

River fragmentation and influence on ichthyofauna

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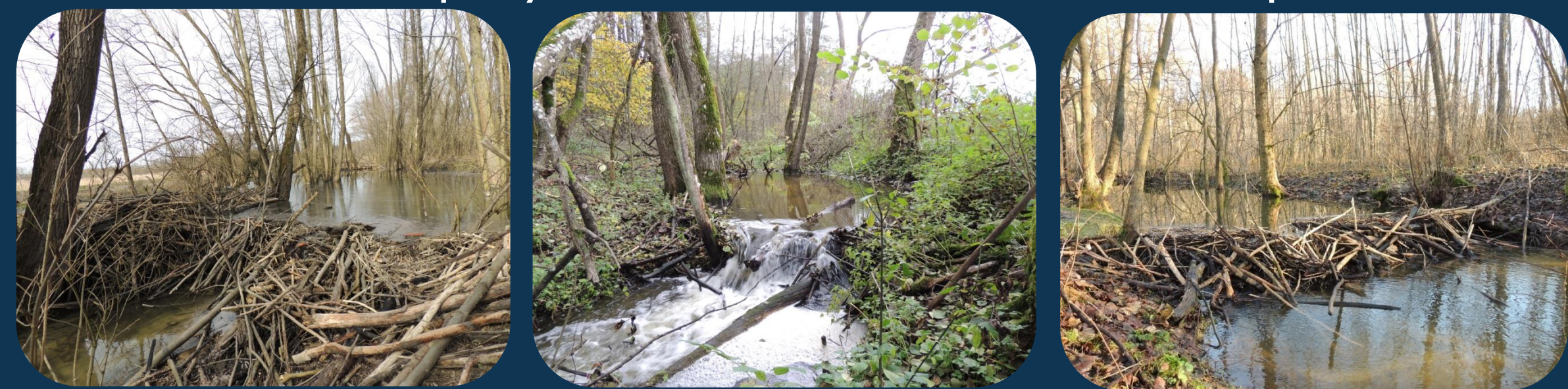
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River fragmentation, as the existence and formation of transverse barriers that disrupt ecological continuity, is a significant factor affecting fish and lamprey populations. This phenomenon puts particular pressure on these organisms, which has contributed to a decline in their numbers in Europe by nearly 94% over just the last 50 years.

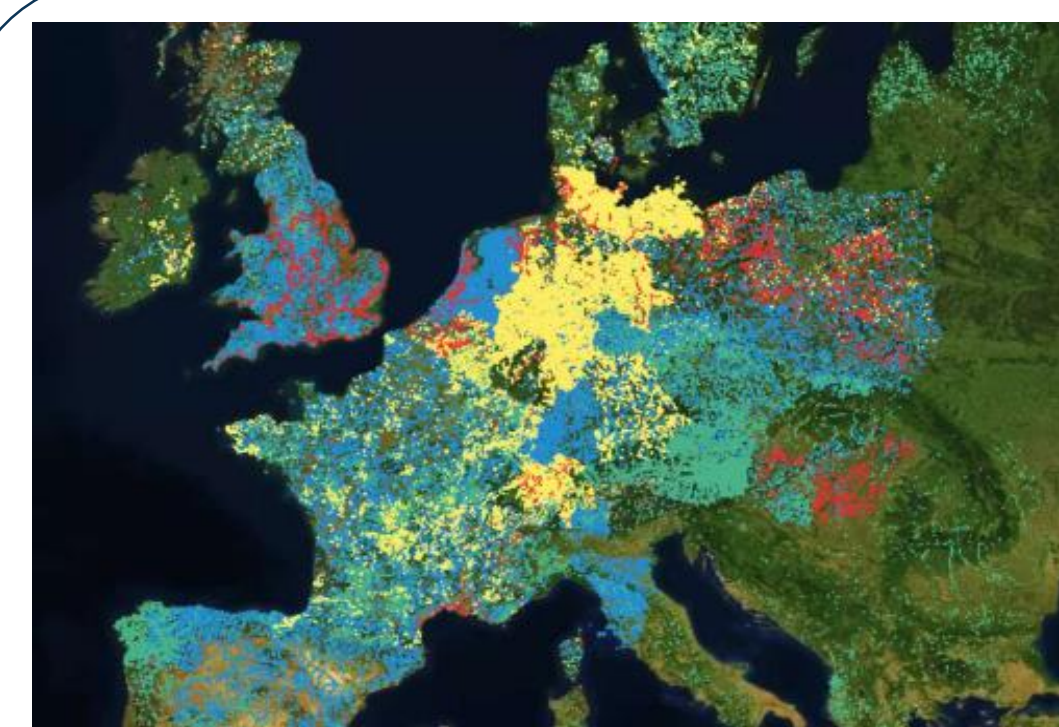
The phenomenon of river fragmentation is negative when barriers are created anthropogenically, to regulate and deepen rivers. Such hydrotechnical structures include water thresholds, weirs, or dams that disturb or prevent the migration of fish and lampreys, which is important in the context of reproduction and feeding.



Natural barriers favor increasing biodiversity and influence the current distribution of species. Dams created by the European beaver are particularly important. The alterations of this ecosystem engineer ensure habitat and species diversity, and the floodplains created by beavers have a significant contribution to water retention. These and other environmental services that beavers offer to us have been valued at USD 133 million per year in the entire Northern Hemisphere.



The scale of river ecosystem alterations in European countries is very high, as evidenced by the presence of approximately 1.2 million transverse barriers on European rivers. Although there are nearly 77,000 of them in Poland, the example of the dam in Włocławek shows how one structure can harm many ecosystems, cutting off 57,000 km of rivers.

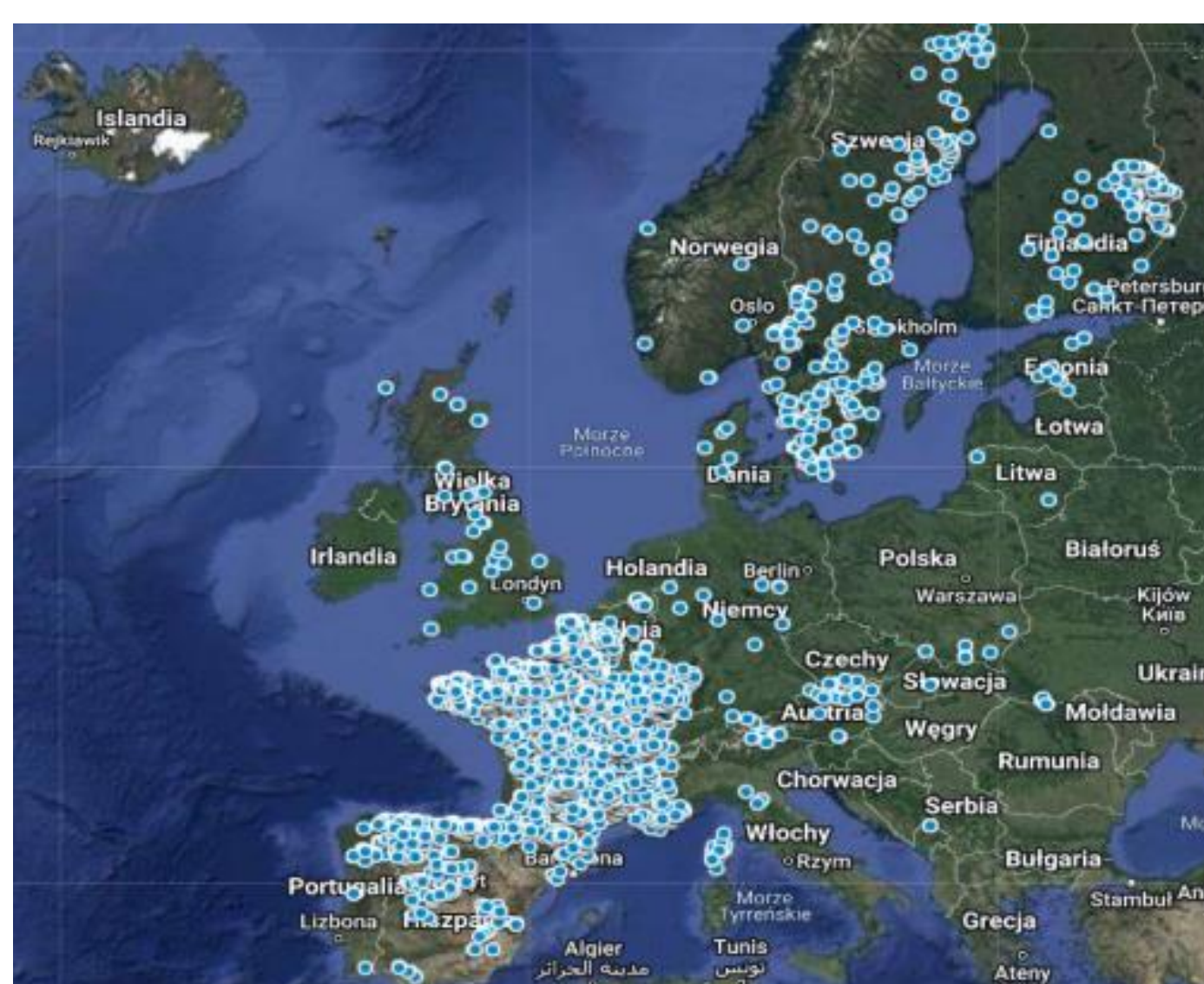


A part of the map of Europe with cross-barriers marked with points



The Vistula River Basin, which was cut off from the Baltic Sea by the dam building in Włocławek

For years, attempts to counteract the negative effects of fragmentation have been based on the design and construction of fish ladders - devices that enable fish and lampreys to overcome the artificial barrier. These attempts are not always effective. The most effective action is the removal of existing hydrotechnical structures, which restores complete ecological continuity and gives a chance for the rebirth of many fish populations.



A map of Europe with the removed dams marked with points



- River fragmentation is one of the main factors threatening the biodiversity of freshwater ecosystems which are considered as the most endangered on our planet.
- The drastic result of this phenomenon is the decline in the number of representatives of ichthyofauna by almost 94% over the last 50 years.
- Negative effects occur in the presence of anthropogenic barriers, whereas natural ones, such as beaver dams, are beneficial from the hydrobiological point of view
- The scale of the problem is huge - there are over 40,000 dams higher than 15 meters in the world; there are approximately 1.2 million cross-barriers in Europe; On average, there are 0.74 barriers per 1 kilometer of river in Europe
- The most efficient tool for river restoration is the removal of existing hydro-technical structures, and only 5,000 such migration barriers have been removed in Europe



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