

# Physical Modifications

## What is the issue?

- Flood defences, coastal defences, dams, reservoirs, weirs, dredging and vegetation removal are examples of physical modifications we make to the water environment.
- These physical modifications can affect the quantity and quality of water and the shape of water bodies. This **affects flows and the physical form of water bodies, altering habitats for wildlife and reducing habitat diversity.**
- Aquatic wildlife is affected not only by the quantity and quality of water but also the physical characteristics of the water environment. For example, modified rivers might have faster currents, which means fewer plants take root.
- However, many physical modifications are beneficial to society and reduce flood risk, provide navigable water bodies, and support hydropower and water supplies.
- Physical modifications have been around for a long time, some date back to Roman times.



## What locations are affected?

- Physical modifications are the most widespread issue affecting our water environment across England.

## Why should this concern me?

- ▶ **Physical modifications mean that our water environments look and behave less naturally**
  - This can mean they look less appealing to people and affect habitats for wildlife.
- ▶ **Embankments and flood defences can separate rivers from their floodplains**
  - This increases flood risk elsewhere and can block the movement of fish and other wildlife.
- ▶ **Widened and deepened channels slow down the flow and increase the level of sediments suspended in the water**
  - These sediments can reduce water quality and eventually smother habitats such as fish spawning sites.

## What are the future challenges and concerns?

- ▶ **More extreme weather as a result climate change will affect modified river channels more than natural ones**
  - Wildlife in modified rivers is more vulnerable to increased floods and droughts due to lower habitat diversity.
- ▶ **Population increases leading to higher demand for food, water, recreational activities and flood defences**
  - This may mean we need to modify our water environments more in the future.
- ▶ **Changes in the way we use land**
  - Changes in response to climate change (e.g. retreat from coastal areas) and population growth leading to increased urbanisation, could all impact the levels and types of physical modifications we find in our water environment.

## What can be done about this issue?

- ▶ **Regulating and controlling physical modifications**
  - These may include ensuring that new developments do not cause deterioration.
- ▶ **New design standards for developments on or near the water environment**
  - Provide partnership support and expert guidance to those involved in new developments, land management and river restoration works.
- ▶ **Promote and fund programmes of river, coastal and wetland restoration**
  - This would make the water environment more natural.