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Reopening fish migration routes in the Thames

Thames Estuary Partnership

The Challenge

- Share data about the Thames ecosystem
- Improve fish migration in the Thames
- Put the Thames on the radar of the general public

The Benefits

- Raised awareness of the impact of barriers
- Intelligence gathered to inform investment decisions
- Clear data amassed to encourage more sustainable developments
- Improved knowledge of the Thames

Thames Estuary Partnership wants to create a more sustainable future for the 125 fish species that live in the River Thames. The not-for-profit organisation is using ArcGIS to encourage stakeholders to improve the quality of riverside habitats and reopen fish migratory routes that have been blocked for decades.

The Challenge

Flowing through the most densely populated city in Europe, the Thames is one of the world's most famous rivers. Yet few people realise that this iconic and historic waterway is home to more than 125 species of fish, as well as marine mammals and migrating birds.

Thames Estuary Partnership was formed to provide a forum for stakeholders working in and around the Thames and engage with them to improve the natural environment of the estuary. To communicate the results of one of its in-house projects, the organisation needed a better way to share data about the river ecosystem and raise awareness of the importance of reopening fish migratory routes.

The Solution

Thames Estuary Partnership evaluated a number of potential solutions before selecting Esri's ArcGIS platform. "Usability and interactivity were the two critical requirements," explains Wanda Bodnar, the organisation's Fish Migration Roadmap Project Officer. "We discovered that ArcGIS makes it very easy for people to learn more about our projects."

The organisation used ArcGIS Desktop to create an interactive 'roadmap' of the Greater Thames Estuary, combining data on fish migrations, habitat quality, artificial river barriers, flood areas and riverside developments. It then created a website using ArcGIS Hub to display the web map and made it publicly available online. Now anyone can explore the Greater Thames Estuary Fish Migration Roadmap to see the sections and tributaries of the Thames that are accessible to migrating fish, or blocked by artificial barriers, and access the quality of the river habitat in different locations.

Thames Estuary Partnership also used Esri's Story Map template to create an interactive tour of the Thames called The Tidal Thames, to replace its annual boat trip which was cancelled due to the COVID-19 pandemic. The Story Map provides a highly informative, interactive and engaging description of different parts of the Thames. People can simply click on a point along the river course to go directly to a particular location and see images, play video clips and read interesting facts. "People are not overwhelmed with information," Bodnar says. "Using our ArcGIS Story Map, everyone can tour the Thames in their own way, visiting just the locations they are interested in, or travelling all along the river from Teddington to the North Sea."

Bodnar led on the development of the Fish Migration Roadmap and Tidal Thames Tour Story Map herself, with no professional support, after taking advantage of the wide range of free training resources and Massive Open Online Courses (MOOCs) offered by Esri. "The online training gave me ideas and helped me to make the most of ArcGIS," she says. "It's a brilliant self-supporting system that makes even the most complex projects manageable."
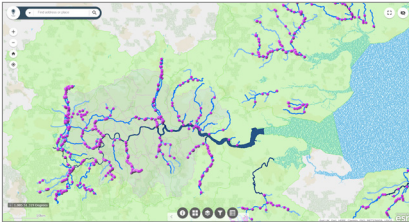
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> 66 Now stakeholders can prioritise the removal of barriers that restrict access to upstream areas where the habitats are good. 99
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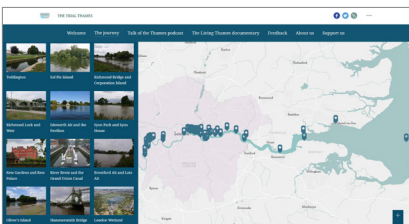> Wanda Bodnar, Project Officer, Thames Estuary Partnership

An ArcGIS web map showing the barriers to fish migration along the Thames and its tributaries

Points of interest along the Tidal Thames tour Story Map

The Benefits

Raised awareness of the impact of barriers

The Fish Migration Roadmap has enabled Thames Estuary Partnership to clearly illustrate how artificial barriers, such as locks, sluice gates and weirs, are preventing key fish species from reaching high quality habitats and spawning grounds. People can, for example, see the obstructions faced by the European Eel, a critically endangered species that travels across the Atlantic Ocean to mature from glass eels into silver eels in the Thames. "We have seen from social media that our message is being heard," Bodnar says. "People retweet our Roadmap and comment on how they didn't know before that there were so many barriers to fish migration in the Thames. We are also receiving expressions of interests from other NGOs interested in getting involved and working together."

Intelligence gathered to inform investment decisions

Thames Estuary Partnership is now collaborating with stakeholders and using the Fish Migration Roadmap to demonstrate which barriers should be removed or adapted first. It is now possible to make key investment decisions based on a clear understanding of where high quality habitats can be opened up, by the adaptation of specific barriers. "Barriers used to be removed or adapted in an opportunistic way," explains Bodnar. "Now stakeholders can prioritise the removal of barriers that restrict access to upstream areas where the habitats are good."

Clear data amassed to encourage more sustainable riverside developments

Through its Fish Migration Roadmap, Thames Estuary Partnership can now make easily-understood, authoritative information instantly available to all local authorities, landowners and riverside developers working in the Thames region. All these stakeholders can use the roadmap to help them make better-informed decisions about how to best develop and manage the river banks for the benefit of wildlife.

Improved knowledge of the Thames

Viewed over 1,000 times in the first three months alone, the Tidal Thames Story Map enables everyone to get a deeper appreciation of the Thames, regardless of where they live. During the COVID-19 pandemic, when travel is highly restricted, the online Story Map gives people from as far away as Japan and the USA the opportunity to learn about the river Thames. "Most visitors to London just look at the Thames as it flows under Tower Bridge," Bodnar says. "The Story Map shows people the foreshore, tells them about the wildlife living in the river and helps them understand the importance of reed beds further along the river edge. It offers near limitless potential as an educational tool."

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