

# water matters

*"Have your say!"*



south  
eastern  
river basin district

## Invitation to comment

You are invited to give your views on the implementation of the **EU Water Framework Directive** in the **South Eastern River Basin District**. This booklet says what the Directive requires us to do and how we are working together to implement it. It summarises the main issues identified to date and outlines proposals for dealing with them. Similar booklets have been produced for the seven other River Basin Districts in Ireland and Northern Ireland.

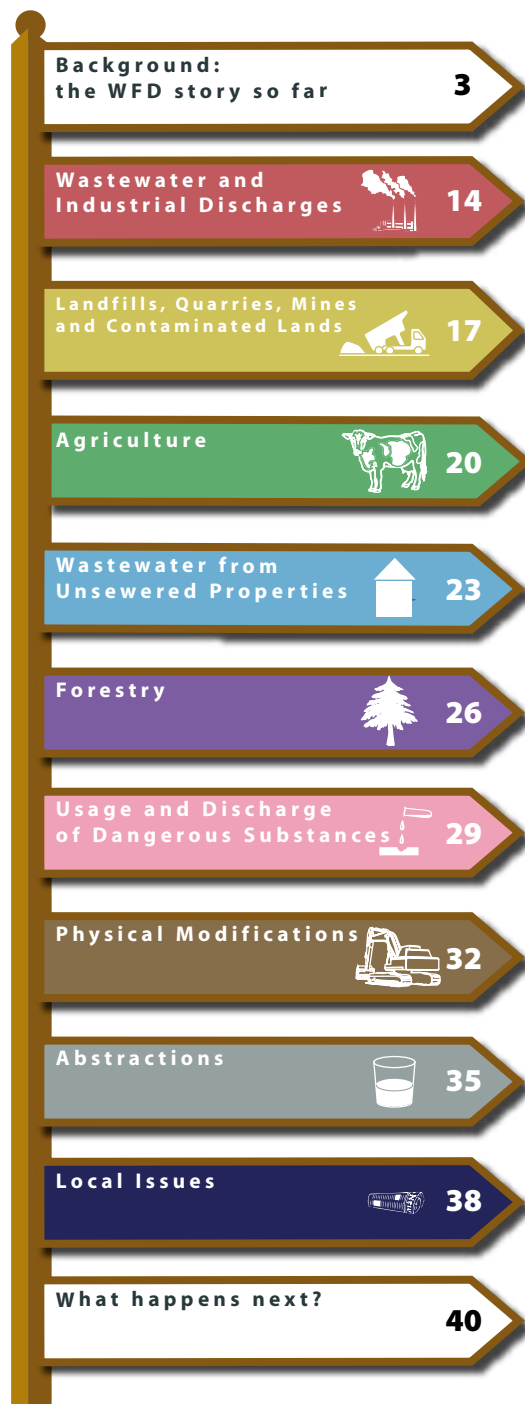
The Water Framework Directive (WFD) was adopted in 2000; it requires governments to take a new approach to managing all their waters: rivers, lakes, groundwater, estuaries and coastal waters. Member States must ensure that their waters achieve at least good status by 2015 and that status doesn't deteriorate in any waters. To achieve good status and preserve our best waters, it will be necessary to prepare and implement **management plans** for our waters.










While work on the Directive requires a considerable amount of technical expertise, it also requires the knowledge, understanding and views of people who use water in their everyday lives, whether they're drinking it, fishing in it, feeding cattle with it, swimming in it, using it in manufacturing or power generation or even just walking the dog beside it.

The Directive is not just about the environment: an economic analysis of water uses is an essential part of the process. This booklet lists the main uses and activities that may be affected by the management plans. Again, users' knowledge and understanding can help ensure that all the implications for people and the economy are considered.

That's why your views are being sought. You don't have to read the whole of this booklet (unless you want to) because, after a background section at the start, it is divided up into topics, and you can read just the topics you're interested in. At the end, there's a section about the next steps in the Water Framework Directive process, and some suggestions if you want more information.

This is how the booklet is structured:



<b>Background: the WFD story so far</b>	<b>3</b>
<b>Wastewater and Industrial Discharges</b> 	<b>14</b>
<b>Landfills, Quarries, Mines and Contaminated Lands</b> 	<b>17</b>
<b>Agriculture</b> 	<b>20</b>
<b>Wastewater from Unsewered Properties</b> 	<b>23</b>
<b>Forestry</b> 	<b>26</b>
<b>Usage and Discharge of Dangerous Substances</b> 	<b>29</b>
<b>Physical Modifications</b> 	<b>32</b>
<b>Abstractions</b> 	<b>35</b>
<b>Local Issues</b> 	<b>38</b>
<b>What happens next?</b>	<b>40</b>

## Your views

We would like you to read this booklet and let us have your comments.

For each of the most important water-related issues, the booklet sets out:

- background information showing the extent of each issue and the way that it can cause water problems
- a summary of existing controls and an assessment of their adequacy
- the proposed actions, the parties responsible for taking those actions and the users who would be affected.

We are interested in receiving your comments on whether we have identified the most important issues, whether we have overlooked any significant issues and what you think about the proposed actions.

We will be consulting for six months on the water-related issues and suggested actions contained in this booklet. We will gladly accept your comments up until 22 December 2007. Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

This booklet is issued jointly by the thirteen local authorities involved in the South Eastern River Basin District. You can send comments to:

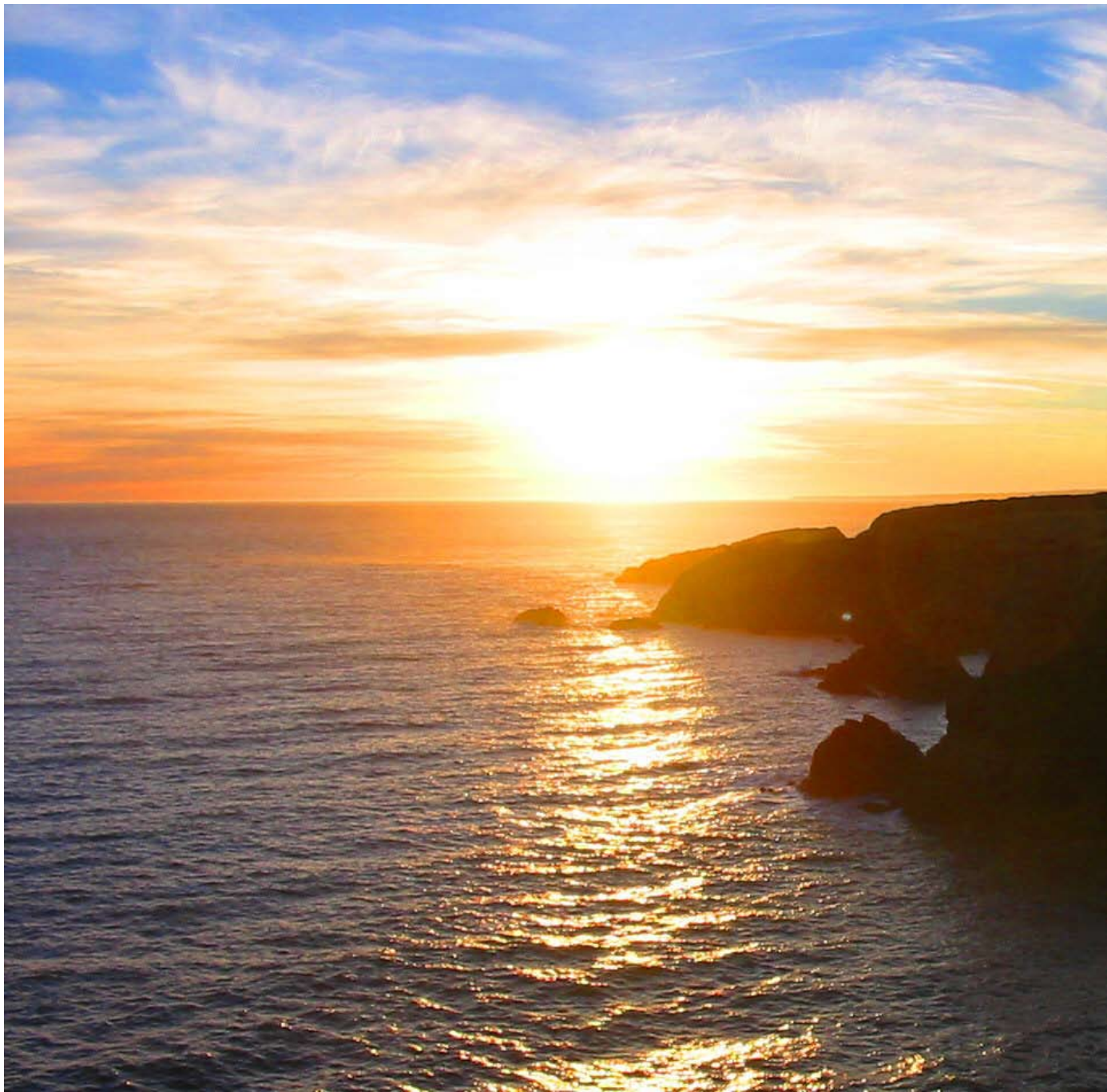
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We will comply with data protection requirements and will use information that you provide to compile a digest of responses. Please let us know if you wish your response to remain anonymous and we will include your comments in the digest without saying who made them. If you want to add new comments or information you can log on to our website at any stage ([www.serbd.com](http://www.serbd.com)).

The next 12 pages provide some background information on water problems, the Water Framework Directive and the South Eastern district.

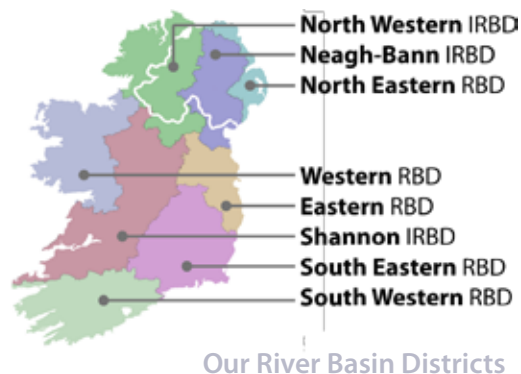


## Background: the WFD story so far

All the Member States of the European Union are moving towards **River Basin Management Planning** in accordance with the Water Framework Directive. The Directive aims to provide a new, strengthened system for the protection and improvement of water resources and water-dependent ecosystems. It aims at preventing any deterioration in the existing status of waters, including the maintenance of “high status” where it exists, and at ensuring that all waters achieve at least “good status” by 2015.

### South Eastern River Basin District

The Directive requires Member States to identify river basins (or catchments) within its territory and to assign these to **River Basin Districts** (RBDs), which will serve as the “administrative areas” for coordinated water management. A cross-border basin covering the territory of more than one Member State must be assigned to an “**International RBD**”. Some 400 river basins on the whole island of Ireland have been grouped and assigned to a total of eight RBDs. One of these RBDs lies wholly in Northern Ireland, four lie wholly in Ireland and three are International RBDs. The responsible authorities must coordinate their water management actions in relation to the district.



The **South Eastern River Basin District** encompasses all of counties Wexford, Carlow and Kilkenny, most of Waterford, South Tipperary and Laois, parts of North Tipperary, Kildare, Offaly and Wicklow, all of Waterford City and a small part of Limerick and Cork. This booklet is issued jointly by the thirteen local authorities involved.

### A new approach to managing our waters

The Water Framework Directive takes a new approach to managing waters. This approach is distinctive in several ways, but perhaps the most important are:

- its comprehensive approach to the water environment in the whole district
- its structured approach: find out the facts, decide which of them need action, make a management plan, carry out the plan
- its requirement on all responsible authorities to co-ordinate their actions for water management.

There is a wide range of existing legislation that contributes to the protection of our waters; we have not listed it all in this booklet but if you are interested you can access the relevant legislation on websites through the links at [www.serbd.com](http://www.serbd.com). It includes existing directives, daughter directives and measures to reduce pollution, for example the Urban Wastewater Treatment, Nitrates, Bathing Waters, Shellfish, Habitats and Dangerous Substances Directives. The Water Framework Directive encompasses all of this legislation. These controls are already being implemented in both jurisdictions, Ireland and Northern Ireland; however, the challenge is to coordinate these controls for optimum effect.

The comprehensive view also applies to human activities: if they affect the water environment, they have to be taken into account.

The first phase of the Water Framework Directive is being implemented, up to 2015, and there will be further phases to follow.

Much work has gone into finding out the facts: identifying all the waters in each district, finding out their current status and condition, listing the uses made of the waters and the pressures on them. That work is continuing, but there is enough information at this stage to put the preliminary findings in this booklet and ask the general public to comment on them.

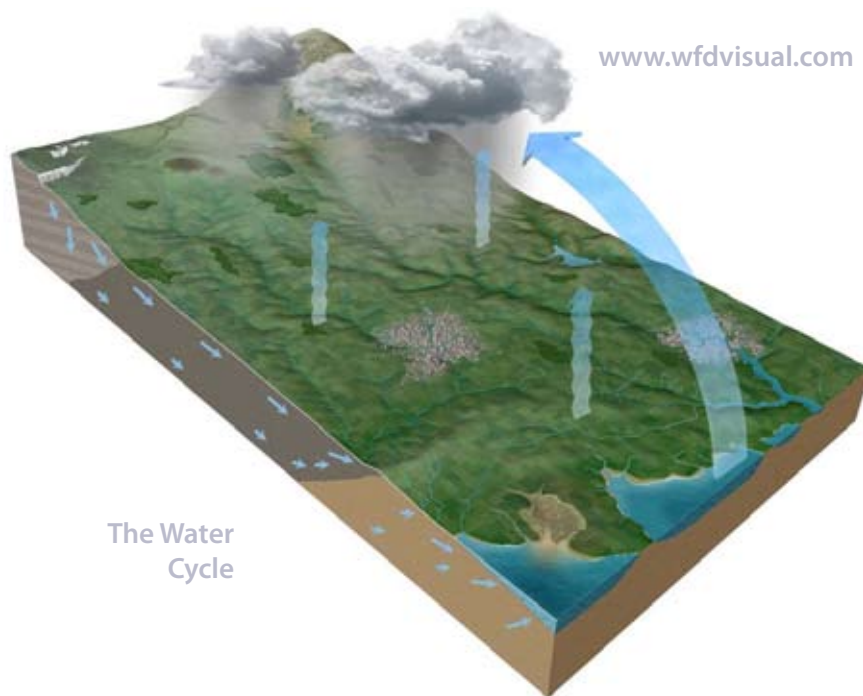
That is what this booklet is about. It is a preliminary overview of our main water related issues and the actions suggested to address these issues. You are being asked to help by checking this overview and making comments to correct or improve the listing of issues and suggested actions.

The relevant authorities are required to adopt a **River Basin Management Plan**. A draft plan will be issued in 2008, and you will have a further opportunity to comment at that stage. The final version of the plan is to be published by the end of 2009. The plan will identify the specific environmental objectives to be achieved by the end of 2015 and the programme of measures, that is the actions, that will be taken to achieve them.

In effect, this booklet is an outline of the proposed plan; if you're interested in or likely to be affected by the plan, now is an opportunity to speak - **have your say!**

### **Why water matters**

Water sustains life. The water on our planet flows in a constant cycle, driven by heat from the sun. Rainfall and melted snow seep underground to become **groundwater**, which emerges as springs feeding rivers. Rivers drain land from mountainous uplands, passing through lakes on a meandering journey to estuaries and the sea. These waters provide the variety of habitats that aquatic plants and animals need.



The Water Cycle

Water is essential for life. Humans need it for drinking and food preparation. It is also vital to our natural environment, supporting plants and animals. Water is critical to our economy, generating and sustaining wealth through activities such as agriculture, commercial fishing, power generation, industry, services, transport and tourism. However, water is a fragile resource that needs to be protected.

The area of land that a river drains is called its catchment or **basin**. The basin contains all surface waters (rivers, canals, lakes, reservoirs, estuaries and coastal waters) and the underground waters (groundwaters), together with the lands that drain into them. Our environment is not bounded by political borders, although the responsibilities for managing waters are. The cumulative effect of urban discharges in the Barrow, Nore and Suir catchments (for example as far inland as Portlaoise) can contribute to pollution problems in Waterford estuary. **River basin districts**, containing adjacent basins, are the natural unit to manage our waters.

### **Water goals**

Waters must be of sufficient quantity and satisfactory quality to protect our aquatic environment and beneficial uses.

Many of our waters are still healthy and the first challenge is to take action to preserve their status.

Unfortunately, there are also cases of waters choked with weeds and algae, and more severe incidents of fish-kills or contaminated drinking waters. Abstracting too much water can cause very low water levels in dry weather. Our challenge in these cases is to take action to restore such areas to their natural healthy state.

So there are two main tasks to be undertaken:

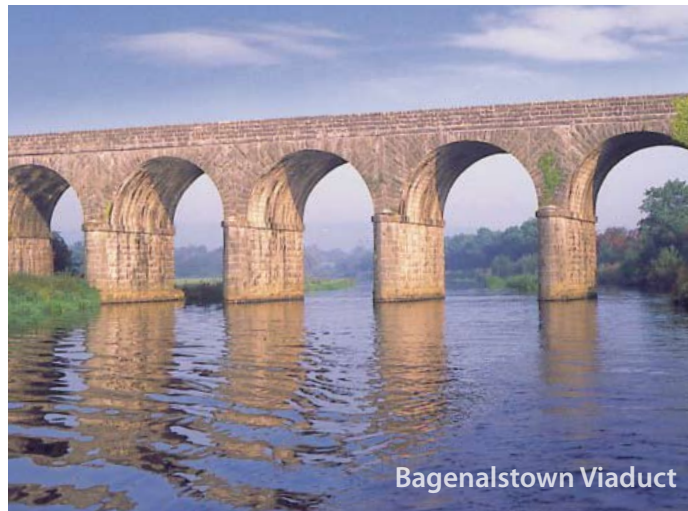
- where waters are **high or good status**, manage them so they stay that way
- where they are **less than good status**, manage them so that they improve to at least good status.

The quality of our waters will soon be classified against new water quality standards being developed by environmental agencies. Actions will be set out within the management plans to ensure that waters meet these new standards.

### **Human activity and impacts on water**

Over 4.2 million people live in Ireland, 1.3 million of them in the greater Dublin area. Generally, the east of the island, with its urban areas and fertile soils, is more densely populated than the west.

By 2021 there may be an additional one million people living in Ireland, partly because the strength of the economy has attracted inward migration. Large multi-



Bagenalstown Viaduct

national corporations have been attracted too: they have invested in Ireland because they value the island's competitive location, well managed and stable economies and highly educated workforces.

Ireland's economy has experienced unprecedented economic growth since the early 1990s. Traditionally based around agriculture, particularly livestock farming, it is now dominated by services and industry, with significant exports of electronics and pharmaceuticals. There has also been expansion in other sectors: construction and consumer spending have increased and tourism, including recreational fishing and golf holidays, is a major growth industry.

Our waters have been affected by these changes:

- more people and increased household water usage require bigger water supply schemes and produce larger volumes of wastewater to treat and dispose of
- demand for more food and industrial goods leads to more intensive or expanded activities with higher water demand and pollution threats
- additional homes mean the spread of urban areas and an increase in rural housing, with the associated threat of more water pollution. Building developments may necessitate more flood control works
- ports handling more exports and imports mean busy shipping routes and demand for port expansion.

Recent monitoring of Ireland's waters has detected the first signs of a reversal of the downward trend in water quality: this improvement results from investment and improved working practices. It is vital for our water environment, and the economy that depends on it, that recovery continues. We must take practical action to balance our demands so that all our waters are in a healthy state:

- so that drinking water sources are sufficiently protected to guarantee quality of supply
- so that we have enough water to sustain commercial use
- so that our native aquatic plant and animal communities are protected
- so that our waters can be used for recreation and tourism.

### Common water problems

Perhaps the most common environmental water problem is **pollution**, which can threaten all parts of the water cycle from groundwaters to rivers, lakes, estuaries and coastal waters. Pollution means that there is too much of a harmful substance in the water: for example a poisonous metal or pesticide, a nutrient that causes excessive growth of weeds, or even silt that can smother fish spawning beds.





Pollution can arise from two types of sources:

- local **point** sources, for example pipes discharging effluents from industries, wastewater treatment plants, urban areas or mines
- widespread **diffuse** pollution sources, such as land use activities like farming, forestry or septic tanks.

The effect of **physical modifications** on waterways is of growing concern. Waters are modified so we can make particular use of them. Examples include:

- drainage of lands for development, agriculture, forestry or peat extraction
- construction of flood defences or weirs to control river water levels
- damming of lakes to provide storage for power generation or water supply
- port developments or construction of coastal defences to prevent flooding or erosion.

These engineered modifications can either directly remove habitat or indirectly change the natural structure or flow of our waterways. This may mean a reduction in biodiversity, loss of rare or endangered habitats and species or depletion of valuable fish stocks.

**Abstraction** of unsustainable amounts of water is another potential problem for both underground and surface water resources. If we remove too much water for drinking or commercial purposes, we reduce an ecosystem's ability to function. In extreme cases we can dry up river beds or lake shores, or even cause salt water to be drawn into the water beneath our coastal rocks.



Our water environment is also facing other threats. One example of an emerging issue is the spread of **invasive alien species**, such as the Zebra Mussel. These are non-native aquatic plants or animals that can displace and upset the natural balance of our native species.

### **The South Eastern district and its waters**

The South Eastern district is home to rich agricultural land and holiday coastline. It is one of Ireland's largest river basin districts, covering about one fifth of the country with a land area of nearly 13,000 km<sup>2</sup> and a further 1,000 km<sup>2</sup> of marine waters. Around half a million people live in the district and this population is growing every year, partly owing to the spread of Dublin's commuter belt.

The South Eastern district encompasses all of counties Carlow, Wexford and Kilkenny, most of Waterford, South Tipperary and Laois, parts of North Tipperary, Kildare, Offaly and Wicklow, all of Waterford City and a small part of Limerick and Cork.

The population density is high compared with the rest of Ireland, and the region has seen over 10% population growth over the past ten years. The largest urban area is Waterford City but there are also several large towns. While the urban areas (mostly centred on rivers and ports) are home to many people and industries, 80% of the district's population lives in small villages or one-off houses in rural areas. The growing population is putting demand on the systems that deliver drinking water and treat wastewater and is also creating development demand throughout the district.

The rich soils of the south east region are particularly suitable for agriculture: around half the land is given over to tillage and grassland, which has given rise to a thriving food-manufacturing industry. However, the agricultural industry in the south east is facing dramatic change following the closure of the sugar beet industry. The district's waters support fishing and boating activities and the coastline of Wexford and Waterford are popular holiday resorts. All of the activities in the district have the potential to impact our waters and therefore must be managed sustainably.

### **Our special areas**

While all of our waters are important, some areas require greater protection because they contain rare and vulnerable habitats or wildlife. Research is being carried out to determine how best to protect these areas and their wildlife. Other areas are sensitive because of their beneficial uses or the need to protect human health. They include drinking water sources, shellfish growing areas and bathing areas, where we must guard against bacteria, viruses and parasites such as *Cryptosporidium* and *Salmonella*.

All of the areas and waters requiring special protection in the South Eastern district have been identified, mapped and listed in a register (see [www.serbd.com](http://www.serbd.com)). They include sections of rivers, lakes, coastal areas, bogs, fens, turloughs, woodlands and grasslands. Parts of the Barrow, Nore, Suir and Slaney rivers have been identified, as have coastal areas such as Hook Head, Carnsore Point, Wexford and Dungarvan Harbours and Bannow Bay.



The main catchments are the three sister **rivers** (Barrow, Nore and Suir) and the Slaney, but there are also many smaller catchments along the coastline.

The South Eastern district is different from the other districts in Ireland in that it has very few **lakes**. In fact, the biggest lake, the Knockaderry Reservoir in County Waterford, is less than 30 hectares.

**Marine waters** include Waterford Estuary, where the Barrow, Nore and Suir systems flow into the sea. The Slaney flows into the sea at Wexford Harbour. The district contains much of Wexford's and east Waterford's coastlines and also includes Dungarvan, Bannow and Rosslare bays, plus important coastal lagoons such as Ladies Island and Tacumshin.

**Groundwaters** include several important aquifers (water-bearing rocks) in the south east, including the volcanic rocks in Waterford and Wexford and the limestones underlying the lowland areas. Groundwater is an important source of drinking water but also makes an important contribution to river flows. It is estimated that groundwater contributes about 40% of all the water flowing in the River Nore.

There are many **canals** in the district including part of the Grand Canal and Barrow Line complex in Kildare and Laois and the Bridgetown Canal in Wexford.



## The causes of our local water problems

There is a wealth of knowledge available about our waters in national water quality reports, academic research and investigations. In 2004, all available information was investigated to identify the district's main problems: those that are widespread and those that pose the greatest threat of damage to our water environment. The analysis (see [www.serbd.com](http://www.serbd.com)) identified these potential problems.

**Rivers:** many rivers are under threat from diffuse and point source pollution, as well as physical modifications. A smaller number of rivers suffer from over-abstraction.

**Lakes:** again diffuse and point source pollution and physical modifications are key problems for our lakes. Abstraction affects a small number of lakes.

**Marine waters:** physical changes and pollution coming from the district upstream threaten many of our estuarine and coastal waters.

**Groundwaters:** diffuse pollution is the key influence on our underground waters. A few localised areas are affected by point source pollution or over-abstraction.

This table ranks our water problems: 1 = least threat and 5 = greatest threat.

	Rivers	Lakes	Marine Waters	Groundwaters
Point Source Pollution	3	1	1	1
Diffuse Source Pollution	5	3	1	2
Physical Modifications	5	3	1	-
Abstractions	1	2	1	1

## Using local expertise

The Directive requires the involvement of a very wide range of public bodies, which are mentioned throughout this booklet. Thirteen local authorities are cooperating with other organisations through the South Eastern River Basin District management group, which is referred to as the **management group** throughout this booklet.

To encourage the public to participate in making and implementing action plans, a special stakeholder group called the Advisory Council has been established in the South Eastern district: its members are councillors, community representatives and stakeholders. The district also has an organised network of environmental non-governmental organisations which

promotes discussion of problems in the district between a wide range of stakeholders, including the general public. These **participation groups** have already contributed knowledge, expertise and views that have helped in preparing this booklet. A full list of participants is available on [www.serbd.com](http://www.serbd.com).

Local workshops and meetings were held with the district's participation and management groups to debate the main issues and help to shape this booklet. The main water problems identified in the South Eastern district were:

### Point sources

- wastewater and industrial discharges
- other point sources: landfills, quarries, mines and contaminated lands

### Diffuse sources

- agricultural activities
- wastewater from unsewered properties
- forestry activities
- usage and discharge of dangerous substances

### Physical modifications

- including channel dredging, culverts, weirs, boat movements and floodplain demand

### Abstractions

- protection of sources and prevention of water shortages

### Locally focussed and future issues

- alien species/biodiversity
- protecting high quality areas.



**Question 1 - Do you agree that these are the key causes of water problems within the South Eastern district?**



## Positive steps

As you read earlier, recent monitoring in Ireland has detected the first signs of a reversal of the downward trend: this improvement results from investment and improved working practices. It is vital for our water environment, and the economy that depends on it, that recovery continues.

The public participation and management groups highlighted some areas where significant progress has been made:

- the recent Nitrates Action Programme will play a major role in addressing agricultural pollution
- county groundwater protection schemes, which serve as a planning control tool, particularly for unsewered areas
- using innovations in homes: for example a pilot scheme in Kilkenny is harvesting rainwater for non-drinking use
- use of new technologies in developments such as sustainable drainage schemes, constructed wetlands, silt ponds and riparian zone protection
- education campaigns like the Green Schools programme.



And there is more good news in that the responsible government authorities in Ireland have so far successfully met all the Water Framework Directive's early milestones and are among the EU Member States showing the highest level of compliance with the Directive to date. So progress is possible: we can tackle the issues and manage our waters.

## Planning our actions

It is time to think, plan and act to protect our waters. We have a legal obligation to comply with the Water Framework Directive, but more importantly if we do not meet this challenge we will have failed ourselves and future generations.

Actions needed to protect waters will be prescribed in **river basin management plans**. The first plans, for the period 2009–2015, will address our main water issues with second and third plans, for the periods 2015–2021 and 2021–2027, which will address any remaining issues or any new issues that may arise.

Our activities must be sustainable, so that we protect our waters while continuing to enjoy economic development. The necessary changes will not just affect public authorities and industry; they will also apply to every individual. Everything that we do from washing dishes to fertilising gardens has a consequence for our waters.

## Emerging and changing issues

The first management plans will address the district's main water issues. But what if we have missed something, or some new issue emerges before 2015?

New issues will emerge and the importance of existing issues will change along with economic and social changes driven by population growth, development demand and land use change. Climate change impacts may be complex and hard to predict. Heavier winter rainstorms may cause more flooding, raising demand for flood controls. Summer droughts could increase abstractions and reduce the amount of water into which effluents discharge, making pollution more likely. Increased temperatures in waters may stimulate the spread of alien species. These impacts will have to be reviewed during preparation of the plan.

A series of special studies are being carried out to update information and improve the understanding of our water issues. Local information from catchment plans, assessments and sampling programmes is being used to focus on the main problems in the South Eastern district. Study highlights are presented in this booklet, but the detailed findings of the in-depth studies are available on the district's website [www.serbd.com](http://www.serbd.com).



## Action themes

The South Eastern public participation and management groups recommended the following action themes to overcome shortcomings in current water management:

- joined-up thinking: for instance, ensuring that development plans and upgrades are in place before new development is allowed
- more resources to improve response to water problems
- use of economic tools such as water charging or grants as incentives
- education and awareness campaigns
- keeping water on the political agenda.

**Question 2 - What is your view about these suggested action themes?  
Have we missed something that would be helpful within the South Eastern district?**





## Wastewater and industrial discharges

In urban areas wastewater from homes and industrial or commercial sources is collected and carried in public sewers to treatment plants, where many of the pollutants are removed. The sewers also drain storm water from urban areas including roads, roofs and recreational areas. The level of treatment is determined by the size of the population being served and the sensitivity of the receiving waters. The treated wastewater, or **effluent**, is discharged through an outfall pipe to our rivers, lakes, marine waters or, occasionally, to groundwater.

Ireland has 540 sewerage systems serving populations of between 500 and 1.7 million: 408 modern municipal treatment facilities and 132 smaller plants providing minimal or no treatment. Many of these smaller schemes are located on the coastline.



Between 2000 and 2006, authorities in Ireland invested almost €3 billion to upgrade 210 wastewater treatment plants. Local authorities have built over 90% of the infrastructure needed to comply with the Urban Wastewater Treatment Directive. Extra investment will be needed to keep pace with population and economic growth; urban drainage must also cope with increased surface water run-off. An additional €2.5 billion may be invested in wastewater treatment under the National Development Plan 2007–2013.

Major industrial activities are regulated by the Environmental Protection Agency (EPA), which has granted some 600 industrial licences. Local authorities have licensed 1,090 small-scale commercial and industrial discharges to the sewer system and 1,120 direct discharges to waters.

### How can wastewater and industrial discharges cause water problems?

Inadequately treated effluents can lead to unacceptable levels of pollutants (nutrients, bacteria, organic materials or dangerous substances) in receiving waters. These pollutants can damage water quality and downstream uses (for example bathing waters, shellfish waters or waters supporting sensitive species). The amount of dilution available is an important factor: a discharge from a small village into a large river may pose no threat to water quality, whereas a discharge from a larger town may cause significant quality deterioration in the receiving waters if the level of treatment isn't adequate.

Spills to surface waters from sewerage networks release untreated wastewater and storm water, which can have nutrients, bacteria, organic materials and dangerous substances from homes and industries, metals and hydrocarbons from vehicle exhausts and run-off from roads, pesticides from parks, golf-courses and gardens. Leaking of pollutants from underground sewers and tanks can threaten groundwaters and surface waters.



In the South Eastern district, estimates indicate that municipal and industrial discharges produce over 33% of the yearly phosphorus load and over 10% of the nitrogen load. Some rivers (such as the Triogue) have been seriously polluted by such discharges. In response, facilities are being improved in many urban areas (including Portlaoise). More investment is needed to make sure that treatment plants can cater for the growing demands in the district. The potential impacts of combined sewer overflow spillage and run-off from road networks were also highlighted as water problems by the South Eastern management and participation groups.



### What existing controls are in place?

The Urban Wastewater Treatment Regulations require local authorities to provide appropriate wastewater treatment for urban areas. Local authorities must obtain planning approval from An Bord Pleanála under the Planning and Development Act for large **wastewater treatment** plants (exceeding 10,000 persons equivalent). Under the Foreshore Acts the Minister for the Marine may license local authorities to place sewage disposal pipes on or near the foreshore.

Local authorities are obliged to monitor inflowing wastewater and effluent at treatment plants. The Urban Wastewater Treatment Regulations' monitoring and sampling requirements are set out in the Environmental Protection Agency's Handbook for Local Authorities and reports on Urban Wastewater Discharges in Ireland.

The Environmental Protection Agency (EPA) regulates major **industrial activities** under the Integrated Pollution Prevention and Control (IPPC) Regulations. Local authorities license small-scale commercial and industrial discharges to sewer systems and waters under the Water Pollution Acts. Industrial discharge controls lay down effluent quality and quantity conditions.

The EPA and local authorities are responsible for addressing water pollution from **spills or leakage** under the EPA and Water Pollution Acts. The **Phosphorus Regulations** and **Dangerous Substances Regulations** require local authorities to control activities that may cause pollution. Specific bye-laws have been made in priority areas to control **urban discharges**; for example Dublin City Council has recently banned the disposal of fats and grease and has introduced a collection system to produce biofuel. Many local authorities have adopted **Sustainable Drainage Systems (SuDS)**, which control the quantity and quality of run-off waters by providing storage in tanks, swales or ponds. This delays or prevents discharge to streams or rivers until there is capacity to accommodate it or until it can be diverted to a treatment plant. Other agencies have also introduced controls: for example the National Roads Authority, has a strategy for dealing with water quality considerations of **road development**.

### Are these controls adequate to meet the new targets?

Controls focus on infrastructure provision but may not adequately control the operation of wastewater treatment plants and sewage facilities. Local authorities are currently exempted from licensing requirements under the Water Pollution





Acts. There are very few controls on the pollutant loads from spills and leakage of drainage systems. To meet new and more demanding water quality standards, a system of authorisation or licensing is required.

Environmental Protection Agency reports on Urban Wastewater Discharges have consistently highlighted the need to improve monitoring at treatment plants. A recent study indicated that there is a shortfall of reliable monitoring data or results. This too needs to be addressed.

### **What additional actions are proposed?**

The Department of the Environment, Heritage and Local Government (DEHLG) is making new regulations to address the deficiencies in existing controls. The regulations will create a single national licensing system for the operation of local authority wastewater discharges and sewage facilities such as pumping stations and overflows. The system will be administered by the EPA. The licences will set mandatory emission limits for pollutants to achieve new water quality standards in receiving waters and will specify monitoring requirements.

Industrial licence conditions will have to be reviewed and revised to ensure that adequate controls and emission limits are set to achieve new water quality standards in receiving waters. This will require minor changes to licences issued by the EPA and local authorities.

Detailed studies are underway to support the review of the licensing system and address urban spills. These studies cover the identification of the pollutants discharged in effluent, the pollutant limits to be set in licence conditions and best practice in spreading the sludge from treatment processes on agricultural land. A computerised web-based system will provide better access to monitoring information and improve the management of wastewater treatment plants. Education and awareness-raising programmes will also be provided.

These proposed actions will result in stricter controls on existing and planned wastewater and industrial discharges to waters. Stakeholders directly affected by these proposed measures include local authorities, transport authorities and industries discharging wastewater effluent to sewers or directly to waters.



**Question 3 - What is your view about the suggested actions to control wastewater and industrial discharge problems within the South Eastern district?**

**Are these actions appropriate?**

**Have we missed something important?**



## Landfills, quarries, mines and contaminated lands

Waste disposal sites (including old un-lined landfills), quarries, mines, gasworks sites and industrial lands produce lesser discharges to waters than wastewater plants and industries, but residues or waste products from previous activities may have seeped into the ground and may continue to threaten groundwater and surface waters.

Our knowledge of these sites is incomplete and needs updating to assess the scale of this problem. We have good records of today's engineered landfills but not of the contents or locations of past landfills. The EPA lists 86 contaminated sites (including 25 illegal landfills); 500 quarries and 100 mines (both active and non-active) have been identified, most of them very small and unlikely to present a serious risk.

An EPA report in 2005 provided the first comprehensive overview of the scale of unauthorised waste activity in Ireland.

It concluded that large-scale illegal dumping (as in County Wicklow during 1997–2002) had ceased and that illegal cross-border movement of waste had reduced significantly as a result of increased vigilance and cross-border cooperation.

### How can these sites cause water problems?

The key threat to waters from these sites is potential contamination from pollutants (mainly dangerous substances, for example metals and fuel). These chemicals may travel through groundwaters and enter surface waters, affecting the quality of both, damaging aquatic plants and animals and impairing water uses.

There is a second possible threat. At some quarry sites, the water table is lowered to allow quarrying. This can affect nearby wetland areas, and the transfer of groundwater to surface waters can change water chemistry.

There is concern about such sites in the South Eastern district. One specific example is the illegal dumping discovered by Wicklow County Council in recent years in the Slaney River's headwaters. Another cause for concern is the mining activity in the area and the effect it can have on groundwater. These potential impacts were voiced by the management and participation groups as water problems in the district.



## What existing controls are in place?

There is a range of legislation dealing with the establishment and operation of waste management, quarry and mine sites and contaminated lands; the legislation is supported by policies and guidance on best practice for addressing water pollution problems.

The Waste Management Act is the primary control for regulated **waste management**. Licensing of waste facilities is administered by the EPA. Facility monitoring programmes are also specified in the license conditions.

**Quarries** four years or older must register with local authorities under the Planning and Development Act. The DEHLG has prepared guidelines for local authorities on the registration requirements and process. Planning applications for new facilities of more than five hectares generally require an Environmental Impact Assessment.

Proposed new **mines** require three principal kinds of permits: a mining lease or licence from the Minister for Communications, Marine and Natural Resources, planning permission under the Planning and Development Act and an integrated pollution prevention and control licence from the EPA. The recent Energy Act allows for preparation and implementation of mine rehabilitation plans for the protection of the environment, and grants rights of access if necessary to do this. Applications for all new mines generally require an Environmental Impact Assessment.

The Environmental Protection Agency Act and the Water Pollution Acts identify responsibilities for addressing water pollution incidents and the requirement to license discharges to waters. The EPA and local authorities apply the principles of integrated pollution prevention, the polluter pays principle and the precautionary approach when dealing with historic, unregulated sites such as **contaminated lands**.



Dunmore Landfill

### **Are these controls adequate to meet the new targets?**

The current regulatory controls assign the responsibilities for managing these sites. The challenge is to enforce these controls, particularly to deal with historic, unregulated sites.

### **What additional actions are proposed?**

Using a Code of Practice developed by the EPA in 2006, local authorities are identifying relevant historic waste disposal sites, assessing the threat to waters and, where necessary, developing plans to address problem sites.

By the end of 2007, the EPA, Department of Communications, Marine and Natural Resources (DCMNR) and Geological Survey of Ireland (GSI) will have completed characterising historic mine sites in Ireland, gaining better information about the sites and their environmental impact. There are new powers to rehabilitate mines and manage waste from extractive industries.



A Quarry in Carlow

The EPA has indicated that local authorities could apply its best practice guidance to identify and assess potentially contaminated lands.

These activities will confirm the locations and threats that these sites pose and support the control of discharges. Monitoring, extended where appropriate, will confirm the extent of the problem. In considering potential restoration measures, social and cost factors, as well as technical feasibility, will have to be evaluated. Education and awareness-raising programmes will also be provided.

These proposed actions will result in stricter controls on activities with the potential to discharge to waters. Stakeholders directly affected by these proposed measures include local authorities and industries, commercial enterprises and owners of land on which such activities have taken place.

**Question 4 - What is your view about the suggested actions to control problems related to landfills, quarries, mines and contaminated lands within the South Eastern district?**

**Are these actions appropriate?**

**Have we missed something important?**





## Agriculture

Agriculture and the agri-food sector account for 8% of total added value in the Irish economy and, in 2005, employed around 114,000 people, around 6% of the workforce. Farms cover about two thirds of the island's total land area, 90% as grassland and 10% for tillage (mostly in the south and east). Beef, milk and sheep account for over half of the value of agricultural produce; meat and milk products are major exports. Average stocking levels on farms are 1.3 animals per hectare.

Former European aid schemes, production demands and economic influences encouraged intensification: fewer farms, lower employment, larger herds and farms becoming more grass-based. Intensive piggery, poultry and mushroom enterprises are concentrated in Ulster: Counties Cavan and Monaghan have the highest numbers of pigs and poultry respectively.

The EPA's most recent National Water Quality report identified agricultural activities as the main problem in one third of Ireland's moderately polluted river channels.

Reform of the EU Common Agricultural Policy, and new opportunities (for example the increase in biofuel crops), mean that the agricultural sector will continue to change and farmers will have an important role in our action plans.

The EPA's most recent National Water Quality report identified agricultural activities as the main problem in one third of Ireland's moderately polluted river channels.

### How can agriculture cause water problems?

The EPA has identified two main water quality problems relating to agriculture. A third, pesticides, is covered under Dangerous Substances. The two main problems are:

- enrichment of water by nutrients (phosphorus and nitrogen). Nutrients can be carried into waters from a range of activities on farms including contaminated water running from farmyards, or washed from fields that have been treated with nutrient-rich organic and chemical fertilisers or leaks from manure stores. The nutrients accelerate plant growth, which disturbs the balance of aquatic plants and animals and affects water quality. This eutrophication, as it is called, is the most widespread threat to our water quality
- organic pollution from animal slurry/manure and silage effluent. The breakdown of this organic material uses up oxygen that aquatic plants and animals need to survive, and suspended solids and ammonia can cause fish kills (although such kills have reduced in number). Slurry can also contaminate drinking water with bacteria, parasites and viruses. Ireland's latest drinking water report shows widespread contamination of smaller rural water supplies from agricultural sources.



Agriculture is a very important activity in the South Eastern district, using 45% of land: the district contains more than half of Ireland's tillage farmland. Agriculture currently accounts for 15 to 25% of employment in the region, though this is likely to decline with growing reliance on industrial and service sectors. Estimates of nutrient input into waters in the South Eastern district indicate that agriculture produces over 10% of the yearly phosphorus load and 60% of the nitrogen load. The management and participation groups have identified the potential water problems linked with agriculture as a cause for concern. A particular issue raised was the changes that the agricultural sector faces in light of the closure of Carlow's sugar beet processing industry and the likely transfer to growth of crops for biofuels.



### What existing controls are in place?

Ireland's Department of Agriculture and Food operates within Europe's Common Agricultural Policy and environmental controls. In 2005, the department opted for full decoupling of agricultural support from production under Europe's Single Farm Payment scheme.

Under **cross-compliance**, all farmers are required to respect the various Statutory Management Requirements set down in European legislation on the environment and on public, animal and plant health and animal welfare; they are also required to maintain land in Good Agricultural and Environmental Condition. In 2006, the **Nitrates Action Programme** was introduced to provide statutory support for good agricultural practice in protecting waters from nutrient inputs; implementation will be monitored under cross-compliance. These regulations include controls on minimum storage requirements for livestock manure, nutrient management and land management actions that prevent or reduce water pollution; they also provide for monitoring and mini-catchment programmes to monitor the effectiveness of the national nitrates action programme.

Participation in **agri-environmental schemes**, such as the Rural Environment Protection Scheme (REPS), continues to increase. This scheme rewards farmers for carrying out their activities in an environmentally friendly manner to bring about environmental improvement on farms; **organic farming** is also supported. At the end of 2006, almost 60,000 Irish farmers (around 50% of farmland) were participating in REPS.

The Department of Agriculture and Food provides investment aid for improved storage for **farm manure** and funds equipment for application to land. The 2006 scheme (with grant rates of 60% to 75%), helping farmers to comply with the requirements of the nitrates action programmes, had 48,600 applicants in Ireland.

The DEHLG, the EPA, local authorities and fishery boards have powers of inspection and enforcement under **water pollution laws**, including the nitrates regulations. These bodies undertake routine inspections and enforcement actions in response to water quality incidents related to agriculture. The EPA licenses intensive agricultural enterprises under the **Integrated Pollution and Prevention Control (IPPC)** system and applies IPPC Directive thresholds.



Under the **phosphorus regulations**, local authorities must identify, address, monitor and report on activities (including agriculture) associated with phosphorus pollution. Some local authorities have made **bye-laws** to control agricultural activities in some priority areas. Local authorities also have responsibility for requiring agricultural **sludge** to be used in accordance with a Nutrient Management Plan to avoid contamination of soil and pollution of water.

### **Are these controls adequate to meet the new targets?**

The recent introduction of good agricultural practice regulations and cross-compliance are evidence of the agricultural sector's role in protecting the majority of waters. However, these measures will be kept under review to ensure that objectives are achieved.

### **What additional actions are proposed?**

The nitrates action programme will be reviewed in 2009. Strengthened measures may be needed, for example in sensitive areas, if the action programme has not shown adequate water quality improvements.

Detailed studies will assess the effectiveness of the nitrates action programme. Ongoing surveys and mini-catchment studies will produce information to monitor trends in key agricultural and water quality indicators. One measure of effectiveness for agricultural practices is reduction in farm nutrient surplus which takes account of animal numbers, fertiliser sales and animal feeds; there has been a marked decline in fertiliser sales and animal numbers in recent years. Agricultural survey findings and indicators will be tracked and reported in the district's action plans.

Specific agri-environmental technological solutions may be implemented in appropriate areas: for example, grant aid is available for digester schemes that treat excess manure from intensive enterprises. Voluntary agri-environmental schemes such as riparian zone restoration in sensitive areas are being encouraged. Education and awareness-raising programmes will also highlight these issues.

This series of recently reinforced actions will result in higher performance standards for agricultural activities. Stakeholders directly affected by these proposed measures include the agri-food sector: farmers and dependent industries.



Arable Farming

**Question 5 - What is your view about the suggested actions to control problems related to agriculture within the South Eastern district?**

**Are these actions appropriate?**

**Have we missed something important?**







## Wastewater from Unsewered Properties

In rural areas many houses and businesses are not connected to public systems that collect, treat and dispose of wastewater: they rely mainly on on-site systems (conventional septic tanks or proprietary systems), via soil percolation areas. More than 400,000 properties (20–30% of the total) are currently without public sewerage provision: representing over 1.3 million people (30% of the population), generating over 230 million litres of wastewater a day.

There has been a large increase in development in unsewered areas:

- single dwellings or holiday homes, often in ribbon developments alongside roads leading from towns and villages
- housing clusters of up to 100 homes served by shared treatment systems
- commercial premises such as hotels and guesthouses
- light industrial facilities.




The vast majority of on-site treatment facilities are septic tanks and single-house proprietary treatment systems. One in five of the 500,000 housing units built since 1991 were detached houses in rural areas with individual septic tanks. The counties with the highest percentage of one-off housing units built since 1991 were counties Galway (52%), Roscommon (43%), Donegal (41%) and Monaghan (40%).

### How can unsewered properties cause water problems?

To minimise impacts on water quality, treatment facilities should be located in suitable areas and designed, constructed and maintained to appropriate standards. If these systems are not working properly, nutrients, organic material, chemicals and bacteria may seep from wastewater into groundwater, contaminating nearby drinking water wells or damaging the quality of receiving rivers, lakes or marine waters.

The very limited research to date suggests that many systems are not working properly. Over half of County Cavan's population is served by on-site systems. Cavan County Council's 2002 pilot survey found that more than one third of on-site systems were defective. Many tanks were poorly maintained (not desludged) or poorly designed; in extreme cases, wastewater was bypassing percolation systems, entering streams by channels, pipes or across the ground. In the same year septic tanks caused nearly 30% of water quality complaints investigated in the county. Cavan County Council introduced bye-laws dealing with this issue.



The problem of septic tanks were raised at every consultation event in the South Eastern district and highlighted by the advisory council and management group as posing a potential problem to the waters in the district. The growth of the Dublin commuter belt is resulting in individual houses in the countryside and housing clusters in small villages throughout much of the district. Coastal counties (Wexford, Waterford and Wicklow) have an ever-increasing number of holiday homes. As many rural properties are spread over wide areas, provision of public sewerage systems, especially ahead of new development, is very difficult and often very costly. Effective controls on planning, design, construction and operation of on-site systems are required to avoid water quality problems.



### **What existing controls are in place?**

The planning system is the key control, ensuring the protection of our waters by restricting the location of new developments. Domestic, commercial and industrial developments must obtain **planning permission** from local authorities or, if appeals arise, from An Bord Pleanála, under the Planning and Development Act.

The DEHLG has issued guidance on **best practice** to local authorities about development plan policies, development control and enforcement standards and practices. The EPA has published guidance manuals explaining the investigation and design requirements for systems serving individual premises.

Small discharges of domestic sewage (from a typical septic tank serving a single dwelling) via a percolation area are exempted from **Water Pollution Acts** licensing. However, licences are required for larger discharges from septic tanks and other treatment facilities. Some local authorities have passed **specific bye-laws** covering priority areas where on-site system discharges have caused water quality problems.

### **Are these controls adequate to meet the new targets?**

These controls and guidance play a major role in protecting water quality in unsewered areas, but problems arise where tanks or systems are not properly planned, designed, managed and operated.

The EPA guidance manuals cover single houses and small commercial developments; new guidance is needed to cover clusters of houses or commercial developments discharging at a single location.

### **What additional actions are proposed?**

Legislation is being amended to clarify and elaborate the statutory basis for the licensing of discharges to soil. The current guidance manuals will be changed to improve existing controls.

Detailed studies are progressing to support the guidance. The aim is to ensure that new unsewered development is located in areas where adequate on-site wastewater treatment and soil percolation can be achieved, rather than in areas where groundwater or surface water is vulnerable to pollution or where the risk of flooding is significant. Sensitive areas — used for shellfish growing or to supply drinking water — will receive particular attention. Local development plans and development control and enforcement practices will have to be modified to reflect these restrictions. The design of new facilities will have to consider soil, geology, surface water and groundwater, both at the site and around it. The guidance will also incorporate improved procedures for soil and hydrology investigation and rigorous controls for installation and construction supervision.



For existing systems, large unsewered populations are being mapped and methods are being developed to calculate the vulnerability of receiving waters to loading from on-site systems. In priority areas, where water quality is threatened, options such as providing main sewers or tank maintenance programmes will be investigated.

A monitoring system that can pinpoint sub-standard installation or performance is being developed. Study of Cavan County Council's bye-laws implementation and effectiveness will inform any future regulatory or enforcement changes. Education and awareness-raising programmes will highlight the issues.

These controls, combined with new water quality standards, will address problems caused by discharges from unsewered properties. These actions will result in the production of new guidance and stricter controls in unsewered areas; they will therefore affect developers in unsewered areas, owners of unsewered property and unsewered industrial and commercial enterprises.

**Question 6 - What is your view about the suggested actions to control problems related to unsewered properties within the South Eastern district?  
Are these actions appropriate?  
Have we missed something important?**





## Forestry

Forest cover now accounts for just over 10% of Ireland's land area, up from about 1% in 1920. The objective is to expand cover to 17% in the next 30 years. This expansion may help to offset Ireland's carbon emissions as trees are net carbon users. Forests can also provide recreational locations and create habitats, enhancing biodiversity when replacing other more intensive land uses.

Over 75% of forest cover on the island is coniferous; the rest is broadleaf, mixed or other wooded land. More recent, private plantations tend to have higher proportions of broadleaved species. About 57% of Ireland's forest cover is State-owned and managed by Coillte. Private forest owners have been planting in

significant amounts since the 1980s: as their trees mature they will account for a greater proportion of forest cover and of timber harvesting (which now occurs mainly in state or public forests).



### How can forests and forestry activity cause water problems?

Forests can have both positive and negative impacts on the environment. The negative impacts are largely related to poor management or to planting on unsuitable soils, and many of the current water problems associated with afforestation are a legacy of old practices, which have been subsequently amended.

When a forest is established, site cultivation and drainage may give rise to nutrient or sediment loss. Forest canopies intercept rainfall, some of which is returned to the atmosphere; the remainder is stored or finds its way to soil, underlying rock or surface waters. Changing canopy cover can alter the quantity and quality of water flowing from forested areas. Forest canopies can absorb air pollutants that may affect water quality, depending on the geological setting. Road construction and harvesting may also result in sediment and nutrient loss. Depending on the subsequent land use, inappropriate deforestation may result in soil erosion, slope instability, nutrient leaching and reduced water-holding capacity in floodplains.

The main potential water problems that can result are:

- acidification: forest canopies can capture sulphur and nitrogen compounds from the atmosphere. Rain becomes more acidic as it passes through the canopies into the ground below, and may worsen the chemical balance of receiving waters
- nutrient enrichment: forestry activities can introduce extra nutrients which, in naturally nutrient-poor areas, can lead to problems such as algal growth
- sedimentation: road-making and stream-crossing can cause erosion and sedimentation on susceptible soils. Mobile sediments may reduce water quality or damage sensitive areas



- flow pattern changes: the amount of water reaching the soil surface is reduced by evaporation of water intercepted by the canopy. Clearfelling of forests may lead to a change in flow patterns
- pesticide contamination: incorrect application of pesticides may result in contamination of waters.

Commercial forestry in the South Eastern district covers less than 5% of the land area. However, as highlighted by the South Eastern management and participation groups, many of these afforested areas are located in sensitive salmon and trout spawning catchments, such as the River Slaney's headwaters. This is a particular cause for local concern and underpins the need for adequate control on forestry operations in sensitive areas.



### What existing controls are in place?

To ensure that all timber produced is derived from sustainable managed forests, Ireland's Forest Service (part of the Department of Agriculture and Food) is implementing **Sustainable Forest Management (SFM)**, with the **Irish National Forest Standard** as a framework for development and evaluation. A **Code of Best Forest Practice** covers all stages from seed selection through to the establishment and maintenance of timber harvesting.

Tree felling is subject to licence under the **Forestry Act**. Landowners are required to give notice of intention to fell trees, following which Prohibition Orders are normally served. These remain in force pending the issuing of a Limited Felling Licence, which can include environmental and replanting conditions. General Felling Licences are normally granted to large estates with management programmes, or for lands where scattered trees must be cleared in order to enable new planting.

The Minister for Agriculture and Food introduced licensing regulations in 2006 to control **aerial fertilisation**.

### Are these controls adequate to meet the new targets?

The existing legislation, binding environmental codes of practice and guidelines play a major role in protecting water quality in forested areas. However, as research increases knowledge of the interaction between forest and water, legislation and guidelines may have to be strengthened. For example, additional guidelines may be required on protection of highly sensitive catchments with species such as the freshwater pearl mussel, trout and salmon.

The Forestry Act requires replanting of felled areas. It may need to be revised to allow certain previously-forested areas, particularly the more sensitive peatland sites, to be managed differently after clearfelling including the non-planting of these areas in the future.



## What additional actions are proposed?

For forests and associated activities, the key actions are:

- to ensure implementation of current statutory regulations, guidelines and codes of practice. Environmental protective measures for forestry in sensitive areas can include establishing riparian buffer zones in advance of harvesting, managing the size of coup (crop) area to be felled to limit nutrient input, managing drainage systems and establishing sediment control systems such as ponds or diffuse overland flow
- to introduce more stringent actions for the most sensitive areas, when scientific evaluation establishes a need. For example, nutrient loading could be reduced in sensitive areas by the phased felling of smaller harvesting coup rather than felling a large forest block all at once
- to ensure that future development is undertaken strictly within statutory regulations, water protection guidelines and codes of practice so that forests will have little or no impact on water quality. That applies especially in environmentally sensitive areas, with a need to limit nutrient and sediment losses and acidification.



Detailed studies are currently underway to provide a better understanding of forests, forestry operations and water. Maps of areas sensitive to acidification, nutrient enrichment, sedimentation and flow change are being developed to improve the assessment of sites suitability for planting. The increased scientific knowledge will feed into any amendments to existing guidance and may result in revised guidance, if appropriate, to ensure proper assessment of sites suitable for forestry.

Recommendations for the monitoring and assessment of forest activity will also be included in any updated guidance. A register of chemical use will be established detailing the specific material used, the quantity used, the date of application and the location of application. Education and awareness-raising programmes will also be used to highlight these issues.

Codes of practice and guidelines must be applied rigorously to ensure compliance with water quality standards; modified or additional codes may be required, as well as some changes in the legislative framework governing forestry. These actions will therefore affect the forestry sector: both publicly and privately owned plantations as well as the associated saw-milling and processing industries.

**Question 7 - What is your view about the suggested actions to control problems related to forestry within the South Eastern district?  
Are these actions appropriate?  
Have we missed something important?**



## Usage and discharge of dangerous substances

The term **dangerous substances** describes a wide range of chemicals that may be toxic to people, plants and animals and are harmful to our water environment. They are contained in many everyday products used increasingly often in households (for example medicines and cleaning products), industry, forestry, agriculture, small businesses, mines, construction sites and water treatment works. Surface run-off from roads and urban areas can also contain dangerous substances from motor vehicle emissions.

### How can dangerous substances cause water problems?

Some dangerous substances can be toxic to aquatic plants and animals at levels equivalent to a teaspoonful dissolved in an average swimming pool. They can persist in our waters and their sediments and slowly build up in the bodies of aquatic organisms, poisoning them and causing problems higher up the food chain or interfering with their natural breeding processes. Quality standards for dangerous substances are being determined by Europe-wide methods to protect the most sensitive of our species.

As there are many potential sources of dangerous substances, there are numerous ways that substances can enter our waters. These include regulated, unregulated or accidental releases such as:

- licensed industrial and municipal effluents
- authorised discharge from on-site wastewater systems
- contamination from applying pesticides to agricultural land, forestry, livestock, recreational areas, roads, paths, railways or gardens
- use of chemicals in aquaculture to control disease
- seepage from un-lined waste disposal sites or contaminated sites
- intermittent combined sewer overflow spills from urban systems
- accidental misuse or inappropriate disposal of products.

Contamination from dangerous substances can last for a long time in our environment, requiring costly clean-up operations. For example a task force, overseen by the EPA, had to line the river bed to put right an accidental spillage from an industry in Kilkenny into one of the city's rivers. The threat from household usage and release of dangerous substances was voiced by the South Eastern management and participation groups as a potential water problem, with particular concern for protection of our drinking water sources.



## What existing controls are in place?

Ireland has **drinking water standards**, **water quality standards** and **emission control standards** for a range of dangerous substances (including chemicals prioritised across the European Union and further substances of relevance to Ireland). Monitoring is undertaken by local authorities, the EPA and the Marine Institute.

Several agencies are responsible for enforcing various regulations aimed at controlling dangerous substances:

- major industrial activities are regulated by the EPA under the **Integrated Pollution Prevention and Control (IPPC)** Regulations. Permits restrict the discharge of certain dangerous substances to waters
- the EPA reports the total discharges to water of key pollutants to the European Commission every three years under the **European Pollutant Emission Register (EPER)** initiative. Registers are important to verify that controls intended to reduce or phase out these discharges are working
- under regulations for the **Major Accidents (Seveso II)** Directive, industries that use dangerous substances above a threshold level must have procedures to prevent and control accidents
- under the **Water Pollution Acts**, local authorities license industrial and commercial premises that discharge to waters and have specific responsibilities under the **Dangerous Substances Regulations**. The EPA administer these controls. In 2006, the EPA reported on compliance: most of the exceedances were of heavy metals (zinc, copper, chromium and lead), caused either by historical mining activities or by local geology that raise the levels of heavy metals in water naturally. The local authorities have identified sources of pollution and the actions to address problems: for example North Tipperary County Council responded to high metal levels by establishing and implementing the recommendations of an inter-Agency group on the Silvermines mining area
- the EPA and local authorities are involved in controlling discharges of dangerous substances to **groundwater**
- **aquaculture** and its associated activities (such as sea-lice treatments) are controlled by the DCMNR, supported by the Marine Institute and local authorities
- the Pesticides Control Service authorises **pesticides** and carries out surveys and on-farm inspections of their use. The Health and Safety Authority and Irish Medicines Board are involved in dangerous substances approval.

## Are these controls adequate to meet the new targets?

The current controls focus on a limited list of substances, but more substances now need to be controlled. The European Commission has proposed water quality standards for 33 priority substances and 8 other pollutants. Expert groups in Ireland have identified further specific pollutants that threaten local waters.

## What additional actions are proposed?

By 2008, new water quality standards will be set following consultation. This process will have to be repeated periodically as new concerns emerge about substances.

Dangerous substances at groundwater, river, lake and marine sites will be surveyed by the EPA and the Marine Institute. Their status will be classified, monitored and reported upon.

The systems of licensing and authorisation also need to be updated and extended to cover the new range of substances and the activities discharging these substances. Under new regulations being made by the DEHLG, licences for wastewater



treatment plant discharges and storm overflows will set mandatory emission limits and specify monitoring requirements to achieve new quality standards in receiving waters. The system will be administered by the EPA. Other local authority discharges containing dangerous substances, which may require licensing, are being studied.

Industrial licence conditions will be revised to set controls and emission limits adequate to achieve the new quality standards in receiving waters. This will require minor changes to existing EPA, local authority and Marine Institute licensing systems.

In June 2007, a new European regulatory framework for the Registration, Evaluation and Authorisation of Chemicals (REACH) set up a registration system for chemical usage. Chemicals identified under REACH will be assessed for the risks they pose to human health and the environment. It will be administered by the Health and Safety Authority, supported by the EPA.

The current EPER scheme will be replaced by the European Pollutant Release and Transfer Register (PRTR) from 2007 onwards. PRTR will include more substances (91 rather than 50) and industry sectors than EPER. The first PRTR data will be published in 2009.

The Pesticides Control Service will continue to review pesticide authorisation based on the current scientific advice. The cycle of pesticide surveys has been harmonised with Northern Ireland so that the same crops are surveyed in the same year throughout the island.

Inventories of emission, discharges and losses of substances (whether prioritised by the EU or nationally) will be established so that the working of controls can be checked. These activities will all help to identify substances needing control through licensing, authorisation, water quality standards and monitoring. Education and awareness-raising programmes, and voluntary initiatives like the phosphorus-free detergents agreement, will also highlight these issues.

The new water quality standards and the extended monitoring, licensing and authorisation actions will address the major sources of dangerous substance discharges. Stakeholders directly affected by these proposed measures include the public, local authorities and industrial and commercial activities involved in the production, use, handling, storage or discharge of dangerous substances.



**Question 8 - What is your view about the suggested actions to control problems related to dangerous substances within the South Eastern district?**

**Are these actions appropriate?**

**Have we missed something important?**





## Physical modifications

We have physically modified many of our waters for water supply, recreation, transport, flood protection, hydropower, aquaculture and land drainage. The extent of modification is being systematically assessed for the first time: there are around 95,000 culverts and bridges on our rivers, almost 900 kilometres of river embankments, 19 large water reservoir or hydropower dams, 10 large ports and over 200 kilometres of coastal defences.

### How can physical modifications cause water problems?

Physical modifications can directly affect habitats or indirectly change natural processes (for example flow or silt movement), altering plant and animal communities by reducing their variety or numbers. For example:

- rivers have a natural mix of pools and shallow riffles and variation of flow patterns, providing habitats for fish. Draining or maintaining rivers without recreating this natural mix can deprive trout and salmon of spawning habitats and thus reduce their numbers; protected areas fringing the waters can be damaged by reduced water levels or by flooding
- migratory fish need to reach upstream spawning areas; bridges or weirs can restrict access and reduce spawning success and thus population numbers
- hard structures like ports and harbours can replace or reduce natural habitat
- land drainage, overgrazing, deforestation and cattle access can have an indirect effect on both surface and groundwaters, changing how much and how fast water drains off the land. The effect on one receiving stream may be small, but the combined effect of many changes can alter water quality and flooding behaviour in a district, resulting in increased risk of property flooding.



There have been several large-scale physical modifications in the South Eastern district: for example the Barrow navigation, the ports of Rosslare Harbour, Waterford and New Ross, the recent flood protection scheme at Kilkenny and Ballyshunnock water supply reservoir. Stretches of the drained river system need to be dredged from time to time, removing silt build-up to reduce flooding risk and ensure that the system is navigable. The South Eastern management and participation groups expressed concern about the widespread floodplain development. They were particularly concerned about the potential effects on water quality and flooding behaviour as a result of the physical modifications to flood plains. Many of our beaches and cliffs are sensitive to erosion by wind and waves. Development in these sensitive areas, as well as the types of recreational activities that occur there, can speed up the process of erosion.





### What existing controls are in place?

Planning and development processes and licensing systems provide a general level of control over physical modifications at the approval stage. But the existing controls are limited in scope and vary depending on the type of physical modification and its proposed location:

- the Office of Public Works and the DCMNR are the lead authorities for **river and coastal flood and erosion management**
- **private developments** must obtain planning permission via local authorities
- **fishing and aquaculture** activities are licensed by local authorities, regional fisheries boards, the DCMNR or the Loughs Agency
- works on the **foreshore** are authorised or licensed by the DCMNR
- for the disposal of **dredged material** at sea, permits are required from the Minister for Communications, Marine and Natural Resources
- **Environmental Impact Assessments** are required in support of planning applications and foreshore licence applications for certain large developments.

### Are these controls adequate to meet the new targets?

There is no comprehensive system to control physical modifications and monitor and protect the physical conditions of surface waters. A comprehensive registration and authorisation system may be needed to control the impact of physical modifications.

The impact on Irish waters of physical change is not routinely recorded and so it is difficult to estimate the extent of impact. However, new monitoring programmes will, in time, establish the overall physical health of our waters. The limited evidence collected to date indicates that more than one third of physically modified water bodies show ecological impact. In such circumstances these rivers may have to be rehabilitated.

### What additional actions are proposed?

The European Commission is likely to adopt a Floods Directive in 2007. Flood risk assessments and mapping and the preparation of Flood Risk Management Plans will be required. In Ireland, the Office of Public Works will lead the development of plans, which will address climate change effects, incorporating modern approaches of avoiding increased flood risk and non-structural solutions such as flood forecasting systems.

The government is currently considering the introduction of regulations to control physical modifications to surface waters. These controls may involve a licensing regime or registration based on general binding rules. It is likely that new regulations will be made to give effect to this new system of control. The system will probably be administered by a single statutory authority.





Detailed studies of physical modifications and their effects are underway, to support the development of controls on physical modifications. Progress so far indicates that the key sources of problems are:

- in fresh waters, river drainage works and land use changes. Monitoring methods that take account of the natural shape of the river and systematically record landscape changes within the surrounding area are currently being trialled
- in marine waters, coastal structures, land use change, ports and associated dredging. The sensitivities of habitats and of plant and animal communities to physical modifications are being explored.

The feasibility of rehabilitating affected waters is being examined against social, technical and cost criteria; for instance rivers with the potential to produce significant salmon and trout populations might be prioritised for remedial programmes. Measures might include channel narrowing, planting to stabilise river banks, introducing stone riffles or fish passes, replacing hard structures with soft elements (for example saltmarsh wetlands or beach nourishment) or compensatory habitat creation.



Guidance on best practice will cover construction techniques and timing of works, floodplain development control, good management and environmental initiatives such as Sustainable Drainage Systems (SuDS); it will ensure that proposed developments are consistent with flood and coastal management plans. A decision-making support tool will help regulators assess applications for new developments and maintenance works; the effects of physical modifications will be monitored. Education and awareness-raising programmes will be provided.

These proposed actions will result in stricter controls on existing and planned physical modifications to surface waters. Stakeholders directly affected by these proposed measures include developers and operators proposing engineered modifications to surface waters.

**Question 9 - What is your view about the suggested actions to control problems related to physical modifications within the South Eastern district?  
Are these actions appropriate?  
Have we missed something important?**



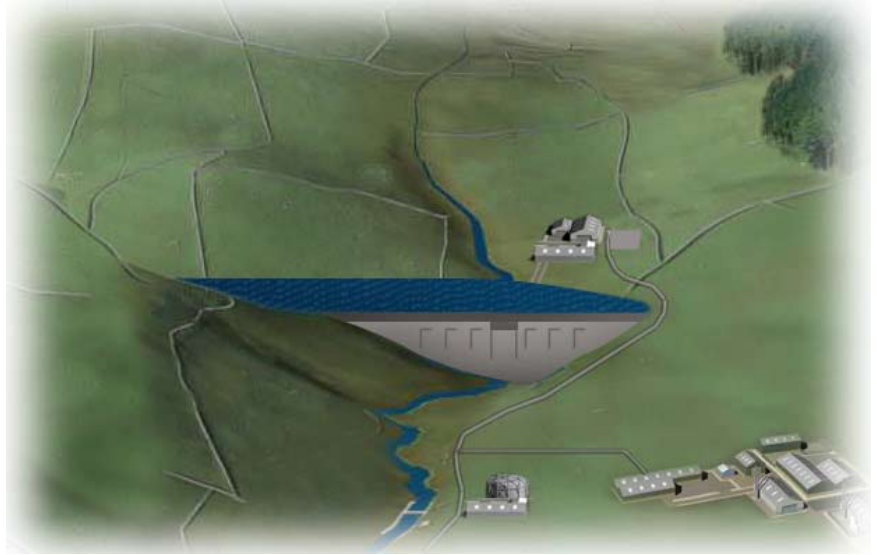


## Abstractions

We use large amounts of water supply each day:

- at home for drinking, cooking, cleaning, bathing and flushing the toilet
- in agriculture for animals to drink and for dairy washing and watering crops
- recreationally for watering golf courses, sports grounds, etc
- in many different industries as an ingredient or, in the production process, for washing or cooling, or for power generation.

These uses add up to more than 1.7 million cubic metres (m<sup>3</sup>) of water every day, over half a billion cubic metres a year, in Ireland. All of that water has to be treated to a high standard to remove impurities and make it fit for consumption.



This water is abstracted either from surface waters or from groundwaters (wells and springs). Local authority water schemes supply 83% of the population; the rest use private schemes (7%) or individual wells (10%). Ireland has around 550 surface water schemes (about 375 being large supplies of over 100 m<sup>3</sup> a day), and there are almost 2,000 groundwater wells (over 600 being large supplies).



The vast majority of these abstractions are currently sustainable. However, rising demand (due to population growth) and the impact of climate change may mean that some areas will experience a reduction in the available water resource in the future.

### How can abstractions cause water problems?

If we abstract too much water from our underground and surface water resources, we reduce flow in springs and rivers and lower water levels in lakes, wetlands and wells. This can make water supplies unsustainable and can have a negative impact on aquatic plants and animals and wetland areas. In extreme cases river beds may dry up, lake shores can become exposed and, in coastal areas, salt water may seep into groundwater.



The management and participation groups voiced particular problems about water supplies in the South Eastern district. The rapid pace of development is leading to shortage in some areas: for example Carlow County Council has had to supply water to some towns and villages. The potential effects of climate change are also raising concern for the security of future water supplies in the district. The need to protect the sources of these supplies was also highlighted.



### **What existing controls are in place?**

Local authorities obtain approval to abstract water from surface water sources under the **Water Supplies Act** and must establish and maintain registers of abstractions under the **Water Pollution Act**. Currently, individual water supply schemes operate under historical water rights agreements and new schemes are assessed as part of local planning approval systems.

The quality of drinking water is stipulated in **drinking waters regulations**. The **nitrates** and **groundwater directives** also contain requirements to protect the source of water supplies.



### **Are these controls adequate to meet the new targets?**

Abstraction legislation is dated and needs to be updated and extended to protect waters adequately, with a modernised system of registration and prior authorisation for significant abstractions.

### **What additional actions are proposed?**

The DEHLG will propose new regulations creating a single registration and licensing system for all significant abstractions from groundwater and surface waters. The licence will set abstraction limits to preserve water resources and will also specify compulsory monitoring requirements. These proposed new controls will ensure appropriate supervision of all significant abstractions.

Detailed studies are underway to establish the amount of water abstracted today, with predictions for the year 2015. Methods are being developed to calculate minimum water resource requirements to protect waters. The following requirements are being considered:

- in rivers the flow necessary to protect fish populations, especially during summer's low-flow period, is the key abstraction control
- in lakes the acceptable water level fluctuation is the key abstraction control
- in groundwaters a better understanding of water balance has been developed to protect water resources so that the water table and dependant plants and animals are not adversely affected.



Unsustainable abstractions are being identified: alternative sources of water may be required, with social factors, costs and technical feasibility to be evaluated. Proposed developments may be restricted if they are not consistent with development plans and supply scheme investment programmes. Leakage detection and reduction programmes will be promoted; guidance dealing with all these issues will be prepared; awareness-raising programmes will highlight these issues to domestic and industrial users.

These proposed actions will result in stricter controls on existing and planned abstractions. Stakeholders to be directly affected include public authorities using water or proposing abstractions, industrial, commercial and agricultural operations currently using water and developers proposing abstractions.

**Question 10 - What is your view about the suggested actions to control problems related to abstractions within the South Eastern district?  
Are these actions appropriate?  
Have we missed something important?**

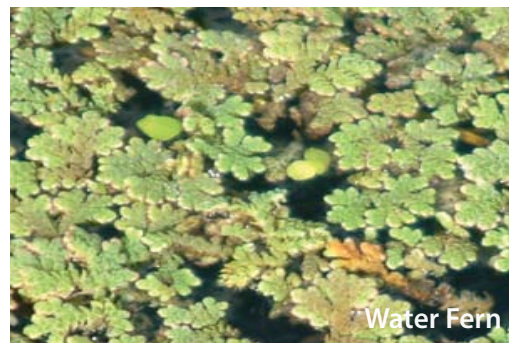


## Invasive alien species

Invasive alien species are non-native plants or animals that successfully establish themselves in our aquatic and fringing habitats and damage our natural flora and fauna. There is growing evidence that they pose a major threat to our diversity of native plants and animals: for example by preying on them, out-competing for habitat or food, altering habitat or introducing pathogens or parasites.

The EPA identified the eight species of main concern in Ireland, all of which have now been found in the South Eastern district. For instance:

- **Dace** is an introduced freshwater or brackish fish which is exceedingly prolific, and poses a risk as a potential pest in some areas. Dace are in the Nore and Barrow rivers
- **Japanese Seaweed** is in our coastal waters. It out-competes local species, such as seagrasses and kelp, for space and light
- **Water Fern** is in the main channel of the Barrow. These free-floating plants form thick layers, completely covering the surface of slow-moving water, reducing light levels so that submerged native plants die off causing serious oxygen loss
- **Zebra Mussels** are in the main channel of the Barrow. They out-compete native mussels. They attach to firm surfaces, boat hulls, rock, gravel, other mussels and plants and spread easily into other systems.



The National Parks and Wildlife Service is the primary authority for biodiversity protection in Ireland. It is leading studies of how aquatic alien species spread and how to exclude them, remove them or, where eradication is not feasible, manage them. Risk assessments have been carried out for over 560 potential and established invasive species. Management plans will be prepared for the 10 highest-risk alien species or groups of species already here, with exclusion strategies or contingency plans prepared for the 10 highest-risk potential invaders. The studies will also review monitoring programmes and raise public awareness of the threats.

Other scientific groups and fishery organisations are undertaking supporting studies and will recommend control measures. Awareness-raising campaigns will also play an important part in our action plans. In 2007, the Central Fisheries Board produced a *Stop the spread of alien species* calendar to draw this problem to the public's attention, while in the South Eastern district Coastwatch Ireland, supported by Wexford County Council, have surveyed alien species and undertaken awareness campaigns.

**Question 11 - What is your view about the suggested actions to address alien species problems within the South Eastern district?**





## Protecting high quality areas

High quality areas include surface waters (rivers, lakes, estuarine and coastal areas), which have suffered only minor impact from human activity and as a result are still near natural or pristine conditions. They support a naturally diverse mix of aquatic wildlife. Such areas have gradually declined since the 1970s when water quality monitoring began. Our objective now is to prevent any further deterioration.

In addition, there are other designated special areas which are specifically protected under legislation. These areas are of particular importance because of their value as drinking waters, bathing waters, shellfish waters or habitats. They may be protected because they contain unique and sensitive wildlife (for example salmon and freshwater pearl mussel) and/or habitats (for example raised bogs and coastal lagoons). Some areas are extremely sensitive, tolerating only minimal human impacts, and in some cases may require more stringent actions to protect them: for example freshwater pearl mussels and naturally nutrient-poor lakes.



The damage or loss of high quality and protected areas is often due to their sensitivity to land use changes in surrounding catchments: agriculture, forestry, peat harvesting and rural development activities. Our management plans will include more stringent controls on such activities in these sensitive catchments to protect the most sensitive user, which could be humans, via drinking or bathing waters, or protected habitats, plants or animals.

The National Parks and Wildlife Service (NPWS) is the lead conservation authority, coordinating specific actions to protect these sites. It is leading studies to harmonise conservation action throughout the island, creating joint lists of sites protected under separate but complementary habitats and birds directives. A detailed study on the water quality and quantity requirements of priority habitats and species has identified field survey and monitoring needs. NPWS and its Northern Ireland counterpart are jointly considering dovetailed conservation monitoring programmes.

Other organisations will have a role in these nature conservation actions. This includes all government organisations as signatories of biodiversity and sustainability policies in Ireland.

**Question 12 - What is your view about the suggested actions to address sensitive area problems within the South Eastern district?**



## What happens next?

**Actions** are our response to existing water problems and to growing threats. **Management plans** are to be prepared to respond to all the identified issues. Work on the preparation of plans for the South Eastern district, like other districts, is currently underway by the relevant authorities, assisted by consultants:

- the **draft management plans** will be published in 2008, and you will have an opportunity to comment on them
- after further consultation, the **final management plans** will be adopted and published in 2009
- those plans will run to 2015.

The plans will set out environmental objectives together with actions (known as a **programme of measures**) that will aim to ensure these objectives are achieved in practice. The programme will include both **basic** and **supplementary** measures.

### Basic measures

The first (and minimum) element of the programme will be the **basic measures** to implement existing water protection directives in full, for example the Urban Wastewater Treatment, Nitrates, Bathing Waters, Shellfish, Habitats and Dangerous Substances Directives.



But our existing regulatory controls may not be sufficient to deliver improved comprehensive protection for all waters, as envisaged by the Water Framework Directive. Consequently, the basic measures may also include additional controls introduced for specified activities. Such actions include updated pollution controls (such as Codes of Good Agricultural Practice), new systems of authorisation (for abstractions, physical modifications or dangerous substances) plus general binding rules related to on-site systems and forestry.

### Supplementary measures

The programme of measures can also include **supplementary measures** that augment basic actions to achieve water objectives. These include codes of practice, voluntary agreements, demand reduction, education, rehabilitation or research programmes and legal, administrative and economic instruments. These actions will be considered (either nationally or locally) on the basis of current monitoring and detailed studies that will give a firm idea of the scale and nature of water problems.

## Affecting people

The first action plans will be adopted and come into effect in 2009; a draft will be published in 2008 for comment. These plans will have an effect on every individual in the South Eastern district. The change that just one person can make will help to improve our waters. It is really important that you consider the issues raised in this booklet and how they will affect you. This booklet is intended to give you and all interested parties an overview of the main issues that have been identified, as well as possible actions to address them that might be included in a draft management plan. You may think that the actions are not practical, too strict or too lenient — or perhaps we have missed something that would be helpful. If so, this is your chance to tell us - **have your say!**



## Before the draft is published

There is still important work to complete before the plans can be drafted.

### Setting the environmental objectives for our waters

The authorities are developing guidelines to promote the coordinated implementation of river basin management plans across river basin districts. They will set out in practical terms the legal obligations for establishing environmental objectives for water. Under certain restricted circumstances there may be exemptions; direction will be provided on their application. The guidelines will address such questions as:

- what are the default objectives for groundwater and surface waters?
- what objectives apply to protected areas (bathing waters, shellfish waters, nutrient sensitive areas, protected habitats and species)?
- what objectives apply to heavily modified waters (for example ports) and artificial waters (for example canals)?
- what if objectives cannot be met by 2015 in some cases?
- what if there is a temporary deterioration in the status of a water body?
- what if objectives cannot be met because of new physical modifications or sustainable developments?
- what if the cost of achieving the objectives by 2015 is disproportionately expensive?

### Integrating plans and programmes

The water objectives can only be achieved if plans and programmes in other relevant policy areas are coordinated and integrated. The guidelines will set out how this can be done. These plans and programmes include:

- Habitat and Species Protection Plans under the Habitats Directive
- Water Services investment programmes
- Nitrates Action Programme
- Strategic national development plans and related local plans
- Flood Management Plans.

For example, this coordinated approach could mean prioritising investment (under Water Services Investment Programme) to eliminate known impacts on protected habitats (for example a Special Area of Conservation) where wastewater discharges are inadequately treated.

### Assessing environmental impacts

While River Basin Management Plans will have a positive effect on the water environment, their impact on other aspects of the environment, for example air quality or climate change, needs to be assessed. Therefore, they must be subject to Strategic Environmental Assessment (SEA). SEA is a system of integrating wider environmental



River Nore at Inishtioge

considerations into plans and programmes. Its purpose is to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of specified plans and programmes with a view to promoting sustainable development. SEA must be applied to plans and programmes which set the framework for future development consent for projects. This booklet is the starting point for the SEA of the river basin management plan. The problems and suggested actions in this booklet will assist the scoping of, and consultation about, the plan's wider environmental impacts.

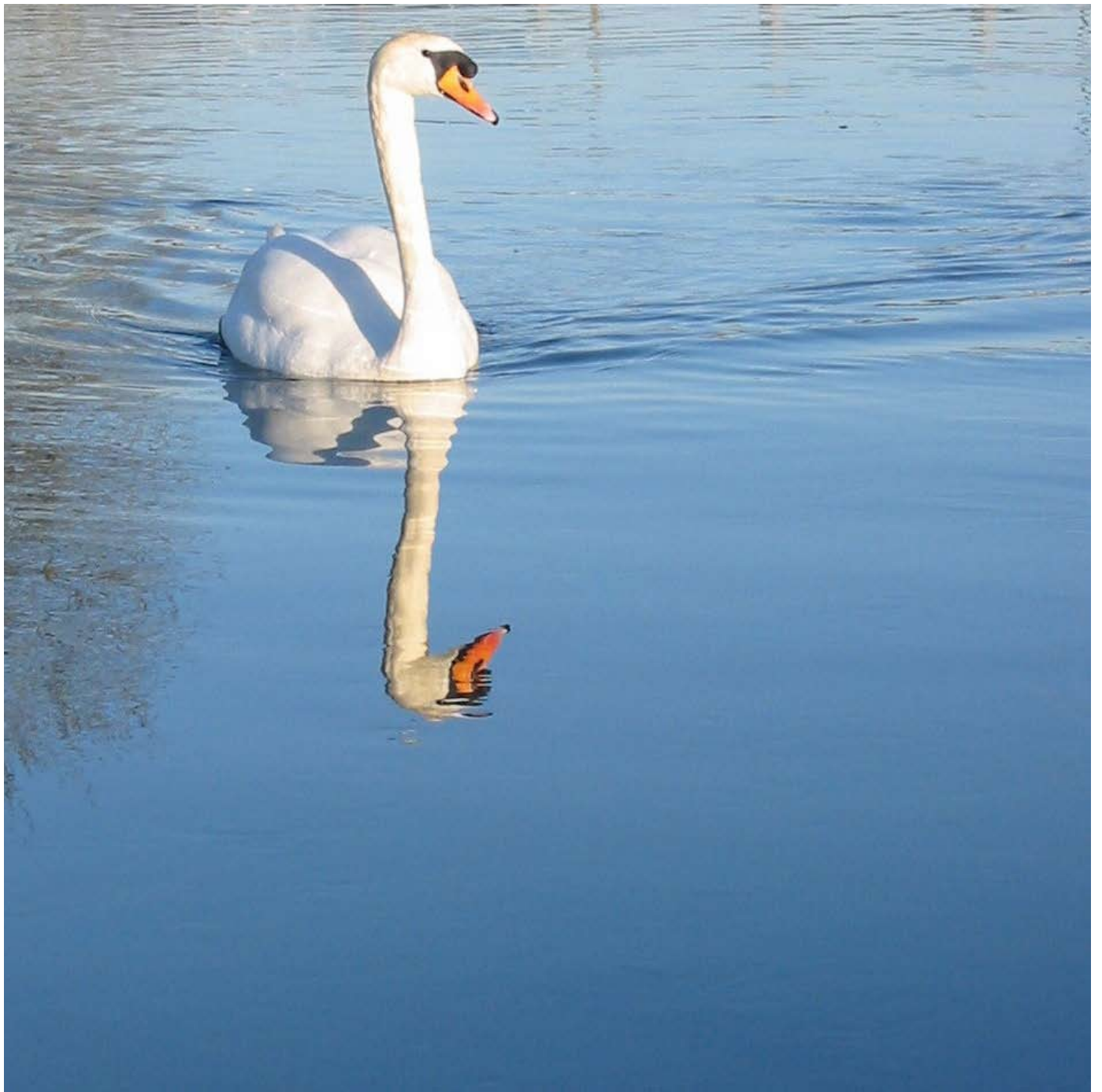
### **Assessing regulatory impacts**

Achieving these new objectives may require the introduction of a range of new regulatory controls (for example licensing and registration of wastewater discharges, abstractions and physical modifications) to give legal effect to the actions. Regulatory Impact Assessments (RIAs) will be applied to regulatory proposals in both jurisdictions. The role of RIA is to evaluate the potential impacts of any new regulation and establish whether it would have the desired impact. For example, it is useful to identify potential side-effects or unforeseen extra costs associated with a new regulation. It also helps to clarify the cost of enforcement of the regulation. Future regulations for the implementation of the Water Framework Directive will generally be subject to RIA.

### **Implementing the management plans**

The task of implementing the action plans will fall, mainly, to the statutory authorities. Local authorities are being supported in preparing draft action plans by National Development Plan-funded projects. The draft action plans will be published in 2008. After further consultation, the final action plans will be adopted and published in 2009. In the case of the South Eastern District, it is envisaged that a small unit will be set up by Carlow County Council's Environment Department to coordinate the ongoing work of the thirteen participating local authorities. The resources to implement the action plans will come from national and local sources and from both private and public sectors.





## Getting involved

Thank you for reading this booklet. Please send your comments and views to:

### Ray Spain

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Carlow  
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[rspain@carlowcoco.ie](mailto:rspain@carlowcoco.ie)

## Public participation

As well as giving your views on the proposals in this document, you might like to participate in other aspects of the implementation of the Water Framework Directive. Public participation is one of the Directive's requirements but, even if it wasn't, it would be sensible: local stakeholders often know local problems best and can suggest practical solutions. The management plan needs local support.

It can be difficult to get people interested in protecting waters unless it is part of their job or they are already involved, for example as anglers or environmentalists. However, a group of environmental organisations from Ireland and Northern Ireland, collectively known as **The Wetlanders**, carried out a roadshow and survey to provide a snapshot of public participation in early 2007. They talked to almost 1,000 school children and in detail to farmers, anglers and tourist industry focus groups, who identified agriculture, housing and development, industry, sewage, dumping, climate change and quarries as serious water problems. The Wetlanders concluded that:

- the interest is there
- engagement is difficult
- local action is better than national campaigns
- creative approaches are needed
- conviviality works.

To encourage the public to participate in making and implementing action plans, a special stakeholder group called the Advisory Council has been established in the South Eastern district: its members are councillors, community representatives and stakeholders. The district also has an organised network of environmental non-governmental organisations which promotes discussion of problems in the district between a wide range of stakeholders, including the general public. These **participation groups** have already contributed knowledge, expertise and views that have helped in preparing this booklet. A full list of participants is available on [www.serbd.com](http://www.serbd.com).

However, there are other ways of participating: by making individual comments on the proposals, by contacting the Advisory Council or network member who represents your sector or your local area, by attending public meetings or by participating in local voluntary groups like the organisations within the Wetlanders. Log on to [www.serbd.com](http://www.serbd.com) to send your comments and ideas or to be put in touch with contacts in the district.

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