

## Fish

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Fish differ from other species in this report, as many fish species have a commercial value. The Welsh angling industry is worth around £200million per annum, and it is thought that this could be increased.<sup>1</sup> This figure does not include any added value in terms of health and wellbeing that angling provides.

Knowledge of fish populations is limited due to the patchiness of sampling and the translocation and stocking of species for commercial reasons. It is estimated that there are about 28 estuarine and inshore fish species in South Wales, with 14 of these thought to be of regional significance.<sup>2</sup>

Both the River Usk and River Wye are designated as SACs for their fish populations.<sup>3,4</sup> Annex II fish species listed as primary reasons for selection and qualifying features include Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planicoxis*), River Lamprey (*L. fluviatilis*), Twaité Shad (*Alosa fallax*), Allis Shad (*A. alosa*), Atlantic Salmon (*Salmo salar*) and Bullhead (*Cottus gobio*). This list includes both anadromous fish (fish that spawn in freshwater but spend part of their lifecycle at sea) and fish that spend their entire lifecycle in freshwater. Many other watercourses, including all the main rivers within the study area, are designated as SINC, although they may not qualify for their fish populations.

Only 35% of UK rivers are achieving Good Ecological Status under the Water Framework Directive.<sup>5</sup> In Greater Gwent, where fish populations have been assessed, 211km (21 sections) of riverbodies within the study area are classified as only moderate or poor, although it should be noted that there is uncertainty around some of the data.<sup>19</sup> Failing fish populations include Salmon, Bullhead, Brown Trout (*S. trutta*), European Eel (*Anguilla Anguilla*) and Stone Loach (*Barbatula barbatula*). Fish populations are threatened by loss of suitable habitat, pollution, barriers to migration and climate change. There are two river trusts within the study area: The Wye and Usk Foundation and the South East Wales Rivers Trust. Both carry out conservation work relating to habitat improvements, removal of both natural and artificial barriers, and water quality monitoring, as well as raising awareness of the value of river ecosystems.

In this section there are two species, one anadromous – Atlantic Salmon. and one catadromous – European Eel. It should be noted that many of the issues affecting these species are likely to affect other fish species in the area.



## European Eel *Anguilla anguilla* (Linnaeus, 1758)

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Protection: Eels Regulations (2009)

Conservation status: Critically Endangered (Global)<sup>6</sup>

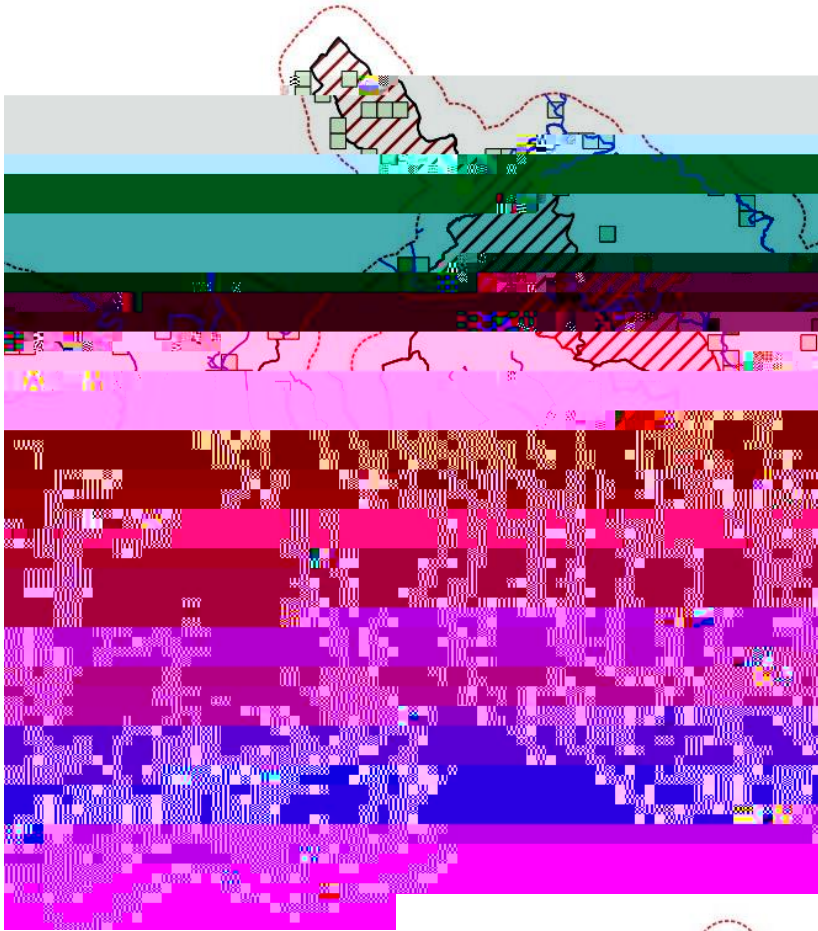
Data availability: Moderate (1,079 records)

Context: European Eels have a complex life cycle, starting as eggs in the Sargasso Sea. The Gulf Stream carries the larvae, or *leptocephali* across the Atlantic towards Europe and North Africa. After 1–3 years, when they reach shallower waters, the larvae metamorp

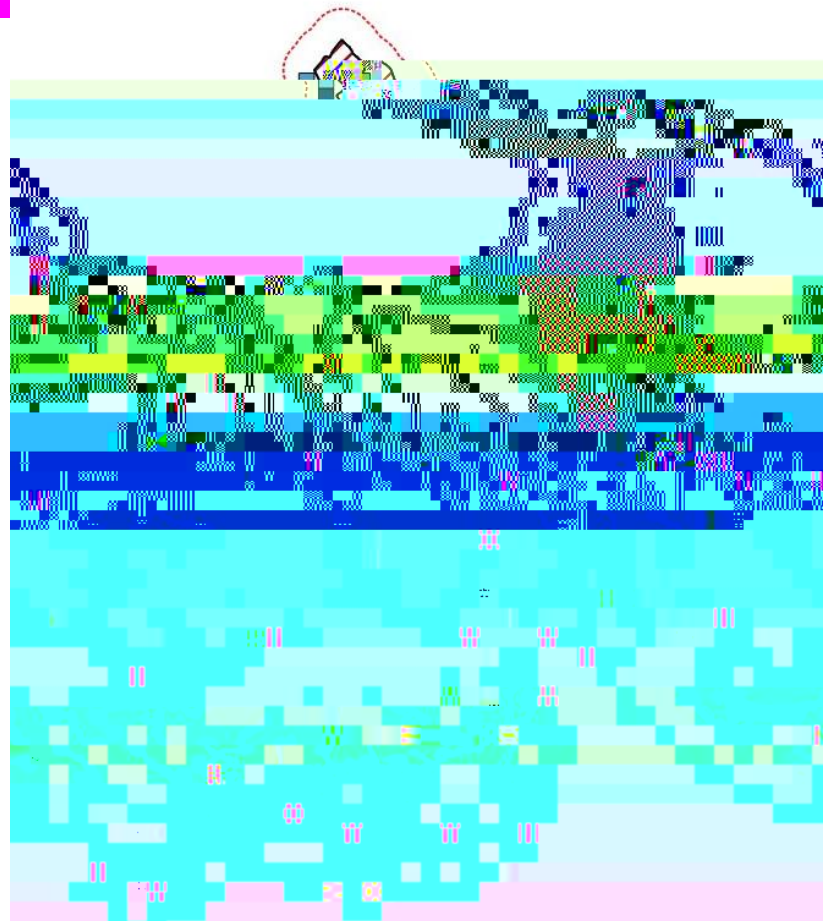
improving data collection and monitoring of fisheries.<sup>9</sup> Awareness-raising work is also taking place, with the South East Wales Rivers Trust (SEWRT) running an Eels in the Classroom project.<sup>11</sup>

Greater Gwent range: Records for European Eel are found across Greater Gwent and on all of the main rivers. Hotspots are related to sampling and recording effort, especially as Natural Resources Wales sampling is often repeated at the same locations. However, most records, especially from the

Density of European Eel records, maximum 55 records/km<sup>2</sup> (main rivers<sup>2</sup> shown for clarity)



European Eel records by decade (main rivers<sup>2</sup> shown for clarity)



Protection:

## Atlantic Salmon *Salmo salar* (Linnaeus, 1758)

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Protection: Habitats Regulations (2017) Schedule 4, Salmon Act (1986), various byelaws

Conservation status: UKBAP Priority Species, Wales S7 Species

Data availability: Moderate (611 records)

Context: Atlantic Salmon are an iconic fish species, known for their spectacular leaps as they migrate from the ocean to their freshwater spawning grounds.

Salmon are faithful to the river where they hatched and will migrate thousands of kilometres to breed. Young salmon (known as fry, then parr after the first year) hatch in spring and can remain in freshwater for up to seven years. These will change into smolts, which are able to survive in saltwater, before migrating downstream. They spend a year or more at sea, before returning to the river to breed.<sup>13</sup>

Atlantic Salmon are an important species culturally and economically, but numbers of salmon have fallen dramatically since the 1980s, reducing by more than half over a period of 33 years.<sup>13</sup> This was despite a reduction in salmon exploitation that followed the creation of a large protected zone free from targeted fisheries in the North Atlantic Ocean in 1983. The North Atlantic Salmon Conservation Organization (NASCO) was formed at the same time.

Threats to Atlantic Salmon populations include habitat degradation, pollution, barriers to migration, and diseases (often from farmed salmon). Climate change is also a concern. Salmon are sensitive to changes in water temperatures, and changes also affect their prey sources and timings of migration. Locally, both the Wye and Usk are designated as SACs for their Atlantic Salmon populations. Both have

Greater Gwent range: Most Greater Gwent records are concentrated along the River Usk, with a



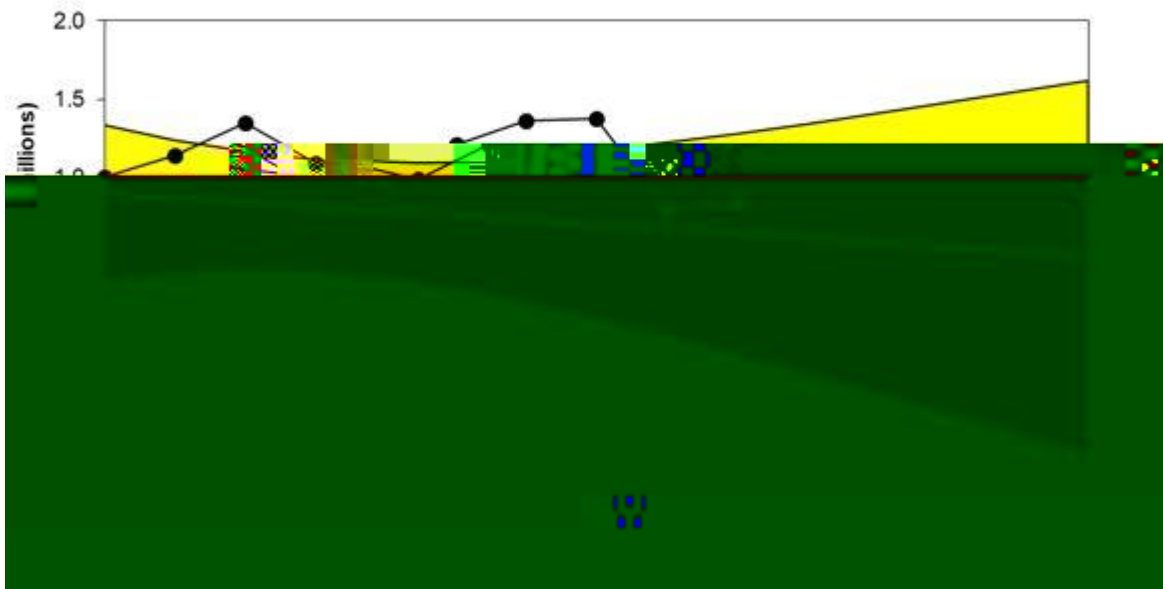
Density of Atlantic salmon  
records, maximum  
records/km<sup>2</sup> (main rivers  
included for clarity)

Atlantic Salmon records by  
decade (main rivers

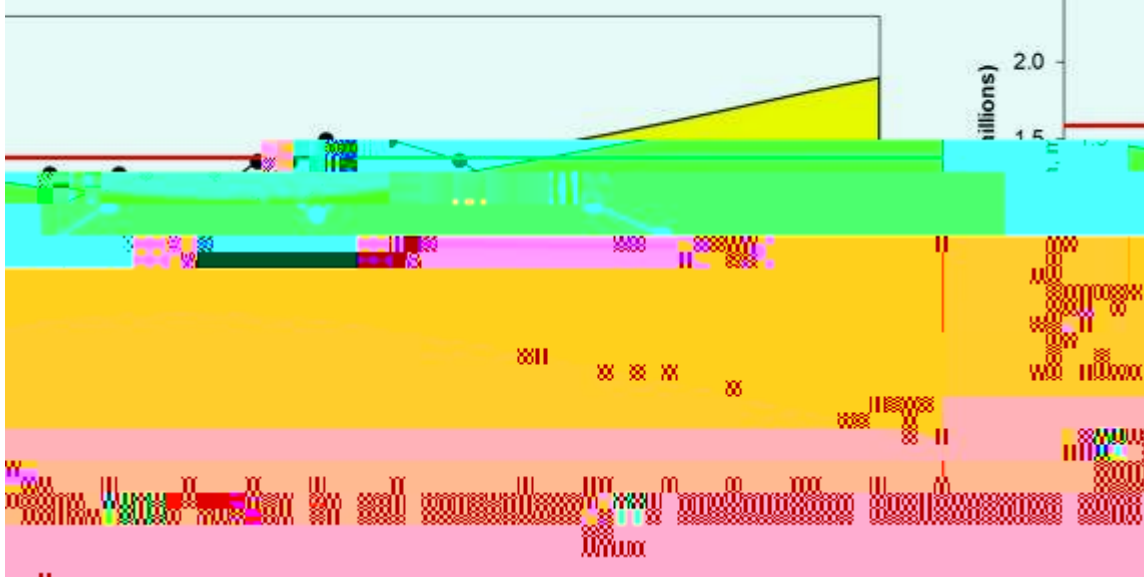


Estimates of egg deposition are also available for the Usk and Wye catchments. These also show the conservation limit, which aims to protect an optimum level of stock, i.e. the number of eggs needed each year in order to conserve salmon stocks for the future. Egg deposition estimates for both rivers are currently below their conservation limits.

River Usk estimates of egg deposition and compliance with conservation limit<sup>17</sup>



River Wye estimates of egg deposition and compliance with conservation limit<sup>17</sup>



Protection: Just under half (43%) of records come from protected sites, with high numbers of records from the Usk and Wye SACs and the rivers designated as SINC, such as the Monnow, Trothy, Ebbw, Sirhowy, and Rhymney. The Afon Lwyd is also a SINC with some records, but the designation is currently expressed as a line, rather than a polygon, so records are not picked up in a search. It is likely that most records are within watercourses with some degree of protection, as most main watercourses are dp(er)1 records are not picked up in 2 Tm0 most main

