

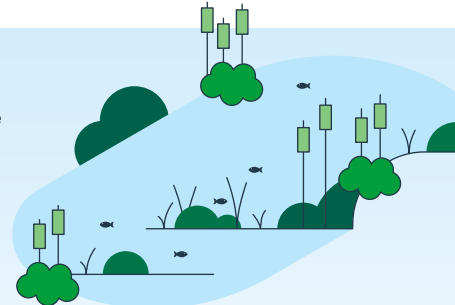


## Ecological Design Principles fact sheet

# Water Quality (WFD)

All European waters, including those in the Netherlands, must comply with the **Water Framework Directive** by 2027 at the latest, meaning that all water bodies must provide a suitable habitat for the **plants and animals** that live there.

In principle, all projects that affect water quality must make a positive contribution to achieving this objective. By applying Ecological Design Principles (EDPs) when designing water bodies and their surroundings, we can support the objectives of the WFD. Among other beneficial effects, the EDPs help to create the best possible conditions for a wide variety of plant and animal species. By incorporating these principles from the design stage onwards, we can achieve a sustainable water quality that **enhances the resilience of ecosystems and strengthens local biodiversity**.



### Focus on facilitating a variety of submerged aquatic plants in your design.

Submerged aquatic plants improve water quality and help prevent algal blooms. They trap sediment particles, thereby preventing turbidity and helping to keep the water clearer. In addition, a diverse aquatic plant community provides shelter for a variety of organisms.

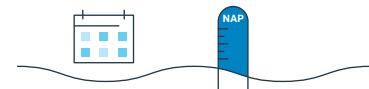
- Ensure a minimum water depth of at least 50 cm deep to encourage the growth of submerged aquatic plants. If the depth is less than 50 cm, an infiltration arrangement that temporarily runs dry is preferable. This is to prevent algal blooms.
- Make sure there are various water depths. Excessive water depths (more than 2 metres) should be avoided to ensure that sufficient light reaches the bottom. Alternate deep zones, which are exactly what certain species of fish need, with plenty of shallow areas.
- Avoid shadows cast by tall buildings, jetties, decking and trees (also prevent leaves from falling into the water and adding nutrients) across the entire surface of the water body.

### Reduce the nutrient load (e.g. phosphorus and nitrogen) on the water.

- Limit the amount of additional nutrients in the water, for example by ensuring that more than 10 to 20 % of the total area is left as open water and that no more than 25 % of the area is hard-surfaced.
- Limit the nutrients in the (future) subaqueous soil. A subaqueous soil that is rich in nutrients can lead to one-sided and excessive growth of aquatic plants, which crowds out other species and reduces biodiversity.
- If the nutrient load is too high and it is not possible to reduce it, consider increasing the refreshment rate. Please note! Avoid dead-end waterways to prevent algal blooms. In view of climate change, this is not a sustainable solution. During prolonged periods of drought, water may be in short supply at times, meaning that water authorities cannot guarantee a continuous flow.

### Provide a connection between land and water to promote rich biodiversity in the water and close by.

Design gently sloping banks, also on the side covered by water, so that (riparian) plants and shrubs can grow and develop. Gently sloping banks offer greater flexibility and shelter for plants and animals when water levels fluctuate.



### Ensure flexible water level management.

This is beneficial for the water buffering capacity in the area, as well as for the ecology (for example, the growth of reeds), thereby reducing the inflow of (nutrient-rich) water.



### Facilitate effective management.

- Incorporate accessibility for maintenance into the design.
- Create areas where aquatic and riparian plants do not need to be mowed too frequently, so that these plants can develop optimally. Implement phased mowing management wherever possible. Consider mowing in blocks and build rotation into the annual schedule.