



## Water Quality and Fisheries

Water Quality that is considered 'good' is imperative to the health and sustainability of fish stocks within the Solent to guarantee the future of the fishing industry. Fish are one of the most sensitive marine species, and often act as a barometer for wider changes in the environment.

The Solent is a mixed sea fishery of fin-fish and shellfish. Fishing efforts vary between a number of different commercial species throughout the year. It is also a popular location for recreational sea anglers. Marine and Fisheries Agency statistics show that from January to October 2009, over 1,000 tonnes of fish were landed at Portsmouth with a value of approximately £1.4 million. Of this total 886 tonnes were shellfish.



There are currently three organisations that are responsible for the management and regulation of the Solent's inshore (within six nautical miles of baseline) fisheries:

- Southern Sea Fisheries Committee
- Sussex Sea Fisheries Committee
- Marine & Fisheries Agency

The Marine and Coastal Access Act, 2009 proposes to modernise inshore fisheries management in England by replacing Sea Fisheries Committees (SFCs) with Inshore Fisheries and Conservation Authorities (IFCAs). Their vision is to 'lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry'.

## FISHERIES

## Regulating Water Quality for Fisheries

The introduction of the EU Water Framework Directive (WFD) should mean an improvement in fish stocks through improved habitats and better water quality. Its emphasis is on achieving good overall ecological status, not just on complying with water quality standards. One of the main aims of the Directive is to enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands.

The Water Framework Directive creates environmental goals and then uses broad ecological indicators to assess the status of water bodies. Fish are just one of the biological quality elements that will be used to assess water bodies. Their populations will be measured and classified as one of the five ecological status indicators (high, good, moderate, poor or bad). One concern of the fisheries industry is the lack of a microbiological standard in the WFD, which could put shellfish growing waters at risk when the Shellfish Waters Directive is repealed in 2013. The Directive also has the power to control or moderate the way in which fish are caught and their quotas, to ensure their ecological status is maintained.

Fisheries 2027, is the government's long-term vision for sustainable fisheries. It will guide future fisheries policy and provide direction for everyone with an interest in marine fisheries. The Environment Agency have specific responsibilities for the design, management and administration of commercial and non-commercial fishing rod licences which fall under their control. They are also the body that will put in place measures to protect and enhance the water environment via their River Basin Management Plans which have been developed in response to the WFD.



## Factors that Affect Fisheries

Physiological stress is the primary contributing factor of fish disease and mortality; the stress can be caused by either physical or chemical factors. Stressed fish are at an increased risk of disease as they are less resistant to bacteria encouraging the spread of disease and parasite infestation. To maintain healthy fish populations, these factors, or combination of factors, need to be kept within acceptable levels.

Stress factors include the following.

- Poor water quality caused by industrial and agricultural discharges and diffuse run-off such as nitrates, organophosphates and ammonia.
- Accidental spillages of chemicals and oil.
- Land or seabed management practices that cause siltation to waterways, destroying spawning areas and the food sources and habitat on which fish depend.
- Chemicals such as pesticides, chlorine, heavy metals and organophosphates all contribute to fish stress and increase mortality. Such chemicals are passed up the food web by filter feeders.
- Damaging fish introductions and movements, including invasive alien species, for example from ballast water.
- Physical habitat damage caused by inappropriate coastal management and development.
- Over-fishing of some species, particularly migratory and marine stocks.
- Constant hydrological changes are liable to be stressful to fish as they have to constantly adapt whereas a stable environment is more likely to ensure successful growth and propagation.

## Water Quality Issues for the Solent's Fisheries

The health of the Solent's fisheries is very closely linked to the health of the harbours, their feeder catchment rivers and the habitat contained within it, both terrestrial and aquatic. In recent years there has been a significant decline in oyster stocks in the Solent, the annual survey of the grounds carried out last year showed stock levels had reached a new low. The cause of the decline is still a matter of debate.

Eutrophication of the Solent's harbours from agricultural run-off and sewage discharges has led to algal blooms in the past. As it grows during the summer, the algae uses up vital oxygen in the water, killing some aquatic life directly and depleting food for other wildlife such as fish and birds. When the algae decays in the winter it releases hydrogen sulphide into the water which is toxic to fish.

Fish and shellfish are vulnerable to accidental spillages from industry. The Solent has an emergency plan in place called SOLFIRE which operates in a marine emergency and includes minimising risk to the environment.

The RYA and British Marine Federation have been running an environmental programme called The Green Blue for several years to help boat owners minimise their impact on the marine environment. In an area like the Solent which is heavily used for boating this is very important. The programme has identified that products used on boat hulls and decks may contain chlorine, ammonia, potassium hydroxide and solvents, all harmful to the aquatic environment. Degreasers dry the natural oils that fish need for their gills to take in oxygen, and most cleaning products contain chemicals which disrupt the reproductive cycle of fish. The programme makes suggestions for alternative products for all of the above. It also provides guidance on the use of antifoul, the historic use of marine paints containing Tributyltin, which leached into the water, caused irreversible damage to aquatic life.

