State of the Solent Edition 3: 4. Environmental Quality Indicators

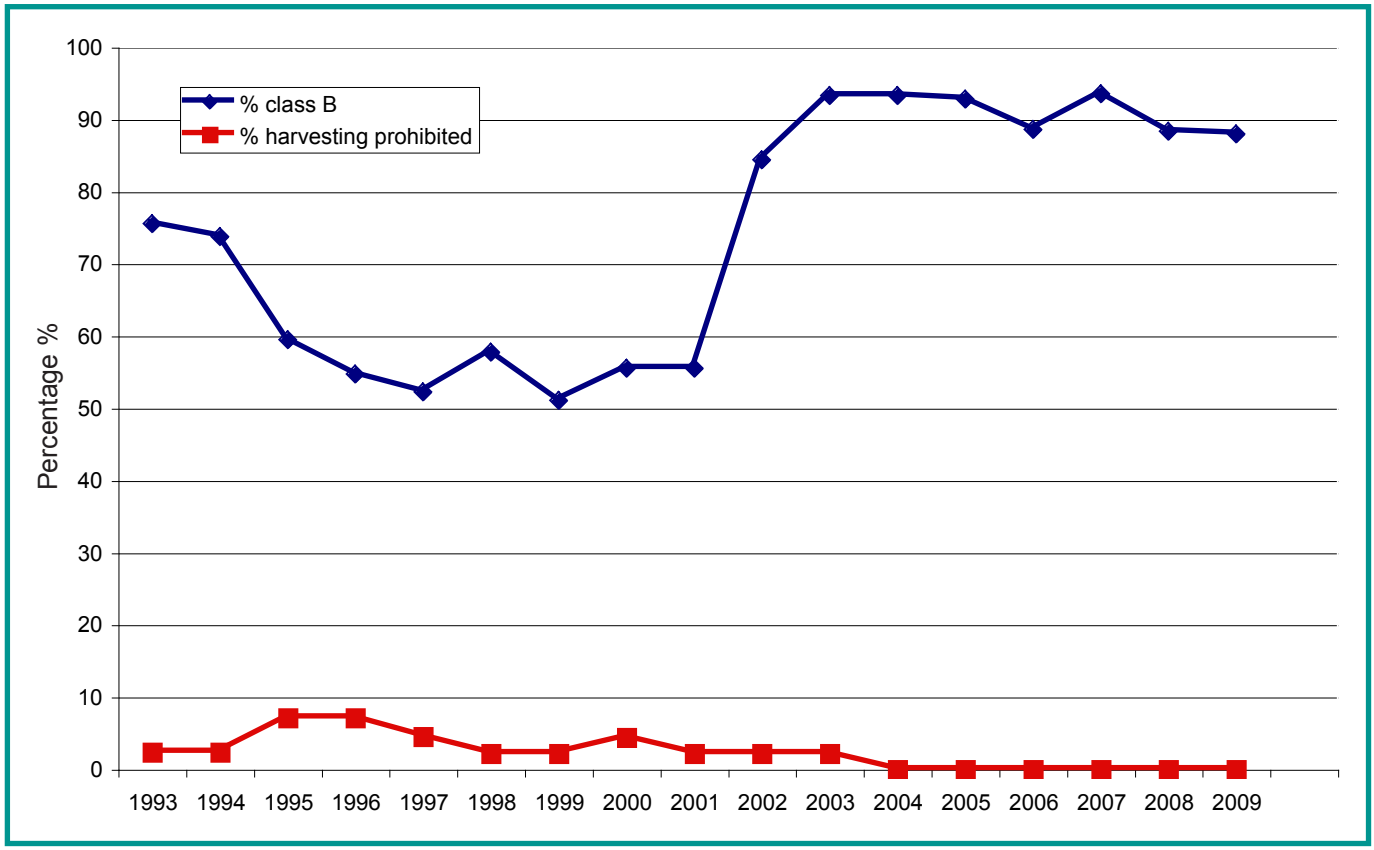
The long term environmental quality aim in the Forum's Strategic Guidance for the Solent is 'to support the maintenance of high standards of water and environmental quality within the Solent and improvements where appropriate.'

Environmental quality is the term used to embrace the quality of air, water and land. Within the Solent the prime issues are water quality within the inshore waters and estuaries. Investment in infrastructure to improve environmental quality lies principally in the hands of those whose activities could cause environmental damage. However all those who use the Solent have the potential to cause pollution, for example, through discarding litter or pouring oil down drains. Whilst it is unlikely that individuals cause significant impacts, diffuse cumulative impacts can be locally significant.

The trend in environmental quality over the last century has been a long term decline due to urbanisation and a lack of adequate investment in waste management. More recently there have been significant improvements in environmental quality due to the implementation of environmental legislation. The future trend will be for a continued decrease in the amount of pollution discharged to the marine environment, particularly through the implementation of the EC Urban Waste Water Directive (UWWD), which is driving the investment programme in sewage treatment and disposal. The Water Framework Directive (WFD) is another substantial piece of EC water legislation. It requires all inland and coastal waters to reach 'good ecological status' by 2015. It does this by establishing river basin districts within which demanding environmental objectives will be set, including ecological targets for surface waters. The Solent lies in the southeast river basin district.

There are currently a wide range of datasets collected with regard to environmental quality and a range of possible indicators. The main environmental quality indicators which are used for this report are water based as these are the ones which have the most impact on the Solent.

4.1. Compliance with the EC Shellfish Hygiene Directive



Source: Food Standards Agency

4.1 Reason for Indicator Selection

Shellfishing is one of the main types of fishery in the Solent. The most significant shellfishery is for the native oyster, which has been an important food source for centuries and is of international conservation importance. Commercial clam digging for the American hard shelled clam also takes place throughout the year.

Shellfish harvesting areas are monitored for the suitability of the shellfish for human consumption under the European Community (EC) Shellfish Hygiene Directive (91/492/EEC).

4.1 Where does the data come from?

Bivalve production areas are classified according to the level of treatment they require prior to their sale. This information is collected by local authorities and compiled nationally by the Food Standards Agency. Standards are set in terms of concentrations of coliform bacteria and salmonella. Harvesting sites are classified from A to C, where grade A sites require no pre-treatment and grade C sites require relaying in cleaner waters for at least two months followed where necessary by purification to achieve the end product standard.

Compliance with EC Shellfish Hygiene Directive is linked to compliance with the EC Bathing Waters Directive. Both these are dependant on the improvement in the treatment of discharges from the water companies through Asset Management Plans (AMP) and the standards are measured using concentrations of coliform bacteria found in the water.

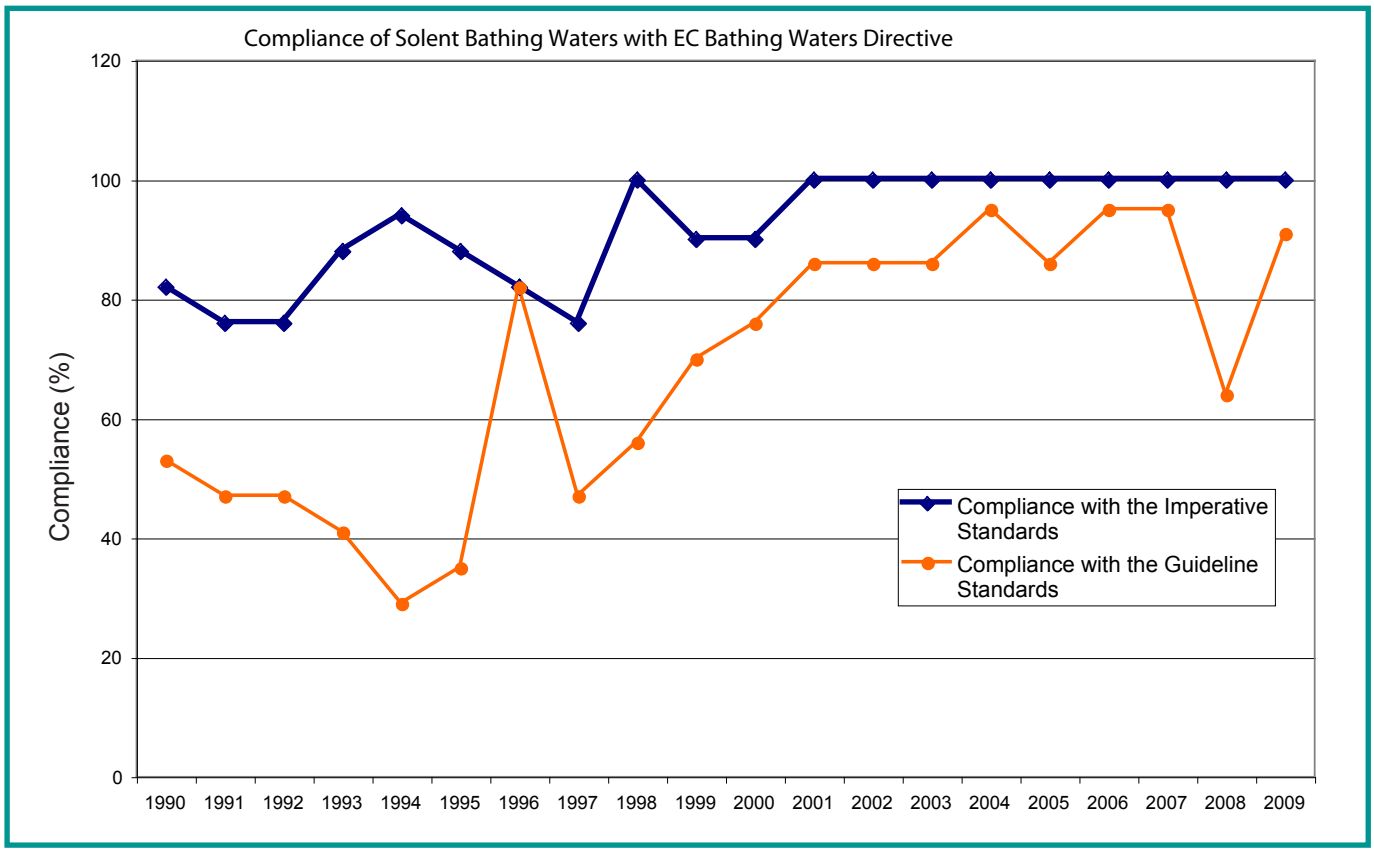
4.1 What the indicator shows

In 2004 the percentage of beds achieving a B classification increased significantly from about fifty five percent to over ninety percent. This stabilised over the following years to just under ninety percent of beds achieving a class B or above classification. The same beds tend to receive the class C classification year on year. Since 2004, none of the beds have had harvesting prohibited.

4.1 What are the implications for coastal planning and management

The concentrations of coliform bacteria in the Solent have clearly dropped in the past ten years and this is linked to the investment from the water companies. It may be that those beds which regularly achieve a class C classification could be highlighted to see if there are issues which could be addressed locally to improve this.

4.2. Compliance with the EC Bathing Water Directive



Source: Environment Agency

4.2 Reason for Indicator Selection

A key issue for the coastal environment is to prevent contamination of coastal waters by pollution from human activities. Contamination of bathing waters can pose a risk both to human health and the environment. Bathing water quality may be affected by discharges from sewage treatment works and storm overflows, rivers, agriculture and other diffuse sources. Improving water quality will contribute to the overall quality of the environment in the Solent.

The EC Bathing Water Directive sets water quality standards designed to protect the health of the bather and to maintain and improve overall water quality. The original Directive (76/160/EEC) was revised in 2006/7. The revision will introduce tighter water quality standards based on two parameters, intestinal enterococci and Escherichia coli, and will introduce a new bathing water classification system. The revised Directive takes over from the previous one in stages from 2012 onwards.

The Indicator of Compliance with the Bathing Water Directive is used from the European level down to the local level. It is one of the European indicators for the sustainable development of the coastal zone. It is used at a national level in the UK Government's sustainable development indicators and then feeds down to the regional level where it is used in the Better Quality of Life in the South East report and also in the Environment Agency's State of the Environment report.

4.2 Where does the data come from?

The Environment Agency (EA) are responsible for enforcing bathing water standards and water quality is currently sampled 20 times during the bathing season at EU designated bathing sites (May 15 – September 30). Samples are taken from representative sampling points. In order for a bathing water to comply with the Directive ninety five percent of samples must meet with the imperative standard.

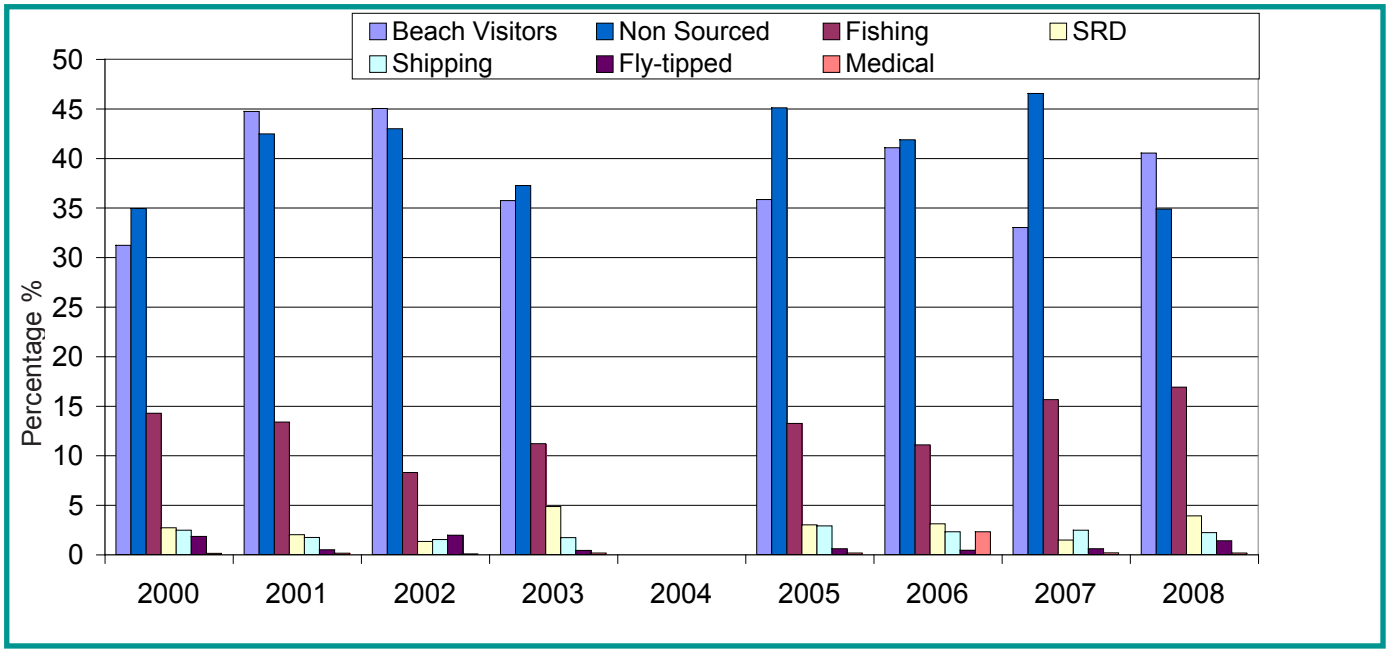
4.2 What the Indicator Shows

Since 2001 all the Solent's bathing waters have complied with the imperative standard for bathing water quality. Since 1997 there has been a steady increase in the number of bathing beaches achieving the higher guideline standard. These results, like those for the shellfish beds, are due to an increase in investment by the water companies. There was a slight drop in those bathing water achieving the guideline standard in 2008 but this has since improved again to about ninety percent.

4.2 What are the implications for coastal planning and management

Water companies have carried out extensive improvements to their plants under the Asset Management Plan process to ensure that the discharges do not pollute coastal waters. This has led to a significant improvement in the bathing waters in the Solent. As the levels of treatments of waste waters improves, diffuse sources of pollution become more relevant. It can be the case that water quality is worse over a wet summer than a dry one. Climate change in the South East is predicted to lead to an increase in occurrence of severe storms which could impact the water quality of bathing waters. The revised bathing water classifications are more stringent and it will be interesting to measure how the bathing water classifications in the Solent change with its implementation.

4.3. Solent Beach Litter



Note. SRD: Sewage related debris

Source: Marine Conservation Society

4.3 Where does the data come from?

The Marine Conservation Society (MCS) carry out an annual national beach litter survey 'BeachWatch'. This has taken place every September since 1993. The results are published annually in the BeachWatch report. A detailed break down of the data is obtained from the MCS for the State of the Solent report so that the source data can be measured.

4.3 Reason for Indicator Selection

Marine and coastal litter includes all litter items that appear on beaches or at sea due to man's activity. It includes items deposited directly from tourists and other beach users in addition to litter that has been deposited from adjacent land or waterways, debris thrown overboard or lost from sea-going vessels, sewage outfalls and offshore installations. The types of litter found indicate pressures from the different sources.

Marine litter impacts on both nature and man affecting marine and coastal wildlife, communities, health and the economy of the Solent. This indicator links to one of the objectives in the Strategic Guidance which is to 'act to reduce the amount of litter and debris on the Solent shorelines.' Trends in the sources and amount of beach litter will indicate where the pressures are with regard to marine and coastal litter in the Solent.

The problems of coastal and marine litter are widely understood and important to people who visit and live at the coast. There have been a number of national and local initiatives to try and reduce the amount of coastal and marine litter, including the 'bag it and bin it' campaign and the Marine Conservation Societies BeachWatch. This indicator could also highlight if such campaigns are working and if more needs to be done. For this reason we have also include the number of beaches taking part in the annual BeachWatch Beach clean event.

Beach litter is used as an indicator of sustainability in a number of projects. The amount of coastal, estuarine and marine litter is one of the European indicators of sustainable development of the coastal zone and is also used in the EU SAIL project. At a national and regional level, it is used in the Environment Agency's State of the Environment report as an extra quality of life indicator, in this report both the density and source of the litter found is measured.

4.3 What the Indicator Shows

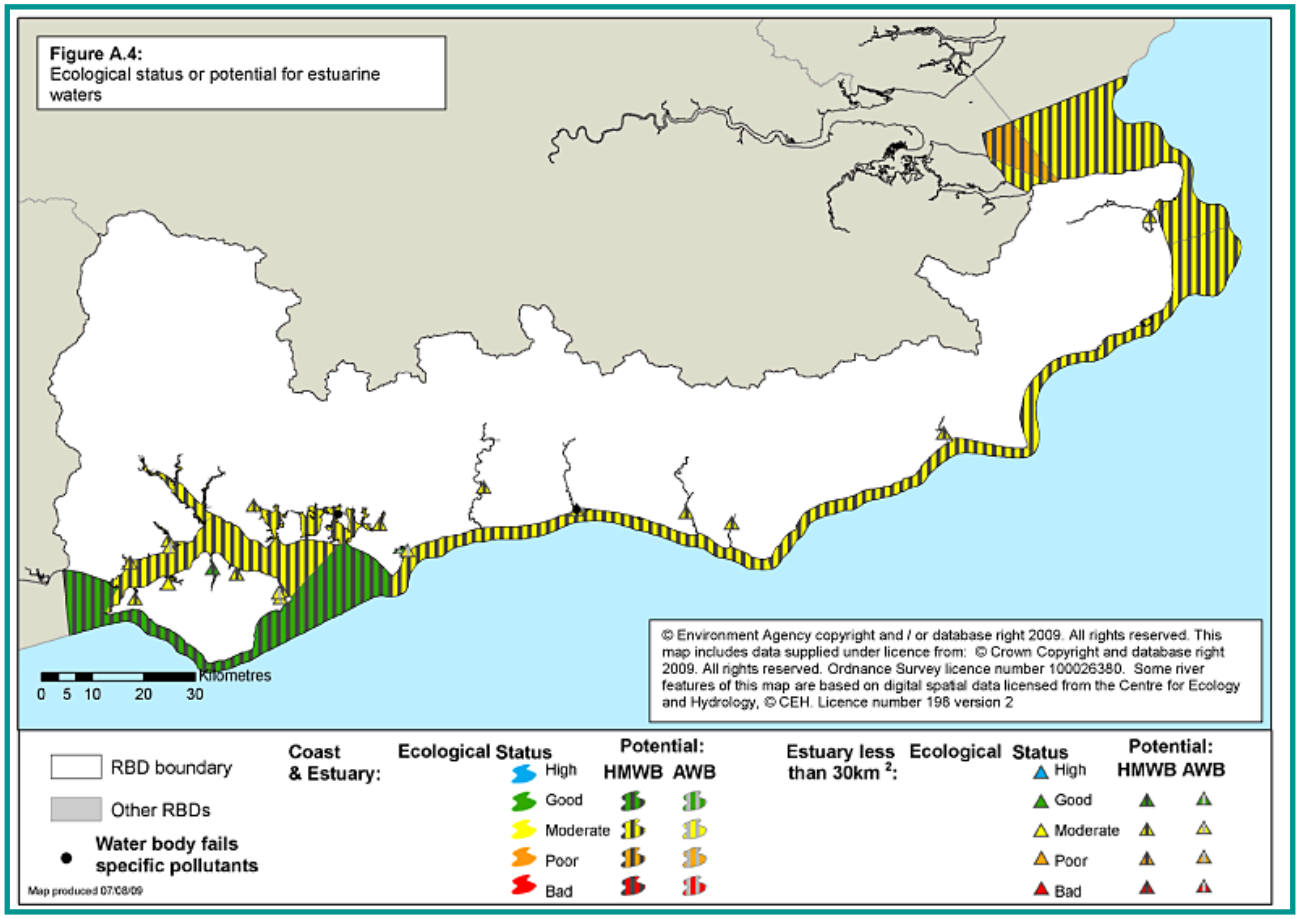
There has been a steady increase in the number of beaches taking part in the BeachWatch event in the Solent, increasing from 10 in 2002 to over 50 in 2009. This is in part due to the Solent Forum encouraging local community groups to get involved in the BeachWatch event and the establishment of the Beach Wardens project in West Sussex. It should be noted that about 25 of the beaches included are sections of Selsey beach and this is due mainly to the West Sussex Beach Warden project. If the 25 sections of Selsey beach are discounted there is still an increase of 15 beaches now taking part in the BeachWatch scheme in the Solent.

The source data shows that most of the litter on the Solent's beaches is either un-sourced, from beach visitors or from fishing. Litter from shipping sources, fly tipping and sewage related debris has remain fairly constant but accounts for under five percent of the sourced litter.

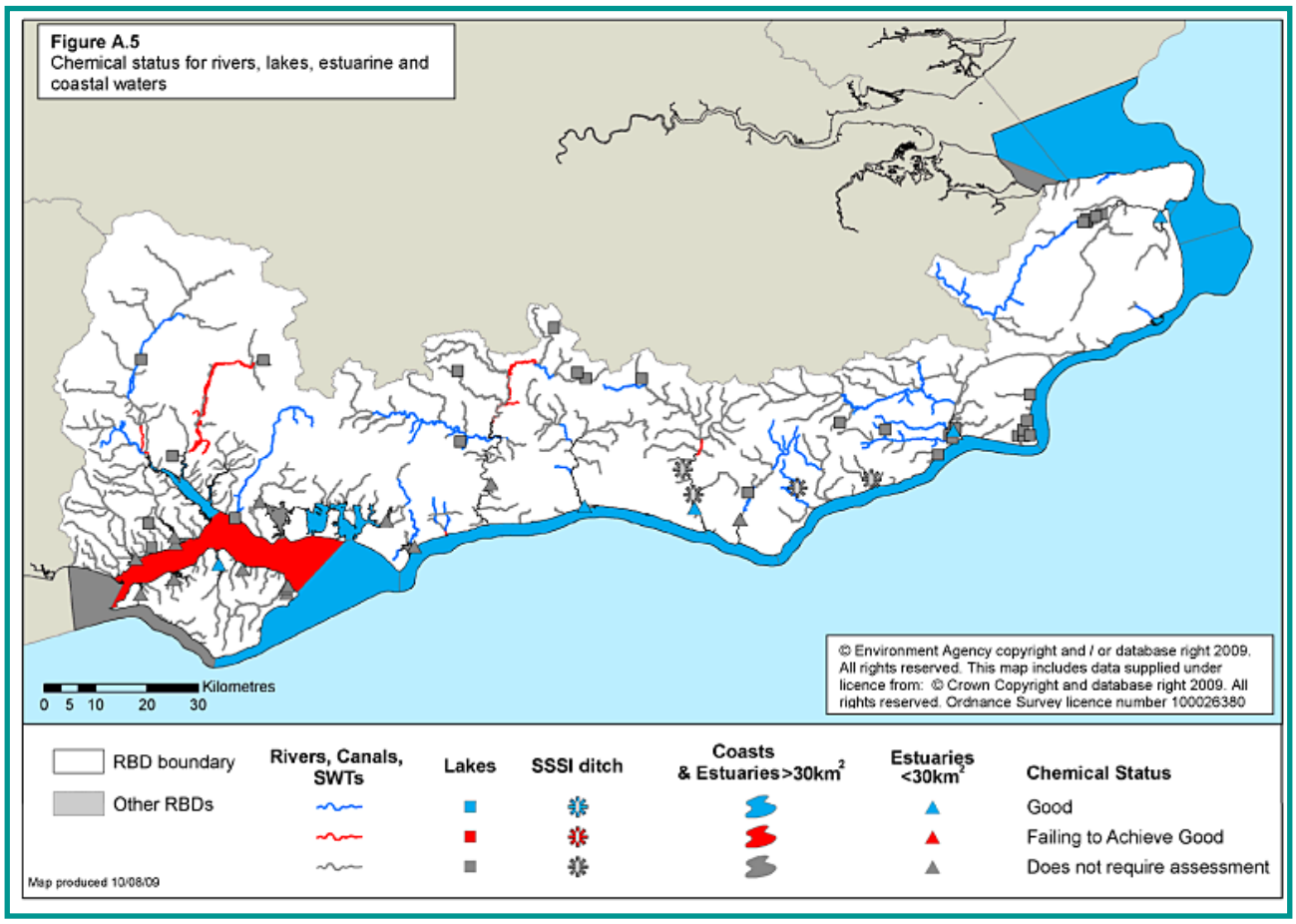
4.3 What are the implications for coastal planning and management

It is good to see an increasing number of community groups and local people getting involved in the BeachWatch event. However from the results it is clear that there is a need to better educate beach visitors about the impacts of dropping litter. If this source could be reduced, so would the amount of litter on the Solent's beaches.

4.4. Water Body Classification in the Solent



Contains Environment Agency information © Environment Agency



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4.4 Reason for Indicator Selection

The Water Framework Directive (WFD) covers the whole of Europe and uses a new approach to measure water quality. Under the Water Framework Directive, waters are classified by status which has an ecological and a chemical component for surface waters. Good ecological status is measured on the scale high, good, moderate, poor and bad. Chemical status is measured as good or fail. The WFD takes into account ecological quality - that is the whole water environment including wetland features, habitats and wildlife. This measure is now replacing the previous indicators of ortho-phosphate and nitrate loads and dangerous substances in waters as these measures will be taken into account when considering the ecological and chemical status of the water bodies.

The aim of the WFD is to achieve 'good status' in all water bodies by 2015. Where there are reasons why it is not actually possible to achieve the target by 2015, the deadline can be extended to 2021 or 2027. This indicator is used at the European level and the national level as the main measure of surface and ground water quality.

4.4 Where does the data come from?

The data comes from the Environment Agency's current classification of water bodies. For this report we have included coastal and transitional water bodies in the Solent Study area.

4.4 What the indicator shows

In the Solent current WFD classification shows that:

- 100% of the coastal and transitional water bodies achieve moderate ecological status
- The Solent coastal water body has a chemical status of fail the objective is to reach high chemical status by 2027.
- All water bodies in the Solent have the objective to reach a good potential overall and good potential ecological status by 2027.
- All water bodies considered are designated as heavily modified and are protected under a number of Directives including the Habitats and Nitrates Directives.

This can be compared to trends in the South East where:

- 21% of surface water bodies at good ecological status.
- 63% of surface water bodies at moderate ecological status.
- 15% surface water bodies at poor ecological status.
- 2% of surface water bodies at bad ecological status.

Future Work

Indicator 4.5: Volume of Oil Spillages and Discharges is not currently collected. This indicator would give a measure of the pressure on the marine environmental quality especially from the marine industries of the Solent, including ports and shipping, military activity, recreational marine leisure and the terminals at Hamble and Fawley as these are the main potential sources of oil pollution. At the European level oil pollution in the coast and at sea is used as an EU environmental pressure indicator. Amount of oil spills is also one of the European indicators for measuring sustainable development of the coastal zone. Further work needs to be done on establishing a simple and repeatable methodology for collecting this information.

Links

- Food standards agency: http://www.food.gov.uk/multimedia/pdfs/shellclassew201011e.pdf.
- Environment Agency Bathing Water Directive: www. http://www.environment-agency.gov.uk/homeandleisure/37841.aspx.
- Marine Conservation Society: http://www.mcsuk.org/what_we_do/Clean+seas+and+beaches/Beachwatch/Beachwatch
- Environment Agency Water Frame Work Directive: http://www.environment-agency.gov.uk/research/planning/33106.aspx.
- EU SAIL Project; http://www.vliz.be/projects/SAIL/.