Thames Eel Action Plan

Local Action Plan for the Thames River Basin District

March 2025

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

The iconic European eel (*Anguilla anguilla*) was once widely distribution across the Thames River Basin. However, anthropogenic impacts at the local, international and oceanic scale have resulted in a much-reduced distribution and density across the Basin. Efforts to contribute to the recovery of the European eel population have been planned and coordinated within an Eel Management Plan for the Thames, first published in 2010. The Environment Agency has introduced the Eel Charter for England 2024-2030, which will be supported by an Eel Management Plan for England and a series of local action plans. The Thames Eel Action Plan will be one of these local plans and will supersede the Eel Management Plan for the Thames. It was collectively developed in the winter of 2024/25 by a coalition of NGOs, European eel technical experts, and government agency representatives. The goal is to direct the continued efforts for improving the status of eels in the Thames. The Thames Eel Action Plan presents the following objectives, under which action for eel conservation in the Thames will be prioritised and enacted between 2025 and 2030:

1. Gather and share evidence to inform management of eel populations,
2. Reduce threats to eels in the Thames River Basin District,
3. Engage communities and other stakeholders to progress eel conservation in the Thames River Basin District (RBD), and
4. Ensure sustained delivery of the Thames Eel Action Plan.

INTRODUCTION TO THE THAMES EEL ACTION PLAN

The Thames Eel Action Plan (hereafter referred to as the Action Plan) is a regional initiative aimed at setting priorities between 2025 and 2030 to contribute to the restoration of critically endangered European eel (*Anguilla anguilla*) populations in the Thames RBD. Guided by the vision set out in the Environment Agency (EA) Eel Charter to establish thriving eel populations across suitable habitats, the plan focuses on addressing local challenges while contributing to broader conservation efforts and recognising the range-wide threats to the species. The plan was developed by experts including the Environment Agency (EA), Southeast Rivers Trust (SERT), Thames21, Natural England, and Thames Rivers Trust (TRT), at a workshop held in the ZSL meeting rooms on 19 November 2024. Attendees reviewed and refined the objectives, goals, and actions to ensure a targeted and effective approach to minimise mortality, increase spawning stock, and maximise escapement. By focusing on evidence-based management, threat reduction, public engagement, and supporting the long-term delivery of actions, the Action Plan promotes the recovery of European eels within the Thames RBD and supports the improvement of overall biodiversity.

BACKGROUND

THE EUROPEAN EEL

The European eel (hereafter referred to as “eel”) is a catadromous fish found along Europe’s Atlantic coast, and the Baltic, Black, and Mediterranean Seas and their associated river systems. Eels inhabit a wide range of habitats including marine, coastal, estuarine brackish waters and inland fresh waters, feeding on various aquatic fauna. The life cycle of the eel progresses through five stages: leptocephali (larva), glass eel, elver, yellow eel, and silver eel (Cresci, 2020; Figure 1). After hatching in the Sargasso Sea, they begin a ~5000 km journey as leptocephali to the European continent, where they undertake a metamorphosis into glass eels (Cresci, 2020). After ascending estuaries, the glass eels develop pigmentation and metamorphose into pigmented elvers and thence transition into yellow eels. They remain in this stage for 2–10 years (or longer) as they grow and mature (Tesch, 2003). Upon becoming silver eels, they make the return journey from European rivers back to the Sargasso Sea to spawn (Wright et al., 2022).

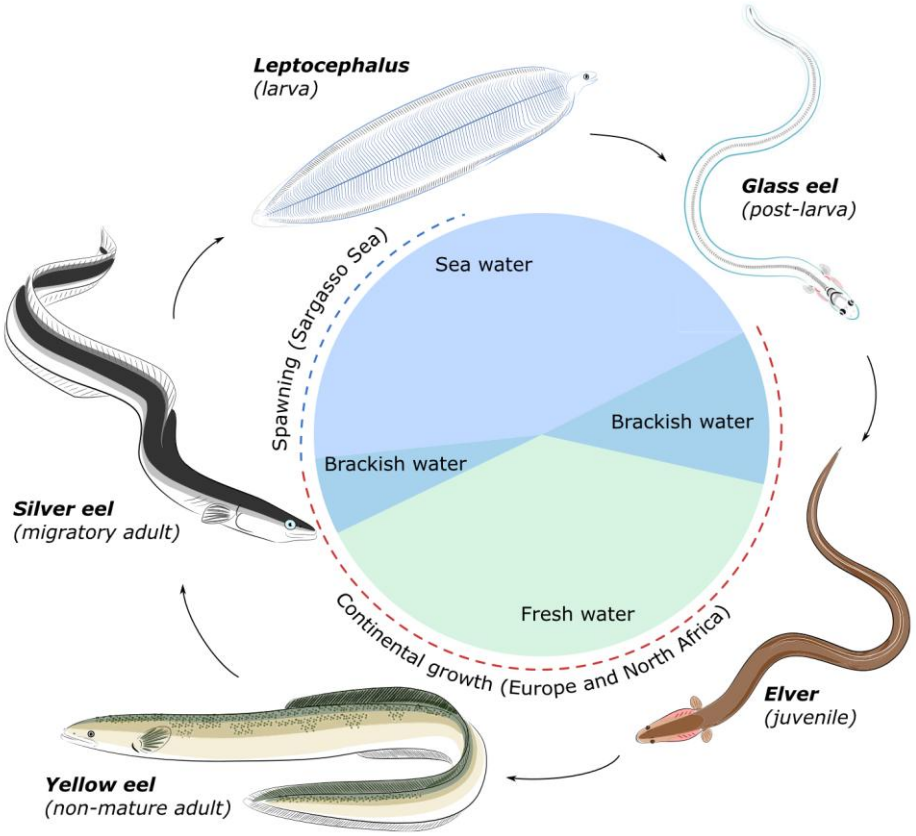

Figure 1 The life cycle of European Eels (Cresci, A., 2020)

THE UK CONTEXT

Eels were historically widely distributed throughout the United Kingdom (Steele et al., 2018) but they have suffered a dramatic decline in recruitment to Europe's rivers since the 1980s, reaching historical lows (ICES, 2024). The reasons for the decline in populations are not entirely understood. Several factors, however, are widely recognised as contributing to the decline, including oceanic factors affecting migrations and reproduction and continental factors like habitat loss and fragmentation, water pollution, climate change, overfishing, and physical harm caused by water pumping stations and hydropower installations (Jacoby et al., 2015).

The species has been classified as Critically Endangered on the IUCN Red List since 2008. The eel is also listed as a Priority Species under the UK Post-2010 Biodiversity Framework within the UK Biodiversity Action Plan. Further legislative protections were introduced through the Eels (England and Wales) Regulations 2009, which includes several key measures such as:

- 100% catch-and-release for recreational fishing,
- Restrictions on commercial eel fisheries: limiting where they can fish, methods and gear; and requiring mandatory catch reporting and record keeping,
- Mandatory installation of eel screens on water abstractions,
- The ability for the EA to require eel passes to be installed on obstructions to improve migration pathways, and
- Control on export and import of eel in the UK.

In response to the alarming declines and to comply with the EC Eel Regulation (EC 1100/2007) which has been transposed into UK law, in 2009 the UK government developed 15 Eel Management Plans (EMPs) at the RBD level. These plans aimed to achieve an escapement of silver eels to the spawning population that equals or exceeds a target set at 40% of the potential biomass that would be produced if no anthropogenic disturbances had impacted the stock. Within each plan, measures necessary to contribute towards the recovery of eel stocks were identified.

The measures initially outlined in the EMPs now require updating and the EA has set out a framework for this in its Eel Charter for England 2024-2030. The Charter's vision is that all suitable waters across England support healthy and thriving eel populations. There are four objectives identified to achieve this vision: provide eel management advice, fisheries operate sustainably, reduce non-fishery impacts, and work collaboratively. This charter will be further supported by an EMP for England and a new series of locally focused Action Plans, of which this Thames Eel Action Plan is the first. Like the previous local EMPs, these local action plans contribute to the recovery of eel stocks in the UK by focusing on measures tailored to local status and needs.

EEL IN THE THAMES

The alarming decline in glass eel recruitment across Europe has been reflected in the Thames RBD, in the number of glass eel arriving, the distribution of yellow eel in Thames rivers, and our estimates of silver eel escaping to sea (Gollock et al., 2011). The ZSL Thames European Eel Project (TEEP) has monitored the upstream migration of elvers at three long-term index sites—River Roding (Redbridge Roundabout) since 2005, and the River Thames (Molesey Weir), and River Medway (Allington Weir) since 2012. These sites provide critical insights into recruitment trends which are not only relevant for the Thames but also contribute to the international understanding of the status of eel (Wallis et al., 2024). These data show that there was a 99.8% reduction in recruitment in the River Roding between 1985 and 2009 (Gollock et al., 2011). Annual recruitment has continued at low levels since 2009 (Wallis et al., 2024).

The eel distribution data in the Thames from EA electric fishing surveys for the periods 2000 to 2009 and 2010 to 2019 is presented in Figures 2 and 3 below. These show presence (green) or absence (black) of eel at the electrofishing sites and demonstrates quite clearly that eel records from the upper reaches of river systems in the early 2000s no longer occur there, and that eel are now absent from parts of Berkshire, Oxfordshire and the Cotswolds. The percentage of sites with eel present declined from 23% from 2000 to 2009, to 19% from 2010 to 2019. Similarly, a 2019 fyke-netting survey of yellow eel in the main Thames revealed a notable decline in their numbers throughout the surveyed area, spanning from Crossness in the tidal river near the Dartford Crossing, to 150 km upstream (Cox, 2019). This shows further contraction of eel range since that recorded by Naismith & Knights (1993). The results of these studies indicate a decrease in upstream colonisation.

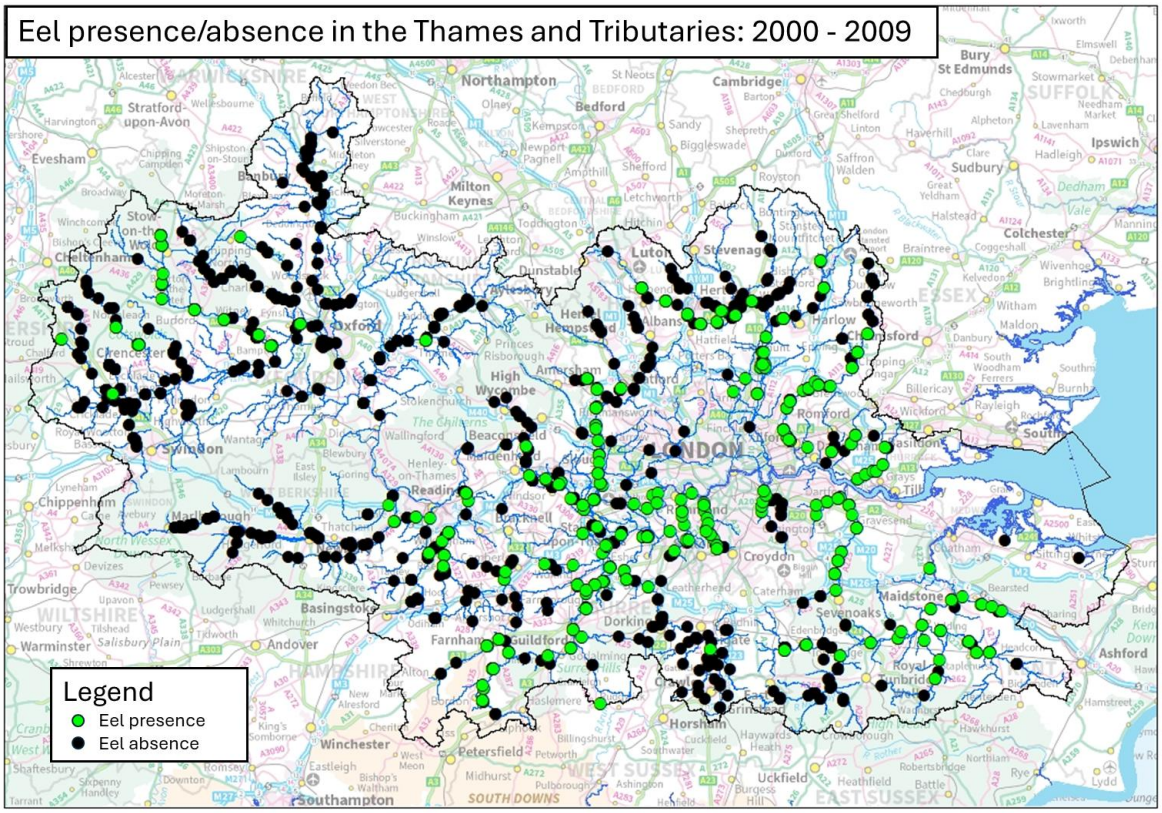

Figure 2: presence/absence of eel in the Thames RBD between 2000 and 2009.

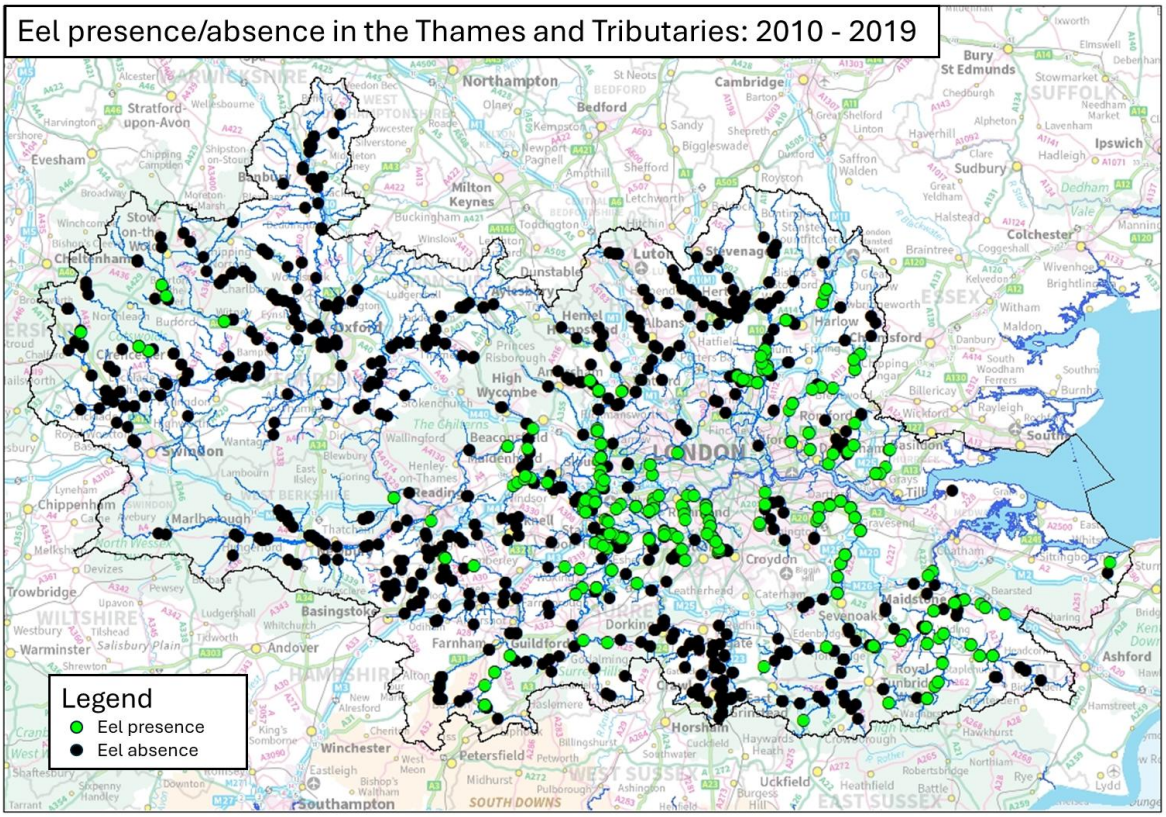

Figure 3: presence/absence of eel in the Thames RBD between 2010 and 2019.

In catchments like the Thames, eel distribution typically follows a pattern where the number of eel decreases as the distance from the tidal limit increases. A reduction in coastal glass eel arrivals is expected to lead to lower yellow eel populations and a shrinking range of distribution in the catchment, and ultimately a diminished spawning stock. A few hundred years ago, eel distribution was widespread across the waterbodies of the Thames RBD. However, as seen on the maps in Figures 2 and 3, distribution is becoming more concentrated around London and the confluences of tributaries with the Tidal Thames. This highlights the impacts of reduced density-dependent upstream migration, exacerbated by migration barriers and entrainment at water intakes.

While there is currently no direct measurement of silver eel escapement in the Thames RBD, models based on yellow eel populations suggest that the river continues to fail to meet the 40% target, as it has in all recent years (EA et al., 2024).

For the Thames RBD, the Thames EMP Implementation Group (EMPIG), co-hosted by ZSL and the EA, was established to support a collaborative approach to delivering the EMP. Through the efforts of EMPIG partners, over 100 eel passes have been installed, improving access to hundreds of hectares of river habitat. While the total habitat area made available by all installed passes is unknown, it is estimated that the 12 passes that ZSL has been involved in installing have opened over 139 ha of habitat (ZSL, 2022). New water intake screens have also been installed to protect eel from entrainment. Between 2019 and 2022, eel screens were installed at seven critical water abstractions that could entrain eel on the Thames (EA, 2024). Collaborative efforts such as the ObstacEELS survey identified migration barriers, expanding the baseline barrier dataset and feeding into the interactive Fish Migration Road Map (Available: https://www.thamesestuarypartnership.org/fish-migration-roadmap). This Action Plan will provide a continuation of the Thames EMP to carry on these efforts, aligning with the EA's National Eel Charter and the National EMP, the latter of which was still under development mid-2025.

THREATS TO EEL IN THE THAMES RBD

While there are international threats that impact eel populations globally, there are also local threats that directly impact the populations of the Thames RBD and their ability to thrive. The first of these threats is loss and modification of freshwater habitats due to land drainage, encroachment and hard engineering of rivers. This creates barriers to migration of eel upstream, downstream, and within wetland habitats. Examples of impacting structures include weirs and sluice gates. A further threat is entrainment, impingement and subsequent mortality of eel in pumping stations, surface water abstractions, cooling water intakes at power stations, and hydropower facilities. There is an eel fishery in the Thames RBD operating in the tidal river. While in recent years the licences and therefore catch on this fishery has been limited and will be gradually phased out, its presence remains a risk to eel in the catchment. Finally, there are parasites and pathogens present in the region that pose a risk to eel health in the Thames RBD.

SCOPE

GEOGRAPHIC SCOPE

The Thames RBD spans 16,133 km² and includes the River Thames and its tributaries, stretching from its source at Thames Head in Gloucestershire, through London, and into the North Sea (Figure 4). The Thames RBD comprises 11% of the freshwater and lake habitat within England and Wales (DEFRA, 2010). As one of the main estuaries feeding into the North Sea, the Thames RBD historically supported a wide distribution of eel.

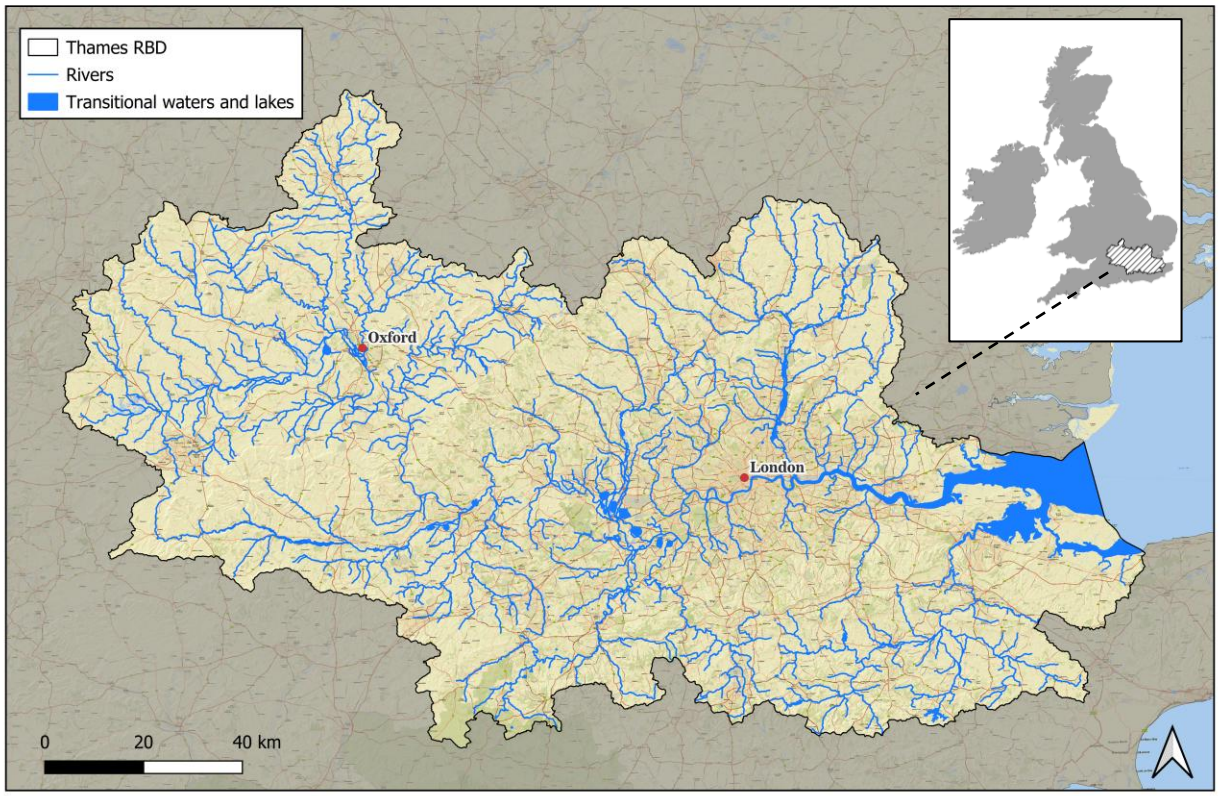

Figure 4 The Thames RBD and its associated water bodies.

OPERATIONAL SCOPE

Recognising that many threats to eel are widespread and international, and therefore beyond the scope of this regional plan, this Action Plan is tailored to address eel conservation within the Thames RBD, focusing on regional challenges and achievable solutions. Nonetheless, by addressing critical issues locally, the plan also supports the broader international conservation of the eel population. The Action Plan focuses specifically on eel-related issues that are not duplicated in other plans, such as the Water Framework Directive (WFD). Therefore, broader actions like improving water quality, while beneficial to eel, are covered under other plans and not addressed in this one.

TIMEFRAME

The Action Plan describes actions that will be undertaken, or begun, over the next five years (2025 to 2030). The progress against the Plan will be reviewed annually by an Action Plan Working Group made up of local stakeholders, and actions will be updated.

VISION

The vision guiding the Thames Eel Action Plan, which aligns with the vision set out in the Eel Charter for England 2024-2030, is that all suitable waters throughout the Thames RBD support healthy, thriving eel populations.

The aim of the Action Plan is to minimise mortality and maximise recruitment, production and spawner escapement to contribute to the spawning stock of eel populations in the Thames RBD, maintaining their position as a key component in the aquatic ecosystem. It serves as a regional effort that contributes to the development of a national conservation plan for eel in the UK.

OBJECTIVES, GOALS AND ACTIONS

The Action Plan sets out four overarching objectives, each underpinned by specific goals and actions as developed at the Action Plan workshop held at the ZSL meeting rooms in November 2024. Contributors and reviewers of the plan can be found in on page 16. The objectives, goals and actions were mapped across to those in the EA's Eel Charter (2024). Table 1 below summarises each objective alongside its associated goals and actions.

Objectives: Describes what needs to be accomplished to achieve the vision,

Goals: Breaks down how the objectives will be met, and

Actions: Specific tasks or projects undertaken to meet the goals. Actions may be short (1-2 years), medium (2-4 years), long-term (5+ years), or ongoing.

OBJECTIVE 1: GATHER AND SHARE EVIDENCE TO INFORM MANAGEMENT OF EEL POPULATIONS

Goal 1.1: Robust evidence-base maintained for the distribution, age structure, recruitment, population and escapement of eel in the Thames RBD

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
1. Monitor yearly recruitment of eel into Thames populations to understand long-term trends.	ZSL to continue eel recruitment monitoring at index sites: Molesey Lock (River Thames), Redbridge (River Roding) and Allington Lock (Medway)	Ongoing
2. Collate and map EA eel catch data every five years. Given that there were no surveys in 2020/21 due to COVID-19, the next review will be in 2027.	EA	Ongoing
3. Gather evidence on yellow eel density and biomass throughout Thames RBD.	EA (fish population surveys conducted via the EA's electric fishing programme), or third party	Ongoing
4. Investigate means of estimating the silver eel escapement from the Thames.	Not identified at present but EA currently estimates escapement through modelling	Long

Goal 1.2: Map threats to eel and address knowledge gaps

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
5. Map threats to eel in the Thames (barriers to migration, surface water abstraction points, hydropower installations, and pumping stations on eel populations) and quantify the impacts on eel.	Action Plan Working Group (Data held by EA)	Short
6. Quantify the loss of available habitat for eel caused by impassable barriers.		Short

7. Trial new and innovative methods to improve silver eel escapement through rigorous scientific studies, for example 1) stocking, 2) assisted migration, and 3) yellow and silver eel translocation.	EA, Action Plan Working Group and other academic partners	Long
8. Use catch returns to estimate the impact of the commercial fishery.	EA	Ongoing

OBJECTIVE 2: REDUCE THREATS TO EEL IN THE THAMES RBD

Goal 2.1: Free access to habitats is achieved and maintained

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
9. Assess passage efficiency of barriers at the tidal limit of all tributaries feeding into the River Thames and address any passage issues where needed as priority on these structures. Ensure these priority barriers are highlighted in Catchment Plans.	EA (for assets owned by the EA)	Medium
10. Remove or improve pass-ability of all other barriers within eel range in the Thames RDB.	Owner/whoever is responsible for barrier	Ongoing
11. Ensure that all existing eel passes are inspected regularly and maintained in an operable condition for eel migration.	Owner/whoever is responsible for eel pass	Ongoing
12. Improve connectivity to estuarine habitats (e.g. marshes, ditches and other wetlands) by installing solutions such as dampers or retarders on a tidal flap gates.	EA (for assets owned by EA), third parties, Action Plan Working Group	Ongoing

13. Identify non-river waterbodies (reservoirs, lakes, etc.) where migration is compromised (including those that are accessible but not allowing escapement, and those that are not accessible) – for example WWT Barnes Wetland Centre, Leg of Mutton, water company supply reservoirs, etc. and assess options for improving escapement.	ZSL and other Action Plan Working Group partners	Short
14. Ensure that eel passage is included in the construction of any new barriers that could limit eel migration and recruitment.	EA	Ongoing

Goal 2.2: Prevention of anthropogenic mortality

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
15. Screen priority abstractions, pumping stations and other water movement activities to prevent eel injury or mortality.	EA	Long
16. Ensure new water intakes and hydropower installations do not injure or kill eel.	EA	Ongoing
17. Ensure that the commercial eel fishery operates within its legal constraints, and prevent illegal fishing activities.	EA	Ongoing
18. Support a managed decline of the commercial yellow and silver eel fishery on the Thames in line with ICES advice and until stocks have returned to a sustainable level.	NGO's	Ongoing

Goal 2.3: Effective surveillance and reporting of sick or dead eel.

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
19. Report any eel mortalities or sick eel, including parasites/pathogens, to the Environment Agency for further investigation through the emergency incident line at 0800 807060.	Action Plan Working Group	Ongoing

OBJECTIVE 3: ENGAGE COMMUNITIES AND OTHER STAKEHOLDERS TO PROGRESS EEL CONSERVATION IN THE THAMES RBD

Goal 3.1: Engaged network of stakeholders established in the Thames RBD.

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
20. Communicate advances in scientific knowledge and conservation practice to stakeholders and the public about the status of the eel and the necessary recovery actions required.	Action Plan Coordinator (*described on page 18*)	Ongoing
21. Highlight the ecological and cultural importance of eel to the Thames in communications, publications, and events.	Action Plan Working Group	Ongoing
22. Work with citizen scientists where appropriate and feasible to both drive eel recovery efforts and engagement with local communities.	Action Plan Working Group	Medium

Goal 3.2: Collaborate and share data with eel networks regionally, nationally, and internationally to promote the recovery of the species.

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
23. Participation and leadership in the development and implementation of coordinated local, regional protection, management and recovery of eel and its habitats at national and European levels (e.g., using Thames as a case study).	Action Plan Working Group	Short
24. Continue providing data to colleagues and agencies studying the international recovery of the species (e.g., the ICES European Working Group on Eels (WGEEL)).	ZSL, EA	Ongoing

Goal 3.3: Use the priority status of eel to influence policies, strategies and legislation.

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
25. Advocate for the inclusion of eel in local development strategies and conservation initiatives, such as Local Nature Recovery Strategies, catchment plans, Biodiversity Net Gain priorities, etc.	Action Plan Working Group	Short
26. Act as Eel Champions, raising awareness of eel conservation through community outreach and professional networks.	Action Plan Working Group	Ongoing

OBJECTIVE 4: ENSURE SUSTAINED DELIVERY OF THE THAMES EEL ACTION PLAN

Goal 4.1: Conservation practitioners and eel experts collaboratively plan and regularly review priorities for eel action.

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
27. Ensure there is always a Coordinator of the Action Plan.	Action Plan Working Group	Short
28. Action Plan Working Group to meet annually to review progress on actions.	Action Plan Working Group	Short
29. Maintain an updated, accessible inventory of the work being delivered by the Action Plan Working Group.	Action Plan Coordinator	Ongoing
30. Comprehensively review and update or replace the Action Plan every 5 years.	Action Plan Working Group	Long

Goal 4.2: Attract sustained funding for eel conservation.

Actions	**Who will deliver**	**Timeframe** (short, medium, long, ongoing)
31. Action Plan Coordinator to highlight potential funding sources and opportunities through the Action Plan network.	Action Plan Coordinator (ZSL, initially)	Short

DELIVERING THE THAMES EEL ACTION

This plan will be delivered by a coalition of partners working in the Thames called the **Eel Action Plan Working Group**. The purpose of the Eel Action Plan Working Group is to support collaborative delivery of the actions, regularly review progress, share eel conservation updates, and steer resources towards delivery of the plan. There will be at least one working group meeting annually, ideally in person, with as many members of the working group present as possible. When the Action Plan reaches its lifespan of five years (in 2030) there will be a more in-depth review and discussion about the progress that has been made, and whether this document can be updated or needs replacing.

The **Action Plan Coordinator** will be a role hosted by ZSL initially, but it can pass to another of the organisations in the Working Group in the future. The co-ordinator will convene Working Group meetings, support communications and partnership development to involve new partners in eel conservation.

Representatives of the following organisations will be invited to be part of the Working Group:

1. Canal and Rivers Trust
2. Cefas
3. Environment Agency
4. Greenspace Information for Greater London
5. Groundworks
6. Hertfordshire and Middlesex Wildlife Trust
7. London Borough Biodiversity Forum
8. London Wildlife Trust
9. Medway Swale Estuary Partnership
10. Medway Valley Countryside Partnership
11. Natural England
12. Natural History Museum
13. Northwest Kent Countryside Partnership
14. Royal Holloway
15. Sustainable Eel Group
16. Southeast Rivers Trust
17. Southern Water
18. Thames Estuary Partnership
19. Thames21
20. Thames Rivers Trust
21. Thames Water
22. UCL
23. ZSL

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