

Phosphates and Nitrates

What is the issue?

- Phosphates and nitrates are useful nutrients but when they become too concentrated in our water environments they can cause problems.
- **Phosphates** are essential for the growth of plants and animals but human activities have altered its natural cycle. The main sources are **drainage from farmland** (fertilisers, runoff from manure, etc.) and **sewage effluent** (which contains dishwasher detergents, food and drink additives). It is also used in **drinking water treatment** to control lead levels.
- **Nitrates** are used in fertiliser, which help farmers to produce more crops which can mean lower food prices.
- However, high phosphate and nitrate levels can cause **eutrophication – an issue when there is too much nutrient in a water body (e.g. rivers and lakes)**. This can cause excessive growth of algae and other plants, which then affects water quality, damages plants and animals and stops us using the water.



What locations are affected?

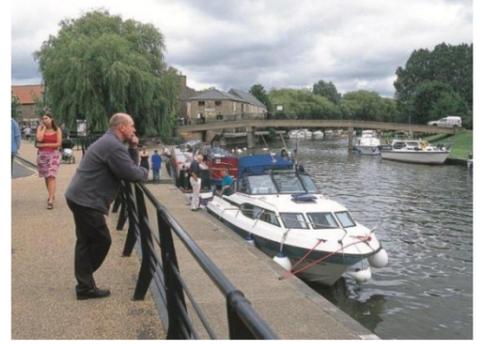
- **Nitrates:** Highest levels in the driest parts of England (south and east), which are dominated by crop farming. Coasts and estuaries are also particularly sensitive to high nitrate levels.
- **Phosphates:** The Midlands, the South East and East Anglia are worst affected.

Why should this concern me?

- ▶ **Cost of having to treat sewage and drinking water**
 - Water companies have to treat high nitrate levels in drinking water to make it safe for people to use. This is expensive and costs may be passed on to people and businesses. It is also expensive to treat high phosphate levels in sewage.
- ▶ **Harms ecosystems, sensitive plants and animals, increases toxic algae incidences**
 - Increased number of toxic algal blooms which are a hazard to people, domestic animals and wildlife and can lead to loss of sensitive plants, animals and their habitat.
 - Oxygen levels reduce in water bodies affected by eutrophication, which means fewer aquatic insects and fish.

► **The quality of our water environments for leisure activities**

- High phosphate and nitrate levels contribute to algal growth in our rivers, lakes and estuaries, which affects people's opportunity to use them for leisure activities.
- These losses can mean that the value of tourism and properties decreases.



What are the future challenges and concerns?

► **Nitrate and phosphate use will increase with population growth**

- The top sources are fertilisers, fossil fuel burning, sewage and treating drinking water — sources which will increase as the population rises.

► **Climate change will increase use and impacts of nitrate and phosphates**

- Warmer summers, changing rainfall patterns and reduced river levels may mean higher concentrations of nitrates and phosphates in the water environment.
- This may also mean farmers change the way they farm, such as use more fertiliser.

► **More phosphorus being used to meet tighter drinking water standards for lead**

What can be done about this issue?

► **Improving nutrient management, manure and water storage on farms**

- These measures can be cost effective when used in parallel with other measures to reduce water pollution from sediment, nitrates and faecal indicator organisms.

► **Reduce nitrate and phosphate levels from sewage sources**

- Where necessary water companies can fix leaking sewers and improve sewage treatment works. However, this is costly and involves using more energy, meaning more carbon dioxide emissions.

► **Identify areas particularly sensitive to high nitrate levels**

- Within these areas land owners can be encouraged, through for example voluntary and incentive schemes, to reduce nitrate leaching.
- Currently farmers in Nitrate Vulnerable Zones must follow rules to manage their use of nitrates.

► **Legislate to reduce use of phosphorus in household products**