

# Nature-based solutions

## — what are they?

Otago Regional Council is exploring the potential of nature-based solutions or 'green infrastructure' such as wetlands and planting to help manage flooding.

The project is called **Wai i te reporepo, wai i te wao: what nature tells us about how to understand and prepare for flooding.**

Flooding is the most common Civil Defence emergency in Otago and can threaten lives and cause damage to homes, businesses and infrastructure. Sustainable approaches such as those below are being used globally and across Aotearoa New Zealand.

They could complement engineered solutions, helping to future-proof the Otago region, keeping us and the things we love safe.

### A nature-based approach to flood resilience in Otago

The examples below show what that might look like. How would you feel about having 'green infrastructure' solutions to flooding installed around your city, town or farm?



#### Wetlands

Wetlands absorb and store excess water and filter pollutants. They can provide a habitat for wildlife, as well as recreational spaces.



#### Bioretention

A combination of planting and different soil types work together to help absorb rainwater and filter out pollutants.



#### Landscape retention/detention

This works by catching and storing rainfall and slowly releasing it. It reduces the amount of water entering sewers and rivers during a storm, lessening the impacts of flooding and erosion.



#### Land and soil management

These practices help the ground absorb and retain water.



#### Waterway naturalisation

This is the process of returning modified streams and rivers into a more natural state.



#### Floodplain reconnection

Reconnecting the river with its floodplains, removing barriers created by humans, and creating areas like wetlands for water storage.

## Potential additional benefits

They improve water and air quality and enhance biodiversity by creating space for threatened species. Globally, we've seen benefits to farmers and communities, and opportunities in areas such as restoration, sustainable farming and eco-tourism.



Slow water runoff



Biodiversity enhancements/habitat creation



Erosion control



Carbon sequestration/climate mitigation



Improved soil quality



Stormwater management



Improved air quality



Filter contaminants



Improved water quality

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Otago Regional Council