



Marine ^{update} 43

March 2001

Marine Health Check

The UK's marine environment is in crisis! Our seas have been treated as a rubbish and chemical dump, our coastal habitats have been ripped up and reclaimed for development, and many of our fish stocks are over-exploited and heading towards commercial extinction. Yet despite the high level of threat facing our marine life, little information is publicly available about the health of our seas.

In this Marine Update, the findings of a new WWF report, *Marine Health Check*, which examines 16 marine species and habitats, are summarised. The 10 species were selected because they represent a range of wildlife from different levels of the marine food chain. The six habitats represent the wide variety of marine habitats in UK waters. The species and habitats were also chosen on the basis that there was sufficient scientific information available for assessment of their condition to be possible.

The results of the *Marine Health Check*, are deeply worrying. Despite improvements such as banning the dumping of rubbish and certain other pollutants at sea, and improvements in some wildlife populations, the big picture remains one of damage and decay. Two-thirds of our fish stocks are in decline, with many cod stocks heading towards commercial collapse, and the unsustainable nature of deep-water fisheries, such as the orange roughy, is a further cause for concern. All the key habitats examined, from saltmarsh to reefs, are damaged, and populations of bottlenose dolphins and harbour porpoises appear to be in significant decline. It is also of serious concern that plankton populations, upon which the entire marine ecosystem depends, are fluctuating in a way not previously recorded.

A summary of the key damage and threats to all 16 species and habitats follows.

Summary of principal findings

The Harbour Porpoise

There has been a dramatic decline in harbour porpoise populations throughout Europe, including those in UK waters. A study into the numbers of harbour porpoises killed as a result of certain fisheries in the Celtic Sea suggested that the annual by-catch of harbour porpoises could be as much as 6 per cent of the total population. If such levels of by-catch persist, they are likely to result in the eventual extinction of this population. In general the proportion of porpoises dying after becoming entangled in fishing nets is reported to be increasing. Other research shows that pollution may damage the harbour porpoises' immune system, increasing their vulnerability to disease, which may have fatal consequences. New research reports that harbour porpoises in the Irish Sea have been found with elevated levels of certain radioactive elements in their bodies.

The Bottlenose Dolphin

There are three resident populations of bottlenose dolphin recorded around the UK. The best studied population, in the Moray Firth, may be in decline and could be extinct within 50 years. There is anecdotal information that other populations



Bottlenose dolphin



Cod

may also be in decline. Dolphins are also seriously threatened by pollution. A bottlenose dolphin calf found washed up in Cardigan Bay, Wales, had among the highest levels of certain pollutants recorded anywhere in the world for a marine mammal. Other threats include entanglement in fishing nets and loss of prey as a result of over-fishing.

The Cod

Cod stocks are in serious decline, with many populations identified as being "outside safe biological limits" and some in danger of collapse. Due to fishing pressure, cod in the north-east Arctic are now reproducing two and half years earlier than normal. In addition, experimental research into the effects of polyaromatic hydrocarbons (PAHs, chemicals released from the burning of fossil fuels) has revealed that their toxicity to marine life, especially certain

plankton species such as cod larvae, may be significantly increased through exposure to ultraviolet (UV) light, a component of sunlight. In laboratory tests PAHs had lethal effects on cod larvae in the presence of UV light at concentrations of PAHs and levels of UV light which are similar to those found within the marine environment. Climate change could be contributing to the decline in cod stocks. Due to fisheries mismanagement, 40 out of 60 of the commercial fish species in the north-east Atlantic are being fished unsustainably.

The Common Skate

The common skate is now believed to be extinct in the Irish Sea and rare in the central and southern North Sea. The common skate has a low reproductive rate and is very vulnerable to fishing activity. Although it is now seldom targeted directly by major fisheries due

to its rarity, they continue to pose a major threat because the skate is still caught as by-catch. Other species of ray are under similar threat.

The Little Tern

The population has declined by approximately 40 per cent since the mid-1970s and now stands at only 1,700 breeding pairs. Development on beaches can destroy nesting sites. Sea level rise and storm surges, exacerbated by climate change, also pose a serious threat to nesting pairs. Flooding is likely to be particularly problematic in the little tern stronghold of East Anglia. Industrial fisheries may also pose a threat by reducing its food source.

The Orange Roughy

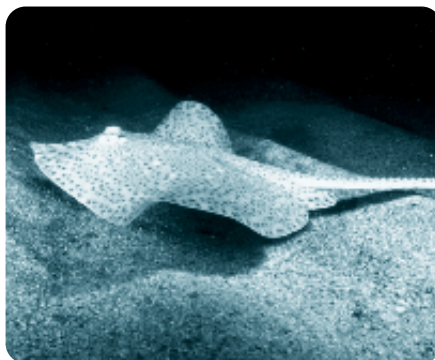
The orange roughy is a deepwater fish that does not become mature until it is at least 30 years old. It may live for up to 100 years and is believed not to breed every year. As a result of overfishing due to fisheries mismanagement, stocks are classified as "outside safe biological limits" and may be in danger of collapse. The catch has declined by 73 per cent to the west of Scotland and 76 per cent to the west of Ireland and south-west England since fisheries started only some 10 years ago. A recent scientific publication has cast serious doubt on whether the orange roughy should be fished at all due to its low reproductive rate.

The Native Oyster

In the last 100 years, oyster populations have been seriously depleted and commercial production has declined a hundred-fold. The oyster is threatened by



Little tern



Common skate



Orange roughy

several species of introduced sea snail. One, known as the oyster drill, can kill 20 oysters a day. Oysters in the UK may also be threatened by a microscopic parasite, *Bonamia ostrea*, which has killed oysters across Europe. Pollution has harmed the recovery of stocks. Organotin chemicals used in ship anti-fouling paint have caused deformed oyster shells and affected the oysters' ability to reproduce.

The Salmon

The Atlantic salmon is in serious decline. UK river catches have declined by 82 per cent in the last 25 years. Climate change is threatening stocks by altering water temperature and currents as well as affecting plankton levels. During summer 2000 there have been reports of increases in the number of young salmon returning to UK rivers. Scientists, however, caution that evidence remains of long-term decline and these recent reports do not represent a change in the long-term pattern. The highly destructive virus that causes Infectious Salmon Anaemia (ISA) was recently introduced to farmed salmon in the UK, possibly from Norway. Recent research has revealed that the virus has also been found in wild stocks in Scotland. Trials involving the growing of GM salmon in tanks have already been undertaken in Scotland. The chemicals used to combat sea lice in farmed salmon pose a risk to the wider marine environment, and an agricultural herbicide, atrazine, has been shown to impair salmon migrational breeding capability.

Plankton

Plankton acts as a sink for significant amounts of the world's atmospheric carbon. It is also an important source of

oxygen in the air that we breathe. Recent research has discovered that plankton levels are fluctuating around the UK and there is evidence of a major ecological shift in the North Sea, both potentially as a result of climate change. Changes in levels of plankton may in turn exacerbate climate change if their ability to act as a carbon sink is compromised.

Wire Weed

Wire weed, a species of seaweed, is one of 53 alien species which have invaded UK waters. Many pose a threat to native species. In UK waters, wire weed can grow up to 12 times bigger than normal and is known to compete with native species. It can now be widely found along the southern coast of England. It has also spread to Strangford Lough in Northern Ireland, one of only three Marine Nature Reserves in the UK. Repeated attempts to remove it have failed.

Eelgrass Meadows

Eelgrass is a marine flowering plant that provides a vital habitat for many marine species, including seahorses. The outbreak of a wasting disease may have led to the loss of eelgrass meadows in 85 per cent of the UK's estuaries. Eelgrass meadows are seriously threatened by sea level rise due to climate change and are also vulnerable to high levels of pollution.

Maerl Beds

Maerl beds are an important marine habitat created by several species of red algae that form a coral-like structure. They are known to be present in less than 1 per cent of the UK's inshore waters and some maerl beds may be more than 8,000

years old. Many maerl beds around the UK have been impacted for many years and continue to be damaged by extraction and fishing activities. They are particularly at risk in the Fal Estuary, Cornwall.

Mudflats

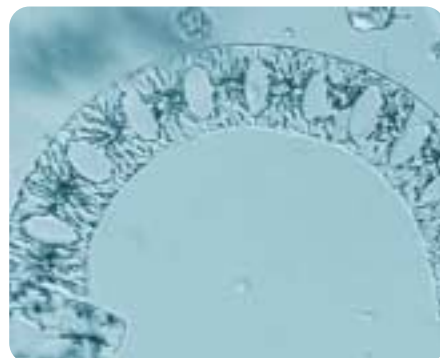
Mudflats are one of the most productive ecosystems on earth and hundreds of animal species depend on them for survival. Mudflats are in decline around the UK and at least 25 per cent have already been lost to land claim, which poses a continuing threat. The River Tyne has lost 100 per cent of its mudflats. Sea level rise due to climate change and shellfish dredging are the most serious threats. Pollution by hormone disrupting chemicals in the UK's estuaries is leading to serious impacts on wildlife that depend upon mudflat habitat. A recent study has found that male flounder in many UK estuaries are displaying female sexual characteristics and even producing eggs.

Reefs

Rocky and biogenic reefs (the latter produced by living organisms) are one of the most important marine wildlife habitats. In some areas the marine wildlife of the reefs has been degraded and destroyed and is under particular threat from fishing activity and oil and gas exploration. Lophelia coral reefs are under serious threat as oil and gas exploration and fisheries move into deeper waters. Dredge fisheries for scallops have caused widespread and long-term damage to horse mussel reefs. One of the world's most important sites of *Serpula* tube worm reefs at Loch Creren in Scotland may be under threat from trawling.



Salmon



Phytoplankton



Wire weed

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Salt marsh

Saltmarsh

Saltmarsh comprises a range of salt-dependent plants that provide essential habitat for hundreds of species. There are only 45,000 hectares of saltmarsh left around the UK, when once there were more than 200,000 hectares in England and Wales alone. This represents a decline of more than 75 per cent. It is estimated that 6 per cent of remaining saltmarsh will be lost over the next 20 years due to rising sea levels as a result of climate change. Pollution and oil spills are also serious threats. More than 10 highly toxic chemicals were found in one saltmarsh bed in Essex.

Sub-tidal Sand and Gravel

Sub-tidal sand and gravel is an essential habitat for many marine species but is being degraded by fishing activities, pollution and aggregate extraction. Removal of sand and gravel from the sea can disturb marine wildlife and levels of

extraction are likely to increase. High levels of lead and cadmium have been found in sea urchins, hermit crabs, worms, starfish and shrimps that live on sand and gravel habitat in the Dogger Bank.

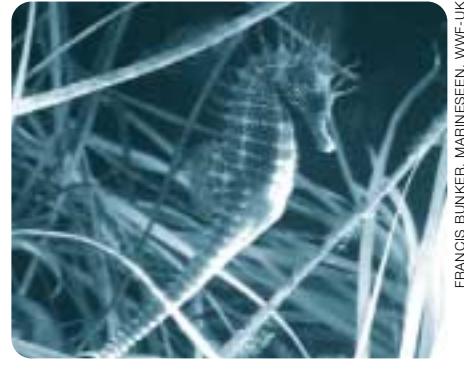
Conclusion

The damage and threats to these species and habitats indicate that the health of the UK's marine environment is deteriorating. Rapid action is needed to help our marine life recover. Because the number of threats facing these species and habitats is so vast, it is not possible in this Update to discuss all the solutions that are needed to address them.

However, as part of WWF's Oceans

WWF is calling for:

- An Oceans act;
- A stronger network of Marine Protected Areas around the UK;
- A network of regeneration areas to enhance and restore fish stocks, including pilot Fishing-Free Zones.



Seahorse in eelgrass meadow

Recovery Campaign (ORCA), WWF is pointing to a number of solutions that will help to kick-start this recovery.

Hundreds of different laws and policies govern our seas – but they frequently conflict with each other. WWF wants the UK government, the Scottish parliament, and the national assemblies of Wales and Northern Ireland, to introduce an 'eco-system' approach to the management of the oceans. This will require coordinated legislation – an Oceans Act – in order to provide the best legislative support for protecting and managing our precious marine environment, for the benefit of wildlife and coastal communities.

**OCEANS
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Taking action for a living planet

This Marine Update is taken from: Marine Health Check – A report to gauge the health of the UK's sea-life. A WWF Report. Chris Berry, September 2000. The research for this report was carried out between June and August 2000. Copies of the full report are available from the WWF-UK Living Seas Programme.

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