

How were the maps developed?

The river, coastal and surface water maps were developed using a consistent methodology to produce outputs for the whole of Scotland. This was supplemented with more detailed, local assessments where available and suitable for use.

In developing the flood maps we have:

- Used the most up to date modelling techniques
- Used industry endorsed methods
- Been able to show more information than ever before on the sources and impacts of flooding
- Developed the first national natural flood management maps showing the areas where natural techniques to help reduce flood risk could be most effective.

To develop the maps SEPA worked in partnership with local authorities. We also worked with the industry to define the overall approach to flood hazard mapping and undertook a series of internal checks and local authority reviews of outputs.

Coastal flooding

The coastal flood maps are based on the Coastal Flood Boundary dataset developed by the Environment Agency and Department for Environment, Food and Rural Affairs (Defra). This provides sea levels for a range of flood conditions around the coast of the UK. SEPA extended this dataset for those sections of Scottish estuaries and islands not covered by the Coastal Flood Boundary dataset. Flood extents for a number of return periods were then derived by projecting these water levels inland onto the maps.

Due to the methodology used, velocity information is not available for coastal flooding.

River flooding

The river flood map was developed using a nationally consistent approach to producing flood hazard information, such as depth of water and speed of flow arising from river flooding. It is based on a two dimensional flood modelling method applied across Scotland to all catchments greater than 3km².

The river flood map includes hydraulic structures and defences such as bridges, culverts and flood storage areas where appropriate information was available.

Surface water flooding

The surface water flood map combines information on rainfall and sewer model outputs. It incorporates data from a national surface water study, a regional surface water study with increased resolution in selected areas and a Scottish Water sewer flooding assessment.

Groundwater flooding

The groundwater flood map shows areas where groundwater could contribute to flooding or where there has been evidence of groundwater flooding. Aquifer productivity, groundwater flooding associated with rivers and historic records of flooding have been taken into consideration.

This is a high-level assessment identifying locations where there is sufficient confidence that groundwater could contribute to flooding or where there are historic records of flooding.

Natural flood management

The natural flood management (NFM) maps identify areas where the alteration or restoration of natural features could be most effective in storing or slowing the flow of water, or in managing in stream sediment. A total of five maps have been produced that identify opportunity areas for a set of different NFM techniques.

Each map provides a high level assessment of areas within catchments and along coastlines where the implementation of NFM could be most effective and merit further investigation. They do not consider flood risk. The NFM maps will be part of a number of datasets, including flood risk, used to identify NFM measures in the flood risk management planning process. More information is available on the SEPA website.

Natural Susceptibility to Coastal Erosion

The Natural Susceptibility to Coastal Erosion (NSCE) map indicates areas that are likely to be susceptible to erosion based on the height and geology of the land (relative to sea level), distance to the sea and wave action. It is a high level assessment based on nationally available datasets. It does not take account of the effects of existing coastal flood or erosion protection structures and does not indicate areas that will erode or the timescales over which coastal erosion could occur. This map is part of a number of datasets used to identify appropriate actions in the flood risk management planning process.