

### UK Marine Reserves : Briefing for Members of Parliament.

The MARINET marine reserves campaign is asking Members of Parliament to request the Secretary of State (Defra) to place before Parliament in October 2008 a Marine Bill which places a duty on the Secretary of State to establish an ecologically coherent network of Highly Protected Marine Reserves covering at least 30% of UK seas out to 200 nautical miles.

#### The Problem:

It is widely acknowledged that the UK's seas are in a state of crisis. This is because we have regarded our seas as a limitless resource to be endlessly exploited and, as a consequence, we have acted unsustainably.

The result is that our seas are now dangerously over fished. The spawning populations of *Cod, Herring, Halibut and Whiting* are at all time historical lows, and the spawning populations of *Plaice, Mackerel, Saithe and Sole* are being harvested unsustainably. (ICES, 2007 : See note 1). In addition, the actual physical structure of the seabed is being constantly damaged by persistent trawling (See note 2), abetted by other extractive activities, particularly aggregate extraction which strip mines the UK seabed for sand and gravel. Such physical damage has serious knock-on effects for the ecological structure of our seas (See note 3).

This unsustainable behaviour is intensified by the reluctance of government to manage our seas as an ecosystem ( See note 3 : an ecosystem includes not only physical habitats and all the species that inhabit them, but also the complex interactions between species). Consequently our seas are now in a severely damaged condition, and the extinction of our fisheries is imminent. Management has only thought in terms of short-term yield, and has failed to regard our seas as a finite resource which must be managed to deliver its yield sustainably.

The Royal Commission on Environmental Pollution (RCEP) studied the impact of fishing on the marine environment in its 25th Report, published in 2004 (RCEP, 2004 : See note 4). It recommended that in order to restore health to UK fisheries and marine biodiversity the government should establish a network of Marine Reserves covering at least 30% of UK seas out to 200 nautical miles (i.e. the limit of the Exclusive Economic Zone, or EEZ).

The key concept behind the RCEP's thinking is that in order to protect fisheries it is essential to protect the entire ecosystem. Only when the whole ecosystem, from spawning fish to creatures in the depths and the seabed itself, is protected can we be certain that we are conserving the full marine biological system upon which fish rely (i.e. the entire food chain and all inter-related habitats and ecological structures). In addition fish populations are mobile, therefore it is essential to create a linked network of marine reserves in order to ensure that fish populations are protected throughout UK seas and throughout their life cycle.

#### The Solution:

We have to stop managing our seas by just relying on the licensing of the extraction of individual resources e.g. fish, aggregate (sand and gravel). Instead, we have to start managing the *whole ecosystem*. (See note 3) The key tool in this new system of management, and which the Marine Bill must establish, is the Marine Reserve.

A Marine Reserve embraces all the species and habitats. It manages the whole ecosystem. If Marine Reserves are established as “no-take” areas which prohibit all extractive activity including fishing, and these (Highly Protected) Marine Reserves (See Note 4) are connected together into an ecologically coherent network, *then we effectively start managing the whole sea.*

Marine Reserves allow fish to live their full natural life span, with the result that reserves contain large fish. When an adult fish doubles in length and size she produces 8 times more eggs. These eggs display a higher level of fertilisation and survival, and then “seed” the sea beyond the reserves as the larvae drift out on currents. Outside reserves, large fish are now extremely rare because of over-fishing. Hence fishery conservation that does not include highly protected reserves will almost certainly fail. For a fishery to be sustainable the fish must have a chance to reproduce. By contrast, our current fishery policy (as embodied in the EU’s Common Fisheries Policy) permits fishermen to fish spawning grounds where fish collect, thus effectively destroying their reproductive potential.

### **The Obstacles to the Solution (see Note 5):**

At the moment, the UK Government is only proposing to create Marine Protected Areas (MPAs), based on the EU Habitats Directive. These MPAs are not true marine reserves because they will still permit fishing within their boundaries, and they will *not* be linked into a network to protect the whole ecosystem.

The argument is also advanced by the UK Government that the UK cannot establish “no-take” marine reserves beyond its territorial limit of 12 nautical miles (i.e. reserves where fishing is prohibited) because we have surrendered sovereignty to the EU over fisheries and such reserves would violate the Common Fisheries Policy.

However, legal opinion obtained by MARINET asserts that this is untrue (See note 5). If the UK establishes a “no-take” highly protected marine reserve beyond 12 nautical miles (i.e. anywhere throughout the EEZ up to 200 nautical miles) this is entirely legal and will not conflict with the Common Fisheries Policy provided that the primary purpose of the reserve is conservation and is designed to protect the entire marine ecosystem within the reserve’s boundaries.

Therefore, there is no constraint on the UK establishing an ecologically coherent network of highly protected marine reserves designed to protect the marine ecosystem as a whole.

**Please ask the Secretary of State to protect our seas and fisheries via a real, ecologically coherent network of Marine Reserves.**

### **Additional Notes:**

#### **1. Fish Populations**

*Cod:*

Cod populations, once the mainstay of the UK fishing industry, are in a state of collapse. At the beginning of the 1900s UK boats caught between six to eight times more cod from the North Sea than they do today, and cod stocks overall were at least ten times greater than they are today. Moreover, in the 1850s cod stocks were probably twice the size of what they were in 1900 (Source: Prof. Callum Roberts, University of York, *The Unnatural History of the Sea, 2007*).

In order to rebuild cod stocks in the North Sea, the EU and UK scientists believe that we need a spawning population (i.e. an adult population of cod aged 6 years or over – a cod can live to 20 years or more if allowed) of 150,000 tonnes. At present the spawning population is around 40,000 tonnes or less. The figure of 150,000 tonnes is actually a very unambitious target population, and

probably only represents about 10% of the historical population size (i.e. the population in 1900 and earlier). Therefore, the existing population of 40,000 tonnes is extremely low and threatens commercial extinction if we continue to fish it.

Continuing to fish this population of 40,000 tonnes is precisely what the EU and UK fisheries ministers are currently allowing and, because this spawning stock rose fractionally in 2007, the fisheries ministers have actually allowed an increase in the quota levels for cod which can be caught in 2008.

In reality, fisheries science (ref. Prof. C. Roberts) predicts that we can only restore and then sustainably harvest populations of fish if we maintain those spawning populations at around half their unexploited level. In the case of cod, this means that we have to restore cod spawning populations to a level that is around 15 to 25 times the current population. In contrast, the reality is that fisheries ministers have for the last 20 years, year after year, exceeded safe catch levels by an average of 15-30% of the population. The result is that the UK cod population has progressively declined until it now faces commercial extinction.

#### *Mackerel:*

The North Sea mackerel population was over-fished, collapsed in the 1970s, and has never recovered.

#### *Herring:*

The North Sea herring population, like the cod population, was once the mainstay of the UK fishing industry and employed huge numbers of sailing craft in the 1800s and was a major export industry up until the Second World War. After the War, the spawning stock fell from 5 million tonnes in 1947 to 1.4 million tonnes by 1954, and by 1975 the spawning stock had collapsed even further to only 83,500 tonnes.

In the mid-1970s a complete ban on herring fishing was enforced for four years. The stock recovered, but not to its post-War level. The spawning stock declined severely again in the 1990s, and since 1996 licensed fishing of herring has been very limited.

#### *Whiting:*

ICES (The International Council for the Exploration of the Sea) reports that the 2007 stock in the North Sea is overexploited and the spawning population currently at its lowest level since 1995.

#### *Plaice:*

ICES reports that the 2007 stock in the North Sea is overexploited, and the spawning population is at risk of "reduced reproductive capacity".

#### *Sole:*

ICES reports that the 2007 stock in the North Sea is overexploited, and the spawning population is at risk of "reduced reproductive capacity".

## **2. Trawling.**

Trawling – the dredging of nets across the seabed – is both widely practiced and has a long history. The origin can indeed be traced back to 1376 when King Edward III was petitioned to ban the practice due to its damaging and wasteful impact. As in the fourteenth century, the objection today is founded on two main arguments.

Firstly, the dragging of the trawl net and its beams (the pieces of wood or metal on either side of the front of the net which keep the net open) creates deep furrows and causes physical upheaval of the seabed. For example, reefs (which are centres of biodiversity, and are either physical in structure and formed from stones and boulders or biogenic in structure and formed by large accumulations of marine creatures such as mussels, corals or sandworms) are broken apart and permanently

damaged by the passage of the trawl net. Wherever trawling takes place the physical habitat is broken up and the marine community that lives there can no longer be sustained and, as a consequence, marine biodiversity in trawled areas declines. This decline is intensified when a trawler returns to the same area, repeating the damage year in and year out. Unsurprisingly the ecosystem, in the face of this continuous assault, eventually collapses. Hence many areas which are repeatedly trawled are now described as being like deserts and are no longer the rich biodiverse marine communities they once were.

Secondly, when a trawl net is dragged across the seabed, all form of sea life are pulled in and captured by the net – not just fish, but every living creature and even the stones and cobbles from the seabed. Thus when the net is emptied only a fraction of the catch has any real commercial value (i.e. fish for the table). The vast majority of the catch is incidental and largely worthless, and it is either dumped back into the sea (increasingly so now that fishing quotas forbid the landing of certain species) or brought back for rendering into fishmeal for use as fertiliser or feedstock for fish farms. Thus trawling is a very profligate and wasteful fishing technique. It catches both adult and juvenile members of fish species, rejecting the juveniles as of no commercial value and returning them dead to the sea and, in doing so, undermining the long-term future of the population of the species in question. And it catches a huge range of other species of marine animal and fish – effectively the whole ecosystem in the trawled area – which also have little or no commercial value, and they too are returned to the sea dead.

As a consequence, trawling is increasingly regarded as an unacceptable fishing practice. It is profligate and wasteful in its technique for catching fish, and it causes long-term, often irreversible damage to the seabed and the structure of the marine ecosystem. It certainly should be banned in Highly Protected Marine Reserves; and, there is also a strong case for its wider constraint in any decision as to how our seas are to be sustainably fished.

### **3. An ecosystem:**

An ecosystem is a term used to describe natural, living systems. An ecosystem consists of all the plants, animals and micro-organisms in a particular area (which can be as large as the planet or as small as a puddle of water), and their functioning together in combination with the physical character of the area.

An ecosystem is frequently complex. It includes not only all the physical habitats in an area and all the species that live in these physical habitats, but also includes the full range of interactions between all the different species and the relationships between these species and their physical habitat. Thus, an ecosystem seeks to describe this complex range of interactions and relationships.

Central to the ecosystem concept is the idea that living organisms are continually engaged in a set of relationships with every other element, living (biological) and non-living (physical), in the area (habitat) in which they live. Thus, if we destroy part of the physical area (habitat) or severely damage a particular species, we can cause serious problems for the ecosystem as a whole and all the other species who live in it.

Consider the following example. In the case of the marine environment, over-fishing (the removal of certain fish species) and aggregate extraction (the removal of sand and gravel from the seabed) can have profound long-term consequences for the health of the whole marine ecosystem. This occurs because the loss of the seabed (due to aggregate extraction) destroys the spawning ground of certain types of fish and the habitat of other creatures who a part of the food chain, whilst the removal of a large fish species (such as cod due to over-fishing) removes a significant predator which unbalances the food chain amongst species as a whole. Thus these actions, overfishing and the removal of the seabed for aggregate, can reduce biodiversity overall, and even cause another species which was once predated to now become dominant. The result is a new balance and order in the structure of the ecosystem. This new order is, invariably, less rich in biological and commercial terms than before.

#### 4. Highly Protected Marine Reserves:

Marine Reserves come in many different guises. Not only are their features different, but so too are their names. For example, the UK Government's proposed Marine Bill talks of Marine Reserves as being "Marine Protected Areas" (MPAs), "Marine Conservation Zones" (MCZs) and also uses the term "Highly Protected Marine Reserves" (HPMRs). The key issue is not their name, but their function and what they will prohibit and permit within their territory.

A true, genuine Marine Reserve seeks to protect the whole ecosystem within its territory. It can only do this by prohibiting all extractive activity, including fishing. Such a reserve is known as a Highly Protected Marine Reserve, or "no-take" Marine Reserve. The great advantage and usefulness of this type of reserve is that individual reserves can be linked together into a network, and if this network is based on ecological criteria (e.g. seeking to link areas where fish spawn, have their nursery grounds, feed and use as migration routes) then fish can be protected throughout their entire lifecycle and we begin to manage **the whole ecosystem** and not just isolated parts.

Highly Protected Marine Reserves are recommended by scientists and experts worldwide as the key management tool in the urgent search to find a new way of managing our seas. Of course, the crucial question is : do Highly Protected Marine Reserves work ? Do they provide the solution to the problems which current management practices have failed to solve and have, all too often, actually created or intensified ?

The evidence that Highly Protected Marine Reserves work has been recorded for the UK Government by the Royal Commission on Environmental Pollution in its 25<sup>th</sup> Report, published 2004, which studied the Impact of Fishing on the Marine Environment (Ref. *Turning The Tide* <http://www.rcep.org.uk/fisheries/Chapter8.pdf> ).

The Royal Commission established that:

- A study of 80 Marine Reserves has shown that biomass (total biological material) is 3 times greater in reserves than in areas outside them.
- The number of species and the size of each species is around 20 to 30% greater in marine reserves.
- Fish are larger, live longer, and are therefore more fecund (lay more eggs) in marine reserves.
- Fish populations outside the boundaries of reserves tend to increase due to the "spillover" effect, and populations outside reserves are also bolstered by eggs and larvae drifting out of the reserves on currents.
- Reserves provide scientific information about what a more natural ecosystem should look like.
- When the seas around the United Kingdom were not fished during the First World War, and again during the Second World War, there was a notable recovery in fish populations.

The Royal Commission also looked at the crucial question of how large an area of our seas, out to 200 nautical miles (the UK Exclusive Economic Zone), should be set aside and linked together in an ecologically coherent network of Highly Protected Marine Reserves. The Commission looked at 39 scientific studies from around the world that had considered how marine reserves could be used to regenerate fisheries, and the consensus of these studies is that it is essential to designate **at least 30% of the sea as Highly Protected Marine Reserves.**

## 5. Other relevant Laws and Legislation:

### Marine Bill and Common Fisheries Policy:

At present, the UK Government is asserting that the Marine Bill can do nothing to assist the protection of UK fisheries beyond the 6 nautical mile coastal limit (where the UK retains exclusive jurisdiction over fisheries and manages them via local Sea Fisheries Committees); and, that from 12 nautical miles (the UK territorial limit) out to 200 nautical miles (UK Exclusive Economic Zone) fisheries are the sole responsibility of the EU and its Common Fisheries Policy.

The result is that in the forthcoming Marine Bill the UK Government claims that it is powerless to manage the whole ecosystem in UK seas as advocated by the supporters of the Highly Protected Marine Reserves management approach. All the UK Government is prepared to concede is that it could, if it wished, use its vote in the EU to secure reform of the Common Fisheries Policy along these lines.

The UK Government's assertion is questionable, however. Legal opinion (Ref: Daniel Owen, Fenners Chambers: *Interaction between the EU Common Fisheries Policy and the Habitats and Birds Directives, 2004* <http://www.ieep.eu/publications/pdfs/2004/natura2000cfpfinalreport.pdf> ) has identified that the EU has exclusive jurisdiction in the area of fisheries conservation, but that does not necessarily mean that the EU has a power to deal with every aspect of a fishing vessel's activities. Thus, it may be legal for a Member State to restrain a fishing vessel when the primary purpose of that restraint is for nature conservation. However, there is no case law that clearly points the way to the appropriate legal basis for an EU measure that restricts the activities of fishing vessels primarily or solely for the purpose of nature conservation.

MARINET has also obtained legal opinion which argues that the Common Fisheries Policy is not necessarily absolute, and that a Member State of the EU can forbid fishing within an area (Marine Reserve) when the prohibition is both for the purposes of nature conservation **and the protection of the marine ecosystem as a whole**. Thus if fishing were to be damaging the fundamental fabric of the marine ecosystem within a particular area, and a Member State wished to protect the marine ecosystem as a whole within that same area, then a Member State could establish a Marine Reserve covering that area and prohibit all damaging extractive activity, including fishing.

Certainly, MARINET would argue, common sense supports such a legal position.

Hence a longer-term element in the MARINET UK Marine Reserves Campaign is to persuade the EU Government to support a UK marine and fisheries management approach based on an extensive (30%) ecologically coherent network of Highly Protected Marine Reserves whose primary purpose is the protection of the marine ecosystem as a whole, and to persuade the UK Government to carry this specific policy to the EU Government.

### The OSPAR Convention for the Protection of the Marine Environment of the North East Atlantic:

The OSPAR Convention came into existence in 1998. It is composed of those European countries whose coasts border the North East Atlantic. The UK is a member of the Convention.

Under Annex V of the Convention, member countries are signatories to a commitment to "*protect and conserve the biological diversity of the maritime area and its ecosystems which are, or could be, affected as a result of human activities, and to restore, where possible, marine areas which have been adversely affected.*" In addition, the Convention states that a key tool would be the implementation of "*a network of marine protected areas*" and that this network should be established by 2010.

*The EU Habitats and Wild Birds Directives:*

The EU Habitats and Wild Birds Directives are fully incorporated into UK law. These Directives requires the establishment of Special Areas of Conservation (Habitats Directive) and Special Protection Areas (Wild Birds Directive) to protect habitats and species listed in the Directives, and a recent ruling in the UK Courts has established that the Habitats Directive applies to seas out to 200 nautical miles (i.e. to habitats and species not just within the 12 nautical mile territorial limit but also within the UK Exclusive Economic Zone).

The UK Government has now commenced to identify such Special Areas of Conservation (SACs) in UK offshore waters, and in January 2008 has listed 7 such possible sites for SAC classification. However these sites, which the Government in its Marine Bill White Paper says will be known as Marine Protected Areas (MPAs), in fact only cover 2% of the UK seas. Moreover they will not be interconnected in any coherent ecological manner, will have very limited powers to limit damaging activities and will not prohibit fishing within their boundaries.

Consequently, these SACs will in no way measure up to the challenge of creating a network of Highly Protected Marine Reserves covering 30% of UK seas which is designed to protect the entire marine ecosystem and thus restore the economic and ecological viability of commercial fish populations, as recommended by the Royal Commission on Environmental Pollution in its 25<sup>th</sup> Report, published in 2004.

**MARINET UK Marine Reserves Campaign (Briefing team) : March 2008**