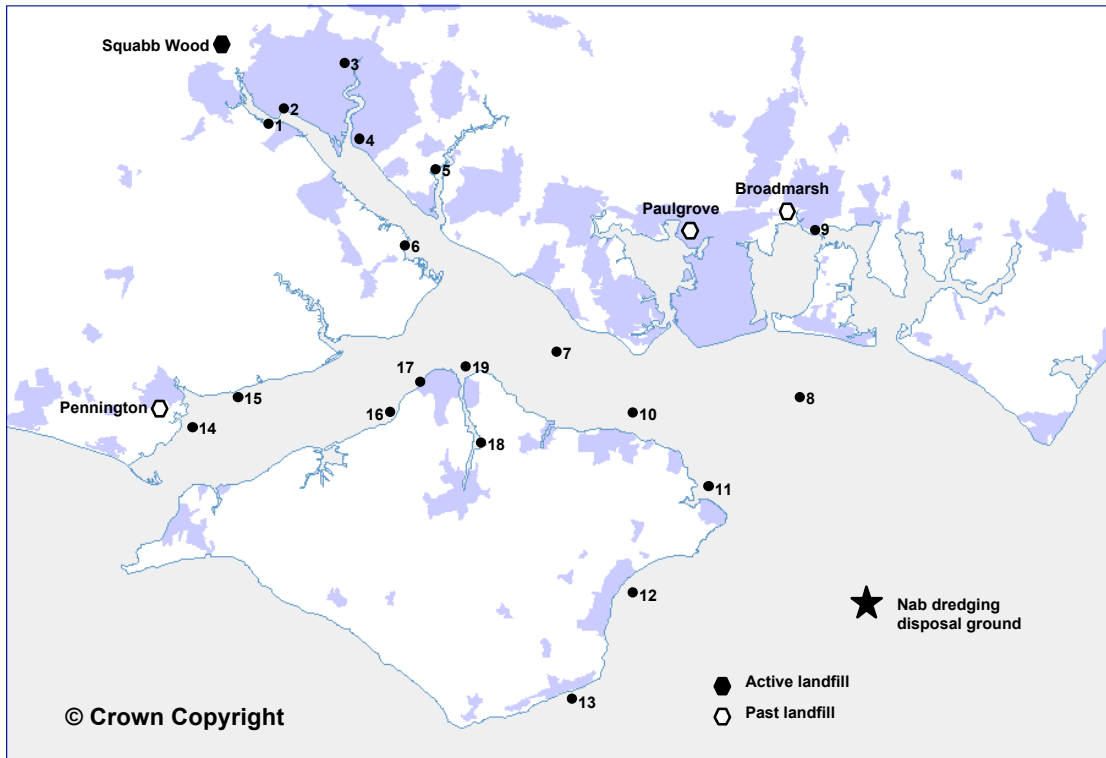


# ENVIRONMENTAL QUALITY

Long-term aim: ‘to support the maintenance of high standards of water and environmental quality within the Solent, and improvements where appropriate’.



**Discharges from Wastewater Treatment Works**

- |                |                          |              |
|----------------|--------------------------|--------------|
| 1. Slowhill    | 8. Eastney               | 15. Norton   |
| 2. Millbrook   | 9. Budds Farm            | 16. Thorness |
| 3. Portswood   | 10. Ryde                 | 17. Woodvale |
| 4. Woolston    | 11. Bembridge            | 18. Fairlee  |
| 5. Bursledon   | 12. Sandown              | 19. Cowes    |
| 6. Ashlett     | 13. Ventnor (3 outfalls) |              |
| 7. Peel Common | 14. Pennington           |              |

**Industrial discharges**

- |                    |           |
|--------------------|-----------|
| A. SW Tar          | F. Esso 1 |
| B. Bitmac          | G. Esso 2 |
| C. Hythe chemicals | H. Esso 3 |
| D. Rechem          |           |
| E. Enichem         |           |

**KEY FACTS:**

- Consented sewage discharges to the Solent total 340 million litres per day.
- Of seventeen bathing beaches in the Solent, 100% meet the European standards.
- There has been a widespread decline in biological health in inland (non-coastal) waters. Globally, 24% of mammals and 12% of birds connected to inland waters are considered threatened. (UN WWAP, 2003).
- It is estimated that 1.44 million people live within a 10 minute drive of a car park along the Solent coastline (Stillman et al., 2009).
- The following environmental pressures on the condition of water bodies have been identified in catchments draining to the Solent: abstraction, nitrates, organic pollution, pesticides, phosphorous, physical modification, sedimentation and urban and transport pressures (Environment Agency, 2009).
- Many estuaries, bays and riverine systems in the Solent are heavily modified water bodies (Environment Agency, 2009).

## The Position

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 impact. Within the Solent, the principal responsibilities lie within the private sector - including Southern Water, Enichem, Esso, Exxon, BP, the Ministry of Defence and a number of smaller companies. 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, cumulative impacts can be locally significant.

Regulation of environmental quality lies within the public sector, with much responsibility in the hands of the Environment Agency. The basis of the approach to environmental regulation is to set legal standards for the regulation of human activity and to ensure that they are achieved or exceeded. The main actions of the Environment Agency within the coastal zone are as follows:

- regulating discharges of sewage and trade effluent to water by the imposition and, enforcement of environmental permits;
- monitoring the quality of waters;
- licensing the disposal of wastes on land;
- licensing discharges to air, and monitoring air quality from authorised sources.

A number of areas of environmental regulation lie and outside the Environment Agency, including:

- shellfish hygiene - the EC Shellfish Waters Directive was administered by Defra and implemented by the Environment Agency, however the Directive will be repealed in 2013 and will come under the Water Framework Directive.
- burial at sea - where activities are licensed by MMO through the issuing of licences under the Marine and Coastal Access Act;
- responsibility for land-use planning aspects of waste disposal and treatment, which are handled by the Waste Planning Authorities (County and Unitary Councils);
- litter, where the principal responsibilities lie with District Councils;
- discharges from shipping, a number of which are regulated under the international MARPOL convention. Annexes I (oil), II (noxious liquids), III (harmful substances) and V (litter) are in force within the UK. Annex IV (prevention of pollution by sewage from ships) came into force in 2003 and Annex VI (prevention of air pollution from ships) came into force in 2005. The responsibilities for enforcement lie with the Marine Safety Agency;
- there are also some unregulated discharges - principally those from recreational craft;
- Natural England have a statutory duty with regard to the impact of proposals on sites of European nature conservation importance.

There have been improvements in environmental quality due to enhanced environmental regulations. The trend is for a continued decrease in the amount of pollution discharged to the marine environment, which is helped by improved policy and legislation, such as:

- EC Urban Waste Water Directive (91/271/EEC) which is driving the investment programme in sewage treatment and disposal;
- Water Framework Directive (2000/60/EC) which helps to protect and enhance the quality of surface freshwater, groundwater, groundwater dependent ecosystems, estuaries and coastal waters out to one mile from low water.
- Marine Strategy Framework Directive (2008/56/EC) aims to achieve Good Environmental Status in European seas by 2020.
- Marine and Coastal Access Act helps to achieve clean, healthy, safe, productive and biologically diverse oceans and seas.

The Water Act 2003 effects the licensing system by increasing the standards of environmental protection. The original act resulted in the privatisation of the water authorities and the creation of two independent regulatory bodies - the Environment Agency for environmental matters, and OFWAT as the overall regulator of pricing and the water 'market'. The programme of investment in water quality improvements is driven by both UK and European legislation, as discussed in the 'Summary of Information'.

The process requires the identification of statutory obligations, which are established by DEFRA and the Environment Agency. OFWAT's role is to define the costs which the companies may pass on to their customers, and to ensure that funds are used in an efficient manner. The statutory process by which the obligations are achieved within a given timescale is the Asset Management Plan (AMP) - which must conform to national guidance. An AMP normally represents an agreed five year programme of investment: AMP1 was completed in 1995, AMP2 in 2000, AMP3 in 2005, AMP4 in 2010 and AMP5 is currently running and due for completion in 2015. Southern Water is carrying out a major programme of environmental and service improvements across the South East totalling about £1.8 billion. Southern Water will also install nearly 500,000 water metres to help drive water conservation (Southern Water, 2012a). The agreed AMP provides the basis for agreement with OFWAT over the charges for investment which can be passed onto the customer. The AMP process is regarded as the implementation of national policy, and Southern Water's business plan is subjected to extensive customer engagement and consultation. .



Sewage pollution causes detrimental effects on the environment (Marine Conservation Society, 2012).

Within the Solent, Southern Water is the water company responsible for sewage treatment and disposal. They run 371 wastewater treatment works and employ over 500 people to ensure these works meet standards set by the Environment Agency to protect water quality (Southern Water, 2012b). As with all AMP investment, the programme is driven by statutory requirements. Therefore Southern Water will provide secondary treatment to meet the UWWD, Water Framework Directive, Bathing Waters Directive and Marine Strategy Framework Directive. There are some uses within the Solent for which there is currently no legislation requiring investment to be made. The most notable are:

- sea fisheries (although works for discharges are subject to FEPA licence). Licenses are now issued through the MMO following consultation with various beach bodies such as Natural England, Environment Agency and Sea Fisheries Committee. The purpose of the FEPA licensing (FEPA Part 2 licensing now under MACAA) is to ensure that development and works in the coastal zone do not damage the marine environment or human health, or interfere with legitimate uses of the sea;
- water recreation: the bathing waters directive applies only to designated bathing beaches, and not to offshore activities. If improvements to conditions for these activities occur within the investment programme, they are coincidental.

The implementation of proposals under AMP requires co-operation between Southern Water, EA and others. Major proposals for investment in waste water treatment will require planning permission accompanied by an Environmental Assessment. The Local Planning Authorities are the consenting authorities for proposals for water quality investment requiring planning permission, and Government planning Circular 17/91: 'Waste Water Investment: Planning Considerations' provides a framework for local authorities to work within. There are a number of statutory consultees on investment proposals including Natural England, IFCA's and MMO with regard to environmental impacts on European wildlife sites and on the sea-bed. Effective co-ordination between these agencies is essential if the achievement of the investment programme is not to be delayed.

The Water Industry Act 1991 (section 119) as amended by the Water Industry Act 199 and the Water Act 2003 allows the discharge of trade effluent from industries into the sewers if agreed to by the sewerage provider. Industries must give notice to specify: the nature and composition of the effluent;

the maximum quantity to be discharged in any day; and the highest rate of discharge. Industrial discharges direct to the Solent grew in the latter half of the twentieth century and are controlled and monitored directly by the Environment Agency.

The use of Tri-butyl-tin (TBT) has now been banned by the International convention on the Control of Harmful substances in anti-fouling systems. From 1<sup>st</sup> January 2008 ships either: (a) shall not bear such compounds on their hulls or external parts or surfaces; or (b) shall bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant anti-fouling systems. This applies to all ships (including fixed and floating platforms, floating storage units and floating production storage and offtake units). The resolution called for a global prohibition on the application of organotin compounds which act as biocides in anti-fouling systems on ships by 1 January 2003, and a complete prohibition by 1 January 2008. Although it is banned, levels of TBT in the Solent still remain high as old products containing the chemical may still be in use (Environment Agency, 2012a). TBT is stored in the surface layers of the sediment and may affect filter feeding organisms for many more decades to come as TBT is a persistent chemical.



Boat washdown water heading towards a storm water drain (Jessop and Turner, 2011).

There is believed to have been a long-term enrichment in the nutrients within the Solent, and the possible sources for this include both point discharges (such as sewage) and agricultural run off. The result of nutrient enrichment has been to increase the growth of algal species - particularly in Langstone and Chichester Harbours - resulting in a change in the ecology of the areas. Within the Solent area Langstone, Chichester, Portsmouth, Pagham, Medina, Newtown and Hamble estuaries are designated as Sensitive Areas and Polluted Waters under the UWWD and Nitrates Directive. A number of wastewater treatment plants within the area now provide tertiary treatment (nitrogen removal) as a result of the designations. Legislative and policy frameworks are in place to assist with the management of eutrophication. The OSPAR Eutrophication Strategy's objective is to combat eutrophication in the OSPAR maritime area, in order to achieve and maintain by 2010 a healthy marine environment. In 2000 the Environment Agency published a Strategy on Eutrophication. The EC Water Framework Directive seeks to achieve good ecological status of water bodies, including estuaries and coastal waters, within 15 years. Defra is working to promote good agricultural practice, encourage catchment sensitive farming and implement the EC Nitrates Directive. The Nitrates Directive (91/676/EEC) aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming

practises. Under the Directive much of the land surrounding the Solent has been classified as being Nitrate Vulnerable Zones.

There has been a history of land use and reclamation of intertidal areas for landfill waste disposal within the coastal zone, principally on the Hampshire Coast at Pennington (Western Solent), Paulsgrove (Portsmouth Harbour) and Broadmarsh (Langstone Harbour). Although they are no longer active, there are a number of adverse effects which may take place on the environment as a result of landfill, and concern has been expressed about the impact of leachate from some sites. There is an active landfill at Squabb Wood, near Romsey an even though this is not on the coast, pollutants may still leach into the surrounding rivers, eventually ending up in the Solent. Coastal litter results from land-based visitors, sea-borne deposits and natural sources. The extent of litter pollution on the Hampshire coast is a hot topic. According to the Marine Conservation Society [MCS] (2012), beach litter is at its highest since records began and plastic litter has increased by 135% since 1994. The MSC carry out 'Beachwatch', which is a coastal environment initiative to help individuals, groups and communities clean up their local shoreline. There has also been an improvement in landfill use as now only 10% of waste in Hampshire now goes to landfill due to the increase in recycling.



Litter on Southsea beach (The News, 2011).

The general level of public concern about environmental quality has increased markedly in recent years, with media attention focussed on illnesses attributed to poor water quality. Various campaigns have been growing in popularity such as Surfers Against Sewage. Bathing beaches maintain a particularly high profile, with a number of award schemes operating to attempt to give good information about quality. There are 20 designated EU bathing sites in the Solent area. The water at these sites is tested regularly for its quality throughout the bathing period (May-September inclusive) by the Environment Agency. The EC Bathing Water Directive (76/160/EEC) contains extensive provisions regarding quality standards in coastal waters. It provides quality standards, advises a monitoring programme and requires Member States to take the necessary measures to ensure that bathing waters meet the standards. Environmental Quality schemes that operate in the Solent include the EC (Blue Flag), Tidy Britain Group (Seaside Award), The Green Blue (Green Guide to Coastal Boating) and Marine Conservation Society/Readers Digest (Good Beach Guide). The Marine Conservation Society (MCS) carry out an annual national beach litter survey and the Solent Forum hold Water Quality Awards.

**What has been done?****Ensure that the industrial discharges to the Solent continue to meet acceptable standards.**

The Environment Agency review the standards to ensure that they are adequate and are currently meeting standards.

**Ensure that environmental quality information is reported to the public.**

It is important that the results of environmental monitoring are reported to the public through effective use of publications, site information, meetings and the media, and that public feedback on the standards which are being achieved is secured. The Solent Forum work with the Water Quality Group and the Environment Agency to produce The State of the Solent Report (now in its 3<sup>rd</sup> edition) which carries out monitoring and measures the 'health' of the Solent.

The Solent Water Quality Awards have provided a useful pioneering award for water quality. The standards are changing to fit the Bathing Water Directive changes in 2015. However, not much more than the minimum is being done at the moment, but increasing this would be difficult as the Water Quality Awards are not statutory.

**Ensure water quality investment requirements meet the needs of the natural environment.**

The programme of investment in water quality improvements is driven by both UK and European legislation, as discussed in the 'Summary of Information'. The process requires the identification of statutory obligations, which are agreed between the water companies and the Environment Agency. Asset Management Plans (AMP) are created every 5 years and must conform to national guidance. The AMP states the process by which obligations are achieved within a given timescale

**Evaluate the impact of diffuse pollution inputs to the Solent and the need for their reduction.**

The Environment Agency has worked alongside the water industry and other interested organisations to help tackle pollution sources and problems affecting our waterways. The EC Water Framework Directive ensures that assessments and monitoring of water bodies are carried out and a ecological status for the waterway is agreed.

The Nitrates Directive aims to reduce nitrate water pollution as a result of agricultural run-off and to prevent it occurring in the future. The Directive requires Defra and the Welsh Assembly Government to identify water bodies that are, or could be high in nitrate from agricultural sources (Environment Agency, 2012b).

**Continue to research the effects of environmental quality on the health of the system and its users, feeding into practical proposals for action where necessary.**

Research on the environmental quality of the Solent is carried out by the Solent Forum in The State of the Solent Report which provides indicators for the health of the Solent. It provides a greater understanding of the quality of the Solent. The EC Water Framework Directive also ensures that monitoring is carried out enabling the Environment Agency or other interested groups to take action if needed.

**Ensure minimal use of the coastal zone for waste disposal, and prevent any further use for landfill waste disposal in particular.**

The MMO issue FEPA licenses and their policy is to seek disposal of waste materials on land, and only to consent to marine disposal at recognised sites where this is not possible. There are no marine disposal sites within the Solent, the nearest being the Nab disposal ground in its eastern approaches. The past use of the coast for landfill waste disposal has resulted in loss of habitats and may have ongoing environmental impacts. It is not a land-use which requires a coastal location, and planning policies should continue to prevent any further use of the coastal zone for this purpose, which the Environment Agency and Local Authorities are controlling.

## What has partially been achieved or still be achieved?

### **1. Establish an agreed position and policy statement for water quality in the Solent. (Partially Achieved).**

The implementation of the UWWDD, Water Framework Directive, Marine Strategy Framework Directive and Marine and Coastal Access Act will all help to significantly reduce pollution. It results in significantly less pollution load within the Solent proper, and has implications for areas outside the Solent.

The Solent Oyster Group Initiative, set up by the Solent Forum's Water Quality Group works to develop an evidence base to support the sustainable management of native oysters in the Solent, and increase the quality of them.

The Catchment Based Approach aims to achieve 'good ecological status' of water bodies within the set catchment. In April 2011, 10 pilot catchments were chosen and a further 15 in January 2012, including the New Forest. It is headed by Defra and the Environment Agency and will provide a more sustainable and holistic approach to land a water management.

**LEAD ROLE:** Environment Agency, Defra and the Solent Water Quality Group.

### **2. Ensure that the proposals for investment in water quality under the Asset Management Plan are fully understood by those organisations affected by them. (Partially Achieved).**

The AMP represents an implementation of national policy, so is not subject to local consultation and negotiation - but this can cause problems in achieving support for the standards and measures proposed. One of the particular problems which can arise through lack of consensus, is a delay to the implementation of proposals because local people and local authorities may question and object to them, e.g. via the planning application process. It must be a common objective for implementation of agreed schemes to improve water quality under the Urban Waste Water Directive to be achieved with the minimum possible delay, and ensure that the local authorities, Southern Water and the Environment Agency work closely together to achieve this. Since the effects of the implementation of the AMP are felt locally, it seems that more that could be done towards how a local and democratic views can be given an earlier input into proposals. Cefas view is that scheme investment should contain an element of funding for post-scheme appraisals to ensure evidence based on future investment.

**LEAD ROLE:** Environment Agency and Southern Water, possibly using the Solent Water Quality Conference as a mechanism for discussion and dissemination.

### **3. Maintain close regulation of tri-butyl-tin (TBT), reducing its use wherever possible. (Partially Achieved).**

The use of TBT was banned in 2008 due to the adverse affect it has on the environment, although levels in the Solent still remain high. Promotion of less toxic alternatives need to be pursued further. However, the prohibited used of TBT has led to the increased use of biocides, which can be just as bad as for the environment. Cefas carry out monitoring of specific biological effects of TBT on gastropod species to help understand the degree of environmental impact. There do not appear to be technically feasible solutions to reducing the existing pollution load within sediments beyond the natural rate, therefore closer regulations on all types of anti-foulants are needed to prevent further pollution.

**LEAD ROLE:** Environment Agency.

### **4. Ensure that the water quality requirements of the full range of uses of the Solent are taken into account.**

A number of uses of the Solent have statutory weight in driving investment in water quality There is a need to ensure that the areas identified as having these uses (bathing waters, shellfish waters) accurately reflect their full extent.

**LEAD ROLE:** Environment Agency and MMO.

It is a cause of concern that some uses of the Solent do not receive the protection of statutory requirements for water quality. Local water quality impacts on recreational activities, sailing, windsurfing, canoeing and rowing in the river estuaries are perhaps of greatest concern. The Water Framework Directive requires water bodies to reach a good ecological status enabling the Environment Agency or other interested groups to take action if needed. The Environment Agency also carry out monitoring of bathing waters under the Bathing Waters Directive to protect public health and the environment from pollution.

**LEAD ROLE:** Solent Water Quality Group and the Environment Agency.

#### **5. Act to reduce the amount of marine litter and debris on the Solent shorelines. (Partially Achieved).**

There have been improvements in Port reception facilities in recent years but there still needs to be an increase in awareness among recreational users. How recreational boaters get rid of their litter and waste is also a problem, and although more environmentally friendly techniques are gradually being promoted more, it is still a concern.

The Green Blue, created by the British Marine Federation and Royal Yachting Association, is a joint environment programme for anyone who goes out on the water. They help boat users, businesses, sailing clubs and training centres to reduce their impact on coastal and inland waters by giving advice, raising awareness and offering guidance on how coastal and inland waters can be kept pleasant. The Green Blue also carries out research and identifies environmentally friendly boating products (The Green Blue, 2012).

Surveys of marine litter by Coastwatch UK indicated that there was a significant load on the Solent coastline, and that there has been no discernible improvement in recent years. There is a need to better understand the sources of litter and put in place appropriate education campaigns, reception facilities and other measures to reduce the extent and level of pollution. Continued promotion of the observation of the MARPOL convention is required amongst all forms of shipping activity.

**LEAD ROLE:** Solent Water Quality Conference, Port and Harbour Authorities, Shipping and Ferry Companies.

#### **KEY ORGANISATIONS: ENVIRONMENTAL QUALITY**

##### **Lead organisations**

Environment Agency  
MMO  
Solent Water Quality Conference  
Southern Water

##### **Other key organisations**

Department of the Environment Transport and Regions  
Natural England  
Southern Sea Fisheries Committees  
Sussex Sea Fisheries Committee  
Hampshire County Council

Southampton City Council  
Portsmouth City Council  
Isle of Wight Council  
West Sussex County Council  
Chichester District Council  
New Forest District Council  
Eastleigh Borough Council  
Fareham Borough Council  
Gosport Borough Council  
Havant Borough Council  
Solent Protection Society  
Private Sector Industry  
Coastwatch UK  
Marine Conservation Society  
Tidy Britain Group.  
Cefas

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