Greater Thames Estuary Fish Migration Roadmap

Executive summary

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Rivers in the North Sea region are some of the most fragmented by human development in the world. In the United Kingdom, river restoration and intertidal habitat enhancement works are completed in an opportunistic way: when specific damages from developments need to be mitigated or when flood asset management must be addressed. Similarly, fish migratory barriers such as weirs are only dealt with as and when opportunities arise and usually only one barrier at a time. As a result, many flood asset or land development projects can miss opportunities to deliver environmental enhancement and other social benefits because relevant information is not easily accessible.

To address this issue in the Greater Thames Estuary area, the Fish Migration Roadmap was developed. The Roadmap focuses on a whole-system approach and looks at rivers as interconnected migratory routes. Rivers were classified as 'Highways', 'A-roads' and 'B-roads', and after gathering information on existing migratory barriers, the extent of river fragmentation was visualised and connectivity was calculated. Then, the collated barrier data and river connectivity layers were integrated into an interactive mapping application along with data on fish species, flood risk areas, development opportunity areas, and riverine and marine habitat areas.

The resulted GIS application enables the visualisation of barrier locations and river network connectivity in entire catchments. The application also allows the different datasets to be overlayed, and with the use of an in-built filter widget, the barrier, habitat, and the fish species data can be filtered. This can help pinpoint those barrier locations where, for example, the upstream river sections have high quality habitats, but fish passes are not installed, or where riverside developments are planned and mitigation works could be carried out to help improve connectivity.

The Roadmap is both a method and a GIS tool that helps riverside communities and stakeholders to understand the extent of river fragmentation, and it can be used to make data-driven decisions and develop an integrated approach when sustainable restoration works are carried out. The Roadmap also contributes to the data needed for both statutory monitoring, and provides a pathway for building relationships across the freshwater and marine boundary.