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.

The Fish Migration Roadmap is a method that focuses on a sea-to-source approach that, like a road or an underground network, looks at rivers as interconnected migratory routes. After gathering information on all existing fish migratory barriers within the Thames River Basin and two adjacent catchments, river connectivity maps were created to calculate and visualise the extent of fragmentation. This was followed by the integration of river habitat data that allowed to reprioritise barriers to highlight, for example, locations with fish/eel pass installed or river sections with diverse habitats. Then, the collated barrier data and river connectivity maps were integrated into a publicly accessible interactive mapping application along with data on fish species, flood risk, development opportunity and habitat creation areas.

The Fish Migration Roadmap is also a GIS application that enables the visualisation of barrier locations and river network connectivity in entire catchments. The application has an in-built filter function which allows the barrier data to be filtered based on type, priority, pass type, river, catchment, sub-network, category, river habitat and connectivity gain. The river habitat data and the fish species data can also be filtered to help determine the quality of river habitats and the presence and distribution of different species along with their migratory and spawning seasons.

Utilising both the method and the GIS tool, the Fish Migration Roadmap allows riverside communities, environmental groups, local authorities, and developers to understand the extent of river fragmentation so they can make better decisions and develop an integrated approach to carry out sustainable restoration works based on actual data to improve river connectivity and fish migration.