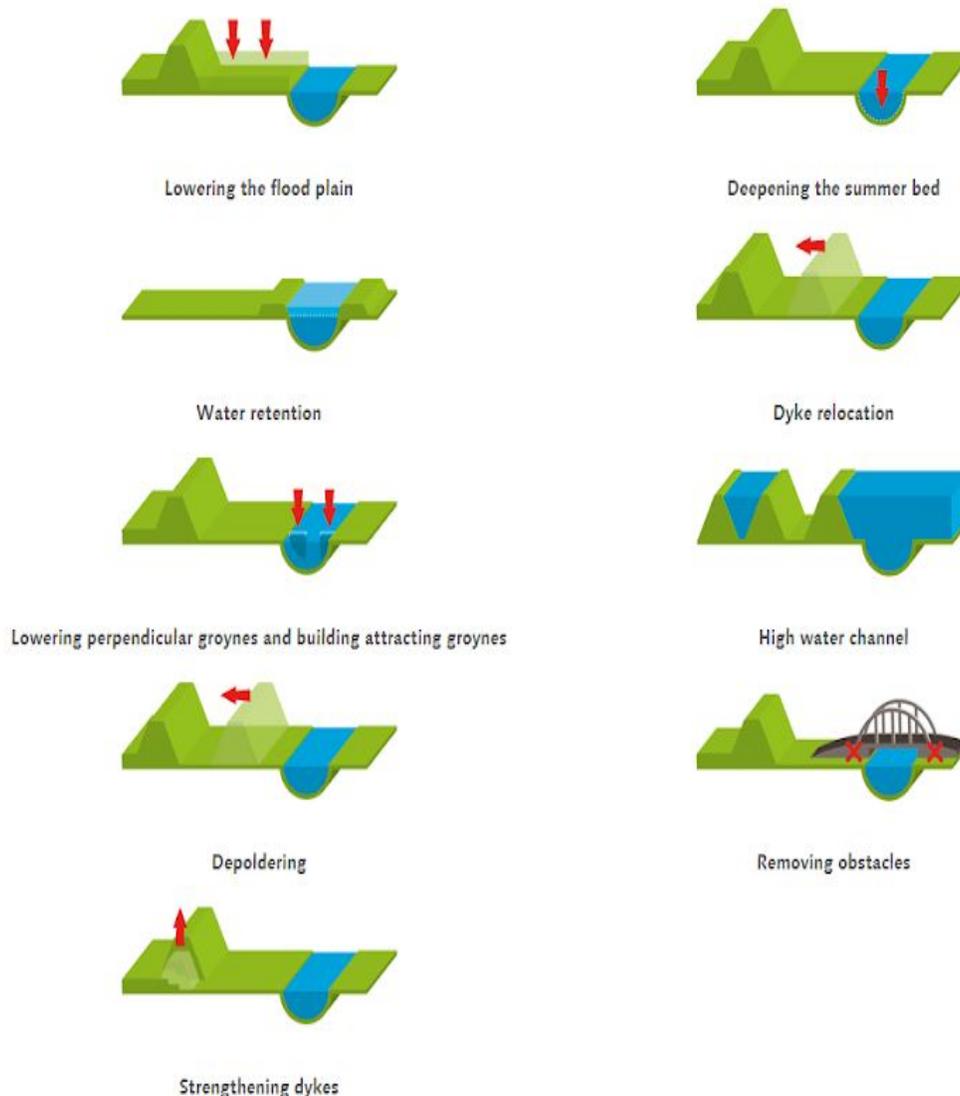


Room for the River

River Flood Control Options from the Netherlands

<https://www.ruimtevoorderivier.nl/english/>

Every river is different and requires a tailor-made solution. This page provides an overview of the measures and techniques we use to make more room for the river.



A **groyne** (in the U.S. **groin**) is a rigid [hydraulic structure](#) built from an ocean shore (in [coastal engineering](#)) or from a bank (in rivers) that interrupts water flow and limits the movement of [sediment](#). It is usually made out of wood, concrete or stone. In a river, groynes slow down the process of [erosion](#) and prevent [ice-jamming](#), which in turn aids navigation.

A **polder** is a piece of low-lying land reclaimed from the sea or a river and protected by dikes, especially in the Netherlands.

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Lowering the flood plain

Lowering sections of the flood plain gives the river more space during periods of high water. Over the past few centuries, the natural process of sedimentation has gradually raised the level of the flood plain. Excavating the top layers of the flood plains makes them lower, which in turn contributes to making more room for the river.

Deepening the river bed

The bed of the river can be dredged, or dug deeper, in a specific area. This creates more room for the river.

Water Retention

A lake can be created and used when there is a large volume of water that must be stored. This would happen under exceptional circumstances.

Dyke (levee) relocation

Relocating a dyke land-inwards increases the width of the flood plains and provides more room for the river. This will expose the land that had once been protected by the dyke to high water in order to expand the river's bed.

Lowering perpendicular groynes and building attracting groynes

By lowering the groynes in the river and building parallel barriers, the river will be able to drain excess water easier. A perpendicular groyne is constructed at a right angle to the flow of the river. These groynes will be lowered or removed. Attracting groynes are constructed parallel to the flow of the river.

High water channel

A high water channel is a branch of a river used to drain high water via a different route. The channel is not excavated below the water table, but rather formed by building two dykes in the landscape.

Depoldering

The dyke on the river side is moved land-inwards, so that the river can flow into the area during periods of high water.

Removing obstacles

Removing or modifying obstacles in the river wherever possible helps increase the flow rate for the river water. Removing obstacles includes work such as lowering or eliminating ferry pier banks, widening bridge openings and removing or lowering quays and flood-free areas.

Strengthening Dykes (levees)

If widening the river is not an option due to space, the dykes may be strengthened instead.