doesn't it make you think?

Groundwater in Jersey

All of the fresh water in Jersey comes from rainfall falling on to the land.

Rainfall is generally seasonal in Jersey - most of the rain falls between October and March. The groundwater store is mainly replenished during the period from November to March. During the summer groundwater levels fall and this causes some streams to dry up.

Jersey streams are highly dependant on groundwater inputs. One study estimated that approximately 67% of the total stream flow comes from groundwater, whilst 33% reaches the stream by more rapid surface or near surface routes.

The volume of groundwater abstracted in Jersey each year is estimated to be 3.6 million cubic metres (3 600 000 000 litres).

Jersey Water supply over 90% of the Island's population with drinking water and the Company supplied 7.291 million cubic metres (7 291 000 000 litres) of treated water in 2005. Approximately 97% of this water is obtained from surface water sources (streams), but as mentioned above over two thirds of this stream flow is derived from groundwater.

The other 10% of the Island's population are dependant on groundwater from boreholes and wells for their drinking water.

Remember

Causing or knowingly permitting pollution of controlled waters is an offence under the Water Pollution (Jersey) Law 2000. There are however strong defences that may be available to persons acting in a responsible manner. A copy of the law can be obtained from the States Greffe bookshop or it can be viewed at www.jerseylaw.je

Once polluted, groundwater can be very expensive or impossible to clean up.

Water Pollution Hotline Tel: 709535

What is groundwater and why is it important?

Water is continually moving through the environment – this is called the water cycle. Water evaporates from the oceans, condenses into clouds and then falls on the land surface as rain. The water then flows into rivers and back into the sea. Some of the rainfall also soaks into the soil and what isn't taken up by plants or evaporated, percolates downwards into the rock below. This water is known as groundwater. Groundwater continues to flow through the rock, usually at a much slower rate than surface flows – it can be resident underground for tens of years to thousands of years. Groundwater provides the water that supplies borehole or well abstraction and it also provides baseflow to streams and rivers (it seeps out through the bed and banks of the stream or river to add to surface flows).

Groundwater is very important as a resource. 97% of the Earth's water is saline, which means that only 3% is freshwater. Of this freshwater, approximately 69% is bound up as icecaps and glaciers, less than 1% of freshwater is accounted for by surface water (streams, rivers, lakes etc) and the remaining 30% exists as groundwater.

Groundwater Pollution

Effects are long term!

Remediation can be difficult and expensive!

Prevention is better than cure!

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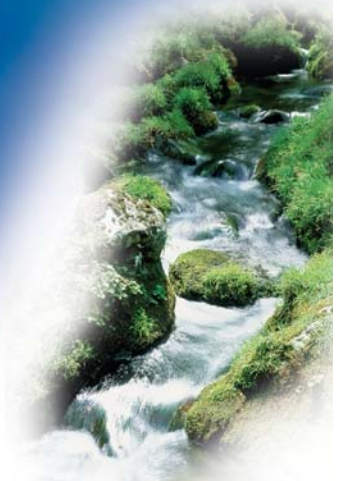

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ENVIRONMENTAL PROTECTION, ENVIRONMENT DIVISION,
PLANNING AND ENVIRONMENT DEPARTMENT

groundwater

a precious resource

Water made clearer

States of Jersey

water, water, everywhere

Groundwater Quality in Jersey

Environmental Protection at the Environment Division of the Planning and Environment Department has responsibility for protecting and enhancing the quality of the Island's aquatic environment. Environmental Protection carries out a comprehensive water quality monitoring programme which includes twice yearly sampling of approximately 50 boreholes and wells.

Historically high nitrate levels have been detected in the Island's groundwater. However, monitoring of the Island's groundwater quality over the last 16 years has shown a steady decline in the level of nitrate found. In May 2006 48% of sampled groundwater was found to be above the European Union (EU) maximum admissible concentration (MAC) for nitrate in drinking water of 50 mg/l (NO_3), compared to 61% in May 1990.

Pesticides and their breakdown products have been found in some of the boreholes tested. However, breaches of EC maximum admissible concentrations are uncommon.

Many groundwater samples show evidence of bacteriological contamination.

The groundwater resource of Jersey is particularly vulnerable to pollution because the groundwater is at shallow depth in fractured rock, protected only by thin and permeable soils. Groundwater can be polluted by both point and diffuse sources.

Frequently Asked Questions

Is Jersey groundwater water hard or soft? The majority of groundwater in Jersey is soft to moderately soft.

Why did my hair turn green after I washed it in borehole water? Groundwater in Jersey is usually slightly acidic and this can mobilise some trace metals found in groundwater and corrode pipework. Copper from pipe-work is responsible for the green tinge that highlighted and blonde hair can acquire if washed in acidic water. This can be remedied by treating the water.

Types of Pollution

Point Source - arises from a specific location that can be pinpointed.

Diffuse Pollution - arises from dispersed or widespread sources and is difficult to locate.

Pollution Travels

Bodies of water that appear unconnected can be interlinked by groundwater. For example, pollution from a buried oil drum, leaking into the soil can be carried by groundwater flow into a pond and then by a stream to the sea.

Pollution Incidents

Between 2000 and 2005 approximately 136 pollution incidents a year were reported to Environmental Protection.

Types of Pollution

Oil

The most common type of pollution incident is oil related. Spills from domestic tanks can directly affect groundwater quality and render nearby water sources unfit for human consumption.

Sewage

Approximately 1 in 10 of the Island's households are reliant on private sewage disposal facilities.

If the effluent quality is poor, generally due to a lack of maintenance of the system, this will affect the groundwater. This may ultimately affect the drinking water supplies and may cause a direct hazard to human health.

Maintenance is vital to reduce the risk of pollution.

Agriculture

Approximately half of the total Island area is covered by farm land. Pollution from chemicals, used to enhance crop yields and prevent pests and diseases, can occur if not used carefully.

The use of chemicals has been reduced, but it could take tens of years for the contaminants (e.g. nitrate) already in the groundwater to flush through.

Please remember that although groundwater is out of sight, it certainly should be out of mind. It is a precious Island resource that needs to be protected.