



Financing Environmentally Sensitive Fisheries in the EU

The use of incentive payments

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Introduction

This report is about the potential use of positive financial incentives for environmental purposes in European fisheries policy. A *financial incentive* is a direct payment that aims to bring about changes in behaviour by making certain economic decisions more attractive than others. *Positive* means that the incentives result in an overall increase in the well being of society, for example by improving environmental quality. Positive financial incentives could play a modest, but perhaps key role in moving the fisheries sector along an economically, socially and environmentally more sustainable track.

In the current drive to incorporate environmental considerations more deeply within European fisheries policy, there is a need to explore new policy tools that can contribute to changes in structures and practices. This report focuses on the use of positive financial incentives, examining how they have been used in the past and how we may draw lessons for enhancing their use in the future. It aims to raise awareness of funding opportunities for incentives as well as inform the review of the Common Fisheries Policy in 2002.

Where environmental assets are central to a sector, as they are with fisheries, the use of financial incentives can make economic sense. Rather than creating market distortions, as is often the case with traditional production subsidies, financial incentives for the environment can improve market efficiency and correct market failure by taking into account the environmental costs and benefits that were previously 'external' to market decisions. Some examples of how government funding can be used to encourage environmentally sensitive fishing practices include supporting the use of less environmentally damaging fishing gear; funding research into new environmental technology for the aquaculture industry; and supporting local authorities and fishers in meeting and developing management plans.

The European Union's Common Fisheries Policy (CFP) provides funding for the fisheries sector principally through the Financial Instrument for Fisheries Guidance (FIFG). In the past, this fund was mostly directed towards expanding and modernising the Community fleet. However in more recent years the direction of funding has changed to reflect more closely the environmental challenges facing the industry. As a result there has been some scope for Member States to introduce positive financial incentives through FIFG. Financial incentives are also provided indirectly to the fisheries sector for environmental purposes through other funding mechanisms, for example through general research, environmental and agricultural budget lines.

It is clear that public funds can be used positively to support and promote environmentally friendly fisheries practices. But the total number and scale of these projects remains very limited in comparison to overall funding for the sector and in relation to the seriousness of the environmental and social challenges facing it. This report therefore seeks to explore the potential for larger scale use of this option.

Section 2 offers an overview of the fisheries and environmental policy context. Section 3 describes how financial incentives can work, and the role that they can play within a wider set of policy instruments. Section 4 explores how public funds have been used in the past to provide positive incentives in the fisheries sector. Examples are drawn from the application of the various Community funds, as well as national funds, in different EU Member States. They serve to illustrate which elements are important for making financial incentives work well in different contexts. Lessons can be drawn from outside the fisheries sector, for example from the widespread application of incentives in the rapidly growing set of agri-environment schemes, as part of the Common Agricultural Policy. These are discussed in Section 5.

Policy options for the CFP are discussed in Section 6, considering ways of widening the use of environmental incentives in the fisheries sector. It also considers administration, reporting and evaluation issues that need to be addressed as part of any new incentive policy.

2

The fisheries and environmental policy context

‘Despite strict conservation measures, fisheries is still a major impacting sector [on biodiversity] with direct and indirect effects on species and on marine ecosystems’ (EEA, 1999)

The European fisheries sector is increasingly recognised for its potential and actual impacts on the environment, both within Europe and on the high seas and in third countries. The impacts vary due to the wide range of fish production systems that currently exist, broadly falling within the categories of wild capture fishing and fish farming or aquaculture.

This section briefly reviews the environmental impacts of fisheries and the current range of fisheries and environment policies that are available to tackle these impacts.

2.1 Environmental impacts of fisheries

Declining stocks

As the 21st century dawns, European wild capture fisheries are facing an escalating ecological, economic and social crisis. Despite recommendations to the EU Council of Ministers between 1996 and 2000, fishing mortality in EU waters still requires a reduction of up to 40 per cent and approximately 37 per cent of stocks are considered to be both overfished and depleted (Lassen, 1996 and CEC, 2000). As recently as November 2000 official scientific advice from the International Council for Exploration of the Sea (ICES) to the Commission indicated that many fish stocks in the North Sea, the Northeast Atlantic and further south in the Bay of Biscay and in

the Iberian region are ‘outside safe biological limits’. Indeed, important stocks like North Sea cod have a ‘high risk of collapse’ (ICES, 2000).

The problems faced by EU fisheries are part of a global trend, where, according to the United Nations Food and Agriculture Organisation, an estimated 44 per cent of major fish stocks are fully exploited. Approximately 16 per cent of commercial stocks are overfished, six per cent are depleted and only three per cent appear to be recovering slowly (FAO, 1999).

Damage to other species and habitats

While the most immediate impact of fishing upon the marine environment is the removal of target species, there are other impacts, the effects of which are still poorly understood in European waters. These include:

- bycatch or incidental capture of ecologically related species such as fish (juvenile target species or non-target, non-commercial species), marine mammals, seabirds, marine reptiles and benthic species; and
- the impact of fishing gears upon marine habitats.

In the short term, the discards of offal and waste can also affect local ecosystems. Fishing practices can also induce long term changes to the structure and composition of communities, including marine mammals, seabirds and benthic invertebrates.

Impacts of intensive fish farming

Against a backdrop of declining wild fish stocks, the contribution to total world food fish and shellfish production by the aquaculture sector has more than quadrupled during the last 47 years; increasing from seven per cent in 1950 to 30 per cent in 1997, with nearly one third of all fish for food now produced by aquaculture (FAO, 1999).

Table 2-1: European Community aquaculture production and trade 1984 to 1996.				
EC aquaculture production	1984	1988	1992	1996
Inland production ('000 tonnes)	154	198	227	251
Percentage of world total	3.6	2.8	2.4	1.6
Marine production ('000 tonnes)	622	713	685	907
Percentage of world total	23.0	15.6	11.2	8.4

Source: FAO, 1999

The environmental impacts of aquaculture are often more localised than wild capture fisheries, usually affecting inland and coastal regions. Production techniques range from extensive and semi-natural to intensive and largely artificial. Potential environmental impacts, the effects of which are still not well understood, include:

- the reliance of some enterprises upon vast quantities of wild caught fish as feed, and the subsequent impact this has upon sustainability;
- the discharge of pesticides and other chemicals used to aid production;
- potential increases in nutrient loads resulting from discharges into surrounding waters;
- the potential introduction of non-indigenous species or genetically modified species into local environments; and
- impacts upon sensitive habitats and/or groundwater levels in surrounding areas due to the diversion of water sources.

2.2 The Common Fisheries Policy

The Common Fisheries Policy (CFP) has four main policy strands: structural; markets; external; and conservation and management policy. Environmental concerns are currently mainly addressed through the conservation and management and structural policy strands, as well as fisheries management objectives pursued within international fora.

Regulation 3760/92 of the EU Common Fisheries Policy (CFP) provides the framework for managing aquaculture and wild capture fisheries in EC waters. It provides the legal basis for actions to conserve fish stocks, with the overall aim of:

‘protecting and conserving available and accessible living marine aquatic resources, and providing for rational and responsible exploitation on a sustainable basis, taking account of appropriate economic and social conditions and implications for the marine ecosystem’ (Article 2).

Fisheries management measures include measures to set total allowable catch (TAC) limits and to determine technical conservation measures (TCMs). These are generally contained within a series of subsidiary regulations under Regulation 3760/92. TCMs include establishing minimum mesh and landing sizes, closed areas, and gear specifications designed to reduce the mortality of juvenile fish, to protect spawning stocks or nursery grounds and to reduce bycatch of marine mammals. In isolated cases, stock-specific objectives and/or management plans have also been elaborated. Regulation 3760/92 also provides an explicit opportunity to ‘establish incentives, including those of an economic nature, to promote more selective fishing’ (Article 4(2)(h)). However, this provision has not been used to date.

In the past the structural adjustment policy for fisheries has come under criticism for encouraging growth in fishing capacity and a level of effort which does not match the reproductive capacity of the natural resource. As a result, structural adjustment funding from 1994, provided by the newly introduced Financial Instrument for Fisheries Guidance (FIFG), placed greater emphasis on reducing fleet capacity in wild capture fisheries; improving quality in processing; introducing environmental management into aquaculture; and creating protected areas for the regeneration of vulnerable fish stocks. Recent reforms of FIFG have supported a further shift in emphasis towards environmental projects. Fleet capacity reduction has also been required by a series of national multi-annual guidance programmes (MAGPs), developed to realign fishing effort with available resources. These set out binding national fishing fleet capacity and effort reduction targets.

In addition to FIFG, a ‘Community Initiative’ called PESCA was also created as an extra structural measure to offset some of the economic and social impacts of reducing fishing capacity. With funding provided between 1994 and 1999, the measure supported diversification both inside and outside the sector for fisheries dependent regions. The Initiative was not reintroduced for a further period, however.

Despite the efforts outlined above, the evidence points to the inability of the CFP as a whole, including the structural and conservation policies, to meet environmental and stock objectives and to move EU fisheries along a sustainable path.

2.3 Fisheries and sustainability – taking account of the environment

The EC is committed in law to addressing sustainable development in all of its policy sectors, including fisheries. This obligation is clearly established as a founding principle in Article 2 of the EC Treaty, as amended in 1999 by the Treaty of Amsterdam. The concept of sustainable development and what this might mean for fisheries is outlined in Box 2-1.

Box 2-1: Sustainable development and fisheries management

<p>When it comes to renewable natural resources such as fish stocks, the concept of ‘sustainability’ of the natural resource base has been implicitly or explicitly present in fisheries management regimes since at least the 1950s (Garcia and Staples, 2000). Conserving the renewal capacity of target stocks and defining their maximum sustainable yield were for many years the focus for biologists and economists contributing to the fisheries management debate. During the development of the United Nations Convention on Law of</p>	<p>the Sea (UNCLOS) in the 1980s and the United Nations Convention on Environment and Development (UNCED) in 1992 a broader idea of sustainability came to be embraced, one which included concern for the associated and dependent species, and the surrounding ecosystem (Garcia and Staples, 2000). Adopting an ecosystem approach to fisheries management implies greater investment in environmentally sensitive fisheries practices as well as greater protection of the marine environment and biodiversity.</p>
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A key idea embraced by European administrators and politicians alike is that in order to make the concept of sustainable development work, environmental concerns must be integrated or built into sectoral decisions. The requirement for environmental integration is similarly underpinned by Article 6 of the EC Treaty. Environmental integration within fisheries policy is currently being pursued through the ‘Cardiff integration process’ which calls for the adoption of a strategy to integrate environment into fisheries policy. A comprehensive strategy is due to be presented to Heads of State and Government at the June 2001 Göteborg Summit.

Integrating environmental concerns will require that close synergies be sought between environmental policy and fisheries policy. A number of existing EC environmental policies or initiatives are particularly relevant to the pursuit of integration in the fisheries sector. These include, for example, Directives relating to the preservation of key species and habitats in EU Member States (see Box 2-2) and environmental assessment of large development projects, including large aquaculture installations.

<p>Box 2-2: Habitats and birds Directives</p> <p>.....</p>	
<p>The habitats Directive (92/43) and the birds Directive (79/409) are key pieces of EU nature conservation legislation. These Directives introduce requirements to protect the most sensitive and/or threatened habitats and species deemed to be of Community importance. Ultimately the goal of both Directives is to contribute to the maintenance of biodiversity within the EU through the creation of a network of protected areas, called Natura 2000, as well as through non-site based measures.</p>	<p>restore or maintain a favourable conservation status of Europe’s most threatened species and habitats, including the conservation of marine and coastal areas and listed species such as marine mammals. Measures are also to take account of economic, social and cultural requirements. The development of measures under these Directives could make an important contribution to the pursuit of sustainable development in the fisheries sector through the protection of important spawning grounds and juvenile fish species habitats, as well as contributing to mitigating impacts of fishing activity upon ecologically related species.</p>
<p>Measures under the habitats Directive are designed to</p>	

There are two further Commission documents that should provide guidance on the process of environmental integration in fisheries policy. These documents are the EC Biodiversity Strategy (see Box 2-3) and the 1999 Communication on fisheries management and nature conservation in the marine environment (CEC, 1999). The latter identifies measures thought to contribute to the sustainable use of fish stocks and conservation of the marine environment. They include:

- control of fisheries pressure to benefit commercial stocks and marine ecosystems by limiting access, catch levels and fishing intensity, as well as developing medium term management targets;
- improved measures for nature conservation by improving gear selectivity, protection of habitats and species, and establishing ‘space-time’ boxes;
- integrated management of coastal areas;
- improved training, information and transparency; and
- greater contribution from scientific research to fisheries management and more account taken of the biological impact of fisheries.

Box 2-3: EC Biodiversity Strategy

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The EC Biodiversity Strategy (COM(1998)42) defines a framework for actions necessary to fulfil the EC's legal obligations under the Convention on Biological Diversity. In order to bring fisheries in line with the Convention, the following four objectives are identified:

- to promote conservation and sustainable use of fish stocks and feeding grounds;
- to promote technical conservation measures that support conservation and sustainable use of fish stocks;

- to reduce impacts of fishing and other human activities on non-target species and marine and coastal ecosystems; and
- to avoid aquaculture practices that may affect habitat conservation through occupation of sensitive areas.

The Biodiversity Strategy is being followed by more detailed Biodiversity Action Plans, including an action plan for biodiversity in fisheries, that are expected early in 2001.

2.4 Reviewing the Common Fisheries Policy in 2002

The conservation and management regime (Regulation 3760/92) calls for an assessment of the state of fish stocks, the economic and social situation of coastal regions and the implementation of the CFP by 2001. If necessary, this is to be followed by proposals for reform of the CFP that are to be agreed by the end of 2002. To this end, the Commission is planning to present a Green Paper in March 2001 and has expressed its intention to follow this with legislative proposals for CFP reform by the end of 2001. The actual extent of such proposals is not yet known, but it is clear that the Commission intends to stimulate a wide-ranging debate among relevant stakeholders in Europe on the future of the CFP.

It is of course quite possible that the 2002 review leads to no or only minor modifications of the current fisheries management system. Alternatively, a 'new' CFP could see a major shift in the fisheries management paradigm and the pursuit of sustainable development in European waters. There are certainly many organisations, from the fishing industry to environmental groups, that would support more radical reform. Potential options for reform are numerous but include a shift towards using a wider range of policy instruments, for example, placing greater emphasis on the role of the market and economic instruments in fisheries management. The development of a dedicated fisheries/environment funding measure could provide financial incentives for more environmentally sensitive fisheries practices, and could thus form an important element of a reformed policy.

3

What is the role of positive financial incentives in fisheries?

Support for undertaking activities or providing goods and services that generate positive environmental effects, or avoid negative effects, may be offered by positive financial incentives. Financial incentives are one type of economic incentive that involves direct payments to encourage changes in individual behaviour. Payments have been used for years to encourage specific patterns of development in the EU fisheries sector. The use of financial incentives to encourage the consideration of environmental factors is the subject of increasing interest both at the policy level, and amongst individuals and groups working locally towards sustainable fisheries.

This section demonstrates why positive financial incentives can be a key element in any strategy that aims to achieve sustainability in the fisheries sector. It introduces the economic arguments that support the use of financial incentives, and outlines some of the potential uses of incentives.

3.1 Externalities in fisheries

The marine environment constitutes one category of what is generally known as a “global commons”, a naturally occurring resource the value of which is not only economic, but vital to life on the planet itself, like air, freshwater and forests. These resources provide benefits to society that cannot be bought or sold by individuals in the market place – they are what economists call ‘public goods’. One feature common to such natural resources is that the market can not effectively price all aspects of their value.

When the price of a good or service does not reflect the full costs of its production then that price can send an incorrect signal into the marketplace. A cheaper price will increase demand and further encourage exploitation of the ocean’s resources. The effects of poor management on the

marine environment or on fish stocks themselves are often referred to as ‘negative externalities’. Negative externalities are those external costs of production that by their nature are borne by other people rather than by individual ‘producers’, in this case, individual fishers or fisheries managers. Positive externalities also exist. They arise where production processes bring about benefits that are not reflected in the price of goods produced.

Externalities arise when the private calculation of benefits or costs differs from a wider social valuation of benefits or costs. Private valuations are driven by market signals. Society’s valuations – say for the environment – are embodied in agreements such as the Biodiversity Convention and other similar international agreements.

The fisheries sector has traditionally been associated with significant external costs. These include two categories of negative externality:

- Costs to other producers, both now and in the future, of exploiting limited common resources (ie fish stocks) which do not ‘belong’ to anyone (see Box 3-1); and
- Costs to the public at large when, as a result of the types of gear or production methods that are used, or as a result of overfishing, the marine ecosystem is seriously degraded.

Box 3-1: Tragedy of the Commons

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<p>At the heart of fisheries management problems lies the absence of well-defined access rights to the fishery. The marine fishing industry operates under a common property resource or open access regime in which fishing companies have no effective property rights, and they compete for shares of the same stocks of fish. This common property resource regime creates a ‘tragedy of the commons’: fishing companies rationally calculate that any fish they leave in the water will be caught by someone else, so they have an incentive</p>	<p>to mine the resource as rapidly as possible, without regard to its sustainability.</p> <p>With no assurance of a given share of the allowable catch, they must increase their fishing power to maximise the catch per unit of effort. With no practical limit on the numbers of fishing companies which have access, and no right to a share of the resource, the fishing industry has an inherent tendency toward both overcapitalisation and overexploitation of marine fishery resources.</p>
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Source: OECD, 1997

While commercial fish species might have a market price, this generally does not reflect the value of marine resources that have served as inputs – intended or not – in their harvest or production. These resources have effectively been used free of charge, often with negative consequences or costs for the marine environment.

This means that individuals operating in fisheries have insufficient incentive to take into account the effects of their activity and catch on other fishers, and on the rest of society. In this case governments are called upon to implement policy measures to correct this ‘market failure’. They can do this either by legal sanctions to prevent damaging practices, by providing economic incentives related to the external effects, or a combination of the two.

3.2 Correcting market failures

Economic incentives include, for example, subsidies, taxes, direct payments and fees. Economic incentives can work to ‘internalise’ the external costs of fisheries or reward any previously undervalued environmental benefits of certain fisheries practices. They alter market signals such as the price of goods and services so that account is taken of these costs or benefits. In economic theory, they are seen as more efficient than regulation. This is because they act as mechanisms that aim to *persuade* actors, involving people in making decisions which are more likely to be appropriate to their individual circumstances, rather than forcing a uniform change upon them.

To date, most conservation policies for fisheries have concentrated upon limiting damage through regulation – by fixing total allowable catches (TACs) for fish stocks, or prohibiting certain types of gear. There has also been growing recourse to financial aid under FIFG to reduce the overall level of fishing capacity. But these methods have so far failed adequately to control fishing effort so that it matches natural capacity and they are disliked because they offer no immediate benefit to the individual fishers whom they affect.

Financial incentives, or incentive *payments*, are one type of economic incentive that encourage changes in behaviour by providing direct payments (usually of public funds) to economic actors. In contrast to the negative ‘stick’ of regulation, they can provide a ‘positive’ policy mechanism, offering a ‘carrot’ to encourage more environmentally sensitive practices. They can also *complement* environmental regulation, encouraging effective compliance by minimising the social and economic costs of complying.

Incentive payments can be applied over the long or short term and can involve either regular income or one-off investment grants. In economic terms the payments are designed to address the main reasons why ordinary markets fail. Four reasons in particular are identified:

1. A need to create markets for public goods

Incentive payments can help to improve the operation of existing markets by increasing the profitability of more sustainable fisheries practices. Payments can improve returns on environmentally sensitive production methods, by creating public markets for environmental stewardship services, where the government provides income support for external benefits provided by fishers. Incentives can also aid in the creation of new markets from fishing or aquaculture production that are in line with good environmental practice.

2. Information failure

One of the reasons for the tension between private and public values is often information failure. When private owners are furnished with more or better information, they are more able to take into consideration the long-term impacts of their actions. Providing better information about the

marine environment as well as the existence of alternative production methods can encourage conservation or improved management. Financial incentives for undertaking research and monitoring can address information deficits. Where information is available there are various ways in which this can be disseminated more effectively, for example by creating the possibility for learning by doing or by bringing together various stakeholders to share views and knowledge.

3. Investment barriers

Too often decisions are made with short term economic benefits in mind. By providing incentives for investment today, targeted funding can more adequately reflect the long-term benefits to society of certain environmental practices. This may include subsidies for the purchase of more environmentally friendly gear or subsidies for investment in effective management systems, such as the preparation of management plans. Attaining new environmental standards can often imply significant changes in production methods, potentially associated with large costs in the short term. These may result in social costs, such as the collapse of a small industry and the loss of jobs. Financial incentives can be provided in a variety of ways to ensure that both the social and environmental outcomes of new standards are acceptable, for example by helping small industries to adjust or diversify or supporting training for those made redundant. Aids for investment can also encourage behaviour that moves beyond normal standards, such as complying with more stringent codes of good practice.

4. Technical Barriers

While most fishers would welcome fishing technology that reduces bycatch of unwanted species on economic grounds, there are various reasons why such technology is not widely used. First of all, some technology is still being developed and may not be widely available on the market. Secondly, fishers may not be aware of the existence or benefits of available technology. The cost of new gear may also be prohibitive. Investment in the long-term management of the fisheries resource is often discouraged for the reasons discussed earlier, eg the problems associated with an open access resource. Finally, there will always exist cases where the benefit of a particular technology or fishing practice for an individual will be insignificant, but the cumulative impact of its use by a whole fleet will be significant from an eco-system perspective, thus providing wider benefits to society. Thus, public funding to cover part of the costs of such investment is worthwhile.

In all of these cases financial incentives can be applied by governments to alter the signals received by fishers in order that both they and the environment benefit. Financial incentives can be used to support investment in less damaging fishing gear, to underwrite risk, to provide compensation for lost income due to adoption of less damaging practices or to build capacity to meet other environmental requirements such as monitoring and reporting. They should not be seen as replacing existing management tools, but rather as a means of enhancing them in order to improve the overall effectiveness of fisheries management.

4

Experience in applying financial environmental incentives in fisheries

A variety of potential EU funding sources for financial incentives in the fisheries sector already exists. The largest and most obvious sources are those with an explicit fisheries focus. In the period 1994-1999 these were FIFG and the PESCA Community Initiative. For the period 2000-2006 FIFG will continue to operate, however PESCA will have come to an end.

Funding for fisheries can also come from other sources in the EU such as the LIFE financial instrument for the environment (L'Instrument Financier pour l'Environnement). Also relevant are certain funds for agriculture, for example, the LEADER+ Community Initiative for rural development, and for research, such as the FAIR/Quality of Life¹ programme.

While these various sources of funding offer significant scope for applying incentive payments in the fisheries sector, their disparate administration means that it is often difficult to track the extent of funding for fisheries and the environment or to assess the funding's effectiveness in meeting stated objectives. In an attempt to assess the extent of use of financial incentives to support environmental objectives in fisheries, IEEP sent out a questionnaire to all 15 EU Member States. Responses to the questionnaire were provided by eight Member State fisheries ministries, boards or implementing bodies. The exercise showed that in general, information on the uses of funding for the environment and on the effectiveness of funding is very poor. There is also much confusion about what can be considered an 'environmental activity'. This confusion partly reflects

1 FAIR is an acronym for the fourth framework specific RTD programme "Agriculture and Fisheries (including Agro-industry, Food technologies, Forestry, Aquaculture and Rural Development)". This programme has now become the 'Quality of Life' programme.

the priorities of the different Member States with respect to the environment as well as levels of awareness of environmental issues in fisheries.

Raising awareness about the available sources of funding for fisheries and the environment, as well as the potential uses of this funding, remains a priority. While it is not the aim of this report to meet that particular need, this section explores some examples of how EU and Member State funding has been used to provide incentive payments for environmental activities in the fisheries sector.

4.1 How could incentives be applied?

Management of the fisheries sector presents a variety of challenges that are as diverse as the environments and the actors that operate within them. This variety will also be reflected in the ways in which incentives can be applied to address them. Often a mix of both incentive payments and other measures will be needed to promote sustainable outcomes.

In general, incentive payments can be applied to four types of activity:

- a) **incentives for the adoption of new techniques;**
- b) **assistance to allow sustainable fisheries to overcome unfavourable market conditions;**
- c) **incentives for ‘public goods’ activities; and**
- d) **incentives for reduced effort.**

Payments can be applied directly to fishers or indirectly through local government or other management bodies. In some cases financial incentives can be applied to encourage the take up of new and less environmentally damaging technology that does not alter the profitability of fisheries industries. In other cases, environmental goals may require more fundamental and radical shifts in order to move towards sustainability. In these cases, incentives may still have an important role to play, for example by offering compensation for those who have to leave a fishery which can no longer support the same level of fishing effort.

The following text explores examples of incentive payments funded by the EU or by Member States falling under each of these four categories above. It concludes with a discussion of some of the issues that might need to be addressed with regard to future application of incentive payment schemes for fisheries, especially if this is to take place on a larger scale.

4.2 Incentives for adoption of new techniques

Obstacles to adopting new techniques that are more environmentally sensitive can be overcome by providing incentive payments for the following:

- targeted research to improve understanding of fisheries and ecosystem impacts, and investment in the development or use of new technology
- capacity building, training and the dissemination of information to the fisheries sector to raise awareness of environmental and economic impacts

In some cases, one-off investments can induce a step change in fisheries management practice that benefits the environment and leaves individuals in the fisheries industry economically no better or no worse off than before. Changes in techniques may even bring economic as well as environmental benefits, a so-called win-win scenario. However, in instances where adopting a new environmentally friendly technique or technology will reduce profitability of a fisheries business over the long-term, it may be appropriate to apply ongoing incentive payments to encourage its uptake. Such ongoing payments are discussed later in this Section.

Targeted research and investment in technology

Many governments use national or EU funding to undertake targeted research aimed at overcoming particular problems facing national fisheries. In fact, responses from Member States to the IEEP survey reveal that most funding for the environment in fisheries goes towards research and development for less damaging techniques and technology. In Denmark, two national programmes dedicated to developing more sustainable fisheries provided support to private companies and research institutes from 1994-1999. Work included the development and trial of new fisheries practices and more environmentally sensitive processing methods. At the EU level, the FAIR programme funded many projects over the same period under the budget line 'ecological impacts of fisheries and aquaculture'. These projects also involve both industry and research organisations and have included research on subjects such as waste treatment systems for aquaculture and the development of an eco-label for fish farms.

When successful technological innovation is adequately disseminated, it can provide a powerful incentive for changing behaviour. However, the mere existence of new techniques will often not be adequate to encourage their uptake by target groups. This is where incentive payments can play a useful role. An interesting example of how funding for research and development, combined with incentive payments, can bring about more sustainable fisheries practices is provided by an ongoing project in Ireland, where the serious depletion of the Irish Sea cod stock has presented some formidable challenges.

The cod problem has led to the implementation of an EU recovery plan, which includes significant closed areas. However, there is also pressure to allow a nephrops fishery to continue as long as this does not have negative impacts on cod. BIM (Bord Iascaigh Mhara – the Irish Sea Fisheries Board) is responding to this need by providing funding to develop bycatch devices that allow cod to escape, while still retaining the nephrops component of the catch. This technology should improve the efficiency of the nephrops fishery by reducing bycatch of juvenile whitefish species. The newly developed nets are well within the range of affordability and should therefore

enable fishers to continue to fish despite the existence of the recovery plan. Indeed, during gear trials fishermen found the net very favourable as it reduced on-board sorting time considerably, as well as providing a higher quality of nephrops.

In addition, these nets can be altered to catch high quality whitefish when restrictions on fishing are relaxed. By slightly changing the net design, the new nets will allow the separation of whitefish and nephrops in two different cod-ends, thereby reducing damage and sorting time while improving the overall quality of the catch.

BIM is considering the use of financial incentives to support the uptake of this new gear. In particular, BIM will pay for the panel and insertion. It is also considering offering preferential treatment to fishermen using the new gear by giving them exclusive access to certain parts of the closed area.

These initiatives are to form part of new Marine Environment Protection (MEP) Schemes that have been proposed by the National Strategy Review Group for the Common Fisheries Policy. In essence the schemes would encourage groups of fishermen to go above and beyond existing conservation measures in an effort to support the sustainable development of fisheries.

A similar approach has been used in the Netherlands (see Box 4-1), where an alternative technology to beam trawling has been developed. In this case the economic benefits of the new technology are less evident than in the case of the Irish fisheries above. Therefore, in the Netherlands financial incentives will play a more central role in encouraging the use of this more environmentally friendly technology, whose minor benefit to an individual fishing business would otherwise not justify its cost.

Box 4-1: Encouraging uptake of the pulse beam trawl in the Netherlands
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<p>Use of beamtrawls equipped with tickler chains is standard in the flatfish, sole and plaice fisheries in the Netherlands. The chains, designed to chase these bottom dwelling fish into reach of the fisher net, bury into the soil and sweep benthic organisms into the net as bycatch. The government has been working together with an R&D company to produce a new pulse beam-trawl that will lower the mortality of plants and animals on the seabed. The pulse beamtrawl has electric fields between electrodes as a triggering system. Trials have shown that the technology results in less bycatch of benthos and a significant reduction in the mortality of benthic organisms.</p>	<p>increase in mortality was found for the helmet crab. The technology is not less humane than the chains, causing equal damage to fish that are caught. Another interesting and unintended effect of the technology is that it significantly reduces the catch of plaice, which could eventually mean that the sole and plaice fisheries could be separated and larger mesh sizes used in the plaice fishery.</p>
<p>However, the effects of electric pulses have not been thoroughly investigated yet. For instance, a slight</p>	<p>The technology, being lighter, will reduce fuel costs and hence provides an economic incentive to fishermen to adopt it. Investigations are on hand to establish the economic advantages and disadvantages of this new technique for the individual fishers. In addition the government will consider financial incentives to fishers buying the technology.</p>

It is interesting to note that this new policy still involves an environmental trade-off. While the new trawl reduces mortality of benthic species it increases mortality of certain crustaceans, in this case the helmet crab. The Dutch may decide that the benefits to the wider benthic environment outweigh the costs to a single species or small group of common species.

Not all changes in technology to favour the environment have to be newly developed. LEADER funds are being used in Spain to encourage the reintroduction of traditional lobster traps made from wood. The wood traps would replace iron traps that have a tendency to get lost on the ocean bottom, causing damage to bottom dwelling organisms and contributing to the build-up of non-biodegradable waste. The wood traps are easier to repair, but fishers need to be encouraged to replace their existing stock of iron traps, which implies some investment.

In the UK, PESCA funds were used to create a dedicated measure to support more environmentally friendly fishing methods by making funds available for eligible vessels to purchase more selective gear. The provisions for application for funding are outlined in Box 4-2. This measure is an example of how financial incentives can be used to overcome investment barriers. However, unlike the examples provided above the environmental gains are seen as secondary and not sufficient for encouraging uptake of the new technology. The guidelines specify that the investment must result in economic gains as well (see provision 4).

Box 4-2: UK PESCA guidance notes on eligibility of English fishing vessel projects

Selective fishing gear:

1. The purpose of this measure is to support more environmentally friendly methods of fishing by making funds available for eligible vessels to purchase more selective gear. This includes the replacement of existing fishing gear that is species specific.
2. There must be at least 60% private sector funding.
3. Newly constructed vessels are eligible but it must be proven that equipment will be more

environmentally friendly compared with equipment on board the fisher's previous vessel.

4. Applications will have to be submitted on the basis of their fishing benefits, ie safeguarding jobs, increased profitability and reduced losses. Reduced losses covers aspects ranging from reduced discards to enabling vessels to continue to fish where there are seasonal/permanent restrictions on existing types of fishing gear, eg restrictions on the use of drift nets. Non-fishing benefits should be regarded as a 'bonus'.

Source: PESCA Guidance note on eligibility of English Fishing Vessel Projects, MAFF (Dec 1998)

Capacity building, training and information dissemination

Capacity building in community management can be an effective way to address many smaller problems faced in a particular region or area. In some situations, local knowledge about fisheries and the environment has simply not been brought together effectively to tackle fisheries management. This may be for a variety of reasons, including the lack of assistance for fishers or fish farmers to participate meaningfully in discussions. For example, some fishers often cannot afford to miss a day's fishing in order to come to meetings. In these cases, financial incentives can be provided simply for stakeholders to attend and co-ordinate management meetings.

Incentives can be used for training, to increase understanding about the environmental impacts of fishing or to promote the uptake of more sensitive methods. Sometimes the most effective form of training is being able to witness the benefit of more sustainable practice first-hand. Ireland runs a scheme, for example, whereby fishers are provided with more selective gear for short-term trials. Often, access to this first-hand information is enough of an incentive for fishers to purchase the technology and change their practices. While the fisher does not receive a direct payment, public funds have been used to subsidise the ‘free trial’ facility, so this is another form of financial incentive (ie removing risk and uncertainty). Local authorities receive financial incentives to undertake such exercises.

Perhaps a more effective way to change behaviour is to set up dedicated fisheries advisory services. Specific examples from Ireland and Australia are illustrated below for commercial fisheries and for the aquaculture industry.

SeaNet – an environmental extension service for the Australian seafood industry

Funding is provided by Australia’s National Heritage Trust to a consortium comprising the Australian Seafood Industry Council, the Australian Marine Conservation Society and Ocean Watch Australia to enable the establishment of an extension service (known as SeaNet) to promote sustainable fishing practices within the seafood industry. The funding provided (AUS\$700,000) enabled the employment of extension officers over two years from 1998-2000.

In pursuing its goal of facilitating the move to ecologically sustainable fisheries, SeaNet aims to achieve the following:

- increase the uptake of new fishing gears and practices to aid bycatch reduction and environmental best practice;
- increase the rate of transfer of research-generated knowledge about new fishing gears and practices;
- facilitate the liaison between members of the fishing fraternity (fishers, researchers, managers, etc.) on fisheries sustainability matters; and
- provide information, support and advice to fishers and others seeking to make changes to their fishing gear and/or fishing practices.

Researchers and fishers agreed that the service was timely, if not overdue. There are plans to extend the service. (Leadbitter, 1999)

Environment Officer for Aquaculture in Ireland

The Aquaculture Development Division of BIM (Bord Iascaigh Mhara – the Irish Sea fisheries Board) used FIFG funds to set up a Quality and Environment Section to pursue quality and environment as two key issues in the sustainable development of aquaculture and fishing. Under this

Section a full-time Environment Officer is employed to act as a facilitator for the sustainable development of the aquaculture industry. Work programmes carried out to date include:

- a review of environmental legislation relevant to the aquaculture industry;
- publication of an environmental code of conduct for the aquaculture industry;
- organisation of plastic mussel mesh washer design and trials (ongoing);
- organisation and negotiation between Gem Plastics Ltd. and BIM to produce a purpose built, injection moulded, cost effective, recyclable, visually inert mussel float for the mussel industry;
- organisation of and part financing of trials between BIM and the company ALL in a Shell Ltd., on the use of biodegradable mesh and reusable rope ladder technology (ongoing);
- negotiation with local authorities on behalf of the salmon packing plants with regard to emission limit values and waste treatment technology (ongoing);
- review of several environmental impact assessment scoping documents from various engineering projects; and
- contribution to publications such as the State of the Environment (2000) and the National Biodiversity Strategy.

4.3 Incentives for reduced effort

In trying to bring fishing and fish farming activities within environmental limits, it will often also be necessary to reduce or alter certain production patterns.

Such policies can imply losses in income and jobs, with some fisheries operators leaving the sector altogether. Where such upheaval is required, incentive payments can play a useful role in ensuring that the social outcome is acceptable. They can do so by helping fishers find alternative employment within or outside of the sector or by offering compensation for lost income.

A substantial proportion of EU fisheries aid is already used to encourage fishing effort reductions, primarily through vessel decommissioning schemes as well as schemes to export capacity to third countries. Box 4-3 provides a further example of how an EU Decision was developed, this time to provide incentive payments for fishermen to leave the Italian drift net fleet in compliance with an EU wide restriction on the use of such nets. In this case, incentive payments were lump sums designed to compensate for lost income as a result of changing jobs within or outside the sector. Such payment schemes are designed not only to reduce the social burden of environmental measures, but to increase compliance with the measure.

Reducing certain types of fisheries practices, or overall effort may not always result in job losses. Instead, a reduction in individual effort in line with resource requirements may be appropriate. In this case, ongoing incentive payments may provide compensation over the longer term for income lost.

Box 4-3: Compensation for lost income – conversion of the Italian spadare fleet

Since 1994, there has been an EU wide prohibition of the use of drift nets exceeding 2.5 kilometres in length. From 1 January 2001, further measures will result in an almost total ban on the legal use of drift nets. The measures follow a UN moratorium on the use of large-scale drift-nets and are applicable to all vessels registered in, or flying the flag of, an EC Member State, or fishing in EC waters (with the exception of the Baltic Sea, the Belts and the Sound).

Among the various EC fleets using drift nets was a traditional Italian fleet consisting of approximately 680 vessels. These operated mainly in the Adriatic and Ionian Seas and targeted tuna (*Thunnus alalunga*) and swordfish (*Xiphias gladius*) or spadare. The fleet employed some 2,700 people directly and provided a significant source of income for the fishermen and for the areas dependent upon this activity.

According to a 1995 Commission internal working document, a number of swordfish boats used nets between 10 and 12 kilometres for offshore activity. Indeed the fishery was not considered economically viable using nets of the legal size (SEC(95)549). Some

4,000 tonnes of swordfish were landed by Italian drift-netters in 1993 and another 4,000 tonnes were landed as bycatch, including marine reptiles and cetaceans.

In order to address these illegal activities, and reduce their environmental impact, a voluntary plan was drawn up by the Italian Government in 1996. Implementation of the plan was dependent upon financial incentives to encourage fishermen and vessel owners to leave the sector and/or convert to other fishing methods. While most of the planned measures fell within the scope of an FIGG programme already allocated to the region, some did not. Consequently, a specific measure was adopted (Decision EC/97/292) to contribute to reorganising the fleet and helping it to diversify out of the drift net fishery. The measure provided a range of economic incentives for vessel owners and fishermen, estimated to total some ECU 100 million over the period 1997 to 1999. For example, a lump sum of ECU 50,000 was offered to fishermen who ceased 'all economic activity', and a conversion premium of ECU 20,000 for those moving to another fishing sector or economic activity.

Source: Coffey and Baldock, 1998

4.4 Incentives for 'public good' services

Financial incentives for fisheries operators to take on varied or new roles and responsibilities can also ease the transition to more sustainable fisheries practices, making the tradeoffs between economic losses and environmental gains easier to accept. This will usually mean ongoing income support for the provision of additional environmental stewardship services such as biological monitoring and enforcement. In these cases, ongoing public payments are effectively creating a market for environmental goods where the government, as protector of the public good, is the sole client. Additional investment in administration and management infrastructure will usually need to accompany on-going incentive payment schemes.

There are few examples of ongoing incentive payments. The use of EU funds in the past has been mostly focused around investment in structural change or research, as the examples above demonstrate. The IEEP survey did not uncover any examples of Member States setting up incentive schemes to provide income support or ongoing payments for income lost as a result of undertaking environmental activities. However, Section 5 will explore how such payments work in agriculture and Section 6 will present a possible model for such schemes in fisheries.

4.5 Overcoming unfavourable market conditions

In some cases, sufficient investment in management will bring about fisheries practices that improve the resource to the point where ongoing incentive payments are unnecessary. Potentially, one of the best ways to secure a sustainable income from environmentally sensitive fisheries is to market fish to an environmentally conscious public using labels, including independently certified eco-labels. There are already several varieties of eco-label schemes at national and international level involving industry, NGOs and others. The range of possible labels is broad, from 'not over-fished, to no marine mammal bycatch (eg 'dolphin friendly') and not over-fished, to no bycatch of any sort and not overfished, to ecosystem friendly where the entire ecosystem with its complicated food chain is not harmed (Deere, IUCN).

Eco-labels, like government funded schemes, give fishers an incentive to use more sustainable practices. The difference is that, under an eco-label, the consumer is paying for environmental services and under an incentive scheme the government is paying, on behalf of society. However, it may be necessary for government support to be used in order to change practices, and to support a certification or labelling process. A PESCA project in Cornwall provides an example of how financial incentives from the EU are being applied in the short term to encourage market support for an ecologically sustainable fishery, in this case for mackerel handliners.

Handlining is one of the oldest forms of fishing and is still a common, single-line method used by many inshore fishers. Mackerel handlining in the south west of the UK utilises a line to which a weight and a number of baited hooks are attached. The Mackerel handline fisher will position a small punt over a shoal of fish, then haul the line onboard and remove the fish.

Very high quality fish are produced by hook and line fishing as the fish is usually live when brought aboard, without having been stressed or crushed, and is landed quickly by the inshore boats. It is a selective fishery in terms of size and species, and spawning fish often don't feed so are not caught by this method. Mackerel handlining is therefore a good example of a potentially sustainable fishery.

However, in south west Cornwall, mackerel handliners are facing economic difficulties as they cannot compete with the much larger mackerel trawling industry operating in more northern waters. Partly because of economies of scale, the trawl industry manages to gain greater access to the market and thereby secures a price for fish a lot higher than the handliners receive. A PESCA funded project is exploring ways to support this traditional and low impact fisheries practice along with the jobs that will accompany its survival. One option that has been explored is an application for an eco-label from the Marine Stewardship Council (MSC).

EU funding from PESCA, due to expire in June 2001, has provided the resources for the application process and it is hoped that if a label is agreed by the MSC better market access will be provided by supermarkets keen on providing eco-labelled fish products. In addition, extra revenue generated from the higher priced eco-labelled mackerel would provide funds to the local handlin-

ers’ association to continue with administration of the label. The costs of continuing the MSC label include regular monitoring and certification fees. This is one innovative example of how a relatively short-term investment may bring about a self-sustaining incentive system for sustainable fisheries.

Given the growing popularity of ‘organically’ harvested food products in Europe, combined with the potential self-sustainability of these systems, incentives to encourage labelling schemes for sustainable fisheries should be a high priority.

Markets for fish and fish products are not the only markets that can bring the economic gains required for the survival of sustainable fisheries. Sustainable fisheries can also benefit from revenue from eco-tourism, as well as cultural tourism – especially where traditional fisheries practices involve age-old techniques that hold a certain charm for the tourist. Ensuring that it is the fisheries that benefit and not only, for example, local hotel and restaurant owners, requires careful planning. In addition, eco-tourism, in order to be sustainable, requires that tourism itself does not destroy the environment that attracts it. Therefore suitable controls and guidelines are often needed.

There are a few examples of where the opportunities for eco and cultural tourism are being seized to support traditional fisheries or to avoid the expansion of production into a sensitive environment, with the use of FIGF and PESCO funding. In the UK, FIGF funding has been used to develop a Marine Tourism Vessels Scheme to support fishers’ income. In Greece aquaculture expansion has been avoided in areas of natural beauty by providing funding to set up eco-tourism in the area to bring extra, compensatory revenue to the industry (see Box 4-4).

<p>Box 4-4: Aquaculture and Eco-Tourism in Greece</p> <p>.....</p>	
<p>The Greek Ministry for Fisheries is using PESCO funds to promote the diversification of aquaculture enterprises by financing fish farms to develop eco-tourism activities. These include:</p> <ul style="list-style-type: none"> ● exhibition of traditional fishing boats in Etoliko; ● development of ecotourism centre in Aheloos estuary, exhibiting materials and methods for lagoon coastal fisheries management; and ● eco-tourism development of the shellfish farms in the Axios – Loudias – Aliakmonas estuary. 	<p>There have been some problems in implementation of these projects, with several being cancelled due to the limited existence of funds and the exacting requirements of the programme itself. Other problems have become evident as well. The third project above, for example, originally aimed to provide local infrastructure for tourism, but ended by building 30 wooden houses which are being used by local aquaculture sectors, effectively further encouraging farming activities, rather than diversifying out of them.</p>

4.6 Issues to consider for the further development of incentive payments

Packaging incentives

For fisheries management, ideally a combination of incentive measures will be used to encourage the sustainable use of the biological resources (OECD, 1999). The examples above have demonstrated the ways that financial incentives can be applied in tackling specific challenges faced by the fisheries sector. When these challenges are viewed in the context of a particular fishery or a particu-

lar area, such as a bay or unique coastal zone, the most effective approach may be to consider the application of a package of financial incentives and/or other incentives or policy mechanisms.

The PESCA Canary Islands project, described in Box 4-5, provides a good example of how a package of financial incentives was applied in order to address an overall set of objectives for the region. These include aid for education, research and the development of local infrastructure.

Box 4-5: Developing Sustainable Artisanal Fisheries in the Canary Islands

<p>The Canary Islands are situated near the west African coast and are rich in marine life, although fisheries resources for inshore vessels are limited by the existence of a narrow continental shelf. The numerous local fishers there have therefore to operate within relatively confined limits and, as is increasingly common, they are also feeling the impacts from tourist fishing and fishing from off-shore vessels.</p> <p>The aim of this project, which is being run by the Canary Islands Regional Office of WWF Spain and is part-funded by the PESCA Community Initiative, is to develop the artisanal fishery to support the fishers and the marine environment. The intention is to use a range of economic incentives, including 'carrots' and 'sticks' to encourage the adoption of more desirable methods or practices, while at the same time creating the environment where artisanal fisheries can survive and compete. As far as possible actions are targeted at the full range of fishing related activities. These include:</p>	<ul style="list-style-type: none"> ● education and training, including the establishment of local facilities; ● basic scientific research to contribute to the understanding of how the ecosystem functions and then to establish what fish exist and in what condition the stocks are; ● development of 'no fishing' zones, if necessary diverting fishing pressure to other activities; ● research into technical measures and economic aspects of the fisheries; and ● supporting artisanal fishermen, for example, by developing local infrastructure or establishing quality schemes. <p>The programme covers all Canary Island vessels and works with the fisher co-operatives. The longer-term objective is to deliver stock recovery or stabilisation within twelve years.</p>
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Financial incentives can also work hand-in-hand with regulatory and other economic incentives. These measures may include the granting of better defined property rights for the use of commercially viable species, restrictions on methods of fishing and the use of the surrounding ecosystem, and the removal of subsidies that encourage unsustainable fishing activities.

The relationship between financial incentives and regulation is a delicate one. In the case of the Italian drift net ban, one-off financial incentives were applied in order to smooth implementation of the Regulation, and to lessen its social burden. In a similar way, one-off incentive payments may be used to help fisheries operators invest in necessary technological change required by a new regulation. However, it would be difficult to justify on-going incentive payments for loss of income resulting from a regulation. On-going incentive payments are suitable for encouraging reduced effort, changes in technology or new roles and responsibilities that represent a move beyond the requirements of regulation. In these cases, it is important the payments are applied against a clear set of objectives, representing these higher standards.

Setting clear objectives

Decisions governing the application of incentive payments should depend upon commonly agreed objectives and ways of achieving them. These may be embodied in Regulations; technical measures and codes of good practice. Possible variations in regulatory and policy frameworks for incentive payments will be discussed section 6.

Alongside more formal regulation, the development of codes of good fisheries practice can usefully serve several purposes. In addition to helping make fisheries practices more compatible with the environment, they can serve to educate and inform those in fisheries about environmentally compatible methods, and they can serve as a benchmark for the application of incentive payments. The diversity of fisheries and the environment in which they operate means that codes are best developed at the local level with the local environmental and industry characteristics in mind. Incentive payments have, in some cases, already been used to develop codes of good practice with the fisheries industry and to support their voluntary application. However, more effort in developing codes of good practice could enable incentive payments to achieve more widespread application.

Providing adequate administrative structures and capacity

The application of incentive payments can involve a large administrative burden, as has emerged in the agriculture sector with the application of agri-environment incentive schemes. Some Member States, such as Sweden (see Box 4-6), have experienced administrative problems with the application of existing FIFG and PESCA funding. The lack of information provision to the public and a slow response to application for funding meant that under 50 per cent of PESCA funding was taken up in Sweden – with only 12 per cent of these projects being of the planned volume and a only quarter completed by the end of 1999. Having recognised these problems, which are in part due to Sweden’s late arrival into the EU, the government is now working to address them.

Box 4-6: Evaluation of PESCA and FIFG funding in Sweden

In general there are very few environmental projects funded by PESCA or FIFG in Sweden that could be described as providing financial incentives to change behaviour. The final evaluation report of PESCA sheds some light on the difficulty of enabling and activating diversification of fisheries in a bottom-up manner. According to the report the Swedish bureaucratic system is very meticulous in following rules and anxious about making mistakes, to the extent that the appli-

cant may feel unsupported as the content of the application takes a lower priority than the application form itself. In addition the applicant for a new and innovative project is likely to be discouraged by the cumbersome bureaucratic jungle facing him/her, where the processing time for a PESCA application from submission to decision is on average 200 days. However, some changes are being made that may improve the current situation.

Effective monitoring and evaluation requirements

The Swedish example above points to the value of thorough evaluation of funding. However, central to any evaluation is the availability of a range of information, from implementation data, to data on final impacts of activities on the environment and on the actors involved. Currently information on the environmental impacts of EU funding for fisheries is poor. While some indicators exist, they are inadequate for making judgements about whether one activity had a positive or negative impact on the environment. Therefore it is essential in designing future incentive schemes for fisheries, that adequate attention is drawn to the need for supplying information to inform policy-makers about what works best in terms of promoting environmentally sustainable fisheries. Objectives with clear targets need to be set and indicators developed to track progress towards targets. Accurate information on the effectiveness of various types of incentive payment may allow these to become informative pilot projects for drawing wider policy lessons for fisheries.

Reviewing incentive payments – the path to sustainability

Incentive payment schemes are often innovative and need room to evolve; early adjustment may be necessary, not least in relation to changing regulatory, economic and other circumstances. Policy makers should review on a regular basis the economic, as well as environmental, sustainability of the fisheries activities they are supporting. They should aim, where possible, for economic sustainability in the long term, reviewing payments on a regular basis and withdrawing funding if a management scheme has become self-sustaining.

The next section of the report revisits some of the issues raised here in relation to experience in the agricultural sector, where incentives have been used for several years.

5

Can we draw lessons from agriculture?

Agriculture presents an interesting case study in the use of financial incentives for environmental purposes. These were first introduced into the Common Agricultural Policy (CAP) in the late 1980s and have been deployed on an increasing scale in subsequent years, becoming a core element of rural development policy. While the circumstances in agriculture are notably different from marine fisheries some of the factors which have led to the rapid development of this approach, the principles applied and the mechanisms adopted, are of interest.

Whilst there has always been a wide range of different forms of support and subsidy for agriculture in the EU, historically these were concerned primarily with assisting production and maintaining farm incomes. Farmers received payments for continuing production in relatively disadvantaged areas, which had important implications for the landscape in more mountainous regions for example but there were no direct payments for following specific environmental rules. When these began to be developed in the 1970s, they took the form of agreements between farmers and public authorities which offered payments over a period of years to those farmers who agreed to respect a series of obligations set out in a binding document. These ‘management agreements’, which typically applied for five or up to ten years are generally the basis for payment under what are now known as ‘agri-environment schemes’. Participation by farmers is always voluntary. Schemes are developed and run at the national, regional or local level but the great majority are funded partly from the CAP budget.

5.1 Rationale for agreements

Agri-environment schemes provide annual payments for following specified forms of management or refraining from certain actions, in order to benefit the environment. Usually they are specified in five to ten year agreements with individual farmers.

Within the CAP, these schemes are generally differentiated from investment aid, which is a much longer established policy pursued through separate funding instruments. However, at a local level there may be a link between management payments and investment aid for environmental work on farms.

From the 1960s onwards concern about the impact of agriculture grew because there was a clear gap between the forms of management required for the environment and those generating the greatest returns economically. It was relatively unprofitable to use environmental best practice or technology and there was an absence of market premium for any environmental 'product' from farming: in these respects the situation was similar to fisheries. The gap between the profitability of relatively damaging 'intensive' methods and environmentally sensitive ones was getting larger over time, as productivity increased and farms enlarged and specialised.

The need for payments arose because the combination of traditional agricultural production support and environmental regulation was not sufficient to produce the desired forms of land management. Traditional agricultural support did not incorporate the right environmental safeguards and was insufficiently tailored to local circumstances to reflect environmental or social needs. Hence the requirement for a positive mechanism to encourage active and sensitive management by farmers – something that regulation can rarely achieve alone.

It was not possible to rely on environmental regulation alone to achieve appropriate farm management because:

- to get optimum management, the action required at farm level is often highly specific;
- enforcement of management detail is almost impossible;
- there was great political opposition to regulation in a sector characterised by very small businesses and a feeling that farming was 'a way of life' and a valuable part of rural culture; and
- it was seen as too negative; since it was important to engage farmers more positively in a set of new objectives for land management.

Some similar considerations apply in fisheries.

5.2 Payments and costs

Payments to farmers in agri-environment schemes are subject to rules laid down in EC regulations in order to provide some coherence of approach and to avoid over compensation which might lead to distortions in competition between countries. Actual payments are derived following:

- an assessment of local conditions – ie the type of farming and the adjustments needed; and
- a compensatory approach – paying the farmer just enough to make it more or less as profitable or attractive as the alternative ‘intensive’ option.

The compensation payments are therefore based upon a calculation of income foregone (incorporating higher management costs and the opportunity costs of not adopting the alternative approach – lower production may be entailed for example). An ‘incentive’ of up to 20 per cent can be added where this is necessary to ensure that enough farmers participate to achieve the environmental goal. Payments vary greatly, but many amount to between EUR 50 and 300 per hectare. Typically there will be transaction costs for farmers enrolling in an agri-environment scheme such as the need to acquire information, make plans and fill in forms. This is part of the justification for the additional 20 per cent incentive payment over and above the costs foregone calculation.

It must also be noted that there can be considerable administrative costs for the public sector in running agri-environment schemes. This is both because of the costs of setting up, running, monitoring and evaluating schemes and also because of the need to sign individual agreements with farmers.

5.3 Scheme objectives

The basic principle of payment is that farmers must first meet a baseline or ‘reference level’, of good agricultural practice, a large element of which will represent compliance with environmental and related legislation. For actions which go beyond this level of management, contributing further to environmental goals, farmers become eligible for positive payments.

In practice the schemes vary greatly in different parts of Europe. Typically they provide support for:

- the maintenance of environmentally sensitive farming systems, particularly those that are liable to change if they do not receive support. For example many more traditional forms of livestock production are based on relatively low input practices and are in danger of being converted into more intensive forms of management, losing their environmental value;
- management changes which explicitly reduce environmental pressures, eg the use of less fertiliser, or fewer animals per hectare;
- conversion to environmentally preferred technologies or farm systems and the continued use of these over a period of time (conversion from conventional to organic farming is supported by incentives in all Member States);

- introducing improved management of areas which have lost their environmental value, such as some abandoned land; and
- the maintenance of rare breeds of livestock.

The design of schemes varies greatly. Some are strongly focused on a highly specific objective, others aim to maintain particular forms of agriculture for a mixture of reasons concerned with landscape, biodiversity protection and the prevention of pollution. All schemes must have specific environmental objectives and all are submitted to the European Commission for examination and approval. Monitoring and evaluation are required in order to gauge the impact of these measures on agriculture and the rural environment.

This new approach has become very popular with farmers, despite reservations by some about the implications of receiving payment for services other than food production. While unease about becoming ‘park keepers’ may have deterred some participants, many farmers appreciate the recognition of their role in managing the countryside. The payment gives them some security of income and in some cases is essential to the viability of the farm. The commitments entailed usually fit well alongside their farming operations.

Increasingly it is being recognised that some schemes can be improved where the payments to individual farmers are combined with a range of other kinds of support. These might include farm management plans, area-wide advisory support, capital funds to promote environmentally sensitive marketing and other business developments alongside essential land management.

5.4 EU agri-environment policy

After an early period of development in the 1980s the first major agri-environment Regulation 2078/92 was agreed as part of the package of CAP reforms approved in 1992. It was intended to help farmers to adjust to a new form of agricultural support, as well as benefiting the environment. The new Regulation was remarkable as it created an obligation on all Member States to introduce agri-environment programmes within a relatively short period and made available a significant budget for this purpose. All Member States were able to obtain reimbursement of 50 per cent of the costs of schemes which they developed themselves within EU guidelines. In Objective 1 regions, the least developed parts of the EU, the rate was 75 per cent.

Implementation of the Regulation began in 1993. Initially, many of the early programmes to be approved by the EC were in Member States where there were existing agri-environment programmes which could be adapted or extended to comply with the new EC framework. However, by 1996 all 15 Member States had implemented schemes covering about 20 per cent of the total farmed area in the EU. Expenditure from the CAP budget only amounted to EUR 123 million in 1993, spent mostly in France and Germany. The budget broadly doubled in 1994 and again in 1995, and had reached EUR 1.55 billion by 1997.

New schemes are still being submitted for approval by the EC and existing ones continue to be amended and refined. Consequently, implementation is a dynamic process reflecting the different priorities and preoccupations of national and regional authorities which have considerable scope for designing their own schemes within the broad framework of the Regulation. The large measure of ‘subsidiarity’ granted to Member States is one of the key features of the Regulation, providing the opportunity to match schemes to local conditions.

Since the beginning of 2000, agri-environment schemes fall within a broader policy measure concerned with rural development – Regulation 1257/1999. Expenditure is continuing to grow and agri-environment is the only compulsory scheme which all Member States must adopt within the menu of rural development measures available. In this new context there is greater emphasis on the complementary role of different forms of support for rural development, which should assist a more integrated approach to the use of investment aid, marketing assistance and agri-environment revenue payments. This explicit recognition of the need for environmental incentive payments as an important component of a mix of different instruments may be of direct relevance to the fisheries debate.

6

Policy options for greater use of financial incentives in EU fisheries

The challenge of ‘greening’ Europe’s fisheries sector has never been higher on the EU’s political agenda. For fisheries, as for other areas, that means adopting a broader and longer term vision of development; one that can deliver a sector that is socially and economically viable but without compromising the integrity of the natural resource base on which it depends.

Financial incentives are among a suite of options currently available to help put the EU fisheries sector back on course. A diverse set of financial mechanisms is already being deployed to help deliver sustainable development locally. However, there are strong arguments for introducing fisheries/environment incentives on a more systematic basis, not least in response to growing public concern over the environmental impacts of fishing and aquaculture.

6.1 Incentives – focusing on critical areas

In a drive to strengthen policy in this area, it may be appropriate initially to focus attention on specific issues or fisheries, for example, to safeguard fragile natural habitats under threat from changing fishing practices. There is a stronger political case for incentives which are clearly linked to the achievement of other agreed EU policy objectives. Hence, incentives could usefully focus on all or one of the following three key areas:

Supporting the Natura 2000 network – consisting of sites designated as a Special Area of Conservation (SAC) or Special Protection Area (SPA) under the habitats Directive because of their importance for wild flora and fauna. Site designation does not necessarily spell the end of

economic activities, such as fishing, and may even provide an opportunity to develop and/or diversify production to cater for new markets, as long as production systems do not compromise the 'favourable conservation status' of species. The relatively strict standards likely to apply to fisheries activities in protected marine areas could nevertheless make it difficult for producers to compete with those operating in less regulated environments. Some form of incentives could therefore be used to support the continuation of low impact activities, and/or to help raise incomes derived from 'extensive' production systems.

Sensitive inshore areas – where the survival of many traditional fishing communities is threatened by the need to compete in the market place, as well as by the general decline in the state of resources. In all too many Member States, competition in inshore or coastal fisheries is driving the modernisation of the inshore sector, despite the limited ability of the environment to absorb additional fishing pressure. Yet, ecosystems and ecosystem functions in inshore areas are also particularly important, not least because they act as spawning and nursery areas for many commercial and other fish and non-fish species. There is consequently a particular onus on securing environmentally sensitive fisheries in inshore areas. Incentives could be used to support activities that provide particular 'external' benefits for nature conservation and fisheries management.

Fish stock recovery and management plans – to rebuild stocks or to manage fisheries, including fisheries offshore or outside designated areas. Management plans can be used to manage fish stocks, and to reduce bycatch or damage to species and habitats. There is a growing emphasis on the use of management and/or recovery plans, with FIFG already providing aid to support legal restrictions on fishing that have resulted from the introduction of recovery plans. But there is potential for a more extensive use of incentives, particularly to accompany the development and implementation of voluntary plans. For example, compensatory payments could be made available to fishers using mesh sizes greater than those prescribed under national or EU rules.

To ensure maximum effectiveness of incentives targeted at these (or other) areas, particularly given the EU's limited budgetary framework, incentive schemes should be accompanied by clear objectives, indicators, and rigorous monitoring and reporting systems. The administration of funds should also be handled in a way that allows projects to be tailored to fit local problems and needs, preferably by using decentralised delivery mechanisms to guide the development and execution of projects on a case by case basis.

6.2 Opportunities for developing incentive schemes

The extent to which the design of incentive schemes can be manipulated will of course depend on the funding framework that is being used. There may be limited scope to adapt objectives and monitoring arrangements to suit the specific needs of fisheries or the marine environment if relying on existing funding opportunities, such as those presented by LEADER or the LIFE instrument. It is preferable therefore to explore options for using both existing funds or for seeking relatively minor changes to such funds. In the longer term, however, consideration should be given to designing and implementing a dedicated fisheries/environment incentive measure.

Working within the existing framework

● *Innovative use of existing funds*

As this report documents, there are a number of existing funding sources that could continue to be accessed in support of fisheries/environmental projects, much in the same way as they are now. With better information provision and more imagination exercised by the relevant funding agencies, one could imagine a significant increase in support for fisheries projects with little or no change being made to the funds themselves.

In practice, experience in using these funds for fisheries is still quite limited. The situation is not helped by the general lack of familiarity of EU funding opportunities and potential benefits, especially among those involved in fisheries management. As research on this report has demonstrated, it is difficult to gather information on existing projects and activities even for those who are fully aware of the existing range of funding mechanisms.

The new EU Structural Funds regulations (2000 to 2006) could make an important contribution to improving information on available funding, and thereby increase the number of fisheries/environment projects. According to the new rules, Member States are now required to develop information campaigns to raise awareness of funding opportunities among relevant partners or stakeholders. In principle at least, the Structural Funds could also be used to support the establishment of networks at EU level, to exchange information and expertise on fisheries/environment incentive projects. Experiences from the LEADER observatory could make a useful contribution here.

● *Introducing an 'environment' measure under FIFG*

Placing greater emphasis on the use of existing EU funding opportunities is likely to reap some benefits, but this approach has two main drawbacks. Firstly, there is a risk that funds would not in fact be used to support fisheries/environment projects, or at least not in any remarkable way. Secondly, even if projects were supported, they would almost certainly lack suitable administrative support to ensure funds were allocated in the most appropriate way, and to be able to evaluate the overall environmental benefits of such projects in the longer term. This in turn would make it difficult to assess the merits (or otherwise) of developing policy on fisheries/environmental incentives further.

In addressing these problems, one option is to offer fisheries/environmental incentives within existing funds, but on a more explicit basis than at present. In particular, it would seem logical to insert a new environment heading within the existing FIFG regulation. This would require relatively limited changes to the overall FIFG framework but would give a clear signal that such projects were eligible and desirable. Member States would then have the option of developing national incentive schemes, drawing on existing FIFG financial allocations.

By introducing national incentive schemes or programmes, fisheries/environment projects could be supported in a more coherent way, while building on existing FIFG indicators, and monitoring and evaluation systems. There would also be greater emphasis on undertaking research to assess the overall environmental impacts associated with such incentive programmes.

A new set of FIFG programmes covering 2000 to 2006 is currently being finalised, leaving little opportunity to introduce an environment heading in the first set of FIFG programmes. But there are at least two windows of opportunity to revisit the programmes before 2006. The first is expected to arise at the end of 2002 when new EU fleet reduction targets are to be agreed. A major focus of FIFG is on supporting the implementation of these fleet reduction programmes, and FIFG programmes are consequently likely to be amended to reflect any additional fleet targets.

Another opportunity for reform may arise in 2003 when the Structural Funds as a whole will be subject to a mid term review. Although the review will not necessarily lead to any amendments to FIFG, it does provide a chance to readjust national or regional expenditure plans, and to rectify specific shortcomings and/or address changing political priorities.

6.3 Designing a new fish/environment incentive measure

Using the existing EU funding framework would have the advantage that funds could be allocated to fisheries/environment projects in the short term, without having to develop new funding policies or systems to administer them. However, a key disadvantage is that the development of fisheries/environment incentive schemes would remain one of a number of competing options for the Member States. If an environment heading were included within FIFG, there would also be a tendency for funds to be administered by fisheries 'structural' departments, even though these often lack the necessary expertise to manage an environment budget.

The alternative to using existing funds is to design a new measure or policy that is solely concerned with fisheries/environment incentives. There are already ongoing discussions as part of the 2002 review of the CFP over the appropriate mix of instruments, including economic instruments, that is needed to manage the sector more effectively. These discussions also recognise the importance of developing a more coherent approach to managing the fisheries sector as a whole, including capture and farming activities, but also processing, marketing and trade, and external policies. The new provisions of the Amsterdam Treaty also make it evident that environment and sustainable development should be central themes of the CFP review agenda.

The 2002 review appears therefore to provide a suitable opportunity to strengthen the basis for future policy on fisheries/environment financial incentives. Specifically, financial incentives could be listed among several policy options to be pursued in future. Alternatively, a new article on fisheries/environmental incentives could be introduced to Regulation 3760/92 of the CFP to provide a more concrete foundation for Community policy in this area. The article could require that Member States establish national schemes to support environmentally sensitive fisheries prac-

tices and production systems, based on more detailed provisions to be put forward by the Commission, within a given timeframe.

A new incentive measure would of course need to be accompanied by a definite and dedicated budgetary commitment, although this could be quite limited to start off with. Within the current financial perspective, it may be possible to reallocate funds from other fisheries budgets. There might also be scope for Member States to transfer funds out of FIFG programmes and into new fish/environmental incentive programmes. A similar approach – known as ‘modulation’ – is already being applied in agriculture in order to increase budgets in support of rural development programmes, while encouraging decreased spending on production support.

What would an incentive scheme proposal look like?

An appropriate financial incentive scheme could encourage those in fisheries to serve society as a whole by introducing or continuing to use fisheries practices compatible with the increasing demands for protection of the marine environment and maintenance of its natural resources. The scheme would introduce payments to actors in the fisheries industries so as to encourage:

- substantial reduction in the use of environmentally damaging fishing gear or the use of sustainable and traditional fishing methods, in order to reduce negative impacts on the marine environment;
- a reduction in fishing effort to reduce the pressure on the environment that comes from over-fishing;
- management and planning and associated capacity building activities; and
- the long-term set aside of marine areas for environmental reasons and for the protection and recovery of fish stocks.

The financial incentives provided would contribute to balancing the market, whereby the measures would compensate those in the fisheries industry for any income losses caused by reductions in output and/or increases in costs and for the part they play in improving the environment.

In addition to administering individual incentive payments, the Community and Member States would provide funding to educate those in fisheries concerning fisheries methods compatible with the environment, and in particular regarding the application of a code of good fisheries practice. Such efforts could include targeted research and development in new technology as well as the employment of information or extension officers. Such a scheme would contribute to environmental policy goals and may help to solve specific problems related to protection of the marine environment.



Conclusions

The EU's commitment to sustainable development and the imminent reform of the Common Fisheries Policy together provide a unique opportunity to develop new fisheries management approaches in Europe, including measures to support fisheries/environment incentive schemes.

This report has discussed the particular advantages of financial incentives in assisting the transition to sustainability, as well as in promoting the viability of environmentally sensitive production systems. It has provided examples and has identified specific options for taking forward EU policy on environmental incentives. It has also identified key areas where new directions in fisheries management are most critical, and where some form of incentive scheme could prove to be advantageous.

Of the three policy options presented in the previous section, the option of developing a new and dedicated incentive measure is perhaps most appealing, not least because it would signal a political acceptance of the environmental issues associated with fisheries. It could also serve to improve the level of coherence and mutual support between EU fisheries and environmental policy, for example, by targeting activities within the EU's Natura 2000 network.

Importantly, a new incentive measure could also provide renewed support for traditional fishing communities that are characteristic of many of Europe's most peripheral regions. These communities often depend heavily on the continued exploitation of the marine environment, and yet are facing increasing pressure to adopt more intensive fishing practices that are not in their long term interests or the interests of the environment. This is particularly the situation with Mediterranean Member States that have disproportionately large inshore sectors, as well as high marine biodiversity. Incentives could thus support both environmental and social objectives, and make a real and tangible contribution in the EU's drive for sustainable development.

In order to respond to Europe's deepening crisis in fisheries, the 2002 CFP reform will need to introduce a step change in EU fisheries policy, and a new fisheries/environment incentive measure could mark such a change. In many ways, the 2002 reforms are comparable to the 1992 reforms of the Common Agricultural Policy – known as the MacSharry reforms – which resulted in the introduction of the agri-environment incentive Regulation 2078/92. MacSharry marked an important turning point in the greening of the CAP. Ideally, the 2002 CFP reforms will also be remembered for their contribution to the environment and sustainable development.

This report has just scratched the surface in terms of the past and potential uses of incentive payments for promoting environmentally sustainable fisheries in Europe. The future application of such incentive payments in Europe will depend, in part, upon the enthusiasm of Member States and the imagination that is applied to the use of existing funds. It is hoped that this report has at least contributed to strengthening the idea that fisheries/environment incentive payments could play a key role in a more holistic approach to sustainable fisheries management.

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