

ECOLOGICALLY SUSTAINABLE FISHERIES

The Marine Conservation Society (MCS) was established in 1983 with the aim of protecting the marine environment for wildlife and future generations. MCS is the only national environmental charity working exclusively on the range of issues affecting the marine environment.

MCS campaigns for clean seas and beaches, sustainable fisheries, protection of marine life and their habitats, and the sensitive use of our marine resources for future generations. Through education, community involvement and collaboration, MCS raises awareness of the many threats that face our seas and promotes individual, industry and government action to protect our seas for the future.

The MCS fisheries programme aims to promote ecologically sustainable commercial, recreational and farmed fisheries to protect fish stocks, livelihoods & marine life. Our approach involves three main strands:

- Influencing fisheries and mariculture policy, management & practice
- Promoting individual responsibility and consumption of sustainable seafood including wild-caught & farmed fish through the Good Fish Guide, Fishonline www.fishonline.org and the Pocket Good Fish Guide.
- Raising public awareness of the issues surrounding fishing and mariculture.

Wild Capture Fisheries

The Issues

Fish are a traditional, valued and beneficial part of the diet of the UK population. However, a long history of intensive fishing activity in European waters has resulted in chronic depletion of many fish stocks, environmental damage, and conflict and economic hardship within the fishing industry. In the North Sea fishing is particularly intensive, with 30 to 60% of the total biomass of many commercial stocks being removed each year. Globally, about 75% of the major fisheries are either fully exploited, over exploited or depleted¹. Fishing in this way is unsustainable and threatens the integrity of entire marine ecosystems. As a result, substantial changes to how fisheries are managed and harvested are now required to restore marine fish stocks, ecosystems and the industries that rely on them.

At present many fishing methods and gears also pose a threat to non-target species and marine habitats. For example, marine mammals, sharks, turtles and seabirds are often caught as by-catch in purse seine, mid-water trawl, drift and gill nets and on longlines, whilst dredging and bottom trawling can cause extensive damage to the sea bed. The unique but fragile benthic communities that exist in the deep-sea (such as cold water coral reefs) may never recover from this type of disturbance.

Equally, exploitation of non-fish living marine resources can be very damaging to populations of commercial and non-commercial species if unregulated or badly managed. For example, this is

true of bait digging, maerl dredging and seaweed harvesting, as well as harvesting of shells for the curio trade.

In addition to these direct impacts, overfishing has had a series of indirect effects on marine ecosystems. The systematic and extensive removal of large predatory fish from the top of food chains (by fishing) has changed the structure of many marine communities and the way ecosystems function. Likewise, industrial fisheries for prey species (e.g. sandeels and anchovy) are also ecologically hazardous because they target species at the base of the food chain - thereby disrupting the food supply of a multitude of other marine fish and seabirds. These widespread changes to the marine environment may well affect its resilience and ability to adapt to the likely affects of global climate change.

Traditional approaches to fisheries management, based on managing each commercial species in isolation, were favoured by the UK and EU until recently. However this approach has clearly struggled to control overfishing and halt the demise of the marine environment. Fortunately, there has now been a groundswell of change towards an "ecosystem-based" approach to fisheries management. This contributed to the reform of the Common Fisheries Policy in 2002, which now aims to achieve "biologically, environmentally and economically sustainable fisheries" and several international agreements (such as at the World Summit on Sustainable Development in 2002) to restore depleted fish stocks and ecosystems within the next decade. The state of UK fisheries and options for improving future management has also been the focus of a number of reviews in recent years (eg. The UK government's "Net Benefits" report² and Bradley Review³, The RCEPs "Turning the Tide"⁴ report, the Scottish Executive's Strategic Review of Inshore Fisheries⁵ and Defra's Marine Bill White Paper⁶). The real challenge now is to ensure that these policies, agreements and reviews do not just become "good will gestures" but are effectively implemented to restore our marine environment for current and future generations.

Consumers have a major role to play in influencing reform of fisheries management and how fish retailers and other buyers source their products. MCS has been at the forefront of promoting sustainable seafood in the UK through the publication of the Good Fish Guide⁷ in 2002 and the related website www.fishonline.org in 2004. Fishonline now provides advice on over 150 species of seafood and is updated annually to take account of the latest scientific information on the health of fish stocks and the latest developments in sustainable fishing practices. The retail sector, in particular, has a major part to play in supporting consumer demand for sustainably harvested seafood. For example, 85 % of chilled and frozen fish is sold through supermarkets in the UK. MCS aims to continue to exert its influence on major supermarkets, suppliers and restaurants to promote responsible fish sourcing practices. Ultimately, consumer and retailer demand for sustainable seafood has the potential to influence both fishing industry practices and fisheries management policy. **See the MCS Fish Buying Policy for more information.**

Recreational fisheries in the UK have also been identified as a highly valuable economic sector that is continuing to grow. As a result conflicts have developed between recreational and commercial sectors of the fishing industry. Recreational angling is also thought to be responsible for some localised declines in fish stocks. At present recreational sea angling is largely unregulated and improved management of this industry was recommended in the UK government's "Net Benefits" report in 2004 and Marine Bill white paper in 2007.

The Solutions

The Marine Conservation Society firmly believes in the need for effective implementation of ecosystem-based fisheries management under developing UK marine legislation, the reformed Common Fisheries and all other relevant international and regional fisheries management organisations. The ecosystem-based approach considers the affect of fishing on biodiversity, habitat structure, endangered species and water quality *aswell* as fish stocks. The overall aim is to maintain healthy ecosystems and the fisheries they support. All management decisions should be based upon the precautionary principle, whereby measures are designed to take account of

uncertainty in scientific advice and the likelihood of whether or not an activity may cause significant harm to the environment.

Within this process MCS would like to see implemented:

- A greater shift away from current quota-based methods of fisheries management and towards effort-based schemes (eg. restrictions on licences, days at sea, fishing gear types and size, engine power etc), particularly for mixed species demersal fisheries. Quota based fisheries management has clearly failed to adequately deal with the complexity of mixed species fisheries in Europe, and inherent uncertainties in fisheries science and stock assessment. Total allowable catches will still need to be set, but only as a safeguard against unforeseen increases in fishing efficiency. All management measures should be designed to restore / maintain the spawning stock biomass of commercial fish species above precautionary limits.
- Increased and more widespread use of spatial / temporal closures to protect biologically important areas such as spawning and nursery grounds and essential fish habitat, and to help restore / maintain stocks above precautionary limits. Greater use of total seasonal closures for specific fisheries should also be encouraged to protect species during key spawning periods. Furthermore, the use of no trawl and / or spatially closed areas is known to be particularly effective for reducing conflicts between mobile and static gear fishermen, and for increasing the biomass and productivity of shellfisheries^{8,9}. Spatial closures and gear restrictions can also offer conservation benefits through helping to reduce physical impacts on sensitive / vulnerable marine communities and habitats⁸.
- Increased development and more extensive and / or mandatory use of selective and environmentally sensitive fishing gear and practices. This includes legislating for net mesh sizes that adequately reflect the size of maturity of all species being targeted (allowing individuals to breed at least once), especially in mixed whitefish fisheries.
- Progressive changes in fisheries legislation that moves towards a ban on the discarding of commercial species of fish and shellfish. This should discourage selective grading of catches towards high value species / individuals, incentivise the development of more selective fishing methods and gear, and reduce uncertainty in fisheries data and stock assessments.
- Introduction of appropriate management schemes for all commercial species, including non-pressure (currently non-quota) stocks. For example, the current practice of combining catch statistics / management measures for all 15 skate and ray species landed in European waters is completely inadequate with respect to differences in stock status between species (which range from Critically endangered to sustainable).
- A moratorium on fishing for and landing of berried shellfish.
- The closure (temporal, spatial or permanent) of fisheries or fishing methods that threaten vulnerable / endangered marine wildlife populations or environments (eg. Pair trawling for seabass that results in high levels of cetacean bycatch).
- Environmental impact assessments (EIAs), within a strategic environmental assessment (SEA) framework, prior to the development of new fisheries or the expansion of existing fisheries into new areas.
- Increased and more effective stakeholder involvement in fisheries management at both national and European levels. The makeup of several regulatory / advisory bodies designed to fulfil this function at present (such as Regional Advisory Committees and Sea Fisheries Committees) is heavily biased towards the commercial fisheries sector. Greater involvement of other user / interest groups (eg. recreational anglers, conservation bodies, divers, tourism bodies etc) is sorely needed.

- An immediate moratorium on deep-sea bottom trawling within unregulated international waters, and a suspended moratorium (subject to improved management performance) on deep-sea fisheries in areas controlled by national and regional fisheries management organisations.
- Elimination of IUU (Illegal, unregulated and unreported) fishing at all levels through effective enforcement (including port controls) and full traceability of all seafood products.
- The protection of artisanal fisheries from the impacts of industrial fishing and Third Country Agreements including the development of “Fair Trade” fish products and a ban on “Super trawlers” in these waters.
- Increased consumer awareness of and demand for seafood from fisheries that are sustainably managed and have minimal damage on the marine environment and non-target species. Seafood retailers and suppliers should refuse to trade in products that originate from unsustainable / overfished stocks and / or are captured using methods that cause unacceptable damage to the wider environment.
- Effective management of recreational fisheries to alleviate localised depletion of fish stocks and to reduce conflicts between the recreational and commercial sectors. This should include the introduction of bag limits and appropriate minimum and / or maximum landing sizes.

Farmed Fisheries

The Issues

Currently 1 in 3 fish destined for dinner tables worldwide (55 million tonnes in 2003) comes from marine or freshwater farms. The Food and Agriculture Organisation of the United Nations (FAO) estimate that by 2030 the world will need to increase its production of food fish by another 40 million tonnes¹⁰. Even if capture fisheries become more effectively managed their production volume is unlikely to increase above current levels, therefore this shortfall can only be achieved if aquaculture production doubles to 80 million tonnes. Potential limiting factors to this expansion are: feed fish supply for farming carnivorous species, freshwater supplies, suitable sites, environmental degradation and the effects of climate change.

In 2002 FAO figures indicated that the UK was the third largest producer of farmed fish in the European Union (EU), with Atlantic salmon being the predominant farmed finfish species. 90% of salmon is farmed in Scotland, where fish farming rapidly expanded during the late 1980s and 1990s. The tonnage of salmon produced has increased from 598 tonnes in 1980 to over 150,000 tonnes in 2005¹¹.

The fish farming industry is steadily diversifying, with a number of new farmed species now in commercial production. Species such as cod and halibut are being successfully farmed and trials are underway to commercially produce other species such as haddock and sea urchins. With coastal space becoming a premium due to increased demands from other coastal users, fish farming will potentially expand into deeper waters offshore. Although bringing some environmental benefits such as reduced impact on the seabed, such a move will also present a whole new set of challenges.

MCS believes fish farming operations should operate in an environmentally sustainable and responsible manner with regard for the health and welfare of both farmed and wild fish, particularly wild salmon stocks. The long-term protection of the wider marine environment and other users such as shellfish farms, shellfisheries and wild salmon anglers also needs to be considered. This can only be achieved by implementation of a robust policy framework that promotes environmental best practice within the industry and incorporates regular independent farm audits combined with the participation in Area Management Agreements where available.

MCS would like to see any future expansion of open - cage fish farming, only occurring within a suitable national planning framework, such as marine spatial planning combined with strategic environmental assessment, that identifies suitable locations for fish farms that can operate in harmony with other coastal users and the surrounding marine environment. Measures should also be taken to ensure that husbandry and management practices that reduce the impact of fish farming in the marine environment continue to be developed and implemented.

There is a range of environmental concerns associated with fish farming:

- Dependence on industrial fisheries of wild fish stocks for manufacture of fish-feed.
- Spread of disease and sea lice to and from wild stocks, which can be exacerbated with high-stocking densities.
- Impacts on wild salmon stocks through escaped farmed salmon interbreeding with wild salmon and causing genetic dilution in subsequent generations.
- Displacement of wild salmon eggs by the later spawning of escaped farmed salmon and increased competition for wild resources such as food created by such escapes.
- Lack of wide ranging research on the effects of chemical pollution (from antifoulants and sea lice treatments) on other marine organisms.
- Nutrient pollution (from faeces and waste food) building up underneath cages and being suspended in the water column.
- Impacts on other activities such as shellfish culture, shellfisheries and angling interests.
- Cumulative impacts from fish farming and other activities in sea lochs leading to an adverse affect on the integrity of the lochs ecosystem and its conservation status.
- Conflicts with natural predators

The Solutions

MCS believes responsible management, incorporating environmental considerations within a robust and transparent policy framework is essential to achieve an environmentally sustainable fish farming industry.

MCS aims to research, promote and encourage the adoption of environmentally responsible and sustainable practices within the mariculture industry that:

- minimise adverse effects on local wildlife, habitats and landscapes from pollution or poor siting;
- utilise the best sustainable feed options available;
- provide optimum protection of wild stocks from escapes associated with fish-farms;
- continues to work towards achieving optimal health and welfare of farmed species; and
- utilise the least damaging shellfish harvesting methods.

MCS believes that adoption of these practices will help achieve a balance between the development and diversification of the aquaculture industry and the maintenance of marine ecosystem integrity.

MCS promotes the adoption of sustainable fish-farming practices by working with fish farmers and other stakeholders, advising government and decision makers, and informing consumers of the most sustainable choices for farmed fish and shellfish. As the industry continues to develop and further research is undertaken this will be used to further inform and refine what MCS regards as sustainable practice.

MCS Position on Fish Farming:

- MCS supports the principles of producers who strive to meet high environmental and welfare standards with due regard for socio-economic considerations.
- MCS believes further expansion (of finfish production) should only occur within a robust strategic framework, such as strategic environmental assessment combined with marine spatial planning, which incorporates all environmental and ecological concerns.
- MCS supports the continued development of environmentally sensitive and ecologically sustainable finfish farming practices.
- MCS recognizes the value of independent and transparent accreditation schemes, such as the Soil Association organic certification, in promoting higher standards and increasing consumer awareness.
- MCS recommends the relocation of inappropriately sited fish farms, including those in the immediate vicinity of salmon rivers and historic wild salmon runs, seal haul-outs and predatory birds nesting sites (unless it can be proven that they are having no adverse effects on those species) and marine habitats important for biodiversity.
- MCS does not believe farming of new species is a long-term sustainable solution to mismanagement of capture fisheries but recognises that in some cases e.g. organic cod farming that does not rely on wild capture fish for feed, can relieve pressure on wild stocks.
- MCS believes that the finfish and shellfish farming and angling sectors must work closely together for mutual benefit.

MCS believes that in order for open cage finfish farms to be considered as sustainable and sensitively operated they must as a minimum:

- Be sited sensitively taking into full consideration the protection of local biodiversity, the carrying capacity of enclosed ecosystems such as sea lochs, and the needs of other users of the area to minimise conflict. Such sites should be subject to a full environmental assessment before farming takes place.
- Use feeds that do not rely on unsustainable/poorly managed/below safe limit fisheries as assessed by ICES/FAO. The use of trimmings and offal should be maximised and should the substitution of marine protein with vegetable alternatives.
- Use feeding mechanism technology and set feeding regimes at levels that avoid wastage and reduce nutrient pollution to a minimum.

- Keep the use of synthetic pesticides and chemotherapeutants to an absolute minimum and use only in situations where welfare would otherwise be compromised or as part of a coordinated area management agreement.
- Introduce fallow periods of sufficient length (as determined by SEPA as a minimum) to allow marine ecosystems to recover from localised fish farming impacts, preferably utilising a site rotation system wherever feasible.
- Maintain stocking densities that minimise the proliferation of disease and sea lice and that ensure high welfare standards are achieved.
- Maintain high welfare standards in accordance with RSPCA Freedom Foods welfare standards for farmed Atlantic salmon.
- Ensure that the cage design, type and mooring mechanisms are sufficient for the energy of the environment in which they are being used. Cages, pens and nets should also be subject to regular inspection and maintenance to ensure they remain secure. Nets and pens should be cleaned using a method that does not include the use of antifoulants to prevent biofouling.
- Employ effective non-lethal predator control measures.
- Should have an Environmental Management System in place that monitors and minimises the environmental impacts the farming process generates and demonstrates year on year improvement.

References & further reading:

1. Food and Agriculture Organisation of the United Nations (2004). The State of World Fisheries and Aquaculture.
2. Prime Minister's Strategy Unit (2004). Net Benefits. A sustainable and profitable future for UK fishing. Cabinet Office, London
3. Department for Environment Food and Rural Affairs (2004) Review of Marine Fisheries and Environmental Enforcement.
4. Royal Commission of Environmental Pollution (2004) Turning the Tide: Addressing the Impact of Fisheries on the Marine Environment.
5. Scottish Executive (2005). A Strategic Framework for Inshore Fisheries in Scotland
6. Department of Environment, Food and Rural Affairs (2007). A Sea Change: A Marine Bill White Paper
7. Clarke B (2002) The Good Fish Guide. Marine Conservation Society
8. Blyth RE, Kaiser MJ, Edwards-Jones G, Hart PJB (2002) Voluntary management in an inshore fishery has conservation benefits. Environmental Conservation 29:493-508
9. Beukers-Stewart BD, Vause BJ, Mosley MWJ, Rossetti HL, Brand AR (2005) Benefits of closed area protection for a population of scallops. Marine Ecology Progress Series 298:189-204
10. FAO. (2004). The State of World Fisheries and Aquaculture Report .
11. FAO Figis database. Available online:
http://www.fao.org/figis/servlet/TabLandArea?tb_ds=Aquaculture&tb_mode=TABLE&tb_act=SELECT&tb_grp=COUNTRY

For more information on sourcing sustainable fish refer to our website www.fishonline.org or the ***MCS Sustainable Fish Buying Policy***.

For more comprehensive guidelines on sustainable mariculture practices refer to the ***MCS Principles and Criteria for Sustainable Aquaculture***.

Both are available upon request

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