

Don HHSS: case study on erosion risk

Introduction: Mapping was undertaken for the Don Catchment Rivers Trust (DCRT) Hidden Heritage Secret Streams (HHSS) to identify areas of risk / problems (hotspot maps) and inform opportunity mapping for natural flood management (NFM). By combining open-source datasets representing the three main aims of the HHSS NFM interventions of reducing diffuse pollution, slowing the flow and increasing the ecological landscape connectivity, opportunities can be prioritised. This document serves as a worked example for looking at erosion risk related to diffuse pollution, further information can be downloaded from the [main report](#).

Method: Briefly, SCIMAP¹ has been used to map erosion risk related to fine-grained sediment for the study area. SCIMAP requires topographic information (digital elevation model), land use maps and rainfall information. Seasonal land-use maps derived from European Space Agency Sentinel 2 data have been used, in order to understand the seasonal variation in erosion risk. More information, including a step by step method can be downloaded from the [GIS method report](#).

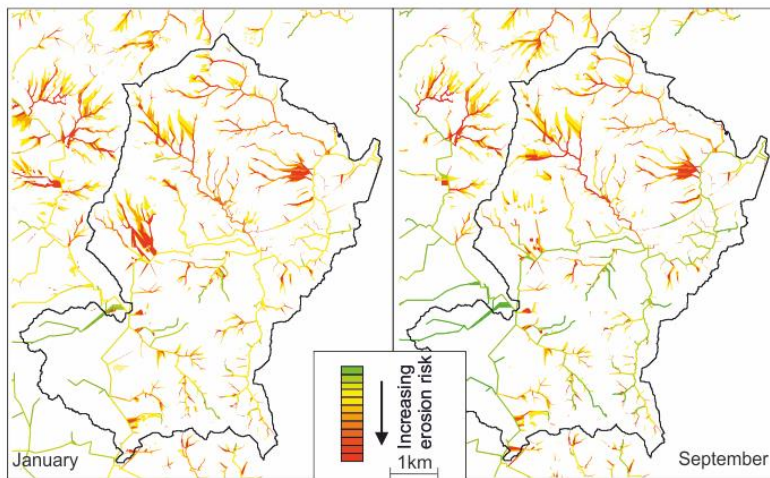


Figure 1 Erosion risk hotspot map

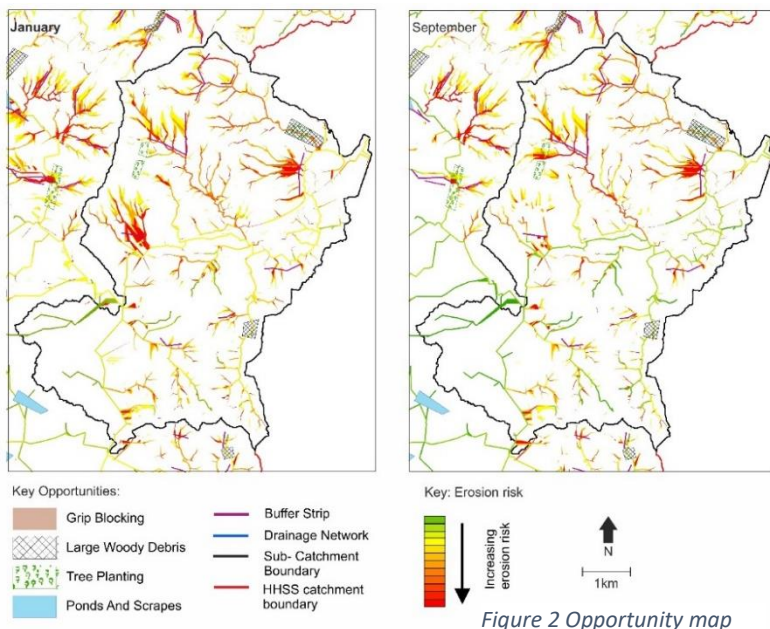


Figure 2 Opportunity map

hotspot maps have indicated high erosion risk in a large proportion of the headwaters of the northern part of the catchment. Therefore, buffer strips may be beneficial in these areas, in order to intercept sediment before it can cause in-channel problems.

¹ [More information on SCIMAP](#)

Hotspot maps: Hotspot maps show problem areas. Within the context of diffuse pollution, erosion risk relates to areas that have the potential for producing sediment. Erosion risk mapping does not allow for the quantification of the amount of erosion expected. Erosion risk is comprised of the risk of sediment production from the land, and the cumulative in-channel impact (which is a sum of the upstream risk).

How to interpret the hotspot mapping: Figure 1 shows erosion risk which ranges from very low (green) to high (red). The highest risk is experienced in the north of the sub-catchment, where yellow to red colours can be seen. In some cases, risk of the surrounding area may be high (yellow to red), however, the in-channel risk is low (green); this indicates that the localised erosion risk is not affecting the local watercourse, but could be having an impact downstream. Erosion risk in this sub-catchment is highest overall in January, than September, as indicated by the higher number of areas with medium to high risk (yellow to red).

Opportunity mapping: As the northern area of the catchment has the greatest risk of producing diffuse pollution throughout the year, interventions from a diffuse pollution perspective should be focused here. Figure 2 shows the opportunity mapping for the catchment, the