Research and analysis: Future of the sea: impacts of sea level rise on the UK

This report summarises the evidence for how sea level rise is expected to affect the UK and the ways to manage increased coastal flood risk. It includes:

- future sea level rise scenarios and associated sources of uncertainty
- current and projected impacts of sea level rise for infrastructure, businesses and communities
- possible responses

It was commissioned as part of the Foresight Future of the Sea project.

Research and analysis: Future of the sea: hazardous chemicals and physical contaminants

This report summarises what is known about the presence of pollution in the UK and its Overseas Territories, and its impacts. It explores:

- the current levels of chemical and physical pollutants (such as radioactivity, noise, light pollutants) and likely future trends
- the implications of pollution for marine biodiversity, fisheries and seafood
- international and regional legislation to regulate pollutants

It was commissioned as part of the Foresight Future of the Sea project.

Notice: JW: decision on licence application

The Environment Agency notifies the public of the decision made on certain applications for the abstraction or impoundment of water.

This decision statement explains:

- who has made the application
- what decision has been made
- how the decision has been made

Press release: Doncaster scrap firm fined for illegal activity in Tyne & Wear

A Doncaster-based scrap car dismantling and salvage firm has been ordered to pay nearly £25,000 for breaking environmental laws at a site in Tyne & Wear.

Motorhog Ltd, which used the now-closed site on Wallsend Road in North Shields, to depollute and bale end of life vehicles, repeatedly broke the terms of its environmental permit. Yesterday (29 November 2017) the company, which continues to operate sites in Leeds, Doncaster and Hull, was fined £20,000 by North Tyneside Magistrates' Court after pleading guilty to two of three charges. It was also ordered to pay £4,936.88 costs.

The prosecution was brought by the Environment Agency after officers spent a significant amount of time attempting, unsuccessfully, to bring the site into compliance.

Environment Agency Officers visited the site on 1 December 2015 to assess permit compliance after several breaches were identified during a previous inspection. During the visit they identified further permit breaches, against which they issued two enforcement notices.

The first gave Motorhog Ltd until 8 February 2016 to carry out maintenance to the vehicle baler so it could operate without spilling or leaking potentially polluting materials. It also required the company to clean all observed spillages on site and keep appropriate records.

The second notice required Motorhog Ltd to either ensure the concrete surface where the vehicle baler operated was compliant with permit requirements or to move the baler to a more suitable area. The firm was given until 11 April 2016 to comply.

Environment Agency Officers visited the site again on 2 March and 12 April and noted failure to comply with each of the orders. They also noted unattended spills throughout the site, including fluids visibly leaking from the baler onto the surface below where there was no sealed drainage.

Environment Agency spokesperson, Rachael Caldwell, said:

> I hope that Motorhog Ltd takes a long hard look at its operations across the north to ensure that all its sites are compliant and its staff are properly trained.
>
> The regulations exist to protect the environment and local communities from the risk of harm. Vehicles contain liquids that are harmful to the environment and they must be dealt with correctly.
>
> We will not hesitate to take action against any operator that repeatedly breaks the law and disregards its environmental obligations.

Press release: Improving efficiency at mine water treatment schemes

The Coal Authority, which manages Britain's coal mining legacy, employs contractors to clean water cascades and pipework across its 75 mine water treatment sites on a regular basis.

The manual 'wash and brush-ups' are needed to prevent a build-up of iron solids (ochre) that are produced as part of the treatment process. The ochre clogs up the system and reduces the effectiveness of the treatment scheme that pump the water out from disused coal mines.

In a move to reduce costs, the Coal Authority is working with Dr Maria Romero-Gonzalez and her research group in the Department of Geography at the University of Sheffield, in a 6 month trial of new super hydrophobic materials that will aim to repel the ochre and prevent it from clogging up the treatment systems.

"Hydrophobic materials are nothing new," explained Dr Chris Satterley, Technical Research and Development Manager for the Coal Authority. "But the most recent generation of super hydrophobic materials are now available commercially and we want to see whether they will help us to improve the efficiency of our operations.

"Currently we need to regularly remove the build-up of ochre, which obstructs the process of the schemes. But if this simple process works, it could be a significant development for our on-going maintenance programme."

Various hydrophobic materials were tested in laboratory conditions by Maria and her team and 2 were selected to be used on site at the A Winning mine water treatment scheme in Derbyshire.

“It worked very well in the laboratory but now we need to see if it is just as effective out in the open and on site,” added Chris. “Initial observations show that the coating is working and is repelling large solids and ochre flocs. But it is still early days and we will be working closely with our University of Sheffield colleagues to see how it works over a longer period of time.”

The mine water treatment schemes run by the Coal Authority are all individual and depend on the amount of water being pumped out of disused coal mines and the local geology. Typically, they comprise of water cascades, a series of settlement lagoons and reed beds. They treat around 122 billion litres of water each year and prevent 4,000 tonnes of iron solids from entering local watercourses and also protect important sources of drinking water for local communities.

At the treatment scheme located at the site of the former Blackwell A Winning pit at South Normanton, there are 4 water cascades. For the trial, one was fully cleaned and coated for testing, a second has also been cleaned to act as a control and the remaining 2 are continuing under the current maintenance regime for comparison.

The 4 water cascades at the mine water treatment scheme

Further testing and studies will also be carried out on a series of concrete slabs installed in the cascades. One sample will be retrieved every week for the first month followed by monthly sampling for the remainder of the 6 month trial.

Dr Maria Romero-Gonzalez, Director of the Environmental Science Programme at the University of Sheffield, said: “This is a unique opportunity to study the durability and performance of the coatings under a variety of weather conditions.

“We will use electron microscopy and other surface analysis techniques to investigate the efficiency of the coatings at surface level. This will help us to assess how good the coating is and evaluate its application for treating ochre accumulation. The results will allow us to estimate the technical and economic benefits of using coatings for treating mine water, providing the Coal Authority with innovative solutions for the future.”