



Government of Gibraltar  
Ministry for the Environment

Consultation on the  
Summary of  
Significant Water  
Management Issues

Gibraltar River Basin District

November 2008

## Your views on this consultation document

The Ministry for the Environment as the competent authority under the Public Health (Water Framework) Rules 2004, invites you to give your views on the implementation of the EU Water Framework Directive in Gibraltar. This summary document highlights what the Directive requires us to do and how we are working to implement it. It also summarises the main issues identified in terms of coastal and groundwater management.



We would like you to read this document and let us have your comments. For each of the most important water-related issues, the document sets out background information showing the extent of each issue and the way that it can cause water problems including possible measures that can be taken. We are interested in receiving your comments on whether we have identified the most important 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 document. The consultation process will end on the 31<sup>st</sup> July 2009. Early responses would be appreciated to allow more time to clarify and resolve issues that may arise. You can send your views or comments in writing directly to:

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We will comply with data protection requirements and will use information that you provide to compile a summary of responses. Please let us know if you wish your response to remain anonymous and we will include your comments in the summary without saying who made them. Background information on the Water Framework Directive and the Gibraltar River Basin District now follows.

### *The Water Framework Directive – What is it all about?*

The Water Framework Directive (WFD) was transposed locally in 2004 under the Public Health (Water Framework) Rules 2004. It imposes EU Member States to carry out the following duties:

- To take a new approach to managing all its coastal and groundwater and stipulates that Member States should achieve at least good status by 2015 where they are not doing so already.
- To maintain and if necessary improve water quality.
- To prepare and implement management plans for our water bodies.

The management approach instigated in the Directive introduces the concept of the River Basin District. Water bodies in Gibraltar therefore form part of the Gibraltar River Basin District (GRBD). The term GRBD might not exactly be the most adequate and somewhat confusing considering that Gibraltar does not have any rivers but nevertheless it is keeping in line with the terminology proposed in the Directive which requires us to use this term.

The fundamental requirement of the Directive is that of implementing a management plan for the GRBD. The GRBD consists of three distinct water bodies namely a coastal water body and two groundwater bodies and the GRBD Management Plan will introduce an elaborate programme of measures to conform with the environmental objectives imposed under the Directive.

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 are drinking it, swimming in it or even fishing in it.

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

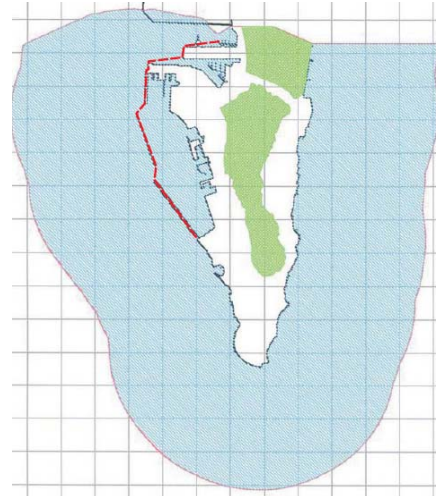


### *A closer look at the Gibraltar River Basin District*

The land area of Gibraltar is 5.8 sq km and the population is approximately 29,000. Distinct areas are easily identified such as:

- The 'Rock' rising sharply to more than 400 m above sea level with a precipitous east coast facing the Mediterranean and a gentler West coast on which the town and harbour are located forming the Southeastern margin of the Bay of Gibraltar.
- The Isthmus which is a flat area just above sea level extending from the cliffs of the North face of the Rock to the Spanish frontier and occupied mainly by the airport runway and supporting infrastructure.

The GRBD has an average annual rainfall of 838 mm, which falls principally in the winter months, around 75% of which originates from Westerly winds. The GRBD is unique in its dual system of water distribution. Seawater is used for sanitary purposes and there is a separate distribution network for drinking water. Supply of potable water reached 100,000 m<sup>3</sup> in the late 1980s and by 2004 had increased to 120,000 m<sup>3</sup>. Over 90% of the potable water supplied is desalinated seawater with the remainder being abstracted from shallow wells in the Isthmus area.



*The Gibraltar River Basin District*

#### *A new approach to managing our waters*

Water quality testing has long been carried out around Gibraltar's coastal waters in order to ensure that our waters are safe for our enjoyment. The Environmental Agency regularly takes samples from all our beaches in line with the EU Bathing Waters Directive whose objective is that of protecting public health from water pollution. The EU Water Framework Directive has now resulted in the need for establishing a more comprehensive monitoring programme.

In addition to the existing monitoring carried out by the Environmental Agency, the Department of the Environment has developed a monitoring strategy that will address any pressures currently affecting our aquatic environment. Results gathered from this initiative will provide Government with an accurate picture of both our coastal and ground waters. It will also provide a basis for future decision-making in terms of aiding the implementation of any necessary programme of measures.. Similar programmes are being developed throughout the European Union in an attempt to improve water quality status by the year 2015.

#### *What are the issues affecting our coastal and ground waters?*

The following is the list of significant water management issues that affect coastal and ground waters:

- Point source discharges (e.g. Sewage outfalls and industrial discharges)
- Physical modifications (Reclamation, urban development)

- Diffuse pollution (including shipping)
- Abstraction
- Transboundary impacts
- Climate change

*Question: Do you think these are the key issues affecting water bodies in Gibraltar?*

We will build on the work carried out in the production of this document as we prepare the draft Gibraltar River Basin Management Plan. When we consult on the draft River Basin Management Plan later this year, we will consider your comments and all of the water management issues in more detail. We will all need to work together to create a comprehensive range of successful measures to tackle all the water management issues. New or modified measures might need existing mechanisms such as legislation and economic instruments to be refocused. Measures could be voluntary and apply via local initiatives and partnership work.

### *Overview of significant water management issues*

#### *1. Point source discharges*

Discharges from sewage outlets and industrial processes can contain substances that damage the ecology of waters. There may also be accidental discharges of harmful substances which, where known, should also be considered as a significant water management issue.

For coastal waters where possible the potential impact of identified pressures was evaluated using available data, otherwise expert judgement was used. The assessment of groundwater used existing knowledge of groundwater pollution incidents and pollution pressures to identify the bodies at risk of pollution. Groundwater monitoring data has also been examined to identify the current groundwater quality.

A key potential source of pollution to coastal waters is untreated sewage effluent discharged into the coastal waters at Europa Point, at southern tip of Gibraltar. The coastal waters off Europa Point are classified as an area of high natural dispersion and therefore primary treatment represents an adequate solution. The fact that all bathing waters around Gibraltar comply with the mandatory bacteriological standards within the EC Bathing Water Directive indicate that the bacteriological impacts from effluent discharge are minimal.

Other significant point source discharges to coastal waters include regulated discharges from the oil sullage plant located along within the North Mole area.

Some areas of the southern groundwater body (bedrock groundwater body) have also been subject to point source discharges. This is primarily known due to historic spillages of hydrocarbons and hydrogeological studies reporting the presence of petroleum hydrocarbons in the groundwater.

For the northern groundwater body, groundwater quality information from the analyses of water collected in the northern wells mixing tank has been used to identify

any pressures. As there are no dependent ecosystems and the Northern wells are used for drinking water purposes, drinking water protected objectives control the quality of the groundwater. In addition to the sampling regime implemented by the local water utility provider, drinking water quality is further checked by the Environmental Agency. The number of sampling exercises undertaken therefore substantially exceeds the minimum number required under the EU Drinking Water Directive and these tests have continuously shown that drinking water in Gibraltar attains a high standard.

There is however some indication that groundwater impacts have occurred in the past from anthropogenic sources following the detection of halogenated solvents and hydrocarbons. Nevertheless these impacts are limited to those areas of the aquifer which are not used for drinking water purposes.

#### *What is currently being done?*

- Regulation of discharge consents through the Pollution Prevention and Control Act and/or the Public Health Act (Part VA)
- Enforcement measures
- Sampling to monitor water quality status
- Site inspections
- Enhanced communication with planning authority concerning development and water quality issues
- New sewage treatment plant with secondary treatment (due for completion 2011)



*Proposed location of new sewage plant*

#### *Measures that could be put in place*

- Increase awareness of enforcement action
- Targeted pollution prevention campaigns
- Revise and increase ambit of discharge consent procedure
- Remedial action where historic contamination exists

*Question: What is your view on the measures that could be implemented for point source discharges?*

## *2. Physical modifications*

Physical alterations to a coastal water body such as construction, land reclamation, shoreline reinforcement and dredging activities can cause changes in water quality notwithstanding habitat damage or loss that results in a decline of species.

### *What is currently being done?*

Planning and development processes and licensing systems provide a level of control over physical modifications at the approval stage. But the existing controls vary depending on the type of physical modification and its proposed location. Numerous measures have been implemented in order to tighten up particular activities which could have an impact on water quality for example:

- Dredging guidelines & licenses
- Prohibition of dredging within specific areas of the Southern waters of Gibraltar
- Sampling to monitor water quality status
- Enhanced communication with planning authority concerning development and water quality issues – Screening and Environmental Impact Assessments where applicable
- Transposition of the Floods Directive

### *Measures that could be put in place*

- Introduction of contaminated land legislation

*Question: What is your view on the measures adopted in relation to dredging, reclamation and any other physical modifications in the vicinity of water bodies?*

### 3. Diffuse Sources



Diffuse source pressures arise from a wide variety of activities. They can arise from land use activities dispersed throughout the GRBD or beyond and may have individually minor, but collectively significant water management impacts. Examples of diffuse pollution include pollutants from road surface runoff. It can also take the form of nutrients from agricultural activities.

Diffuse pollution is often associated with heavy rainfall when pollutants are flushed into watercourses through storm overflows or combined sewer overflows (CSOs). In addition there is also the issue of pollutants from the yacht marina and the dockyard (e.g. TBTs, antifouling and domestic waste). Emissions from shipping operations along with the potential risk of fuel spills from bunkering activities further result in there being observed impacts to water quality.

### *What is currently being done?*

- Regulating storm and combined sewer overflows.
- Anti-pollution response system setup
- Sampling to monitor water quality status
- Bunkering Code of Practice

### *Measures that could be put in place*

- Stricter enforcement and code of practice in marinas
- Policing industrial activities within harbour.
- Improving performance and standards of storm and combined sewer overflows.



*Question: What is your view on the measures that could be implemented to mitigate water quality pressures from diffuse sources?*

### 4. Abstraction



Water is abstracted for water supply to domestic and industrial consumers. The majority of abstraction is from the sea and there are two abstraction points. One within the harbour and a second point in the vicinity of Little Bay. A proportion of this water is directed to desalination plants for treatment to produce potable water. There are two multistage flash distillers and four reverse osmosis desalination plants which are rated to produce a total of 7,000 m<sup>3</sup> of potable water from sea water each day.

The desalinated water is supplemented with freshwater abstracted from groundwater in the Northern groundwater body. Seawater is also abstracted for sanitary purposes with abstraction occurring at two further intakes within the harbour, one in the North Mole and the other at Gun Warf. Seawater is pumped direct from the sea and stored in a separate set of nine service reservoirs with a total capacity of 11,753 m<sup>3</sup>. Seawater is supplied from the service reservoirs to the different distribution areas within Gibraltar.

A large volume of potable water is stored in Gibraltar making use of the thirteen reservoirs with a total capacity of 72 721 m<sup>3</sup>. These reservoirs had historically been used to store the rainwater harvested from the now obsolete catchments and channels. Today, the reservoirs are divided into service reservoirs, of which there are five with a total capacity of 29 088 m<sup>3</sup>, from where potable water is on constant supply to different distribution areas within Gibraltar. The other eight reservoirs are used as reserve storage reservoirs with a total capacity of 43 633 m<sup>3</sup>. These reservoirs receive the water pumped from the different desalination plants and the wells. If required additional treatment can be provided in the storage reservoirs (for example adding chlorine or removing sediment).



Once used, wastewater is discharged directly into the sea where it is dispersed by the currents. AquaGib calculate that all of the potable and sea water supplied is discharged in this way, except for potable water supplied to ships. Drainage of surface water in the Old Town area is through combined wastewater and storm water sewers, although in other areas the two streams of water are kept separate.

#### What is currently being done?

- Sampling to monitor water quality status
- Groundwater abstraction licenses
- Monitoring activities within the vicinity of coastal intakes
- Regulating planning consents within the vicinity of the Northern aquifer

### 5. Transboundary impacts

Although numerous measures could be implemented locally to tackle our own significant water management issues, it should be noted that transboundary activities could also be exerting an effect on the coastal and groundwater water quality status of the GRBD.



#### *What is currently being done?*

- Sampling to monitor water quality status.
- The WFD and the GRBD objectives have been discussed at tripartite level.

#### *Measures that could be put in place*

- Greater co-operation on water quality issues and application of a common approach.

*Question: What possible transboundary issues do you feel need to be highlighted?*

### 6. Climate change

The Water Framework Directive also provides a valuable structure for introducing climate change impacts into water management and river basin planning. We will build on this work as we prepare the draft River Basin Management Plan. Managing flooding and coastal erosion are two issues which require close attention.

Despite the low-lying nature of many parts of Gibraltar the potential for inundation by the sea remains low although there will inevitably be an increased risk of over-topping and storm damage being occasioned to sea defence structures.



There is also an increased risk of temporary flooding of low-lying areas away from the sea due to the possible impacts of sea level rise on the existing drainage infrastructure. Much of Gibraltar's low-lying land is situated at the North Front and the Westside reclamation areas, the latter within the protected harbour area.

Additionally strips of land at risk of flooding include Queensway and Catalan Bay. Although specific areas within the harbour may be susceptible to large swells, this area is generally considered to be at low to medium risk.

The more exposed areas of Gibraltar's shoreline, particularly the Southern and Eastern sides that do not benefit from the relative protection of the Bay of Gibraltar, are considered to be at greater risk.

#### *What is currently being done?*

- Implementation of the climate change programme including;

Educational and awareness programmes

Preparing for sea level rise:

Current research shows that the anticipated sea level rise of 0.48m that is currently being adopted by the Technical Services Department is within the updated predictions of the *Climate change 2007: Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report*. The best estimates for sea-level rise due to ocean expansion and glacier melt by the end of the century (compared to 1989 - 1999 levels) have narrowed to 28 - 58 cm as opposed to 9 - 88 cm quoted in the previous IPCC report.

Planning procedures:

Where development is proposed in areas considered to be at risk from flooding, the applicant will need to demonstrate how the proposed development shall be protected from inundation. Consideration will need to be given to the environmental effect of any coastal defence works that are required, including possible secondary effects elsewhere along the coast.

#### *Measures that could be put in place*

- Flood mapping
- Reinforcement of sea defences where necessary
- Improving drainage infrastructure

*Question: Are there any issues you feel need to be highlighted regarding the water related impacts of climate change in Gibraltar?*