

The Agency's Lake Saving Scheme

In a unique agreement under the Agency's National Environment Programme, Southern Water has agreed to reduce the amount of water it takes under licence from its Madehurst source. The Madehurst licence will be reduced from 2.97 million gallons (13.5M1) a day to 1 million gallons (4.5M1) a day under the scheme.



The company has also agreed to dredge the lake to increase its overall depth by 1 metre. The work is being carried out in two phases in order to minimise disruption to wildlife and to visitors to the lake. It has the support of English Nature and will be carried out sensitively to avoid harm to nesting birds and the nearby trout fishery.

A pontoon-mounted dredger is being used to excavate silt from the lake bed and the dredged material will be spread on agricultural land within the Arundel Estate.

In addition Portsmouth Water's Slindon borehole licence was reduced in February 1998 from 2.42million gallons (11.0 megalitres) a day to 550,000 gallons (2.5 megalitres) a day.

This action has followed extensive investigations by the Agency in close co-operation with both Portsmouth Water and Southern Water and the Arundel Estate.

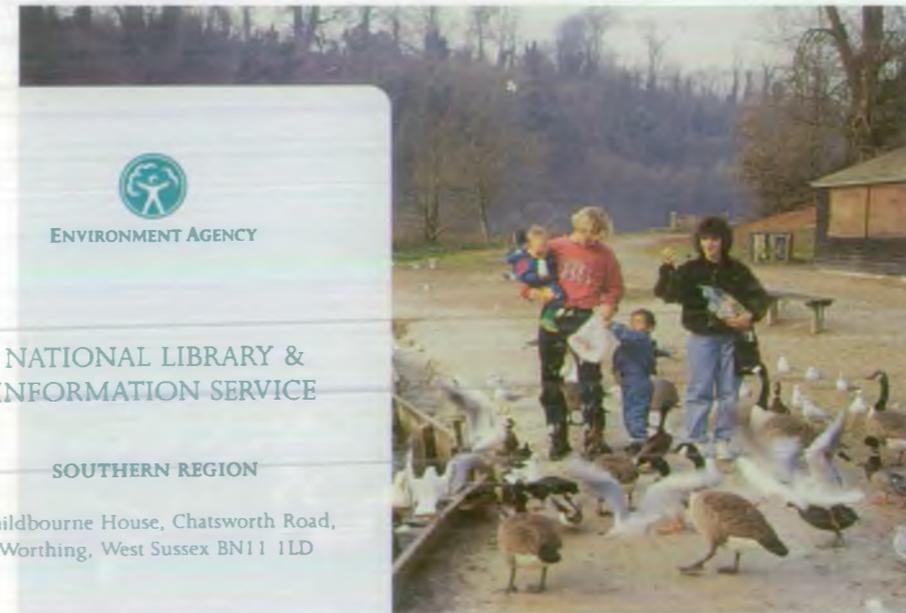
- Observation boreholes were drilled around the edge of the Lake to monitor water levels and find out exactly how water enters and leaves.
- Studies of water levels in the Agency's wider network of boreholes were continued to monitor the effect of water company abstraction and to provide information to verify a computer model of the area.
- Samples of the Lake bed were analysed to ensure it could be spread on land after dredging.

You can help save Swanbourne

Sussex in common with the rest of the South East depends on the unseen reservoirs of groundwater for three quarters of its precious water supplies. The rise and fall of Swanbourne Lake gives a rare surface glimpse of the complex movement of water underground.

Climate change will increasingly mean prolonged periods of drought such as those experienced in 1976 & 1996 as well as the increased threat of flooding.

By not wasting tap water you can help preserve vital groundwater so there are enough supplies for humans and wildlife.




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EA-Southern

Swanbourne Lake

Restoration Scheme





Swanbourne Lake



Swanbourne Lake

Swanbourne Lake is owned and managed by the Arundel Estate. Its history can be traced back to before the Domesday Book when records show it was used as a mill pond. The lake is renowned for its outstanding natural beauty. The Environment Agency became concerned about the Lake's future because it has a duty to balance the protection of the water environment with the needs of the public and industry.

In 1837 on the day the famous landscape artist John Constable died he was putting the final touches to his last great oil painting "Arundel Mill and Castle". This masterpiece features the mill, the historic castle and the magnificent lake nestling beneath the ramparts. The mill was demolished shortly afterwards but much of the area remains the same as it was in Constable's day.

The area around the lake is home to many rare plants, animals and insects. The wildlife includes tawny owls, nightingales, all three British species of woodpecker, sedge and reed warblers, shelducks and tufted ducks, four kinds of bat, foxes, newts and grass snakes. There are 15 species of invertebrate that have been declared as endangered and under threat of extinction. Each year over 100,000 visitors come to enjoy the lake and its surroundings.

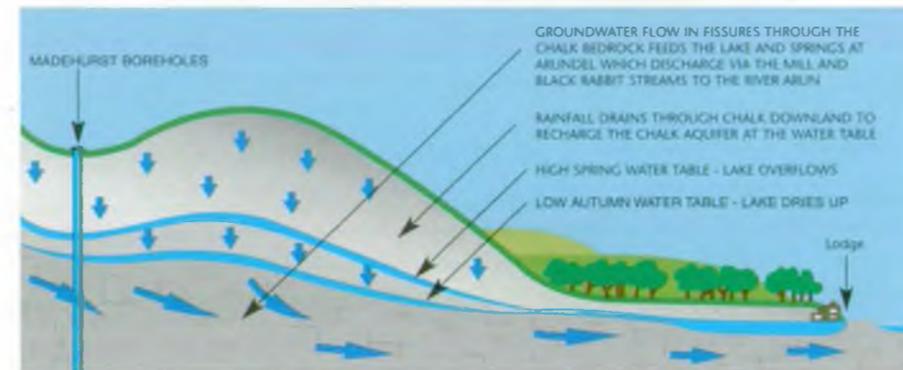


"Arundel Mill and Castle" John Constable 1837
Courtesy of Toledo Museum of Art

The Problem

The water in Swanbourne Lake starts as rainfall on the South Downs. It soaks through the chalk as it flows towards the coast. Before it reaches the sea some of the water emerges in springs which run into the lake. They are known as the "Blue Springs" because of their distinctive colour.

However, some water is intercepted before it reaches the lake by a number of boreholes. Southern Water Services and Portsmouth Water Company have licences to pump water from these boreholes to supply residents in Bognor Regis, Littlehampton and Worthing.



All of the boreholes have been operated within the terms of the licence. But the licences were granted when the behaviour of the underground water was not so well understood. While the Environment Agency has the power to take these licences away it would have needed to pay compensation to the water companies and alternative water supplies also needed to be found.

Extensive Agency investigations showed that too much water was being intercepted by the boreholes. As a result the lake dried up on many occasions during the past few decades.

The Agency identified boreholes at Madehurst and Slindon as causing most of the lake's problems.

Additionally Swanbourne has silted up over the years because of decaying vegetation and soil washed down from the surrounding valleys.

The Threat

If no action had been taken and the lake had continued to dry up some of the unique wetland vegetation would inevitably have died. There is already evidence that this has started to happen.

The death of this vegetation would have a major impact on the wildlife that relies on it for food and shelter.

Among the first victims would be:

- Daubenton's Bat also known as the Water Bat which needs the still water of the lake to feed
- Emperor and Club-Tailed Dragonflies
- Sedge and Reed Warblers

The scenic beauty enjoyed by thousands of visitors would slowly disappear. Within less than a decade the vista which has been part of the English landscape for hundreds of years would be destroyed.

The Environment Agency's action plan will ensure water levels are maintained and the lake, its unique surroundings and wildlife are saved for future generations.

