

Channel maintenance

Overview

The Environment Agency routinely considers dredging and vegetation management in watercourses to reduce flood risk. We do this work where it is:

- technically sound,
- economically viable,
- environmentally acceptable and sustainable.

We spend around £3 million per year on dredging in England and Wales. A further £8 million is spent on weed removal to let rivers flow freely in their natural channels

We also de-silt rivers at critical locations, where we are also the navigation authority, to allow passage for boats.

What do we mean by dredging, de-silting and vegetation management?

Dredging, de-silting and vegetation management are all types of channel maintenance. Dredging describes the deepening and widening of waterways to enlarge the channel. De-silting is a similar activity but only involves the removal of relatively soft accumulations of silts and sediments from these waterways. Vegetation management is the control of aquatic weeds, grass cutting on river banks and the trimming or removal of trees, which if left unmanaged could block the flow of watercourses.

Where do we carry out dredging and vegetation management?

We consider what channel maintenance is required to reduce flood risk. Dredging may be of benefit, where silt or gravel has built up and threatens to reduce the capacity of a watercourse.

It is particularly important for us to keep channels clear of blockages in built up or urban areas, where the impact of flooding is greatest and where the watercourse may be confined to a single channel. It is these locations where we are most likely to undertake dredging and vegetation management on a regular basis.

At other locations, watercourses may have both a channel and a floodplain. The channel will only contain low to medium flows. At higher flows the water will spill out onto the floodplain, which is as much a natural part of the watercourse as the channel. In these circumstances, dredging would not increase the flow in the channel enough to stop the watercourse spilling into the flood plain. Any benefits of dredging the channel would be short term because it will quickly silt up again as part of the river's natural process. Similarly, vegetation management is less critical on these watercourses.

Dealing with dredgings

The disposal of waste dredged material is also an important issue. Leaving the material in the floodplain reduces its volume, increasing the risk of flooding. The dredged material should be moved out of the flood plain. The cost of transporting and disposing of the waste material can be prohibitive, which stops us dredging at many locations on a regular basis.

Can we build flood defences from dredged material?

Dredged material has been used in the past to build banks alongside rivers to manage flood risk. This was a way of clearing the channels and easily disposing of the dredgings. Many of these banks are still in use, but many are causing problems because the dredged material was not suitable for flood risk management structures. It can be porous and unstable when wet. There are still occasions when dredged material can be used, but if a bank is made from unsuitable dredgings, it can become unstable and prone to collapse.

Why not simply enlarge the channels to cater for large flood flows?

Channel enlargement involves not only the removal of silt, but excavation of the channel and banks. In order to reduce flood risk, the scale of channel enlargement works would sometimes have to be immense and would have major impacts on riverside towns and the environment, as well as being very expensive.

Our appraisal of projects to reduce flood risk always considers channel enlargement as an option, but these works can rarely be economically, technically or environmentally justified as the only way to reduce flood risk. However, limited channel works are often incorporated into flood risk management schemes in conjunction with other measures. e.g. raised defences and flood water storage reservoirs.

At many locations deepening the channel would weaken the river banks and encourage further erosion, creating more silt, as well as damaging the natural environment.

Why do we no longer dredge some watercourses that we used to?

Dredging can be expensive, harmful to the environment and not very effective. Where this is the case we will have stopped or plan to stop dredging, and use the money saved to pay for more effective flood protection.

Do we have the science to underpin our decisions?

We develop models to help us make decisions on maintaining watercourses. We continue to do research to help us understand more about how watercourses behave and how we can work with them in a more sustainable way. We recently developed a tool (Conveyance Estimation System, CES) to help our staff deliver the best maintenance programmes to get the best flows in watercourses.

Impact of the Habitats Directive and the Water Framework Directive

Some rivers are designated under the Habitats Directive as Special Areas of Conservation. Any maintenance activities that we may wish to carry out, including dredging and weed cutting, must comply with the requirements of the Habitats Directive. This may affect the amount or timing of what we are allowed to do. In some exceptional cases it may prevent us from doing any dredging or weed cutting at all.

The Water Framework Directive does not prohibit dredging. The Directive calls for the reinstatement of natural river channels and, as far as possible, for a reduction in interference in the natural river process. Where we can demonstrate a need for dredging in the public interest, then it will continue.

Who can I contact for more information?

For more information please contact the following members of the Project Team:

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