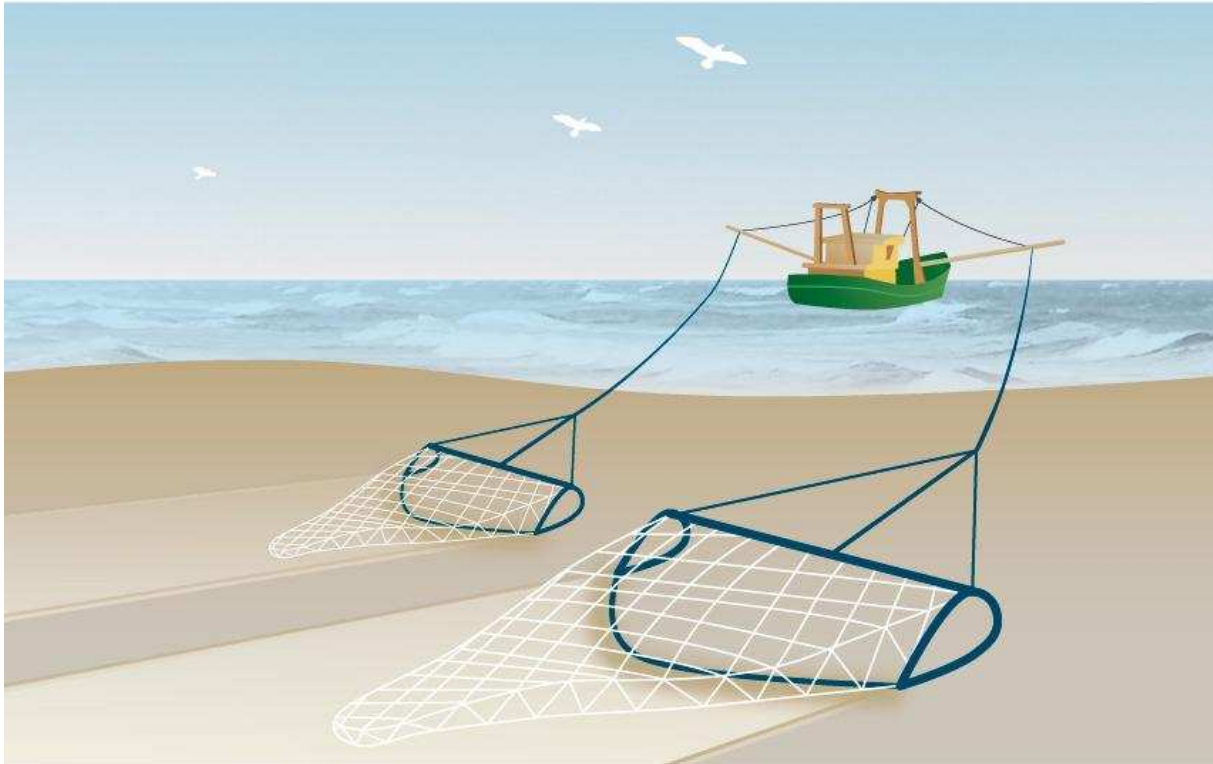
Characteristics of beam trawling

The Dutch cutter fleet fishes principally for flatfish (plaice and sole) in the North Sea and adjacent fishing grounds in the North Atlantic. Flatfish live close to the seabed and are caught by means of a net (trawl) attached to a metal beam with chains that are towed across the bottom of the sea (see figure 1).

⁵ Observations made in 1972-1982 indicate that the probability of discarded sole and plaice surviving was less than 10% (van Overzee & Quirijns, 2007).



Figure 1 **Beam trawler technology**



Ecological sustainability

Beam trawling has a significant impact on marine life. Large catch sizes and seabed disruption damage fish stocks and reduce biodiversity (Netherlands Environmental Assessment Agency, 2008). More than 90% of the population of some species die prematurely on account of beam trawling.⁶ Catching large fish reduces the size of fish stocks, brings about genetic change and disrupts the marine food chain. Another undesired side effect is the death of non-target fish. To put it bluntly, beam trawling is not ecologically sustainable (op. cit.).

Economic sustainability

Declining North Sea fish stocks also have economic consequences for beam trawling (Smit & Buisman, 2007). The industry is suffering losses and the fleet is contracting. The quantity of fish landed, the number of vessels and the number of jobs have all steadily declined since 1980. A large proportion of the current cutter fleet was built in the 1970s, when the beam trawling method was developed. But the investments made in beam trawler technology have proven unsustainable on account of the impact on the seabed and the contraction of the fleet in step with the

⁶ Source: www.milieuennatuurcompendium.nl/ (Ecosystemen/Noordzee/Bodemfauna van de Noordzee en boomkorvisserij), consulted on 2 July 2008.



decline in quotas. In recent years, moreover, the industry has suffered from high fuel prices. In comparison with 2004 the price of oil has more than doubled. The profit per litre of diesel fuel has virtually halved since the beginning of the 1980s.

4

1.2 Fisheries policy

1.2.1 European fisheries policy

The EU introduced the Common Fisheries Policy in 1983. The initial Regulation setting out the policy was replaced with new Regulations in 1992 and 2002.⁷ Since European Regulations are directly applicable in the member states, EU fisheries policy is also the statutory basis of the Netherlands' national fisheries policy.

The objective of the Common Fisheries Policy is '... to provide for sustainable exploitation of living aquatic resources and of aquaculture in the context of sustainable development, taking account of the environmental, economic and social aspects in a balanced manner'.⁸ The main elements of the 2002 Common Fisheries Policy are considered below.

1. *Conservation policy (quota policy)*

The policy is directed principally at conserving commercial fish stocks⁹ such as sole, plaice, shellfish, herring, whiting and cod. Catch limits are set for each species to give young fish the chance to breed. The member states are allocated an annual *quota* for their fishermen for each species. Conservation policy also includes 'technical rules' on the equipment used on fishing vessels, such as minimum mesh size and maximum engine power. Proposals were put forward in 2002 to reduce the problem of by-catches and discards.

2. *Structural and fleet policy*

The structural and fleet policy is designed to enable fishing enterprises to adapt their equipment and organisations to declining fish stocks and

⁷ Regulations 170/1983, 3760/1992 and 2371/2002.

⁸ Regulation 2371/2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, considerations (section 4).

⁹ These are fish species that are sold for human consumption. The fact that the policy confines itself to these species has implications for its effectiveness as a whole. This is considered further in section 2.1.



changing market demand. There are also measures for a general reduction in fishing in order to bring the Community fleet into balance with available fish stocks.

5

3. Enforcement and control policy

Enforcement and control policy is directed at ensuring compliance with the rules of the Common Fisheries Policy. The member states' governments are responsible for implementing the policy. The prescribed enforcement measures must be 'effective, dissuasive and proportionate' (Regulation 2371/2002, article 24). The member states enjoy a certain measure of freedom in their approach. To arrive at a level playing field, however, the Communities Fisheries Control Agency coordinates the member states' inspection and control activities.

4. Marketing policy and international relations policy

The objectives of marketing policy are to establish a common market organisation for fishery products and to ensure that supply and demand are in balance.

The objective of international relations policy is to reach fishery agreements with countries outside the EU and to negotiate conservation measures at international level in regional and international fishery organisations.

For this audit we investigated the Netherlands' implementation of the main elements of Common Fisheries Policy in recent years. We concentrated on quota policy, restructuring policy and innovation policy. The audit also considered the implementation of European enforcement policy in the Netherlands. It did not look at marketing policy or policy on international relations.

1.2.2 Dutch fisheries policy

Enforcement

As noted above, the Dutch fisheries policy is based on European quota policy. The General Inspectorate (AID) of the Ministry of Agriculture, Nature and Food Quality (LNV) is responsible for enforcing fish quotas in the Netherlands.



Co-management

A specific characteristic of the Dutch fisheries policy is the system of co-management by groups known as 'Biesheuvel groups'.¹⁰ Most fishermen are members of such a management group. They transfer their individual catch quotas to their management group so that the members can rent the quotas to and from each other. Quotas can also be transferred among management groups. The system allows fishermen to match the use of their vessels to their quotas. Someone who has caught more sole than allowed by his quota, for example, can rent quota from a fisherman who has caught less than his quota. Optimal use is accordingly made of the quotas.

Management groups must satisfy certain conditions. The Ministry of LNV decides whether the conditions are satisfied and, after approval, allocates a group quota.

National fisheries policy

In addition to implementing and enforcing European fisheries policy, the Netherlands conducts its own national policy. Two key elements in this policy are innovation (promotion of new, less damaging and more energy efficient fishing techniques) and restructuring (fleet reduction in response to the economic consequences of catch limits). These are considered further in sections 2.3 and 2.4.

1.3 Financial importance

The financial importance of the Dutch fishing industry is modest in relation to the country's gross domestic product. Total income in the fishing industry in 2006 is estimated at EUR 644 million, equal to 0.12% of the gross domestic product for that year of EUR 534.3 billion.

Since 2006 expenditure on fisheries has been accounted for in article 21.14, 'Promoting sustainable catches and breeding of fish and shellfish', of the Ministry of LNV's budget.¹¹ Programme expenditure is also incurred for the implementation of sea fisheries policy. Since 2006, this

¹⁰ The term 'Biesheuvel group' refers to the Biesheuvel Committee, which, at the beginning of the 1990s, investigated how the fishing industry could be given more responsibility for its activities. There are currently eight of these Biesheuvel management groups in the cutter fishing sector.

¹¹ In the years before 2006, budget expenditure and revenue were estimated and accounted for in article 4.14, 'Fisheries restructuring'.



expenditure has been broken down into expenditure on innovation, research and restructuring. The Ministry of LNV's budget and accounts do not provide a further breakdown of programme expenditure on sea fisheries policy.

7

In the *2008 Spring Memorandum* (Finance, 2008), the government reserved about EUR 98 million for the entire Dutch fishing industry for the period 2007-2012.¹² This amount does not include costs incurred by the AID to enforce fisheries regulations to a total of about EUR 6 million per annum, i.e. about EUR 36 million for the period as a whole.

In 2000-2006, the Ministry of LNV received EUR 38.1 million from the EU for fisheries policy and for the period 2007-2013 it can count on EUR 48 million from the EU.¹³

1.4 Audit objective and structure

The damage caused by fishing to biodiversity and ecosystems in European waters in recent decades and the weak economic position of cutter fishermen clearly demonstrate that the ecological and economic sustainability goals of European fisheries policy have not been achieved since the policy's introduction in 1983. This audit of Dutch beam trawl fishing in the North Sea is designed to provide an insight into why the ambitions have been dashed. We also make recommendations to improve policy and its national implementation.

Our audit can be divided into four parts. We first consider the *effectiveness of European quota policy*. What results have been achieved regarding sustainability? What factors explain the lack of success? We then look at the *enforcement of European fisheries policy in the Netherlands*. Does enforcement meet European standards? Is the compliance level known? Finally, we investigate two specific aspects of Dutch fisheries policy: *innovation policy* and *restructuring policy*. Innovation policy is directed at the development and promotion of methods and techniques that increase the ecological and economic sustainability of the fisheries. Since the policy was only recently introduced, we cannot yet say whether its goals will be achieved by 2013

¹² Expenditure on inland fishing is negligible.

¹³ In 2000-2006, the funds were received from the Financial Instrument for Fisheries Guidance (FIFG); in 2007-2013, they will be allocated from the FIFG's successor, the European Fisheries Fund (EFF).



and to what extent the instruments used actually work. We did take stock, though, of the initiatives that have been taken so far. The objective of restructuring policy is to bring the size of the fishing fleet into line with the available quotas. We consider the effectiveness of this policy. What result has restructuring had? Is policy based on a thorough analysis of the optimal fleet size given the measures taken to limit catches and thus to conserve fish stocks and protect nature?



2 Conclusions and recommendations

Our main conclusion is that Dutch fisheries policy is not ecologically strict enough to achieve the ambitions of improving North Sea fish stocks and biodiversity. Economic interests take precedence in the policy choices. As a result, both the economic position of the fishing industry and the ecological situation in the North Sea are deteriorating. We base this conclusion on a series of subsidiary conclusions that are discussed and explained in the following sections.

2.1 European quota policy

2.1.1 Conclusion

EU quota policy is concerned solely with conserving commercial fish species and ignores the undesirable impact on the North Sea ecosystem. In practice, moreover, quota policy is not delivering the desired benefits for commercial fish species. Owing to pressure from the fishing industry, catches are higher than sustainable. Furthermore, large numbers of fish are discarded (i.e. returned to the sea dead) if they are not of the right species or size or if a quota has already been exceeded. Effective solutions to this problem must still be found. Measures are failing partly because fisheries and nature are distinct policy fields at both European and national level, although signs of change are beginning to emerge.

2.1.2 Background

Quota policy concerned solely with commercial fish species

European quota policy is concerned solely with the conservation of commercial fish species, i.e. fish species that are sold for human consumption. The scientific reports the European Commission uses to set the annual quotas (see below) are therefore confined to commercial fish stocks and contain no information on the potential impact of the fish catch on the ecosystem.



Owing to this one-sided concern with commercial fish species, quota policy takes no account of undesirable side effects. The depletion of certain fish species can disrupt the food chain, which in turn leads to other species coming under pressure or seeing their numbers increase excessively. This impact on the ecosystem not only has repercussions for fish but also for other animal species both in the sea (e.g. porpoises) and above the sea (birds).

10

The importance of the ecosystem as such was first considered in a review of EU fisheries policy in 2002. In the new Regulation¹⁴ the Council of Ministers allowed member states to take additional measures if the conservation of resources or the marine ecosystem was seriously threatened by fishing activities. There is significant uncertainty about the actual size of fish stocks in European waters. The scientific advice that the European Commission obtains each year from the International Council for the Exploration of the Sea (ICES) does not provide a clear picture of fish stocks; the margin of error is about 30% to 40%, both upwards and downwards. According to the European Commission, such a wide margin makes it difficult to put the advice into practice.

Influence of economic interests on catch limits

The EU sets total allowable catches (TACs) for commercial fish species each year and allocates them in the form of quotas to the EU member states and Norway. The TACs and the allocations are proposed by the European Commission following advice from ICES. The European Parliament expresses an opinion on the proposals and the final decision is taken by the Council of Agriculture and Fisheries Ministers after negotiation of the Commission's proposals by the member states and consideration of the European Parliament's opinion. Economic arguments take precedence in the negotiations. Lobbying by the fishing industry is an important factor, especially in the large fishing countries. The outcome is that TACs are usually higher than the Commission's original proposals and sometimes higher than appropriate if stocks are to be conserved at the 'precautionary level'. The precautionary level, as set by the European Commission, is the breeding stock (i.e. the number of mature fish that can replenish themselves) necessary to prevent the species falling below the biological minimum. If a species falls below the minimum, it can no longer adequately replenish itself (see table 1).

Our conclusion is that European catch limits chiefly reflect short-term economic interests rather than ecological interests or long-term economic

¹⁴ Regulation 676/2007.



interests (in the long term, overfishing is also economically disadvantageous). The precedence taken by short-term economic interests is also reflected in the rule that TACs may not increase or decrease by more than 15% from one year to the next. This is designed to prevent large quota fluctuations causing serious financial problems in the fishing industry. The rule also applies if a fish species is in danger of falling below the precautionary level or even the biological minimum and ICES has advised a far lower TAC. For the benefit of the fishing industry's short-term interests, therefore, the Council of Ministers puts certain fish species at risk.

11

Overfishing

In practice, the upward bias of negotiations and economic lobbying means catch limits are sometimes too high to keep fish stocks at at least the precautionary level. The TACs set for some fish species actually bring their number below the biological minimum. The European Commission analyses the impact of these excessive limits each year. In 2006 it concluded that many stocks were too heavily exploited or had low quantities of mature fish. According to the Commission, this precarious situation was 'the result chiefly of annual catch limits being set higher than those proposed on the basis of scientific advice'. The problem was aggravated, according to the Commission, by poor enforcement of regulations (European Commission, 2006).

In 2007, the Commission again noted in its annual policy statement that the TACs were considerably higher than the scientific recommendations (on average by 42% to 57%) (European Commission, 2007b). The Commission found that 88% of fish stocks in the EU were overfished (worldwide the rate is 25%) and that the general situation had not improved since 2003.

New standard: maximum sustainable yield

The standard in place to keep fish stocks at at least the precautionary level will be tightened up in 2015 with the introduction of the maximum sustainable yield (MSY). A decision to this end was taken at the World Summit on Sustainable Development in Johannesburg in 2002. The new MSY standard will not be based on the precautionary principle, which is intended to prevent fish stocks collapsing (i.e. falling to such a level that there are too few fish to be caught) but on the principle that biological, social, economic and environmental sustainability should determine how many fish of a particular species may be caught. MSY is a forward-looking standard that seeks healthy and stable fish stocks in the long term. Multiyear plans are being drawn up to reach this MSY level. The



precautionary level, by contrast, is a safety margin to prevent stocks falling below the biological minimum. It is a response to an existing situation, which can change every year, and is not directed at long-term stability.

12

In summary, therefore, three standards are used to determine the minimum size of fish stocks, as shown in table 1.

Table 1. Standards for minimum fish stocks

| | |
|---------------------|--|
| MSY | To be introduced universally as the only standard after 2015 |
| Precautionary level | Currently applied by the European Commission, stricter than the biological minimum |
| Biological minimum | Scientific standard to indicate when stocks are in danger |

In Europe, the MSY will first be introduced for North Sea plaice and sole stocks. As from 2008, quotas for these species will be reduced by 10% per annum until the species are brought within safe biological limits. Once the situation is stable, plaice and sole may be fished on the basis of maximum sustainable yield and under sustainable biological, economic, environmental and social conditions (Regulation 676/2007).

By-catches

The problem of overfishing is considerably worsened by an associated phenomenon: the discarding of large numbers of fish (i.e. throwing dead or dying fish overboard) because they are not of the required species or size. The discard problem has been on the EU agenda for decades but an effective answer has still not been found.¹⁵

The discard problem is caused in part by the quota system. If a catch exceeds a quota, the excess may not be landed. It is therefore thrown overboard. On average, more than 90% of the discards are already dead (van Overzee et al., 2007). In the Dutch situation, catches regularly exceeded the quota because plaice and sole cannot be caught separately. Fishermen are forced to throw one of the two species overboard immediately the quota is reached for one species but not for the other.¹⁶

¹⁵ The section considers only by-catches of fish. According to the Netherlands Environmental Assessment Agency, by-catches of other animal species, such as crabs and shellfish, are as large as the fish catches landed and discarded together (the Netherlands Environmental Assessment Agency, 2008).

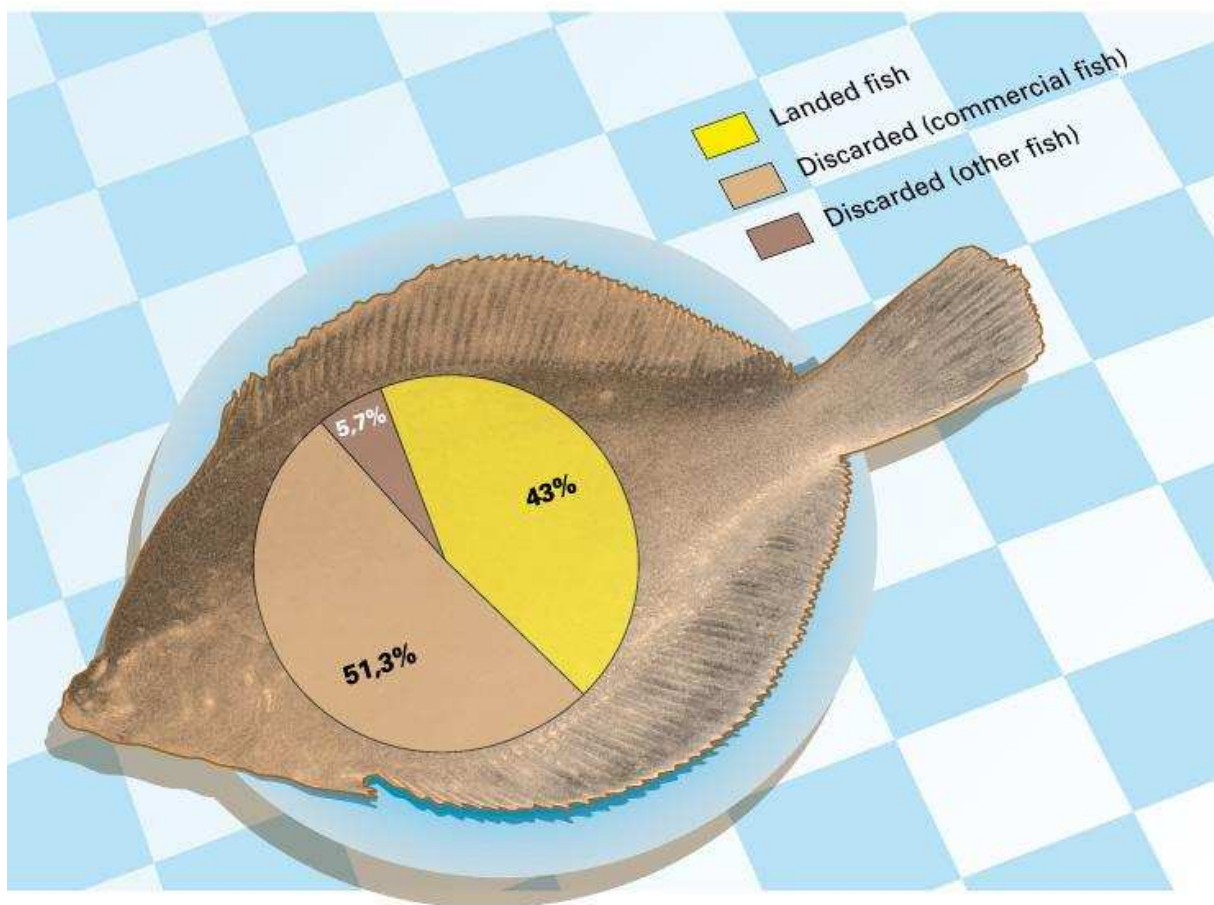
¹⁶ This problem can be reduced through the sharing of fish quotas. Catches above an individual quota can then be transferred to another fisherman who is still below his quota.



The discard problem is not caused solely by the quota system, however. Fish that are not commercially interesting and fish that are undersized and therefore may not be landed (especially juvenile plaice when fishing for sole) are thrown overboard in large numbers. A distinct form of discarding is 'high grading'. This problem arises if a vessel can catch larger specimens with a higher market value during a trip and throws the previous catch back into the sea dead.

13

Figure 2 Landed and discarded fish



Opinions differ on the number of fish that die as a result of discarding. It is accepted, though, that discards account for a considerable proportion of the total catch. Between 2002 and 2005, researchers from IMARES found that 52% to 62% of the total quantity of fish caught by the beam trawler fleet was discarded at sea. Of the discards, 9% were non-commercial fish species and 91% were commercial species, chiefly undersized dab and plaice (van Overzee et al., 2007, see figure 2). According to the Dutch Fish Product Board, weekly samples of about 25



fishing vessels found that about 30% of all plaice that had been caught were subsequently discarded.¹⁷

14

Discarding is not only a waste of fish, it also muddies the accuracy of scientific data on fish stocks. The science is based chiefly on the number of fish caught and landed, although plaice discards have been included in stock estimates since 2004.

Despite the global concern for sustainability, neither the EU nor the Netherlands has a policy to reduce or prevent discarding. Norway, by contrast, has developed its own policy to alleviate the problem.¹⁸

Norwegian approach to discards

Under Norwegian law, by-catches of commercial fish species may not be discarded if they are dead or dying, nor may non-commercial species if they are suitable for consumption. Such by-catches must be landed even if they exceed a quota or are illegal. By-catches that will survive may be returned to the sea.

The proceeds from landed by-catches are distributed to fish marketing organisations; these are private organisations that also perform public tasks (control) and are run by fishermen. The proceeds from the by-catches are therefore returned indirectly to the fishermen themselves. Fishermen are compensated by the marketing organisation for the cost of landing by-catches and are not fined. But they do not receive any payment for the fish. A raft of accompanying policies prevent fishermen from profiting from fishing above quota.

Lack of coordination between nature policy and fisheries policy

EU policies on fisheries on the one hand and sustainability, nature and water on the other are distinct fields with little coordination between the relevant Directorates-General. The European Marine Strategy Framework Directive does not consider fisheries policy even though it advocates an integrated approach. In the Netherlands, too, fisheries policy is separate from adjacent policy fields although there has been greater cooperation since 2007 between the Ministry of LNV's nature and biodiversity policy units on the one hand and its fisheries policy units on the other.

¹⁷ Information from the Dutch Fish Product Board, Fish Facts, North Sea Plaice, June 2008, read at www.verantwoordevisvragen.nl on 21 August 2008.

¹⁸ Information from the Office of the Auditor General of Norway, 4 June 2008.



Dutch policy memoranda such as *Sustainable Decisiveness* (VROM, 2003) and *Integrated North Sea Management Plan* (V&W et al., 2005) are the outcome of global agreements reached within the United Nations (Rio de Janeiro in 1992 and Johannesburg in 2002). They set out the nature, sustainability and biodiversity criteria that are applicable to fisheries policy. The policy goals set by the Netherlands accordingly include a reduction of by-catches by 50%, the designation of Marine Protected Areas and a reduction in the number of beam trawlers by 40%.

15

2.1.3 Recommendations

Our audit found that protecting the ecological sustainability of fisheries is open to improvement, at both EU and national level. We therefore make the following recommendations to the Ministers of LNV, VROM and V&W.

- The Minister of LNV should actively support the introduction of MSY goals in European fisheries policy, not only for 'Dutch' fish species, for which the MSY principle is already applied, but also for fish species in which the Netherlands has no direct fishing interest. Since the MSY approach uses multiyear plans, policy is less reliant on annual quota negotiations, in which short-term national economic interests prevail.
- For the longer term, we recommend that the Minister of LNV actively work out a stance and strategy in anticipation of a future review of European fisheries policy comparable to the current health check of the common agricultural policy. The stance should cover the nature and fisheries policy fields in conjunction so that both are included in the revised policy.
- We recommend that the Ministers of LNV, VROM and V&W insist at European level on coordination of fisheries policy, nature policy and water policy so that different interests can be balanced with each other from the outset.
- We recommend that the Ministers take measures at national level to protect biodiversity in the North Sea. The measures should better coordinate the various policy fields than at present.
- The Netherlands wants to reduce by-catches by 50% in 2013 in comparison with 2007. Given the size of the discard problem, we think the Minister of LNV should prioritise this goal in fisheries policy and closely monitor progress. We recommend that the Minister of LNV actively encourage innovation to reduce by-catches and consider amending the rules towards the Norwegian position and raise this issue at European level.



2.2 Compliance and enforcement

16

2.2.1 Conclusion

Fisheries control and enforcement activities are under pressure in the Netherlands. Without strict enforcement, there are many opportunities for fishermen to infringe statutory rules. The co-management system offers inadequate counterbalance. The enforcement capacity deployed by the Ministry of LNV formally complies with EU regulations but is inadequate to implement working agreements with member state inspectorates and the Community Fisheries Control Agency. A target compliance level has not been set and the Ministry therefore has no criterion to assess the adequacy of available enforcement capacity.

2.2.2 Background

AID's activities in the fisheries

The AID's fisheries enforcement activities concentrate on compliance with the rules. The inspectorate checks whether fishermen who are not entitled to fish are fishing, whether fishermen exceed their fishing rights, whether fishermen are fishing outside authorised areas, whether fishermen comply with the technical fish conservation measures (such as the use of the right net attachments), and whether fishermen record transshipments correctly in the catch register.

In recent years the AID has checked an average of 6% of all landings and inspected each fishing vessel three or four times a year at sea. The standard set by the European Commission on the basis of agreements between inspectorates, however, is that every fishing vessel should be inspected six times a year. The AID's risk analyses also indicate that this minimum number of inspections is necessary.

Opportunities for evasion

According to the Minister of LNV, the current enforcement policy and co-management system have a positive impact on compliance. The AID's risk analyses suggest, however, that fishermen are inclined to break the rules in virtually all areas of sea fishing. This is due in part, according to the AID, to the enormous economic pressure on the industry: the quantity of fish that can be landed has contracted by more than 50% in recent years and fuel prices have risen sharply. Fishermen are looking for ways to get round the restrictions.



Certain regulations, such as those on net attachments, can only be checked at sea, which is very difficult in practice. Checks are frustrated not only by the size of the area (the North Sea) but also by the modern equipment onboard fishing vessels that makes it almost impossible for the AID's vessel to approach unnoticed.

17

According to the Ministry of LNV, the complexity of policy also makes enforcement difficult. New rules are continuously being introduced but old rules are never repealed. Some rules, moreover, are difficult to explain or are redundant, according to our interviewees at LNV.

The AID nevertheless qualifies the level of compliance as 'satisfactory' thanks to the continuous pressure of checks of landings and inspections of vessels at sea. The Ministry of LNV, however, says it cannot draw any firm conclusions on compliance.

Limited influence of co-management

In theory, the system of co-management should increase the fishing industry's compliance with the rules. Fishermen who are members of a management group make private agreements amongst themselves to respect the catch limits. In practice, however, the management groups do not check their members' catches. Only the AID checks the catches when they are landed. The management groups check only vessel engine power, for which they engage external technical expertise. These checks are sampled by the AID.

LNV's stance on enforcement capacity

The Ministry of LNV's formal position is that EU regulations do not contain sanctionable *quantitative* standards on enforcement capacity. In itself, this is correct. However, working agreements between the member states' inspectorates and the Community Fisheries Control Agency have been concluded at EU level in order to establish a level playing field. The AID does not have the capacity necessary to fulfil these agreements.

EU regulations, moreover, contain *qualitative* standards on controls in the member states. Controls must be 'effective, dissuasive and proportionate'. To determine whether enforcement capacity is adequately and demonstrably effective, dissuasive and proportionate, we think the Ministry should set a *target compliance level* (Court of Audit, 2005a; 2008).



Target compliance level needed to set priorities

18

Since the enforcement agency virtually never has sufficient personnel and resources to carry out all the tasks delegated to it by the government, it must set priorities. A potential consequence of prioritisation is that the agency deliberately opts for an enforcement level that cannot ensure 100% compliance. If the enforcement agency has to depart from 100% compliance, it must clarify, with the approval of the responsible Minister, what level of compliance it seeks and why.

2.2.3 Recommendations

To resolve the compliance and enforcement problems, we make the following recommendations.

- The Minister of LNV should set a clear target for the level of compliance in the fishing industry so that the compliance target and the available enforcement capacity can be seen in relation to each other. Decision-making on the use of capacity would then be more transparent.
- In consultation with the member states concerned and the Community Fisheries Control Agency, the Minister of LNV should seek to embed the compliance target in the European Fisheries Regulation in order to establish a level playing field for all European fisheries.
- Finally, we recommend that the Minister of LNV study opportunities at EU level to simplify statutory regulations on the fisheries in order to increase compliance.

2.3 Innovation policy for the fishing industry

2.3.1 Conclusion

Innovative fishing methods could reduce the damage caused by fishing in the North Sea. Although the problems and the solutions have been known for many years, innovation in the beam trawler sector did not begin properly until 2007, prompted in part by the increase in fuel prices. Before 2007, innovation had been small scale, experimental and voluntary.

The current targets are: 40% of beam trawlers must switch to other fishing methods (not all of which are currently permitted under EU rules) and by-catches must be reduced by 50%. Since innovation policy was introduced only recently, we cannot assess whether the goals will be achieved by 2013 or whether the instruments used will work.



2.3.2 Background

19

Slow start to innovation policy

The damage caused by beam trawling to the seabed and the problem of discards have been known for many years; they were recognised by the Ministry of LNV in 1993 (LNV, 1993). The use of beam trawls is a specifically Dutch problem because the Dutch cutter fleet specialises in flatfish (plaice and sole), species that can be caught only with trawls.

LNV announced in 1993 that it would launch an 'intensive study' of the impact of beam trawling and of 'more selective fishing methods' that could reduce by-catches. In both areas, the Ministry of LNV identified pulse fishing as a key innovation. The use of electronic pulses instead of heavy chains disturbs the seabed less, is more selective as regards catch and is more energy efficient than traditional beam trawling.

It took ten years before funds were released for the study. Since 2003 innovation has been included in LNV's budget only incidentally and the expenditure has been earmarked to study pulse fishing. In 2007, the Ministry adopted a long-term strategy and set the goals of having 40% of all beam trawlers switch to other fishing methods and halving the number of discards by 2013. The goals will be achieved by means of the Ministry's policy tools: research, innovation grants, and the development and dissemination of know-how on sustainable catch techniques and improved energy efficiency.

We found that recognition of the damage caused by beam trawling had only recently led to studies of the problem.

Experiments

Until 2007, innovation in the cutter fleet took the form of small-scale experiments involving the voluntary participation of fishermen. Pulse fishing, which took more than ten years to develop, was piloted in 2004 and 2005. The pilot was successful: seabed disturbance and by-catches were reduced, the quality of the catch was considerably higher and fuel consumption was about 40% lower than customary. The pilot was followed up by a cutter using the pulse technique in the North Sea in 2006 and 2007. In 2008, the Ministry of LNV opened an investment scheme to convert five vessels to pulse fishing. Many cutter fishermen, however, do not want to pulse fish because the technique catches fewer fish. Furthermore, most fishermen think beam trawls do not cause significant damage to the seabed.

*Increased fuel prices: incentive*

There has been a change in fishermen's opposition to pulse fishing since 2006. The sharp rise in fuel prices has increased the interest in new, more energy efficient fishing methods. The disadvantage of a smaller catch is being offset by lower expenditure on fuel. An additional benefit is a reduction in CO₂ emissions.

The fishing industry and civil-society organisations have also taken joint initiatives to develop sustainable and innovative fishing techniques. In many cases it is easier to persuade fishermen to experiment with new less harmful techniques if the government compensates them for any loss of income.

EU restrictions

Under European nature conservation policy, the EU currently does not allow pulse fishing because there are still questions about the potential impact of electrical pulses on sharks, rays and life on the seabed.¹⁹ This is preventing the large-scale rollout of pulse fishing to replace beam trawling. By way of exception, 5% of the fleet will be allowed to use pulse fishing. This maximum will be reached with five vessels. In mid-2008 there were 77 large cutters. The EU is not involved in innovation policy in the fishing industry but it does set the legal frameworks and provide financial resources.

2.3.3 Recommendations

The Ministry of LNV's current innovation policy is based on co-responsibility for a less harmful method of fishing. How the goals of 50% fewer discards and 40% innovative fishing methods will be achieved by 2013 is not explained in the plans. We therefore make the following recommendations:

- The Minister of LNV should substantiate the goals of 50% fewer discards and 40% innovative fishing methods and indicate what concrete measures will be taken to achieve them. In this respect we recommend that the Minister carefully study whether pulse fishing is a sustainable alternative.

¹⁹ Sharks and rays are protected under Natura 2000.



2.4 Restructuring policy for the fishing industry

21

2.4.1 Conclusion

The Minister of LNV wants to reduce the size of the Dutch cutter fleet in order to bring catch capacity into line with the declining quotas for plaice and sole. Accompanying policy to restructure the fishing industry will keep the smaller fishing fleet economically viable.

The cutter fleet has been declining since 1994 but it is uncertain how effective the restructuring has been. First of all it is not clear what impact fleet reduction has had on the commercial results of the remaining vessels or whether restructuring has been adequate to keep the fishing industry economically viable. The current decommissioning round also lacks criteria to determine the adequacy of economic sustainability policy.

In practice, the contraction of the fleet has not led to an appreciable increase in the profitability of the remaining vessels. This is because fishermen retain their share in the fishing rights after their vessels are decommissioned and may sell or rent them to the remaining fishermen. Despite the restructuring measures, the annual declining quotas are shared amongst just as many fishermen.

2.4.2 Background

Quantitative goals not substantiated

Successive Ministers of LNV have taken measures since the 1990s to restructure the Dutch cutter fleet. Their aim is to bring capacity into line with the available – yet declining – catch quota. Quantitative fleet reduction targets have been set in LNV's budget since 2003, with specific figures on the withdrawal of tonnage (i.e. ships holds). No reasons are given, however, for the tonnage: there is no direct relationship with the catch quotas allocated to the Netherlands. In other words, the Ministry does not have a method to calculate the appropriate fleet size for a particular catch quota. The lack of a clear relationship between restructuring and catch quotas means the remaining fishermen have little long-term certainty about their investment decisions. The absence of this information also means the House of Representatives cannot properly assess the effectiveness of restructuring assistance.

Fishermen retain quota rights after vessels are decommissioned

Between 1994 and 2008, the engine power of the Dutch cutter fleet fell by 46% and the number of vessels by 28% from 432 to 311. The



individual fishermen, however, have not seen the commercial benefits that might have been expected. This is because the catch quotas, although steadily declining, are still shared among the same number of fishermen. Fishermen whose vessels are decommissioned retain their rights to catch sole, plaice, cod and whiting. They can therefore start again by buying an existing business. And if they decide to stop fishing they can sell or rent their fishing rights to the remaining fishermen. The latter charge the costs they incur to buy or rent additional quota to their operating profits. Accordingly, less money is available to invest in innovation and compliance with the rules comes under more pressure.

22

2.4.3 Recommendations

To tackle the problem of restructuring the Dutch sea fishing fleet we make the following recommendations.

- The Minister of LNV should determine the optimal size of the sea fishing fleet in relation to the current catch limits. Only when this information is known can a well-founded decision be taken on the need for restructuring assistance. The same information can later be used to assess the effectiveness of restructuring assistance. It would also provide fishermen with greater certainty about their economic future and help them take investment decisions.
- The Minister of LNV should also determine what impact the current system of individual transferable quotas has on the economic sustainability of the fishing industry.



3 Response of the Minister and the Court of Audit's afterword

23

3.1 Response of the Minister

The Minister of LNV responded to our draft report on behalf of herself and the Minister of VROM and the State Secretary for V&W on 21 October 2008. Her response is summarised below. The full response can be read on our website at www.rekenkamer.nl.

3.1.1 Main conclusion

The Minister recognises that the economic position of the fishing industry and the ecological situation of the North Sea are not healthy but she only partly agrees with the audit's main conclusion, namely that Dutch fisheries policy is not ecologically strict enough. She first notes that there is no such thing as 'the Dutch fisheries policy' for the North Sea. Management of Dutch fish stocks in European waters is a shared European responsibility and the Netherlands strictly implements the agreements made in European fisheries policy. Secondly, she observes that she, as Minister of LNV, must weigh up all the interests and consider the socio-economic position of the fishing industry. European measures for the recovery of fish stocks and the discard problem take account of the structure of the European fisheries, regulations, natural circumstances as well as economic interests. Thirdly, the Minister stresses that the current weakness in the sector is due not only to European and national policies but also to external factors such as the spectacular increase in fuel prices and the fact that market forces at the auctions prevent fishermen from passing on this increase to their customers.

3.1.2 Quota policy

The Minister accepts our recommendation that she actively support the introduction of MSY targets in European fisheries policy, not only for 'Dutch' fish species, for which the MSY principle is already applied, but also for fish species in which the Netherlands has no direct fishing interest. The Minister wrote that in 2008 and previous years she had



supported the introduction of the MSY and its inclusion in the multiyear plan for sole and plaice.

24

The Minister accepts our recommendation that she work out a long-term stance and strategy in anticipation of a future review of European fisheries policy.

The Minister agrees with our recommendation that she insist at European level on the coordination of fisheries policy, nature policy and water policy so that different interests can be weighed up against each other from the outset. She said the European Commission had made proposals in 2007 to arrive at an integrated maritime policy for the EU. The government is supporting this philosophy by implementing the ecosystem-based approach laid down in the Marine Strategy Framework Directive (MSFD), which came into force on 15 July 2008. The Minister also supports the implementation of the ecosystem-based approach in the common fisheries policy. The Minister notes that coordination of nature and fisheries policies will also be strengthened at national level.

The Minister accepts our recommendation that she take national measures to protect the biodiversity of the North Sea and better coordinate the policy fields concerned. The Minister refers to the *Biodiversity 2008-2011* policy programme of March 2008, which was signed by all ministers and states secretary concerned, and to the *Integrated North Sea Management Plan 2015*, which the Minister of V&W submitted to the House of Representatives on behalf of the ministers concerned in 2006. She also refers to the Netherlands' plans to designate parts of the Dutch section of the North Sea as areas of special ecological interest and to the network of Marine Protected Areas in the Northeast Atlantic, which includes the North Sea. The Minister wishes to include these areas in the regime of the Nature Conservation Act in order to enable their sustainable shared use, although not by means of all fishing methods. At the end of 2008, the State Secretary for V&W will present a National Water Plan that will also coordinate North Sea policy fields.

The Minister agrees that a solution is urgently needed to the discard problem. She notes that halving the number of discards by 2013 – the Netherlands' target – is included in the covenant she concluded in June 2008 with the cutter fleet, the Dutch Fish Product Board, the Dutch arm of the World Wildlife Fund and the North Sea Foundation. The European Commission is taking the lead in the discard problem, writes the Minister. Instruments favoured by the Commission include the gradual banning of discards – which will entail all fish, shellfish and crustaceans being landed



– and supplementary measures such as incentives to improve the selectivity of fishing gear, the obligation to change fishing grounds and real-time closures (ban on fishing in an area during a particular time, for example if there are many juvenile fish).

25

The Minister writes that her fisheries policy is also concerned with long-term innovation and sustainability. The Dutch and the European authorities have provided considerable sums to encourage investment in more selective fishing methods and techniques that reduce by-catches, seabed disturbance and fuel consumption. The Minister also encourages research into new catch techniques.

3.1.3 Compliance and enforcement

The Minister shares our conclusion that compliance and control in the fishing industry are constant matters of concern. In a number of areas, however, she does not agree with us. She finds, for example, that the co-management system offers sufficient counterweight to the fishermen's evasion of statutory rules. She also notes that all fishermen who are not part of the system are controlled. Fishermen who are part of the system are subject to public supervision of private controls, with annual re-inspections of a number of vessels that are inspected privately. Checks are also made if there are indications that rules are being broken.

The Minister does not agree that the Ministry of LNV's enforcement capacity is inadequate to fulfil the agreements between the member states' inspectorates and the Community Fisheries Control Agency. She notes that supervision and control are primarily member state responsibilities. The European Community's role, she observes, is to prevent quality variances in the member states' compliance and control systems and to ensure there is a level playing field. To this end, a number of qualitative requirements are set in European law for compliance and control systems. They should be effective, proportionate and dissuasive. The Minister notes that the Dutch control organisation and effort in the fishing industry is adequate to meet these requirements and that the AID shares her opinion.

With regard to our finding that a compliance level has not been set, the Minister writes that we incorrectly assume that available enforcement capacity can be assessed solely by means of a compliance level: enforcement capacity is determined by risk analysis and priority setting. Enforcement capacity, she notes, is just one element in a raft of measures (control, detection and communication) that are used to



increase compliance. Since the relationship between compliance level and enforcement capacity in the fishing industry is uncertain and is also determined by external factors, it is not desirable to base enforcement capacity solely on a compliance target. Nevertheless, the Minister intends to increase the transparency of decision-making on the use of enforcement capacity. She notes that the Ministry of LNV is working on a new multiyear enforcement programme for the fisheries. Capacity decisions will in future be based on programmatic enforcement. Long-term historical data and risk analyses will be used to prioritise the use of enforcement capacity and its use will be laid down in an enforcement plan.

26

The Minister responded as follows to our recommendation that, in consultation with the member states concerned and the Community Fisheries Control Agency, a compliance target should be included in the European Fisheries Regulation. The Netherlands is a supporter of basic European criteria on 'good' control. A review of the control regulations is currently being prepared. The Netherlands' position is chiefly to seek more cooperation and coordination for inspections, the formulation of minimum conditions for inspections and the definition of benchmarks for the number of inspections to be carried out.

The Minister agrees with our recommendation to simplify policy at EU level in order to increase compliance. She notes that the Netherlands is a strong advocate at EU level of simple, enforceable and controllable regulations. The EU itself introduced its own action plan to simplify regulations in 2005. The Council of Ministers discusses its progress every six months. The Minister notes that her Ministry is drawing up a regulation to consolidate several fishing regulations. This will increase the 'recognisability' of the rules. She is also considering the simplification of the rules.

3.1.4 Innovation policy for the fishing industry

The Minister acknowledges that innovation policy for North Sea fisheries did not really begin until 2007. She notes that the climate for innovation has improved and that the Sustainable North Sea Fisheries Taskforce report (2006) and the establishment of the Fisheries Innovation Platform mark a turning point in the approach to sustainability in the fishing industry. One of the key ambitions for the programming period for the European Fisheries Fund (2007-2013) is a transition to an economically and ecologically sustainable fishing industry. The Minister states that she



has concrete ambitions regarding innovative fishing techniques, energy savings, cooperation within the industry and fleet reduction.

27

The Minister agrees with our recommendation to study the potential of pulse fishing as there are strong indications that it is a sustainable alternative to traditional beam trawling.

3.1.5 Restructuring policy for the fishing industry

The Minister writes that she has no plans for further reductions in catch capacity. She notes that the restructuring rounds have reduced the number of fishermen with catch rights and the numbers of fish that can be caught are shared among fewer fishermen. She does note, though, that profitability is determined not only by the number of vessels and the available fish but also by such factors as oil prices, auction prices and alternative sources of income. She therefore thinks an optimal fleet size cannot be set. Moreover, doing so would be undesirable because the government would then be influencing individual fishermen's decisions. For this reason, the Minister does not accept our recommendation that an optimal fleet size be set.

Nor does the Minister accept our recommendation that she determine what impact the current system of individual transferable quotas has on the economic sustainability of the fishing industry. She writes that the operation of this system has already been studied by the Agricultural Economics Research Institute (LEI). The LEI concluded that the system had led to fishermen evolving from hunters into calculating businessmen and had conserved fish stocks well. The Minister also states that it would be very expensive to abolish the system.

3.2 Court of Audit's afterword

We are pleased the Minister recognises the problems we highlight and that she agrees with many of our recommendations. We also appreciate that the high price of oil is a serious problem to fishermen. Yet we think it should be a further incentive for change and innovation.

Although the Minister says there is no such thing as 'the Dutch fisheries policy' for the North Sea, we would note that the Netherlands shares responsibility for the agreement of European fisheries policy. Through active participation, the Netherlands can pursue its sustainability ambitions for both nature and fisheries. In our opinion, it does not yet do



so adequately. Furthermore, the problems of the North Sea fisheries, especially regarding beam trawlers, are specific and urgent and call for the development of Dutch policy.

28

The Minister accepts many of our recommendation but makes few concrete undertakings. She does not respond, for example, to the suggestion of combined input from nature and fisheries policy to develop a stance on the new European fisheries policy. Nor does she comment on the potential harm of pulse fishing to sharks and rays, or to our recommendation to substantiate the innovation ambitions. With regard to discards, the Minister describes the policy favoured by the European Commission without indicating what the Dutch contribution was. A more proactive policy on the problem of fishing in nature areas would be useful. The industry would then know where it stood and protracted legal proceedings could be avoided.

We note with satisfaction that the Minister wishes to make the use of enforcement capacity more transparent. We think clarification of the working agreements between the EU inspectorates would enhance transparency. We would also note that the intended compliance level is also relevant to programmatic enforcement.

We note that the Minister's response regarding fleet policy is not clear. On the one hand she says she has no plans to reduce catch capacity further but on the other she says the fleet must be 15% smaller by 2013. We continue to think that the use of restructuring assistance should be clearly argued and accounted for, especially as a large proportion of the fisheries budget has been spent on restructuring the fleet, by both previous Ministers and the current Minister, and probably by future Ministers, too. The Minister incorrectly assumes in her response that we support the abolition of the system of individual transferable quotas. The Minister did not refer to our finding that fishermen retain their share in the catch rights after their vessels have been decommissioned and the remaining fishermen can buy or rent their quotas.



Conclusions, recommendations and undertakings

| Location in part I | Conclusions | Recommendations to the Ministers of LNV, VROM and V&W | Undertakings |
|-----------------------|--|--|---|
| Chapter 2 | Dutch fisheries policy is not strict enough to realise the ambitions of conserving commercial fish species and biodiversity in the North Sea. | | |
| Section 2.1 | European quota policy provides inadequate protection of commercial fish species and has undesirable side effects for commercial fish species and the entire ecosystem. | <ul style="list-style-type: none"> • Make a clear decision at EU level for the MSY with multiyear plans, also for fish species that are not economically important to the Netherlands. • For the longer term, take action to develop a strategy/stance in anticipation of a future review of common fisheries policy including the policy fields of nature and fisheries. • At EU level, seek greater coordination of fisheries policy, nature policy and water policy so that different interests can be taken into account. • At national level, take measures to conserve biodiversity in the North Sea, with better coordination of the aforementioned policy fields. • Give priority to the discards problem by encouraging innovation at national level and seek regulations within the EU to tackle the problem. | <ul style="list-style-type: none"> • The Minister of LNV supports the MSY approach. • The Minister will work out a strategy in anticipation of a future review of the common fisheries policy. • The Minister will continue to call for coordination of the policy fields. • The Minister intends to designate marine areas of special ecological interest in the Dutch sector of the North Sea and refers to the network of Marine Protected Areas in the Northeast Atlantic, which includes the North Sea. The Minister wants to bring these areas under the regime of the Nature Conservation Act. |
| Section 2.2 | Control and enforcement of statutory rules in the fisheries sector are under pressure. The EU does not set quantitative standards and LNV has no controllable quantitative | <ul style="list-style-type: none"> • Provide clarity on the target compliance level with a view to the required enforcement capacity. • Embed the compliance level in the European Regulation with | <ul style="list-style-type: none"> • The Minister of LNV will not follow up the first recommendation. • The Minister is working on basic European criteria for 'good' control. |



| | | | |
|-------------|---|--|---|
| | definition of the EU qualitative requirements. Co-management offers inadequate counterweight. | a view to a level playing field. <ul style="list-style-type: none"> At EU level, study simplification of regulations in order to increase compliance. | <ul style="list-style-type: none"> The Minister is working on a simplification of regulations. |
| Section 2.3 | Although problems in beam trawling have long been recognised, innovation policy only recently got going. The possible success is not clearly substantiated. | <ul style="list-style-type: none"> Substantiate the feasibility of innovations to save energy and reduce discards and indicate what measures will be used to achieve the goals. | |
| Section 2.4 | It is not clear what effect fleet restructuring has had on the commercial results of the remaining fishermen or whether restructuring policy is adequate. | <ul style="list-style-type: none"> Set clear and measurable goals for an optimal fleet size in relation to catch limits so that the effectiveness of restructuring policy can be measured. Study the impact of the system of individual transferable quotas on the economic sustainability of the fisheries. | The Minister of LNV does not accept the recommendation. |



Part II Audit findings



1 Introduction

1.1 Audit themes

Between September 2007 and June 2008, the Court of Audit investigated the implementation of fisheries policy in the Netherlands. We looked at:

- European *quota policy* and its results in terms of sustainability;
- *enforcement* of European fisheries policy in the Netherlands;
- the impact of Dutch *fleet restructuring policy* on the sustainability of the fisheries;
- the impact of Dutch *innovation policy* on the sustainability of the fisheries.

Our audit concentrated on the beam trawler sector owing to its importance to the fishing industry²⁰ and the grave sustainability problems associated with it. Part I of this report presents our conclusions and recommendations. Part II considers the underlying findings. We begin by presenting data on the sustainability of the North Sea fisheries and the financial importance of the industry and fisheries policy to the Netherlands. In chapter 2 we outline European conservation policy (quota policy). We discuss the goals, the tools and the results of sustainability policy and consider where the policy has not been successful and the possible causes. We also look at the relationship with adjacent policies to conserve marine biodiversity. Policy implementation in the Netherlands and the enforcement of the main policy element – quota policy – are considered in chapter 3. Chapter 4 looks at the restructuring of the fishing fleet as part of structural policy. We describe the effect of the restructuring measures on the commercial sustainability of the sector. Chapter 5 deals with the specific measures taken in the Netherlands to make fisheries ecologically sustainable. They include investments in the development of innovative fishing methods.

²⁰ Beam trawlers account for more than 83% of the total Dutch fishing effort (Taal et al., 2007).



1.2 Ecological sustainability in figures

The main indicators to measure the sustainability of fish species are the *spawning stock biomass* (SSB, the total weight of fish in a stock that are old enough to spawn) and *fishing mortality* (death or removal of fish from a population due to fishing).²¹ Commercial fish species are vital to the fishing industry. These are species such as sole, plaice, haddock, herring, whiting and cod that are sold for human consumption. Sustainable populations of these species must be conserved if they are to be caught.

In the longer term, the ecological sustainability of commercial species goes hand in hand with the fisheries' economic importance. This is not true of non-commercial fish species or biodiversity. Their conservation can be at the expense of the economic interests of the fishing industry.²²

Commercial fish species

The goal of conserving all commercial fish species in the North Sea at sustainable levels has not yet been achieved. On behalf of the Netherlands Environmental Assessment Agency, IMARES²³ has analysed changes in the populations of several important fish stocks (van Densen et al., 2008). IMARES' findings on a number of stocks are summarised below.

The *cod* spawning stock biomass has been falling since 1971 and has been below the precautionary level of 150,000 tonnes since 1983.²⁴ Any increase brought about by strong year classes has been matched by an increase in fishing effort. The sustained high fishing effort since the end of the 1990s has reduced the stock to a minimum never seen before. Scotland, Norway and Denmark are the largest cod fishing countries; on average the Netherlands is allocated 10% of the quota. Since 2001, ICES

²¹ To estimate fishing mortality, the number of fish in the population is reconstructed using the total catch per age group. It is then assumed that there is an exponential decline in the number of fish per year class over time. This mortality coefficient (Z) consists of a natural mortality component (M) and a fishing mortality component (F): $F = Z - M$ (van Densen & van Overzee, 2008). Calculation of fishing mortality takes no account of by-catches that are discarded, with the exception (since 2004) of plaice and sole.

²² Source: website of the GONZ project, Ecological Indicators of the North Sea Ecosystem, www.gonz.nl, consulted on 30 October 2007.

²³ IMARES: Institute for Marine Resources & Ecosystem Studies, a research institute at Wageningen University and Research Centre.

²⁴ The EU's common fisheries policy is to not allow fish stocks to fall below the precautionary level (see chapter 2).



has advised that cod fishing should be stopped but the total allowable catch (TAC, see part I, section 2.1.2) for cod has remained at 20,000 tonnes per annum since 2001.

34

Plaice is caught chiefly by Dutch (40%),²⁵ English and, to a lesser extent, Danish beam trawlers. The fishing effort for plaice rose markedly in the 1960s, 1970s and 1980s. Until 1988, plaice stocks increased in tandem with the fishing effort. Since then, however, a series of weaker year classes has led to a decline in the spawning stock. The fishing effort has remained just as high. The spawning stock halved in the period to 1995. The lower growth rate did not continue after 1995. There has not been a sharp decline, as was the case with whiting and cod, but neither has there been a recovery.

Sole is caught chiefly by Dutch fishermen. The Netherlands receives 75% of the total catch limit in the EU. In 2008, the Dutch quota was 9,500 tonnes (out of a TAC of 12,800 tonnes). The spawning stock fluctuated during the 1970s and 1980s at around the precautionary level although there were years with strong year classes. The lowest stock was around 1980. The natural increase in sole makes fishing for this species profitable. The fishing effort has always been high without seeming to have had a visible negative impact on the stock. Since the mid-1990s the stock has fallen sharply and in recent years has been at around the precautionary level, as it had been at the beginning of the 1980s.

Impact on life on the seabed

Beam trawling is a major factor in the ecological sustainability of the North Sea. Not only does it place pressure on stocks of sole and plaice, as seen above, but in certain instances the large-scale damage it causes can kill more than 90% of the population of certain seabed species (see section 2.4.1).²⁶

Biodiversity in the North Sea

The Dutch sector of the North Sea is part of the Netherlands' National Ecological Network (EHS) and, together with the Wadden Sea, is the largest continuous nature area in the country. The Netherlands' territorial waters extend 12 miles off the coast. Beyond that lies the Dutch Continental Plate, which the Netherlands has designated as an Exclusive Economic Zone. The Netherlands has certain powers in this zone but the

²⁵ 18,414 tonnes out of a TAC of 49,000 tonnes (LNV, 2007b).

²⁶ Source: www.milieuennatuurcompendium.nl (see Ecosystemen/Noordzee/Bodemfauna van de Noordzee en boomkorvisserij), consulted on 2 July 2008.



fishing measures it can take are not as extensive as those it can take in its territorial waters (Netherlands Environmental Assessment Agency, 2008).

35

Nature is not as well protected in the North Sea as it is on land or in the Wadden Sea. The Natura 2000²⁷ regime is applicable to just 4% of the Dutch North Sea. By way of comparison, *all* the Wadden Sea is subject to the Natura 2000 regime. The government intends to increase the Marine Protected Areas in 2008 and will designate Dogger Bank, Klaver Bank, the North Sea coastal zone north of Bergen and the Western Scheldt estuary as Habitat Directive areas. The government wants to nominate these marine areas to the European Commission and the secretariat of the OSPAR Convention before 1 January 2009 (V&W et al., 2005; LNV, 2007a; 2008b).

1.3 Economic sustainability in figures

As well as the problems of ecological sustainability there are problems of *economic sustainability in the fishing industry*. Cutter trawling is not profitable and the fleet is declining.

Production figures for the Dutch fishing industry in 2006

In total, Dutch fishermen 'produced' about 600,000 tonnes of fish (caught and farmed) in 2006. This is equal to 0.4% of world production; all EU countries together account for about 9% of world production. The Netherlands takes fifth place for fish production in the EU, after Spain, Denmark, France and the United Kingdom. The total production of the Dutch sea and coastal fisheries, including fish farming, was worth EUR 486 million in 2006. Cutter trawlers earn about half this sum (EUR 256 million) (Taal et al., 2007).

The volume of fish landed, the number of vessels and the number of jobs in the Dutch fishing industry have all fallen since 1980. The cutter trawler fleet, which was built largely in the 1970s, quickly proved too large. Furthermore, the vessels were equipped with engines that were too powerful under EU legislation. Investments had also been made in beam trawl techniques, which later proved to be unsustainable owing to the damage they caused to the seabed.

²⁷ Natura 2000 is a European network of protected nature areas. It is the cornerstone of EU policy for the conservation and recovery of biodiversity. The network comprises all areas that are protected under the Birds Directive (1979) and the Habitat Directive (1992).



In recent years, moreover, the fishing industry has suffered from high fuel costs. The price of oil increased by 17% in 2006. Earnings per litre of diesel oil have nearly halved since the early 1980s (Smit et al., 2006).

For the fifth year in succession, the cutter fleet made a net loss in 2006. Commercial losses amounted to EUR 10 million, nearly as much as in the previous year (Taal et al., 2007).

Table 2 Cutter fleet key figures (annual averages)

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006* |
|---|-------|-------|-------|-------|-------|-------|-------|
| Number of vessels | 401 | 401 | 397 | 384 | 371 | 355 | 344 |
| Engine power (x 1,000 HP) | 427 | 422 | 404 | 380 | 364 | 332 | 304 |
| Number of crew | 1,828 | 1,804 | 1,765 | 1,656 | 1,564 | 1,470 | 1,399 |
| Oil consumption (x 1 million litres) | 321 | 306 | 285 | 272 | 247 | 225 | 226 |

* Preliminary figures (Taal et al., 2007); final figures for 2006 will be published in December 2008.

The size of the active cutter fleet declined between 2000 and 2006 to 344 vessels (see table 2), while total engine power fell by 28% to 304,000 HP. The number of crew fell by 23%, mainly on the large beam trawlers. Oil consumption, like engine power, fell by 28%.²⁸

1.4 Financial importance of the fishing industry

1.4.1 Financial importance of the fishing industry

More than 2,600 independent businesses (nearly all of them in the SME sector) are responsible for catching, processing and distributing fish in the Netherlands (Smit & Taal, 2007). The fishing industry's total income in 2006 is estimated at EUR 644 million, equal to 0.12% of the gross domestic product for that year of EUR 534.3 billion. The working population in the Netherlands in 2006 was 7.07 million, of whom just over 20,000 (more than 15,000 FTEs) worked in the Dutch fishing industry, less than 0.3% of the national labour force.²⁹ By far the majority work in the fish processing industry/wholesaling (34%) and in retailing (46%).

²⁸ The figures relate to North Sea cutters that earned at least EUR 50,000 in the previous year, based on landing data and information on fish auction prices.

²⁹ Source: www.statline.cbs.nl/statweb, macroeconomic figures, consulted on 1 April 2008.



This does not mean, however, that fishing is not an important industry for other reasons (such as social and cultural). 'Herring Fleet Day' and the eel smokehouses in Volendam, for example, are characteristic features of Dutch society. 37

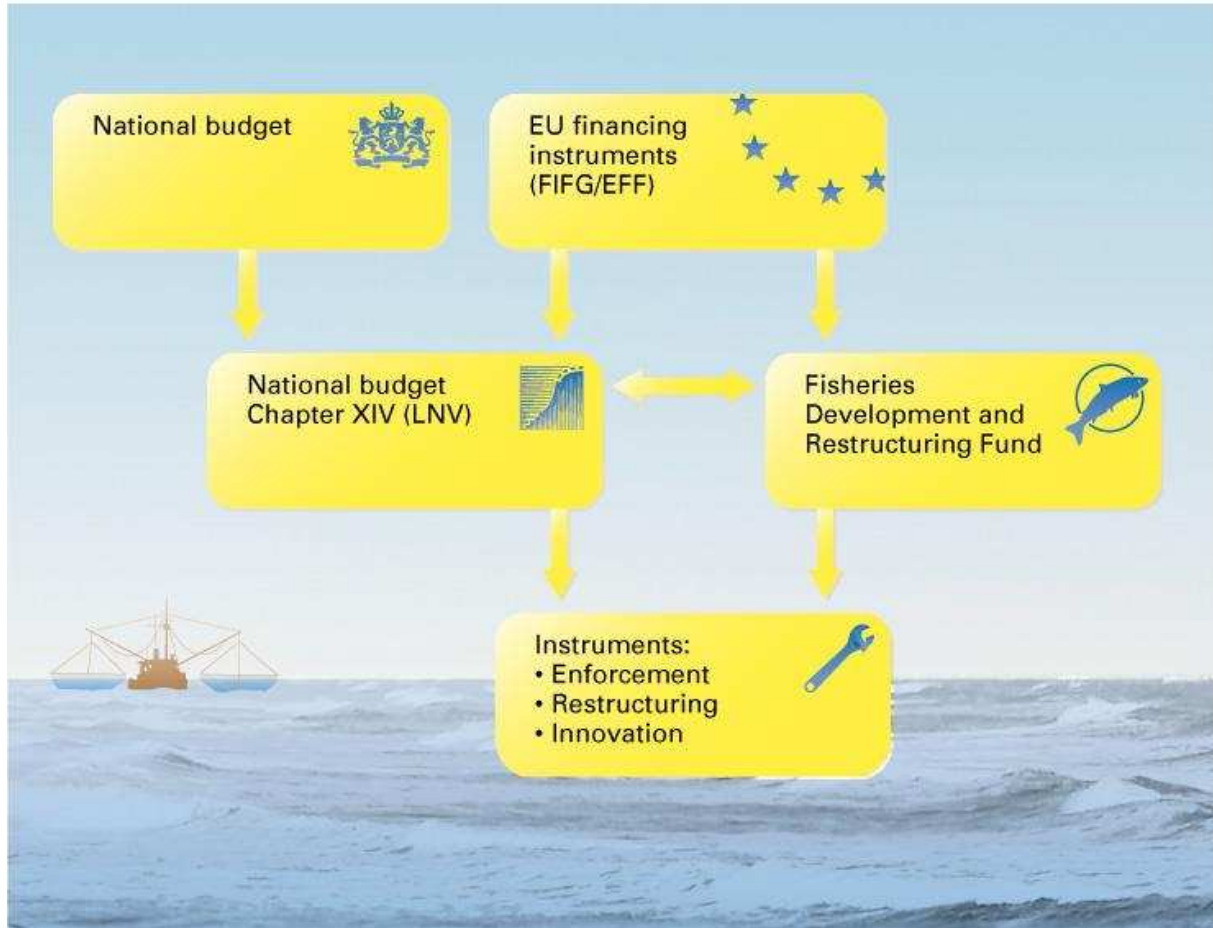
1.4.2 Financial accountability for fisheries policy

The Ministry of LNV's annual expenditure on fisheries policy is financed from the national budget and the Financial Instrument for Fisheries Guidance (FIFG), an EU structural fund that was succeeded by the European Fisheries Fund (EFF) in 2007. To account for expenditure, the Ministry of LNV has to date used a foundation it established to temporarily administer EU funds³⁰ In the past, this Fisheries Development and Restructuring Fund (FDRF) also regularly received substantial amounts from LNV's budget. As a result, the provision of funds by the EU did not always match their use by the Ministry. We pointed out in 2005 that the FDRF was unnecessarily accumulating funds and, in consequence, its accounts were not transparent (Court of Audit, 2005b). This lack of transparency, and inconsistent accounts of programme expenditure in LNV's budget, means expenditure statements can no longer be prepared properly. The Ministry will wind up the FDRF in 2008. Remaining funds will be transferred to a budget reserve.

³⁰ Fisheries Development and Restructuring Fund, established on 6 February 1975.



Figure 3 Flow of funds for fisheries policy



The Court of Audit has not made any other specific comments on regularity and financial management or the reliability and quality of policy information on fisheries policy in its reports on the Ministry of LNV's annual reports in recent years (2003 to 2006).

1.4.3 Government funds

Since 2006, budget revenue and expenditure for the fishing industry have been estimated and accounted for in article 21.14 of the Ministry of LNV's budget, 'Promotion of sustainable catching and farming of fish and shellfish' and programme expenditure to implement sea fisheries policy has been specified at instrument level as innovation, research or restructuring expenditure.

In the years before 2006, budget revenue and expenditure for the fisheries were accounted for in article 4.14, 'Fisheries restructuring'. A further breakdown of programme expenditure to implement sea fisheries policy was not provided in the budget or the accounts.



Fisheries enforcement costs are covered by the Ministry's contribution to the General Inspectorate (AID) and form part of the operating expenses accounted for in the aforementioned articles. The budget and accounts do not include a further breakdown of this general cost by enforcement field in which the AID is active. These documents therefore do not provide an insight into the annual cost of enforcement in the fishing industry. The AID's annual reports do not provide such an insight either because they do not provide detailed accounts of the use of capacity in the various policy fields. According to information from the Ministry, fisheries inspections cost the AID about EUR 5.8 million in 2006 and EUR 6.3 million in 2007.

For the period 2007-2013, the government has earmarked about EUR 98 million for the Dutch fisheries as a whole. The amount included in this figure for inland fishing is negligible. This figure relates solely to programme expenditure and not to the Ministry's operating expenses. It therefore does not include enforcement costs.

1.4.4 European funds

In the period 2000-2006, the Ministry of LNV received EUR 38.1 million from the FIG. In the period 2007-2013 the Ministry can count on EUR 48 million from the EFF. The European Commission wants to concentrate assistance from this new fund on sustainability and has defined expenditure categories for fisheries policy. The member states have a certain degree of freedom within these categories. In its compulsory operational plans, the Ministry of LNV has prioritised the restructuring of the fishing fleet, the transition to more selective fishing methods, the promotion of innovation and fish farming, broader development of the coastal zone and the economic position of young fishermen.



2 European quota policy

This chapter considers the main policy instrument in the common fisheries policy: the total allowable catch per species per annum (TAC) and the annual quota for the individual member states. The crux of the policy is that the European Commission proposes a TAC for each fish species each year and proposes its allocation among the EU member states and Norway. The quota allocation is based on the member states' traditional share of the catch. The Netherlands, for example, has traditionally fished for plaice and sole and this is reflected in a large quota for these fish. The final adoption of the TAC and quota by the Council of Ministers is preceded each year by a process of scientific advice and negotiation between the member states.

In this chapter we first describe how the TACs and quotas are agreed (section 2.1). In practice, this process holds back the results of quota policy (section 2.2). We then consider a series of other factors that weaken the effectiveness of quota policy such as the wide margins of error in the biological data on fish stocks and the high fishing mortality that is not included in official counts because fish are discarded instead of being landed (section 2.3). We close this chapter by looking at the relationship between the implementation of quota policy in the Netherlands and international, European and national nature policy (section 2.4).

2.1 Agreement of TACs and quotas

2.1.1 European Commission's reasoning

Conservation of commercial fish species

EU quota policy is intended to conserve commercial fish species by setting maximum catches and allocating them among the member states. Three standards are used to determine the maximum number of fish that can be caught: the biological minimum, the precautionary level and the maximum sustainable yield (MSY).



Biological minimum

41

Since the 1990s, the scientific community has used 'safe biological limits', with an absolute lower limit of the biological minimum. Minimum stock levels have been set for each fish species. If a population falls below the biological minimum, the stock's recruitment (i.e. the increase in the stock, or the number of juvenile fish that are added to the population each year) and thus its existence are endangered. There are then too few mature fish to produce enough young.

When preparing the common fisheries policy in 1983, the European Commission thought it too risky to base policy on the lower limit of the biological minimum. In unforeseen circumstances, fish stocks would immediately be endangered. There had to be a margin of safety and the lower limit had to be higher than the biological minimum. This became the 'precautionary level'. The aim is to preserve the spawning stock (the number of mature fish that can reproduce) above the precautionary level.

Table 3. TACs for 2007, biological minimum and precautionary level

| Species | Biological minimum (tonnes) | Precautionary level (tonnes) |
|----------------|------------------------------------|-------------------------------------|
| | calculated by ICES | set by European Commission |
| Sole | 25,000 | 35,000 |
| Plaice | 160,000 | 230,000 |
| Cod | 70,000 | 150,000 |

Source: *Visserijnieuws*, 13 November 2006, p. 5.

Table 3 above shows the biological minimum and the precautionary level for 2007 for three important fish species in the North Sea. The margin between the biological minimum and the precautionary level is determined by each species' particular situation. The margin for cod, for example, is greater than that for sole and plaice because cod is seriously threatened.

Multiyear plan for plaice and sole

The European Commission intends to replace the precautionary level in the next few years with the maximum sustainable yield (MSY). It was agreed during the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002 that this standard would be rolled out worldwide in 2015.

The European Commission has adopted the following definition of MSY: 'Fishing at MSY levels means catching the maximum proportion of a fish stock that can safely be removed from the stock while, at the same time, maintaining its capacity to produce maximum sustainable returns in the



long term'. The new standard is based on a different principle from the precautionary level. The latter is designed to prevent fish stocks 'collapsing' (i.e. there being too few fish to catch) but the MSY is based on the biologically, economically and socially sustainable quantities of fish that can be removed from the stock. The principle of sustainable fishing is that no more fish are caught than the stock can bear. MSY is directed at a species' stability over a longer period of time, it is forwards looking.

42

Use of MSY was first considered in a 2007 management plan for plaice and sole stocks in the North Sea (European Commission, 2007a). The plan's objective is to fish for plaice and sole sustainably in accordance with the MSY principle. In the plan's first phase, plaice and sole stocks will be raised to above the biological minimum. This will be achieved by reducing fishing mortality by 10% per annum. When stocks have been above the biological minimum for two successive years, they may be fished in accordance with the MSY principle under sustainable, economic, environmental and social conditions (European Commission, 2007a).

In view of the measure's sweeping economic consequences for the fishing industry in general and the Dutch cutter fleet in particular, it was decided that the TACs for plaice and sole would not be reduced by more than 15% per annum, even if doing so would reduce fishing mortality (European Commission, 2007a). This is consistent with current EU policy of not allowing TACs to fluctuate by more than 15% up or down so that the fishing industry is not exposed to excessive swings.

Non-commercial fish species

The TACs and quotas are catch limits that are set with a view to preserving commercial species only. The reform of the common fisheries policy in 2002 considered the ecosystem for the first time. The resultant Regulation gave the Council of Ministers the power to take additional measures 'in the event of a serious threat to the conservation of living aquatic resources or to the ecosystem resulting from fishing activities' (European Commission, 2002). The amended policy allows the EU to intervene in the fisheries if the ecosystem is threatened.

Still little consideration for undesirable side effects

Quota policy does not consider the marine ecosystem as a whole. The impact of fishing is not considered when quotas are set. The measures the EU takes to protect the ecosystem, such as the designation of protected areas under Natura 2000, are not part of the decision-making process for quotas. In the North Sea, fishing has a harmful impact on



birds, marine mammals, shellfish, fish species and seabed organisms. The causes are: 43

- use of fishing gear that does not select fish species accurately (discards);
- 'ghost fishing': nets that are dumped or abandoned at sea and ensnare fish and cetaceans;
- changes in the food chain through the removal of certain species so that predators, competitive species and prey species decline in number, with negative consequences for birds and marine mammals;
- damage to the seabed by fishing gear, including beam trawls.

The European Commission proposed measures in autumn 2007 to take an active ecosystem-based approach to fisheries management in deep waters (i.e. not in the North Sea). Its proposal 'integrates the Union's Environmental and Common Fisheries Policies by establishing the rules whereby the adverse effects of certain fishing practices on the marine environment can be prevented and eliminated' (European Commission, 2007b).

European agricultural and fisheries ministers decide every December on a maximum catch for each commercial fish species that the member states' fishermen may land. The maximum therefore relates to the quantity of *landed* fish not the quantity of fish caught at sea. In this respect, the term Total Allowable Catch is slightly misleading.

The outcome of the Council of Ministers' decision-making is a detailed regulation concerning the commercial fish species that can be caught, the fishing grounds in EU waters and the periods of the year when fishing is permitted. The Council also decides on the allocation of the overall quota to the member states.

The Council's decisions are the outcome of a long process of advice and negotiation. It begins with a proposal from the European Commission on the TACs. By way of preparation for the proposal, the Commission is advised by the International Council for the Exploration of the Seas (ICES). ICES bases its advice on information from member states and studies carried out by its own working groups, which include scientists from the member states, including scientists from IMARES in the Netherlands.

The Commission then puts its proposal to its own advisory committee, the Scientific, Technical and Economic Committee for Fisheries (STECF), which assesses the biological, ecological and socio-economic



consequences before issuing its advice. The Commission is also advised by regional advisory councils.³¹

44

This advice and the outcome of negotiations with Norway, which shares certain fish stocks with the EU, ultimately lead to the proposal that the European Commission puts to the Council of Ministers. Negotiations then start on the quotas that will be allocated to the individual member states. Each member state will weigh up the interests of its fishing industry against those of the fish stocks and the ecosystem.

The result of the negotiations is that the TACs have always been higher than the Commission's proposals because each member state wants the best possible outcome for its own fishing industry. The fishing industry has a strong voice, particularly in major fishing countries such as Scotland, England and Spain.³² The European Commission has no formal power to influence the outcome of the negotiations.

The European Commission then monitors the member states' implementation of quota policy. If a member state exceeds its quota, the Commission can reduce it.³³

Fines can be imposed only by the Court of Justice of the European Communities. The Court decides on cases brought by the European Commission or the member states. Scotland and Ireland, for example, suffered from illegal landings of herring and mackerel, and France was fined EUR 65 million for non-enforcement of quotas.³⁴

2.2 Results of the quota policy

In 2006, the European Commission concluded that many fish stocks were below the biological minimum, were being over-exploited or had too few mature members. This poor result was attributable largely to the annual catch limits being higher than the proposals based on scientific advice,

³¹ In the review of the common fisheries policy in 2002, it was agreed that regional advisory committees (RACs) would be set up. The North Sea RAC, which began operations in 2004, is made up of fisheries organisations and other interest groups such as environmental and consumer organisations.

³² Interview with Dorette Corbey (European Parliament), 10 January 2008.

³³ The Council of Fisheries Ministers decided in April 2008, for example, that Poland's cod quota would be reduced. Polish fishermen caught far more cod last year than allowed under the quota. The ministers agreed to deduct the excess from the Polish quota for the next four years.

³⁴ Information from talks with the Pelagic Freezer Trawler Association (PFA), 21 May 2007, and with the Community Fisheries Control Agency, 9 January 2008.



aggravated by weak compliance with the rules (European Commission, 2006).

45

The European Commission wrote that the number of stocks at risk neither decreased nor increased in the period 2002-2007. The number of stocks with a zero catch advice was also roughly stable. The Commission noted that quota policy had led to only a very small decrease in the impact of fishing because TAC decisions were on average substantially higher than the annual catches advised by scientists. Furthermore, some TACs were systematically exceeded in practice. The Commission also noted that only three fish stocks in European waters were exploited in accordance with the MSY principle. The others were still being fished to the precautionary level (European Commission, 2007b).

2.3 Complicating factors

2.3.1 Margins of error in scientific advice

As noted above, the European Commission's proposal is based on the advice of ICES's fisheries biologists. They base their advice on stock studies that are the product of three data collections:

- samples of fish at auction;
- samples of catches at sea;
- studies of fish stocks by research vessels.

ICES' scientific advice has a margin of error of about +/- 30% to 40%. Given the size of this margin, the scientific information cannot give a definite answer on the actual state of commercial fish stocks and is therefore a weak basis for policy. The surveys carried out at sea provide the most likely figures on fish stocks. The lack of adequate scientific data creates difficulties in practice; the Commission recognises this problem. Uncertainty about the accuracy of the estimate is used by the fishermen and the member states to cast doubt on the accuracy of the proposed TACs and quotas if it is in their interests.³⁵ At present, however, there is no alternative.

2.3.2 Other factors

The margin of error in ICES' scientific information is due to the many factors that influence the spawning stock. These factors are not always evident or only become evident upon later reconstruction. One is the high

³⁵ Information from talks with IMARES, 14 May 2007.

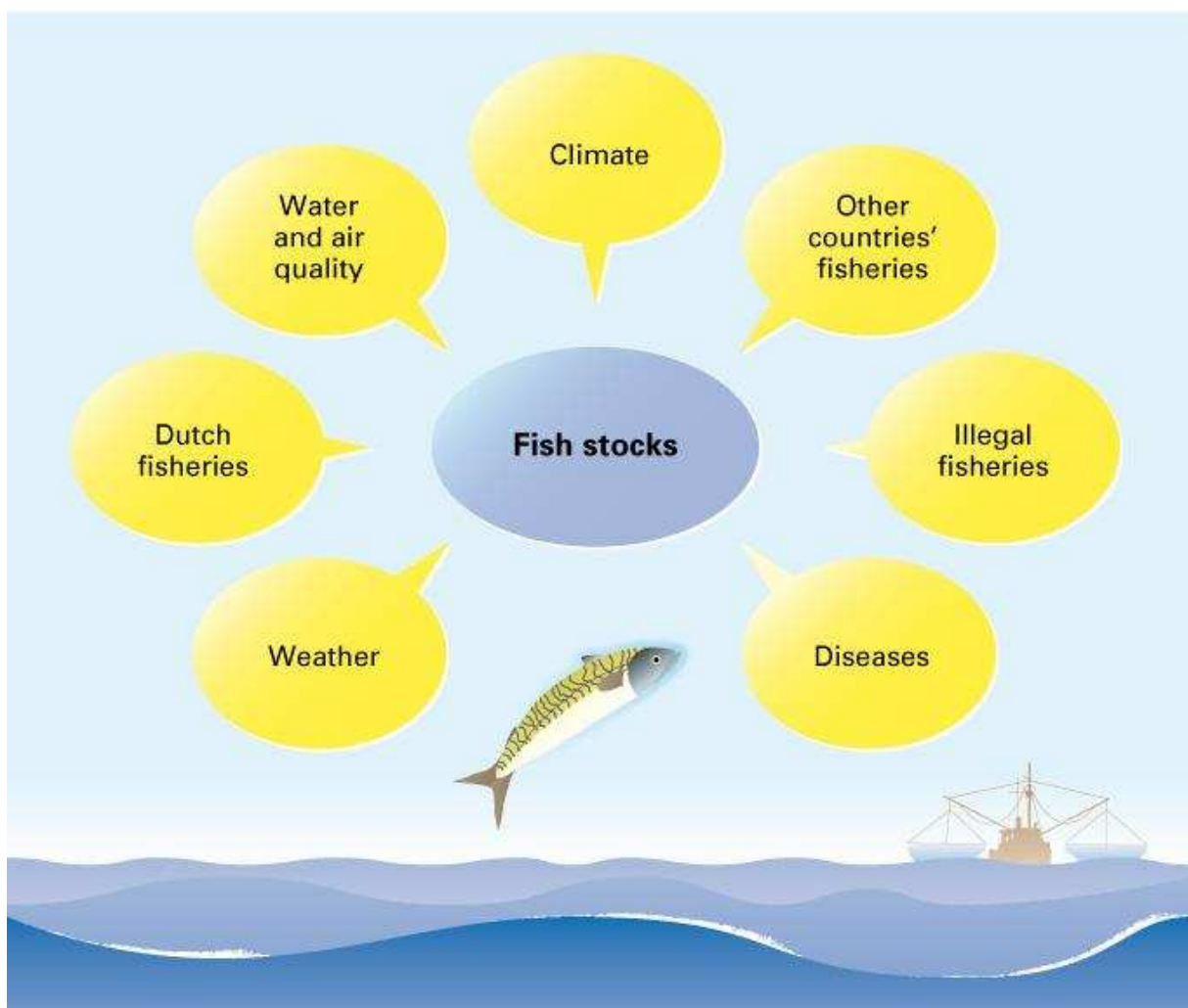


probability that all fish, including plaice and sole, will be discarded. This risk has increased since the beam trawler fleet began fishing closer to the shore, where there are more undersized plaice, in order to save fuel. More recently, new factors have had an adverse influence on plaice stocks, such as the warming of the North Sea.

46

Figure 4 shows the factors that influence fish stocks.

Figure 4 Influences on fish stocks



2.3.3 By-catches

A feature of the Dutch cutter fleet is its specialisation on plaice and sole. By fishing for both of these flatfish, the Netherlands has difficulty with the quota system: by-catches are inevitable because it is not possible to catch plaice and sole separately. Catches of plaice and sole can be landed as long as they remain within quota. But once the quota for one of the



species has been exhausted or if catching one of the two is forbidden, fish 47
have to be discarded. Throwing dead or dying fish overboard is not illegal
because the quota relates to the quantity of fish that is *landed*, not the
quantity that is caught. The quantity of fish that is still alive when
discarded is estimated at less than 10%.

Causes

Discards are due not only to the prohibition on landing over-quota fish.
Technical regulations, such as the compulsory use of certain mesh sizes
and the minimum size of fish that can be landed, also increase the
number of fish that have to be discarded. In particular, fishermen fishing
for sole have to throw undersized juvenile plaice back into the sea in
large numbers simply because plaice happen to be wider than sole.

In other cases, the fishermen themselves are responsible for the dumping
of dead fish, for example when 'high grading' in pursuit of their own
commercial interests. High grading is the practice of dumping a catch
when a school of fish with larger members (and therefore a higher market
value) can be caught.

In 2002-2005, researchers at IMARES concluded that 52%-62% of the
total tonnage of fish caught using beam trawls was thrown overboard at
sea. Nine per cent of the discards were non-commercial fish species and
91% commercial fish species, chiefly undersized dab and plaice (van
Overzee et al., 2007). According to the Fish Product Board, weekly checks
of about 25 fishing vessels indicate that about 30% of all plaice that are
caught are subsequently discarded.³⁶ According to Nature Balance 2008
(Netherlands Environmental Assessment Agency, 2008), many other
animals apart from fish (e.g. crabs and shellfish) are also caught and
discarded. The quantity is about as large as the total fish catch that is
landed and discarded together.

Discarding fish is not only a waste; it also reduces the accuracy of the
scientific data on fish stocks. The science is based chiefly on the number
of fish that are actually landed. Since 2004, however, plaice discards
have also been included in estimates of stock numbers.

Solving the problem

The problem of by-catches has been known since the introduction of the
quota system in 1983 and has been on the EU agenda since the 1990s. To

³⁶ Information from the Dutch Fish Product Board, *Visfeiten: Noordzeeschol*, version of June 2007,
consulted at www.verantwoordevisvragen.nl on 21 August 2008.



date, however, the EU has not come up with a solution, although policy proposals are currently being drawn up.

48

Norway has introduced a policy to reduce or prevent discards.³⁷ It is forbidden under Norwegian law to discard by-catches of commercial fish species that are dead or dying. It is also forbidden to discard non-commercial species that are fit for consumption. Such by-catches must be landed even if they exceed the quota or are illegal. By-catches that are still alive and will survive must be returned to the sea. The income earned on landed by-catches is given to fish marketing organisations. These are private organisations that also carry out public tasks (control). Since they are owned by the fishermen the fishermen benefit indirectly from the income earned on the by-catches. The fishermen also receive compensation from the marketing organisation to defray the cost of landing by-catches and they are not fined. They do not, however, receive payment for the fish landed. A raft of accompanying measures prevent fishermen from profiting from fishing above their quotas. They receive a warning, for example if they are caught red handed; in some cases, they can also be reported to the police. Another aspect of Norwegian policy is that fishing grounds are temporarily closed if the fish are too small.

An advantage of the Norwegian system is that discards count in the statistics so that more accurate scientific estimates can be made when setting the TACs. Furthermore, the fish are consumed and waste is avoided.

2.4 Relationship with nature policy

The fisheries policies conducted by the Ministry of LNV and the EU are not the only policies of relevance to the fishing industry and fisheries. Policy and legislation in the fields of nature, the environment, biodiversity and the North Sea can also influence fisheries and fisheries policy. These related policy areas have three themes in common: sustainability, biodiversity and water. These themes are connected because biodiversity declines if little or no sustainable use is made of natural resources such as water and fish. Below, we summarise the main international treaties and European regulations for the three themes of sustainability, biodiversity and water. We then consider related policy in Europe and the Netherlands and the importance of coordination between related policy areas and fisheries policy.

³⁷ Information from the Office of the Auditor General of Norway, 4 June 2008.



2.4.1 International and national agreements on biodiversity and sustainability

49

International

The United Nations (UN) ratified the Rio de Janeiro Convention on Biological Diversity in 1992. The Convention defines 'biological diversity' as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems'.³⁸ The Convention therefore also applies to biological diversity in seas and oceans.

Ten years later, the UN agreed in Johannesburg that there had to be a significant reduction in the loss of biodiversity by 2010. With regard to fisheries, it was agreed that fish stocks had to be maintained at or restored to levels that could produce the maximum sustainable yield (MSY) by 2015 at the latest. It was also agreed that a worldwide network of protected areas should be established by 2012 and destructive fishing methods should be eliminated.

European

The EU stated in its *Biodiversity Strategy* (European Commission, 1998) that it would fulfil the obligations under the Convention on Biological Diversity, in part by reviewing the common fisheries policy, implementing the Bird and Habitat Directives and establishing the Natura 2000 areas in the North Sea.

The EU also answered the UN's call for a reduction in the loss of biodiversity. The European *Sustainable Development Strategy* (European Commission, 2001b) requires the integration of environmental measures into all European policy areas that have a bearing on the environment. Furthermore, in the *Sixth Environmental Action Plan* (European Commission, 2001a), the European Commission sets the goals of halting the loss of biodiversity in Europe by 2010 and establishing a network of nature areas. The mid-term evaluation of this programme in 2007 also found that the European Commission's goals included the introduction, in cooperation with the member states, of an ecosystem-based approach to marine management. It also aimed to end destructive fishing methods at sea (European Commission, 2007c).

³⁸ Source: www.cbd.int/, consulted on 21 February 2008.



National

The Netherlands supports the EU goal of halting the decline in biodiversity in Europe by 2010. The approach to nature policy (including biodiversity) for the period to 2010 is set out in the policy memorandum, *Nature for People, People for Nature* (LNV, 2000). A key goal set in this memorandum is that all species that were naturally present in the Netherlands in 1982 should also be present and able to survive in 2020.

It was decided at the UN conference on sustainable development in Johannesburg (2002) that national governments would prepare action programmes for sustainable development. The Dutch government drew up such an action programme in 2003, *Sustainable Decisiveness* (VROM et al., 2003). The Minister of VROM is responsible for the national part, which builds on the Fourth National Environmental Policy Plan (NMP4). NMP4 stated that 'environmental policy must contribute to a healthy and safe life in a pleasant living environment and surrounded by vital nature without harming global diversity or exhausting natural resources' (VROM, 2001).

The *Biodiversity Policy Programme 2008-2011* (LNV, 2008a) combines a number of policy programmes. A new element is the consideration paid to marine biodiversity. This theme is thought relevant in view of the risks of overfishing, by-catches and seabed destruction. Measures that have been announced include:

- a reduction in the quantity of discards by 50% in comparison with 2007 (to be achieved by 2013);
- 40% of beam trawlers will fish in a more ecologically sustainable manner (also to be achieved by 2013);
- five protected areas will be established in the North Sea (by 2010 at the latest).

In addition, the Minister of LNV intends to declare the Nature Conservation Act and the Flora and Fauna Act applicable to the Exclusive Economic Zone (EEZ).

2.4.2 International and national water agreements

International

Water policy is also related to fisheries policy. An important agreement in this respect is the OSPAR Convention.³⁹ In it, the countries bordering the

³⁹ OSPAR stands for Oslo and Paris. The OSPAR Convention was signed in 1992 to replace two treaties that had previously been concluded in Oslo (1972 – dumping waste at sea) and Paris (1974 – marine pollution).



North Sea, including the Netherlands, reached agreement on the conservation of the marine environment in the North Sea, including the preservation, conservation and recovery of ecosystems and biodiversity. In 1998, for example, the OSPAR countries agreed to establish a network of Marine Protected Areas and a start was made in 2002 on the development of ecological quality targets to protect the marine ecosystem of the North Sea. These agreements are consistent with those reached at the global summit in Johannesburg (2002).

51

European

The 2005 European marine strategy fulfils two functions: it is a means to protect and to restore European seas and, moreover, to ensure the sustainability of economic activities such as fishing between now and 2021. To achieve these goals, the European Council adopted the Marine Strategy Framework Directive in 2007, which came into effect on 15 July 2008. The Directive's object is to create the frameworks necessary for a good marine environmental status in 2020, such as an improved and more natural composition of the ecosystem, including fish stocks. The Directive will have consequences for beam trawling but the details are not yet known.

Europe's maritime policy is more comprehensive than the marine strategy and seeks a balance between the growth of the European economy, social issues and ecological values. In October 2007 a vision of an integrated EU maritime policy was presented in the *Blue Book* (European Commission, 2007a). Proposed measures that would affect the fisheries include the reduction of destructive sea fishing methods and a decline in discards.

National

At national level, the North Sea policy articulated in the National Spatial Strategy (VROM, 2004) is worked out in the *Integrated North Sea Management Plan 2015* (V&W et al., 2005). This plan, known as IBN 2015, describes how the government can introduce integrated management of the North Sea in the next ten years. The goal is 'healthy, safe and profitable' use of the North Sea. The designation of protected areas in the North Sea will offer protection to seabed and fish fauna. IBN 2015 defines five areas of the North Sea⁴⁰ that will receive additional environmental protection under a provisional regime. These areas will also be designated as Natura 2000 areas in 2009. For the time being, the

⁴⁰ Apart from the Natura 2000 areas of Voordelta and the North Sea coastal zone, they are Dogger Bank, the Friesian Front, Klaver Bank, Vlake van Raan and an enlargement of the North Sea coastal zone between Bergen and Petten.



activities currently being carried out in the protected areas (such as fishing) can be continued.

52

Measures will be taken to restrict fishing in Voordelta in 2008. Conditions will probably also be placed on fishing in other areas when they are designated as Natura 2000 areas.

2.4.3 Influence of related policies on fisheries policy

Substantive

In so far as the environmental, nature and biodiversity policy fields have a substantive influence on European fisheries policy, it is derived chiefly from the European strategy for sustainable development. This strategy includes the establishment of Marine Protected Areas in 2012 and the introduction of the maximum sustainable yield principle (MSY) for certain fish stocks in 2015. The European maritime strategy also requires EU waters to have a good ecological status – and thus adequate biodiversity – in 2020.

Two other EU developments are also relevant:

- the Bird and Habitat Directives will be implemented at sea. They will come into force when parts of the North Sea have been put forward at the EU as Natura 2000 areas;
- EU heads of government have tightened up the sustainable development goals set at the Johannesburg summit (2002) to 'stop the loss of biodiversity'.

The Netherlands' fisheries policy is not yet integrated into environmental, nature and biodiversity policy. Related policy is concerned chiefly with land/landscape and mammals. The biodiversity policy programme has considered marine biodiversity since 2008.

There has been more integration in North Sea policy in recent years, with integrated coast management and an integrated approach to the North Sea being included in IBN 2015 and the National Spatial Strategy.

Coordination and cooperation

Within the Ministry of LNV, the Departments of Nature and of Fisheries have been working together on marine biodiversity in the Marine management team (MT) since 2007. There were two reasons for the cooperation: coordination and structural agreement was necessary within LNV to increase the consistency of policy (nature versus fisheries) and to tackle the loss of marine biodiversity more effectively. Marine biodiversity



is under pressure and the fishing industry is by far the most important human factor to influence the marine ecosystem.⁴¹ The programme has three pillars: sustainable fisheries, Marine Protected Areas and conservation of marine species (fish, mammals, birds, sustainable habitat structures, etc.).

53

The Marine MT is also working with other ministries that implement government marine policy, such as V&W, VROM, Defence and Foreign Affairs. Cooperation also takes place as part of the *Biodiversity Policy Programme* (LNV, 2008a), one of whose four main priorities is marine biodiversity and sustainable fisheries.

Four ministries were involved in the preparation of IBN 2015 (V&W et al., 2005): V&W (responsible for coordination), VROM, LNV and Economic Affairs. The Departments of Nature and of Fisheries participated on behalf of the Ministry of LNV.

⁴¹ LNV programme, Marine Biodiversity (DS Nature, 22 November 2006).



3 Compliance and enforcement

The international and national rules that make up European fisheries policy are necessary to ensure the future of the fisheries in the member states. The rules are therefore to the benefit of the fishing industry. Yet the very same fishing industry does not automatically comply with them. The national approach to fisheries policy must include incentives to increase compliance in the member states. In the Netherlands, such incentives are anchored in the co-management system and in the organisation of enforcement.

In this chapter we first consider the co-management system (section 3.1). We then look at the organisation of enforcement in the Netherlands (section 3.2), the practice of enforcement in relation to European rules (section 3.3) and the match between the AID's control capacity and actual compliance (section 3.4).

3.1 Co-management: an integral part of Dutch fisheries policy

The TACs and quotas form the central plank of European fisheries policy. Most of the enforcement obligations under European fisheries regulations are directed at enforcement of the catch limits. Organisation and implementation of control and enforcement is a national power of the member states. The organisation of enforcement in the Netherlands is in part the product of many years' disagreement between the government and the fishing industry about the sustainability of the fisheries in the 1980s.⁴² The agreements reached in the early 1990s were directed at ending such conflicts. As a result, the government and the fishing industry work together to some extent to manage fish stocks in a system of co-management. A good relationship between the government and the fishing industry has become a key goal in the Ministry of LNV's fisheries policy.

⁴² The government and the fishing industry engaged in a heated debate in the 1980s about the ever stricter catch limits and the strict controls on their compliance.



Management groups

The main measure to arise from this management system was the establishment of *management groups*. Most Dutch cutter fishermen are members of such groups. They transfer their individual quota rights to the management group and undertake to sell all their fish through Dutch auctions only, to comply with the catch limits and to prepare an annual fishing plan, individually or as a group, in which they indicate how they will carry out their fishing activities in that year. The Ministry of LNV assesses the fishing plans and, after approval, allocates group quotas and days at sea (days on which a fisherman may fish). Subject to a private agreement, the members of the management group undertake to manage the group quotas jointly. The Ministry of LNV endeavours to increase stakeholder influence on European fisheries policy and eliminate unfair competition within the EU through the consistent application of rules and controls (level playing field) (LNV, 2004a). A series of impressive results has been achieved, such as the establishment of the Community Fisheries Control Agency and regional advisory committees.

Support, but no self-control

The Ministry of LNV's establishment of management groups created some support for the Dutch policy of the government and industry sharing responsibility for the management of commercial fish stocks. In practice, however, enforcement of the rules resembles a game of cat and mouse between the controllers and the controlled, with neither the AID nor the fishermen displaying sufficient trust to bring about the desired level of cooperation.

The self-control sought by the government has been achieved in certain areas only. To strengthen compliance with statutory rules the government and management groups have made agreements on setting and sealing engine powers. With regard to nets and net attachments, the government is encouraging the industry to set up working groups with responsibilities for checking compliance and imposing private fines.

3.2 Enforcement policy

3.2.1 Objective of enforcement policy

The Dutch government seeks to enforce European fisheries policy as well as possible and implement community control and enforcement obligations in full.



In concrete terms, this means that enforcement is directed at:

56

- ensuring that fishermen who are not entitled to fish do not fish;
- ensuring that fishermen do not exceed the rights allocated to them (quotas and days at sea regime);
- ensuring that fishermen fish only in those areas they have access to;
- ensuring that fishermen comply with technical measures to conserve fish stocks;
- ensuring that transshipments are recorded truthfully in the catch registers and are made only in authorised areas by authorised fishermen.⁴³

3.2.2 Implementation of enforcement policy

Control policy is based in part on risk analysis of historical data compiled by the AID. The inspectors know the sea fishing industry inside out and are aware of possible infringements: each week between 500 and 600 landings are made by a limited number of fishermen in the same harbours. The AID's activities in the current year build on its earlier findings. In the event of a second infringement, a stricter control regime is applied. Sanctions policy is targeted at removing the incentive for infringements. In other words, the sanction must have a demonstrable financial disadvantage or at least remove any illegally gained benefit.

Enforcement policy for sea and coastal fisheries is laid down in the Sea and Coastal Fisheries Enforcement Plan, which is agreed each year by the director of the Coast Guard in consultation with the enforcement partners.⁴⁴ The plan comprises a summary of the regulations, the control strategy and priorities, and the settlement procedures.

3.3 Duty of enforcement

3.3.1 European obligations

The Community control and enforcement system for the fisheries is laid down in the basic Regulation 2847/93, which was adopted in broad lines in the Regulation of 2002.⁴⁵ Several other Regulations impose further restrictions on the fisheries in support of the quota policy (technical

⁴³ Transferring caught fish to another vessel at sea is subject to rules laid down in Regulation 41/2007 of 21 December 2006.

⁴⁴ AID, Tax and Customs Administration.

⁴⁵ Regulation 2371/2002.



measures and days at sea regime). Enforcement of these restrictions is also regulated.

57

To facilitate the implementation of European fisheries policy, the member states must, pursuant to the basic Regulation, take a series of named enforcement measures, the implementation of which must be properly documented. At Community level, however, no concrete standards have been set regarding the number of checks of landings, although benchmarks have been set for a number of specific situations.⁴⁶ Pursuant to articles 24 and 30 of the basic Regulation, further rules, including benchmarks, may be adopted. Where there is no benchmark, the EU has no hard quantitative standard to hold member states accountable.

3.3.2 National obligations

The Netherlands has adopted the measures required by the EU in the Fisheries Act 1963, the Sea and Coastal Fisheries Regulation 1977, the Fishing Licence Regulation and the Technical Measures Regulation 2000. The Netherlands is the only member state to have included stricter rules in the Technical Measures Regulation than required by the EU. By way of departure from the European rules, it also requires vessels that are smaller than ten metres to keep a logbook.⁴⁷ In 2007 about 260 active smaller vessels together landed over 336,000 kg of fish. Under EU rules, catches of a particular fish species do not count towards the exhaustion of the national quota and do not have to be recorded in the logbook if they are less than 50 kg.⁴⁸ The Netherlands, however, interprets this rule so that vessels landing more than one catch a week must record the entire catch for that week if it exceeds 50 kg and it is deducted from the national quota.

This Dutch interpretation, which is stricter than the EU's, increases the control burden. The Ministry of LNV has said that it will consider revising or abolishing this measure when it prepares the intervention strategy for programmatic enforcement (see section 1.4.3).

⁴⁶ The benchmarks provide a standard for the number of landings to be inspected under the supervisory programme for the cod recovery plan, and the inspection of freezer trawlers, landings from the Barents Sea and landings from the Northwest Atlantic (Greenland and Canada).

⁴⁷ Regulation 2847/93, article 6 (4) versus article 15 (2) of the Requirements, Administration and Registration Regulation for the Fisheries.

⁴⁸ Regulation 2847/93, article 6 (2).



3.4 Enforcement capacity

58

3.4.1 Target enforcement/compliance level

The AID checks whether fishermen comply with the statutory rules on the fishing industry. It accordingly checks whether fishermen have the necessary licences, whether they fish within the quotas and days at sea allocated to them, and whether they fish in the areas that are open to them (see section 3.2.1). The AID also checks that illegal net attachments are not used and that the engine power is the same as that stated on the licence. Finally, the AID checks that catches are recorded in the logbooks promptly and correctly.

According to the Ministry of LNV, the current enforcement policy and co-management system have improved compliance. The AID's risk analyses, however, show that fishermen tend to break rules in virtually all areas of the sea fisheries. The AID found through sampling that the presence of its inspectors in harbours or at sea influences the fishermen's behaviour. It also found a correlation between the number of corrections made by fishermen in their logbooks and the presence of inspectors in harbours. It concluded that fishermen landed unrecorded catches and sold them outside the fish auctions. According to the AID, this is due in part to the heavy economic burden on the industry: the quantity of fish that may be landed has fallen by more than 50% in recent years and fuel prices have risen sharply. Fishermen are seeking ways to get round the restrictions. Certain rules, such as those on the use of net attachments, can only be checked at sea, which is very difficult in practice. Not only the size of the area (the North Sea) makes inspections difficult but the advanced equipment on the vessels also makes it almost impossible for the AID's inspection vessels to approach unseen.

According to the Ministry of LNV, enforcement is also difficult because of the complexity of policy. Rules are continuously being introduced but never repealed and some rules are difficult to understand or are unnecessary, said our interviewees at the Ministry of LNV.

According to the AID, however, the compliance level is 'satisfactory' thanks to the continuous control pressure on landings and at sea. The Ministry of LNV, by contrast, cannot come to a firm conclusion one way or another. The compliance level is difficult to establish because it is determined by so many factors and can vary over time.



For enforcement measures to have a demonstrable impact ('effective, dissuasive and proportionate'),⁴⁹ the Ministry of LNV must first introduce a *target compliance level* and then set *criteria* to measure compliance. However, there are no quantitative or auditable criteria.

59

3.4.2 Adequacy of enforcement policy

In recent years the AID has on average checked 6% of all landings and inspected each fishing vessel three or four times a year at sea. According to the AID, the European Commission has agreed with the Community Fisheries Control Agency and the national control agencies that every fishing vessel must be inspected six times a year at sea. The AID believes its control organisation and control capacity are adequate to satisfy the strict European obligations in certain areas but not the benchmark agreed between the Community Fisheries Control Agency and the member states' inspectorates.

The relevant policy departments at the Ministry of LNV (Legal Affairs and Fisheries) take account of political and administrative risks when assessing control capacity. They stress that the Netherlands satisfies the formal enforcement requirements. The European Commission, they note, has prepared infringement proceedings⁵⁰ against the Netherlands only in respect of checks of engine power.⁵¹ Since the infringement proceedings will not consider enforcement capacity as such, they assume that the Ministry satisfies the formal European obligations.

All actors involved in enforcement at the Ministry agree that enforcement is under pressure and will probably come under even more pressure in the future. Relevant factors are:

- the fishing industry's reluctance to comply, resulting in a game of cat and mouse with the AID;
- lack of insight into capacity requirements (compliance/enforcement level);
- limits on the industry's willingness to be controlled (operation of management groups);
- limited ability to check technical measures (only possible in situ);
- limited capacity of the AID;
- growing number of European rules on fisheries;

⁴⁹ The requirements of article 24 of Regulation 2371/2002 regarding the enforcement measures taken by the member states.

⁵⁰ Proceedings brought by the European Commission against a member state if it infringes European law.

⁵¹ According to the EU, in some cases engine power permitted in the Netherlands is too high.



- high diesel prices and low income placing the fishing industry under extreme pressure and thus a stronger tendency to break the rules.

3.4.3 Solutions for the future

To alleviate the growing pressure on enforcement capacity, the Ministry has decided to replace the current control strategy with a system of programmatic enforcement. Introduction of such a system can lead to the further differentiation of the use of preventive and repressive enforcement measures. In due course there could be a shift away from criminal cases towards administrative cases. Such a shift would generate considerable efficiency gains for the AID. The inspectorate is therefore calling for an increase in its powers to impose administrative sanctions.

The AID also believes efficiency gains could be realised by withdrawing fishing rights when vessels are decommissioned and allocating them to the remaining fishermen. Experience shows that a significant number of fishermen eventually return to the industry with smaller vessels. The number of smaller vessels is therefore increasing and with them the administrative burden attaching to logbooks (see section 1.3.2).



4 Innovation policy for the fishing industry

61

Innovation policy for the fishing industry is directed at the development and promotion of methods and techniques to make the industry both ecologically and economically more sustainable. The policy was only recently introduced. Innovation has been included in the budget since 2003, often in combination with 'research'. The accompanying text explains that the ad hoc research costs related to pulse fishing.⁵² In 2007, the Ministry of LNV prepared a long-term strategy for the fishing industry, one of its priorities being 'modernisation and sustainability through the promotion of innovation and cooperation in fishing'.⁵³ In concrete terms, innovation policy has two objects: by 2013 beam trawler by-catches⁵⁴ must be halved and 40% of beam trawlers must be using other fishing methods (that use less energy and have less impact on the seabed). Instruments LNV will use to encourage innovation in the fisheries include: research, innovation grants, and the development and dissemination of knowledge of more sustainable catch techniques and of improvements in energy efficiency.

Since innovation policy was only recently introduced it cannot yet be said with certainty whether the goals are being achieved and, if so, whether that is due to the use of the instruments. In this chapter we suffice with a description of several instruments that the Ministry of LNV has already been subsidising for some years and the results in terms of energy savings, discards, seabed disturbance and fish quality (section 4.1). We close by briefly considering three pilot schemes that were launched in 2006 at the instigation of the Sustainable North Sea Fisheries Taskforce (section 4.2). We also discuss the activities of the Fisheries Innovation Platform, which was established on the advice of the Sustainable North Sea Fisheries Taskforce at the end of 2006 (section 4.3) and a series of projects to study fish stocks and discards and to experiment with innovative fishing techniques (section 4.4).

⁵² See appendix 4 for an explanation of pulse fishing and other fishing techniques.

⁵³ Fisheries policy letter, 28 September 2007.

⁵⁴ See section 2.3.3 of part II for more information on by-catches ('discards').



4.1 Experiments

62

Development of policy

As early as 1993, the Ministry of LNV commented on the large quantity of fish that the cutter fleet was throwing overboard (discarding) and the damage to the seabed caused by beam trawls. It was thought at the time that both problems could be resolved by more selective fishing methods. The use of beam trawls is chiefly a Dutch problem because the Dutch cutter fleet has opted to specialise in flatfish (sole and plaice), fish species that are caught with trawls.

The Ministry of LNV announced in a structure memorandum, *Fishing for Balance, Dutch fisheries policy 1993-2002* (LNV, 1993), that a study of more selective fishing methods would be carried out to reduce discards and that a study to limit the impact of beam trawling would be intensified. The memorandum was evaluated in a report entitled *En Route to Balance* (LNV Expertise Centre, 2002). The evaluation found that the development and use of more selective fishing methods was expensive and would reduce catches. The cutter fleet, which disputed the damage it caused, therefore rejected the methods.⁵⁵

As oil prices rose and economic conditions in the cutter fisheries deteriorated, the Ministry of LNV set up the Sustainable North Sea Fisheries Taskforce at the end of 2005 to develop an economically and ecologically sustainable vision of the Dutch cutter fleet. Its recommendations to increase innovation led, amongst other things, to the provision of a budget⁵⁶ for innovation and pilot schemes, the creation of the Fisheries Innovation Platform, tax schemes and guarantees for investments in sustainable fishing methods (see section 4.2).⁵⁷

Experiments and results

Table 4 summarises the experiments in innovative fishing techniques and their results in recent years. The techniques themselves are considered in appendix 4.

⁵⁵ See also section 3.2.2. *Visserijnieuws*, the weekly newspaper for the fishing industry, reported that fishermen were rejecting all ideas that would reduce catches. According to the fishermen, disturbing the seabed was good for fish stocks.

⁵⁶ See section 5.3 below.

⁵⁷ LNV, 1993; LNV Expertise Centre, 2002; Taskforce, *Vissen met tegenwind*, 2006.

**Table 4 Innovation and results**

| Innovation* | Results | | | | | |
|-----------------------------------|-----------------------|--------------------------|------------------------|-------------------------|----------------------------------|--|
| | Energy saving | Fewer discards | Less seabed disruption | Improved fish quality | Phase | Since |
| Economical engine | X | | | | Applied | 2001 |
| Exit window | | X | | X | Experiment/ Partially applied | 2007 |
| Gill nets | X | X** | X | X | Applied*** | Old technique being used again |
| Larger mesh sizes | | | | | Experiment | 2007 |
| Outriggers | >50% | X | X | X | Applied | 2006 |
| Pulse fishing | >45% | >20% | X | X | Experiment | 2004 |
| Seine net/fly shoot | X | X** | X | X | Applied | 1990 |
| Single rig/twin rig/ multi rig | X (only for twin rig) | X** (not for single rig) | X (not for single rig) | X (only for single rig) | Applied | Old technique being used again, multi rig since 2002 |
| Trawls (four models) | 15-20% | | X | | Experiment | 2006 |

X The innovation had the result shown.

* Innovations are listed in alphabetical order.

** Reduction depends on mesh size and number of nets.

*** Gill nets are used by about 70 vessels to fish for sole within the 12 mile zone.

In many cases it was easier to persuade fishermen to experiment with new, less damaging fishing techniques when the government provided financial compensation for loss of revenue. Several businesses switched from beam trawling to twin rig fishing, for example, when offered a financial incentive. The first of these businesses will probably be awarded the MSC certificate in 2008.⁵⁸ The Dutch herring fishery is already MSC certified.

Pulse fishing

Pulse fishing, a technique originally used to lower the high fuel costs incurred by beam trawlers (Science Shop for Biology, Groningen

⁵⁸ MSC stands for Marine Stewardship Council; this is the first international certifying authority for sustainable fisheries.



University, 2006), has been under development for more than ten years. The Ministry of LNV earmarked funds for the further development of pulse fishing in its 2001 budget. Development was delayed by technical problems in 2002 and a practical trial with a prototype pulse trawl was not carried out until 2004. The trial was completed successfully in 2005; there was less seabed disturbance and fewer discards, the quality of the fish was considerably higher than that of fish caught conventionally (less damage) and fuel consumption was about 40% lower than normal.

64

In 2006 and 2007 one cutter with pulse trawls took part in a follow-up project. The vessel's master was enthusiastic about the technique and continued to pulse fish after the project ended. According to the master, lower catches were more than made up for by fuel savings and the higher prices he could obtain for the higher quality fish.⁵⁹ A study by Groningen University found that development and testing of pulse fishing have so far cost about EUR 5 million.

In April 2008, the Ministry of LNV opened an investment scheme to convert five vessels to pulse fishing. The aim is to have 110 cutters using alternative fishing techniques to beam trawls, such as pulse fishing, by 2013 (LNV, 2007c). At present, however, European nature policy does not allow fishing with electrical pulses. Europe allowed an exemption for 5% of the fleet and that number has been reached. Definite permission will depend on a report by the biologists. In broad lines they are in favour but still have questions about the effect of pulse fishing on sharks, rays and seabed organisms.⁶⁰

4.2 Taskforce projects

As noted above, the establishment of the Sustainable North Sea Fisheries Taskforce led to the provision of a budget for innovation and pilot schemes. Three projects were launched in 2006. In two of them, fishermen worked with IMARES on a study of fuel savings in the beam trawler fisheries by means of technical modifications and on a practical study to determine the energy saving and sustainability of outrigger fishing methods. According to the Ministry of LNV the results of both projects are promising since improvements were realised both in energy consumption and in discards and seabed disruption. Both the fishermen

⁵⁹ Information from the Ministry of LNV's budgets and annual reports and an interview with its Department of Fisheries on 29 January 2008.

⁶⁰ Information from the Ministry of LNV's budgets and annual reports and an interview with its Department of Fisheries on 29 January 2008.



and IMARES recommended that the projects be continued and further experiments carried out to perfect the best methods.

65

In the third project, the North Sea Foundation, the Fish Product Board and the fishing industry worked together on the development of sustainable and innovative fishing techniques. Their recommendations included: strengthen the image of the fisheries, improve the quality of the Dutch product and strengthen its position on the domestic sales market.⁶¹

4.3 Fisheries Innovation Platform

On the advice of the Sustainable North Sea Fisheries Taskforce, the Fisheries Innovation Platform (VIP) was set up at the end of 2006 for a period of three years. The VIP was set up to '... encourage innovation towards a sustainable and profitable development of the North Seas fisheries sector and the related supply chain'. The VIP's members represent the Ministry of LNV, the fishing industry, non-governmental organisations, a research centre and an innovation centre, '... to increase support, understanding and cooperation'.⁶² The VIP is advised on request and otherwise by a focus group of 10 to 15 active fishermen.

By means of pilot schemes, the VIP supports innovative plans presented by fishermen and/or other participants in the supply chain. The VIP advises the Ministry on which plans and projects should receive assistance from the European Fisheries Fund (EFF), which has been available since March 2008 (see below). The projects must be directed at the development or testing of innovative new techniques that make fisheries and/or the fish supply chain (the process of catching, auctioning, selling and processing fish) more sustainable or economically viable. Reducing fuel consumption is critical to the cutter fleet and the VIP will tackle it as the most urgent problem.

In anticipation of European funding, the VIP advised in 2007 that the Ministry of LNV launch five projects to, amongst other things, increase cooperation within the supply chain and the sustainability of shrimp fishing techniques. Four projects were started at the end of 2007; one is still waiting for permission from Europe. The VIP intends to share the results with the fishing industry when the projects have been completed.

⁶¹ Information from an interview with the Ministry of LNV's Department of Fisheries on 29 January 2008.

⁶² Examples include the Fish Product Board, IMARES, North Sea Foundation, Innovation Network.



The VIP's ambitions for the next 10 to 15 years are: fishermen as stewards of the North Sea; fish as a high quality product; fishermen as multipurpose entrepreneurs; reduced consumption of fossil fuels. The VIP is trying to increase the cutter fleet's awareness of its own responsibility by means of support and facilitation. The VIP believes innovation is particularly important to the fishermen themselves on account of their reliance on flatfish. The trade and processing parties in the supply chain are less reliant on North Sea flatfish because they also handle imported fish.

66

The fishing industry is developing its own code of conduct for cutter fishers, is discussing the feasibility of MSC certification for beam trawlers and is seeking closer cooperation within the supply chain in order to win a better price for fish. Demand from the supply chain, wholesalers and consumers for sustainably caught fish will encourage these initiatives.

4.4 Other projects

Many other projects are being carried out to study the size of fish stocks and the quantity of discards and to experiment with innovative fishing techniques. The F project,⁶³ for example, has been running since 2002. It is a cooperative project involving fishermen, researchers from IMARES and the Department of Fisheries to produce reliable stock counts. Since the end of 2004, fishermen and researchers from IMARES have also been studying the quantity of plaice discards.⁶⁴ In 2006 and 2007, studies were also carried out of the impact of mesh sizes on the composition of plaice and sole catches and of exit windows to allow undersized fish to return to the sea alive. Both these initiatives are being trialled by fishermen and IMARES.

⁶³ F project = Fishing Mortality Project, funded by the Ministry of LNV.

⁶⁴ Study funded by the Fish Product Board.



5 Restructuring policy for the fishing industry

Restructuring the fishing industry entails a reduction in both tonnage and engine power in order to bring fleet capacity into line with the Total Allowable Catch. Between 2003 and 2006, the Ministry of LNV's budget included specific performance goals for restructuring the industry (LNV, 2003; 2004b; 2005; 2006). During the current government's four-year term of office (2007-2010), a 30% reduction in the North Sea cutter fleet is thought necessary because the flatfish quota for the Netherlands will be cut sharply during this period. A 15% cut in the fleet is considered necessary for 2008. We investigated the extent to which the Dutch restructuring policy had reduced the fishing effort⁶⁵ (section 5.1) and the consequences of policy for the economic sustainability of the fisheries (section 5.2).

5.1 Development of fleet capacity

Maximum fleet size

Brussels has set the maximum fleet size since 2003. The EU knows the power of the vessels in the Netherlands and the other member states. This information is updated every three months, for the Netherlands on the basis of data taken from the Dutch fleet register. If vessels are decommissioned they are removed from the fleet register and the size and capacity of the fleet as a whole is reduced accordingly. Decommissioned capacity is not replaced. A fisherman who wants to continue fishing after his vessel has been decommissioned must use existing capacity, for example by buying an existing licensed enterprise or vessel.

Restructuring schemes and conditions

A series of restructuring schemes has been implemented in the years since 1994 (see appendix 4). Grants were awarded for the permanent cessation of a vessel's fishing activities in the waters of the European

⁶⁵ Fishing effort is defined as the capacity of a vessel, in both tonnage and engine power, multiplied by its activity expressed in days at sea. We did not investigate the effect of days at sea.



Community. To the end of 2005, 'permanent cessation' meant (1) scrapping, or (2) permanent transfer of the vessel to a country outside the Community, or (3) permanent use of the vessel within the waters of the European Community for a purpose other than fishing. For small vessels (less than 27 gross tonnes) scrapping was the only option. Since the introduction of the 2008 restructuring scheme, scrapping has been the only option for all vessels.

68

To be eligible for assistance the vessel must, amongst other things:

- be entered in the fisheries register;
- have a valid licence;
- be more than ten years old;
- have been engaged in fishing activities on at least 80% of the days at sea allocated in the previous two years.⁶⁶

Results of the restructuring schemes

As shown in table 5, the capacity of the Dutch North Sea fishing fleet declined by 29,056 gross tonnes from 137,470 to 108,414 gross tonnes between 1994 and 2005. In absolute numbers, the fleet declined by 98 vessels from 432 to 334.⁶⁷ The reduction in terms of engine power during this period was 35% and if the current restructuring round is included, the reduction is 46%.⁶⁸

⁶⁶ Detailed conditions may differ from one scheme to another. Vessels of less than 10 metres did not qualify for restructuring.

⁶⁷ The figures relate to the end of 2005, the most recent whole year with a restructuring scheme. On 1 January 1994, not all vessels were measured in gross tonnes

⁶⁸ The table includes all North Sea cutters larger than 12 metres that had been economically active in the previous year.

**Table 5. Results of restructuring rounds since 1994**

69

| | Number of vessels | Total kilowatts | Total gross tonnage | Total amount in euros |
|--|--------------------------|------------------------|----------------------------|------------------------------|
| Situation in 1994 | 432 | 310 585 | 137 470 | |
| Capacity adjustment decision 1994 | 5 | 4 589 | 1 035 | 1 843 459 |
| Capacity adjustment decision 1996 | 26 | 23 676 | 5 617 | 10 767 988 |
| Capacity reduction scheme 2001 | 12 | 11 897 | 2 814 | 7 422 716 |
| Capacity reduction scheme 2002 | 25 | 30 666 | 7 462 | 19 510 000 |
| Capacity reduction scheme (round fish) 2003 | 1 | 736 | 146 | 494 698 |
| Capacity reduction scheme (sea fisheries) 2005 | 29 | 35 798 | 8 982 | 26 578 592 |
| TOTAL (to year-end 2005) | 98 | 107 362 | 26 056 | 66 617 453 |
| LNV assistance scheme 29008 | 23 | 35 748 | 9 971 | 27 491 736 |
| TOTAL (to year-end 2008) | 121 | 143 110 | 36 027 | 94 109 189 |
| Situation in 2008 | 311 | 167 475 | 98 443 | |

5.2 Impact of restructuring on economic sustainability

The restructuring policy for the fishing fleet is intended principally to cushion the socioeconomic consequences of the quota reductions and recovery plans for certain fish species. Restructuring policy has cut the capacity of the fishing fleet over the years so that the annual, declining quota has been fished by fewer and fewer vessels.

Subject to the assistance conditions described above, fishermen who leave the industry cannot fish under the flag of another member state and the vessels must be permanently removed from the fisheries. A fisherman can continue to fish with a smaller vessel, however, because his quota rights remain valid. He can fish for quota fish only by buying existing capacity (an existing, licensed vessel) because, as noted above, there is a limit on the number of licences (for fishing enterprises/vessels). A fisherman needs both a quota and a licensed vessel.

Uncertain goals

It is difficult to give a clear opinion on the impact of the restructuring measures on the economic sustainability of the fisheries. LNV's budgets in recent years have stated how much capacity must be decommissioned but they have not set objective criteria to determine the adequacy of the measure, for example in terms of the profitability of the remaining



businesses. It cannot be ruled out that the fleet would also have contracted without restructuring assistance or high oil prices.

70

Unknown impact of transferable quotas

The impact of the system of transferable quotas is also uncertain. Fishermen retain their right to quotas even if their vessels are decommissioned. These rights have a financial value that is set by the market. Fishermen reported, for example, that the sale of sole fishing rights had in the past cost EUR 30 to EUR 40 per kilo and plaice or cod rights EUR 7 to EUR 8 per kilo. The current prices per kilo are EUR 9 for sole, EUR 7 for plaice and EUR 10 for cod. Buying or renting quota is expensive but the costs are tax deductible. The system means that fishermen are still allocated quotas even if they no longer actively participate in the fishing industry. The remaining fishermen must pay considerable sums to buy or rent these quotas. Some of the economic benefits of restructuring are therefore lost to the remaining fishermen.



Appendix 1 Enforcement and control provisions

Enforcement and control are based on the key provisions of the fisheries regulations. The table below shows which aspects of the fisheries the AID inspects and the international and national regulations that lay down the relevant provisions.

| Aspect | Key provisions in EU Regulations | National provisions |
|----------------------------------|----------------------------------|--|
| Quota restrictions/quotas | 40/2008 (before 2008) | Catch Limit Regulation |
| | | Sea Fish Quota Regulation |
| Fishing effort (recovery plans) | 423/2004 | Fishing Effort (Recovery Plans) Regulation |
| | 40/2008 in annex | |
| Fishing licences | 1281/2005 artt. 1 & 2 | Fishing Licences Regulation |
| | 26/2004, 2371/2002 | |
| Engine capacity | 237/200 | Fishing Licences Regulation |
| | 850/98 | Sea and Coastal Fishing Regulation 1977 |
| Fishing gear | 850/98 | Technical Measures Regulation 2000 |
| | 40/2008 annex III | Fisheries, Fisheries Zone, Marine Area and Coastal Waters Decision |
| Logbooks | 2847/93 | Fisheries requirements, administration and registration |
| | 2807/83 | |
| | 811/2004 | |
| | 1093/94 | |
| | 40/2008 | |
| Administration of landed fish | 2847/93 | Fisheries requirements, administration and registration |
| | 811/2004 (hake) | |
| | 423/2004 (cod) | |
| Landing reports | 2847/93 | Systematic Control of Landings Regulation 1988 |
| | 423/2004, annex III | |
| | 40/2008 | Technical Measures Regulation 2000 |
| | 811/2004 | |
| | 2115/2005 | |
| Satellite surveillance equipment | 2847/93 | Technical Measures Regulation 2000 |
| | 2244/2003 | |
| Undersized fish | 850/98 | Technical Measures Regulation 2000 |
| | 2406/96 | |
| Letters and numbers | 1381/1987 | Fisheries requirements, administration and registration |
| | 356/2005 | |
| | 26/2004 | |
| Intervention fish | 2493/01 | |



Appendix 2 AID enforcement target 2007

72

| 2007 annual plan enforcement target | Hours 2006 annual plan | Actual 2006 annual report | Hours 2007 annual plan |
|---|-----------------------------------|--------------------------------------|-----------------------------------|
| Inspections at sea | 19 460 | 20 141 | 17 332 |
| Coastal fishing | 2 800 | 3 083 | 1 400 |
| Inland fishing | 7 000 | 6 318 | 7 000 |
| Landed sea and coastal fish | 21 700 | 27 004 | 24 098 |
| Transport and trading | 4 200 | 6 521 | 3 604 |
| International cooperation | 700 | 782 | 560 |
| Catch registration | 11 760 | 14 352 | 14 178 |
| Central poaching desk | 700 | 116 | 700 |
| Professional practice | 2 100 | 1 995 | 2 100 |
| Freeze trawler landings | 2 800 | 2 420 | 3 788 |
| – <i>Third country freeze trawler landings</i> | <i>1 400</i> | <i>1 017</i> | |
| Engine power | | | 1 460 |
| Fish taken out of the market | | | 154 |
| Aquaculture innovation | | | 14 |
| Coast guard liaison | | | 700 |
| Coast guard enforcement desk (introduced mid-2007) | | | 280 |
| Total | 74 620 | 83 749 | 77 756 ¹ |

¹ Based on the hours disclosed, the total should come to 77 368.



Appendix 3 Cutter fisheries restructuring regulations

73

Capacity Adjustment Order 1994 (Government Gazette 1994, no. 105),
amended in December 1995 (Government Gazette 1995, no. 240)

Capacity Adjustment Order 1996 (Government Gazette 1996, no. 219/220)

Sea Fisheries Capacity Reduction Order 1999 (Government Gazette 1999,
no. 42), last amended by order of 21 December 2000 (Government Gazette
2000, no. 249)

Sea Fisheries Capacity Reduction Order 2002 (Government Gazette 2001,
no. 250)

Sea Fisheries Capacity Reduction Order 2005 (Government Gazette 2005,
no. 175)

Amendment of various orders (Government Gazette 2007, no. 228)

LNV Assistance Order 2008 (Government Gazette 2007, no. 228)



Appendix 4 Fishing techniques

| Technique | Description |
|---|---|
| Beam trawler | Vessel equipped with beams (12 metres long) to tow a trawl. Heavy shoes at the end of the beams are dragged over the seabed. A cutter drags two of these trawls over the seabed. To catch flatfish, the trawls are fitted with heavy chains that scrape the seabed to flush out fish. |
| Beam trawler variants | 'Rock hoppers': wheels are fitted to the beams instead of trawl doors |
| Spoiler: the beam is modified with a flexible spoiler; several types of spoiler have been tested. | |
| | Fly-beam: the beam is replaced with a fixed wing construction. |
| | Suspended wing: the beam is replaced with a flexible wing (also known as a sumwing) that floats just above the seabed. |
| Danish seining | and two long lines. Also known as Danish seining, it is used to catch flatfish. The fisherman first drops an anchor to which one line is attached. The boat then sails around the anchor, towing a net from the other line. Flatfish are driven into the net by lines rolling over the seabed. Snurrevaad is a typical form of coastal fishing. |
| Exit window | A panel in a trawl with a square mesh so that undersized fish can escape more easily and less soil material is caught. |
| Fly-shoot | The snurrevaad or Danish seine net (see below) has been developed for deeper waters. The technique is also known as 'Icelandic seining' or 'fly shooting'. The lines used in this method can be up to eight kilometres long. |
| Gill net | Passive fishing net that is suspended in the water and fitted with floats on the top and anchored to the seabed on the bottom. Such nets can sometimes be several hundred metres long. |
| Mesh size | Nets with meshes of 80, 80 or 100 mm are being used to study the consequences for the quantity and type of discards. |
| Multi-rig | Modern form of otter trawling using several nets with boards at the extreme ends and shoes (heavy weights) in the middle that scrape the seabed. |
| Otter trawls | Boards are attached to the sides of the trawl to open the net when it is towed through the water. A weight in the centre of the net keeps the mouth open. The equipment is light and does not disturb the seabed as much as a beam trawl. |
| Outrig | A trawl that is suspended from the point of the boom rather than from a steel beam. |



| | |
|---------------|--|
| Pulse fishing | The use of electrical pulses to startle fish from the seabed into the trawl. No chains are used and the equipment is light. |
| Single rig | Modern form of otter trawling using a single net with otter boards. |
| Snurrevaad or | Snurrevaad is a fishing method developed in Denmark that uses an elongated net |
| Sumwing | See beam trawl variants above. |
| Twin rig | Modern form of otter trawling with two nets with trawl doors at the ends and a large weight (the 'clump') in the middle that drags along the seabed. |

75

Sources: www.natuurinformatie.nl (as of 3 March 2008); IMARES report 101/07 on parliamentary questions on discards in the Dutch fisheries 2007; IMARES report C060/07 on fuel savings in beam trawling 2007; IMARES draft report on outriggers, 16 February 2007; Visserijnieuws, 16 November 2007, 24 November 2007 and 27 December 2007.



Appendix 5 Other audit office reports on fisheries policy

76

National Audit Office (United Kingdom)

Report by the Comptroller and Auditor General, HC 563 Session 2002-2003, 3 April 2003

The National Audit Office (NAO) confined its report to the problem of enforcement in the fisheries. Its main conclusion was that the effectiveness of the enforcement of fisheries regulations could be improved. This does not mean, however, that the Department for the Environment, Food and Rural Affairs did not satisfy European requirements. Its conclusion was supported by a series of secondary conclusions on improvements that the Department had already made in enforcement, the relationship between the size of the fishing fleet and the resources for enforcement activities and the low probability of detecting and prosecuting infringements.

The conclusions prompted the NAO to make the following recommendations:

- increase the use of landing patterns and surveillance information to target individual vessels that are suspected of breaching regulations;
- increase the options for pursuing and penalising infringements;
- consider the deployment of Inspectorate staff to maximise the likelihood of detecting illegal landings of fish;
- seek a change in EU enforcement legislation to allow the landing of discards (the proceeds being used to fund research or greater enforcement activities);
- use regional advisory councils established at EU level to help inform the development of enforcement practice;⁶⁹
- consider introducing the individual transferable quota system (as in the Netherlands) so that fishermen have a personal interest in conserving fish stocks;
- at EU level, consider other regulations to reduce discards and seek solutions in the landings along the lines of the Norwegian system;
- review the role of the Sea Fisheries Inspectorate and other agencies and encourage cooperation with others.

⁶⁹ In the NAO's opinion, lessons can be learnt from other member states to increase the fishing industry's support for the enforcement of fisheries regulations. It refers to the Dutch practice of management groups. In the Netherlands, the AID reports infringements to the management groups, which impose predetermined sanctions aimed at removing economic benefit.



Office of the Auditor General of Norway

77

The Office of the Auditor General's study of the management of fish resources, document no. 3:13 (2003-2004)

The Office of the Auditor General of Norway's study was wider than the NAO's, which considered only enforcement. It studied:

- management of fish stocks;
- capacity reduction and allocation of fish stocks;
- impact of monitoring activities on the management of fish stock;
- the ministry's compliance with rules on the definition of targets and policy information on the management of fish stocks;
- allocation of fish quotas and enforcement.

The main findings were:

- the Norwegian Ministry of Fisheries had not succeeded in reducing the total catch capacity of the Norwegian fishing fleet;
- the six main fish species were in a biologically sustainable condition. The quotas for two species, however, were higher than recommended;
- the Ministry's risk analysis of enforcement activities, monitoring of selling organisations and evaluation of the main policy instruments were unsystematic and inadequately documented;
- European quota decisions are separate from the financial consequences. Lower quotas can increase income if the unit price is higher. More conservative exploitation could be financially possible but the Norwegian government takes too few measures;
- the number of vessels has been reduced but individual fishermen have adapted their fishing methods to the catch quotas. The technical catch capacity has therefore increased;
- the geographical spread of catch quotas is not properly managed.

European Court of Auditors

Special report no. 7 on the control, inspection and sanction systems relating to rules on conservation of Community fisheries resources together with the Commission's replies, Official Journal of the European Union, 2007/C317/01, 28 December 2007.

The European Court of Auditors investigated fisheries policy at EU level and in the six principal member states in fisheries terms (one being the Netherlands). It concluded that:⁷⁰

⁷⁰ Special report no. 7/2007, p. 4.



- catch data are neither complete nor reliable and the real level of catches is thus unknown. As a consequence this prevents proper application of the TAC and quota system;
- the inspection systems do not provide assurance that infringements are effectively prevented and detected; the absence of general control standards is an impediment to adequate control pressure and optimisation of inspection activities in the member states. Moreover, in actual fact it restricts the extent and scope of the Commission's work of evaluating national arrangements and consequently limits the latter's ability to give an opinion on the overall effectiveness of national systems;
- the procedures for dealing with reported infringements do not support the assertion that every infringement is followed up and still less that infringements attract penalties; even when penalties are imposed their deterrent effect is, on the whole, limited;
- overcapacity detracts from the profitability of the fishing industry and is an incitement to non-compliance with the restrictions.

78

The European Court of Auditors found that after the failure of the programmes to adapt fishing capacity, the current approach, which is essentially based on reducing the fishing effort, is unlikely to resolve the problem of overcapacity. If this situation continues it will bring grave consequences not only for the natural resource but also for the future of the fishing industry and the areas associated with it.

This conclusion prompted the European Court of Auditors to recommend that the present control, inspection and sanction systems be strengthened considerably, in particular by implementing the following solutions:

- improve the quality of catch data;
- implement the electronic system for recording and reporting fishing activity data;
- develop analytical, programming and follow-up tools for inspection activities;
- impose deterrent sanctions by the competent authorities;
- improve regulations for the inspection and sanction system;
- reinforce the Commission's ability to put pressure on defaulting member states;
- adopt active measures to reduce structural overcapacity in the fishing industry.

The European Commission shared the European Court of Auditors' conclusions regarding the shortcomings of the provisions concerning



control, inspection and enforcement. It noted though that efforts had been taken in the member states to improve control and enforcement of rules. The Commission also wrote in its reply that it had proved difficult to get some Commission proposals adopted in the Council, '... in particular, where they address the ambition to limit access to depleted resources, to bring fishing capacity in line with resources, or to increase Commission powers'.⁷¹

79

The European Commission wants to reform policy for fisheries control and the European Court of Auditors' recommendations can serve as an effective contribution. It thinks the current control system should be properly and fully implemented and will put pressure on member states to improve the situation.

The review and revision of the Control Regulation will:

- address the issue of reliability of catch data;
- address the effectiveness and coherence of national control systems;
- explore the possibility of further integration and harmonisation of a sanction system.

The European Commission does not intend, however, to propose the reintroduction of specific capacity targets. Such a system had been in place until 2002 and had not provided the desired effects and had been rejected by the member states.

The European Commission intends to propose a new policy framework in October 2008 with a global and integrated approach to control, from the fisherman to the consumer.⁷² The new policy framework will be simpler than the current one, based on harmonisation and cost effectiveness. The Commission's objectives include broadening the mandate of the Communities Fisheries Control Agency.

⁷¹ Special report no. 7/2007, p. 24.

⁷² EU press release, 18 February 2008,

<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/255&format=HTML&aged=1&language=EN&guiLanguage=en>.



Appendix 6 Audit approach and methodology

Audit method

We collected information by means of interviews, literature studies and desk studies. By way of preparation for the audit and during the audit itself, we held interviews with:

- Ministry of Agriculture, Nature and Food Quality
 - *Department of Fisheries*
 - *Department of Nature*
 - *Financial and Economic Affairs Department*
 - *Department of Legal Affairs*
 - *Audit Branch*
 - *Permanent Representative in Brussels*
 - *General Inspectorate (AID)*
- Ministry of Housing, Spatial Planning and the Environment
 - *Department for Rural Development and Soil Management*
- Ministry of Transport, Public Works and Water Management
- Fish Product Board
- Netherlands Environmental Assessment Agency
- North Sea Foundation
- Pelagic Freezer-Trawler Association
- World Wildlife Fund
- Agricultural Economics Research Institute (LEI)
 - *LEI Animals - Fisheries*
 - *LEI Animal - Operations and policy*
- IMARES Wageningen
- Community Fisheries Control Agency
- European Parliament
- Nieuwe Diep management group
- Federation of Fisheries Associations

We also attended inspections by the AID and sailed on the AID's inspection vessel, the Barend Biesheuvel.



Appendix 7 Definitions and abbreviations

Definitions

| Term | Definition |
|---|--|
| Accelerated depreciation of environmental investments (VAMIL) | Tax facility allowing entrepreneurs to decide when they can depreciate environmentally friendly investments |
| Beam trawling | Fishing method using a metal beam to which a chain is attached that is dragged along the seabed to drive fish into the net |
| Benchmark | A measure to compare the performance of organisations |
| Biesheuvel groups | Cooperative groups of cutter fishermen |
| Biodiversity | The variation of life forms in a given ecosystem |
| Biological minimum | The limit under which recruitment (= the annual increase in juvenile fish) and thus a fish stock becomes endangered |
| Co-management | Joint responsibility for certain tasks shared by the government and the fishing industry working in management groups |
| Demersal fishing | Fishing for fish that live on or near the seabed |
| Discards | By-catches that are thrown overboard |
| Ecologically sustainable | No irreparable damage to nature (in this event, fish stocks and biodiversity) |
| Economically sustainable | Capable of sustaining itself economically |
| Energy Investment Grant (EIA) | Tax facility that encourages entrepreneurs to invest in energy efficient equipment and green energy |
| Environmental investment facility (MIA) | Tax facility to encourage investment in innovative projects |
| Fishery mortality | Decline in the quantity of fish due to fishing according to a set formula. Fishing mortality can be calculated with and without discards |
| Fishing pressure | The extent of fishing in a given period |
| High grading | Throwing a fish catch overboard and replacing it with a catch of better quality |
| Level playing field | Fair competition |
| Licence | Official permission to, for example, fish |
| Management groups | See Biesheuvel groups |
| Marine ecosystem | All the plant and animal communities that live in a particular |



| Term | Definition |
|--|--|
| | area, in this case the sea, considered as a complex relationship between the communities themselves and the environment in which they live (air, water, soil) |
| Marine MT | Joint programme by four departments of the Ministry of LNV: Nature, Fisheries, Knowledge and International Affairs |
| Marine Protected Areas | Global network of protected areas of the sea |
| Marine Stewardship Council (MSC) | Body responsible for certifying the sustainability of fish catches |
| Marine strategy | Environmental section in maritime policy |
| Maritime policy | Policy governing activities at sea |
| Maximum sustainable yield (MSY) | The largest average catch that can be taken without reducing sustainability |
| National Service for Implementation of Regulations | Implementing organisation of the Ministry of LNV responsible for national and European regulations, the granting of licences and exemptions, EU declarations on ESF/ERDF |
| Pelagic fishing | Fishing for fish that live in the water column well above the seabed |
| Plaice Box | Area of the North Sea in which fishing for plaice is restricted, with the support of fishermen, to smaller vessels |
| Precautionary level | The minimum quantity of a fish stock as applied in the EU to determine the size of the catch quota |
| Programmatic enforcement | Effective and efficient use of enforcement and compliance tools in a risk-driven enforcement programme |
| Pulse fishing | Fishing method using electrical pulses to flush out fish from the seabed |
| Quota | An allocated share |
| Recruitment or replenishment | The number of young fish added to the stock each year |
| Scheveningen group | A group made up of the member states bordering the North Sea to improve cooperation in the field of control, enforcement and implementation of European regulations concerning sea fisheries |
| Sea days | Days on which a fisherman may fish |
| Spawning stock biomass | The number of mature fish capable of replenishing the stock |
| Total Allowable Catch (TAC) | The quantity of fish that can be taken from each stock each year |
| Year class | Fish in a stock born in the same year |



Abbreviations

| Abbreviation | Meaning |
|---------------------|--|
| AID | General Inspectorate |
| EEZ | Exclusive Economic Zone |
| EFF | European Fisheries Fund |
| EHS | National Ecological Network |
| EIA | Energy Investment Allowance |
| EU | European Union |
| FDRF | Fisheries Development and Restructuring Fund |
| FIFG | Financial Instrument for Fisheries Guidance |
| IBN | Integrated North Sea Management Plan |
| ICES | International Council for the Exploration of the Sea |
| IMARES | Institute for Marine Resources and Ecosystem Studies |
| LEI | Agricultural Economics Research Institute |
| LNV | Ministry of Agriculture, Nature and Food Quality |
| MIA | Environmental Investment Facility |
| MSC | Marine Stewardship Council |
| MSY | Maximum Sustainable Yield |
| NAFO | Northwest Atlantic Fisheries Organisation |
| NAO | National Audit Office (UK) |
| NMP | National Environmental Policy Plan |
| OSPAR | Oslo and Paris Convention |
| SMART+C | Specific, Measurable, Agreed, Realistic, Time-bound and Consistent |
| STECF | Scientific, Technical and Economic Committee for Fisheries |
| TAC | Total Allowable Catch |
| V&W | Ministry of Transport, Public Works and Water Management |
| VAMIL | Accelerated depreciation of environmental investments |
| VIP | Fisheries Innovation Platform |
| VROM | Ministry of Housing, Spatial Planning and the Environment |
| WSSD | World Summit on Sustainable Development (Johannesburg 2002) |



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84

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