



**Food and Agriculture
Organization of the
United Nations**

EUROPEAN INLAND
FISHERIES AND
AQUACULTURE ADVISORY
COMMISSION

EIFAAC/OP57 (En)

**EIFAAC OCCASIONAL
PAPER**

ISSN 2221-6650

EUROPEAN INLAND FISHERIES AND AQUACULTURE ADVISORY COMMISSION

STATUS AND TRENDS OF INLAND FISHERIES IN EUROPE



Cover picture: A man fishing from a boat on Lake Windermere. © Peter Etchells| Dreamstime.com

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Author

Robert Arthur
FAO Consultant

Required citation:

Arthur, R. 2025. *Status and trends of inland fisheries in Europe*. EIFAAC Occasional Papers, No. 57. Rome, FAO.
<https://doi.org/10.4060/cd3884en>

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ISSN 2221-6650 [Print]
ISSN 2958-8480 [Online]

ISBN 978-92-5-139545-5
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PREPARATION OF THE DOCUMENT

This EIFAAC occasional paper contains a summary of the status of inland fisheries in Europe based on information drawn from statistics reported to FAO together with additional national sources. The document was prepared following a request at the 32nd Session of the European Inland Fisheries and Aquaculture Advisory Commission, held in Pula, Croatia, on 7–9 October 2024. The request involved the production of a paper based on the relevant findings of the FAO Review of the State of the World Fishery Resources: Inland fisheries (Revision 4) (Arthur, 2024) and including all EIFAAC Member States. This paper provides an update of session information document EIFAAC/2024/Inf.14 on the status and trends of inland fisheries in Europe. It describes the status of inland fisheries within the European region and its sub-regions with summary data drawn from the FAO FishStat database.

This document was prepared by Mr Robert Arthur (FAO consultant) and reviewed by EIFAAC Secretary Mr Raymon van Anrooy and various EIFAAC Members. The document was formatted by Maria Eugenia Escobar (FAO).

The EIFAAC Secretariat acknowledges the contributions from EIFAAC member country representatives to this paper. The country summaries presented benefitted greatly from the valuable contributions including those from: Mr Enton Spaho (Albania); Mr Christian Bauer (Austria); Ms Vildana Tahirović (Bosnia and Herzegovina); Mr Constantinos Moustakas (Cyprus); Mr Jakub Mořický (Czechia); Mr Josip Suić (Croatia); Mr Lene Jensen Scheel-Bech, Ms Fie Lind-Holm and Mr Søren Berg (Denmark); Ms Ketter Kärp (Estonia); Mr Petri Heinimaa (Finland); Mr Klaus Wysujack and Mr Reinhold Hanel (Germany); Mr Horváth Ákos (Hungary); Mr Michael Millane, Ms Fiona Kelly, Mr Kealan O’Higgins and Ms Ciara O’Leary (Ireland); Mr Guy Rubinstein (Israel); Ms Ruta Medne (Latvia), Mr Robbert-Jan Schaap (Kingdom of the Netherlands); Mr Igor Wawrzyniak (Poland); Mr Savin Cristian (Romania); Ms Angela Konovalenko (Republic of Moldova); Mr Dušan Ognjanović (Serbia); Ms Malin Setzer and Ms Sofia Brockmark (Sweden); Mr Serhat Dinçer, Mr Erdinc Günes and Mr Erdal Üstündag (Türkiye) and Ms Charlotte Beardwell, Mr Steven Dora and Mr Graeme Storey (United Kingdom of Great Britain and Northern Ireland).

ABSTRACT

Globally, inland capture fisheries continue to play a crucial role, contributing significantly to human health, livelihoods and cultural economies. Despite producing over 12 percent of the world's fish, they face challenges such as environmental degradation and competition for water, remaining undervalued in decision-making and policy discussions. Inland fisheries remain important within Europe, where they provide food, cultural and recreational benefits and contribute to maintaining biodiversity. Total production reported to FAO in 2021 was 167 187 tonnes (1.47 percent of the global total) and the average annual consumption of inland fisheries products in Europe was 0.24 kg per capita per year. Information on inland fisheries at regional, subregional and national levels is also presented on fishing, fisheries and fisheries management from FAO and other sources. Priorities for responsible management are identified, drawing on the evidence from regional and global assessments. These priorities include strengthening the evidence base, including both the status of fish stocks and the social and economic benefits they provide, advancing an ecosystem approach to management through stewardship and care and considering the role of fisheries within wider landscape and catchment planning. Acknowledging the roles and importance of inland capture fisheries is critical to ensuring that inland fisheries continue to support livelihoods and cultural heritage and drive positive transformations.

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I. INTRODUCTION

1. Globally, environmental and social change has contributed to the degradation, modification and restoration of aquatic environments. Despite the alteration of these environments, inland capture fisheries continue to make important, and at times critical, contributions to human well-being, including through their role and contributions to human health, rural livelihoods and to economies and cultures (Cooke *et al.*, 2016; Arthur, 2024). The contributions that inland capture fisheries can make to human diet, health, well-being, rural community livelihoods and economies are still often undervalued and largely overlooked or downplayed in policy discussions. The recently published C942/Revision 4 (Arthur, 2024) has highlighted the contributions of inland capture fisheries related to global fish production. Inland capture fisheries contribute over 12 percent of the world's fish production (11.4 million tonnes in 2021 [FAO, 2024]) while using less than one percent of aquatic habitat. Inland fisheries are particularly important for certain countries, regions and populations. Seventeen countries produce 79 percent of inland fish catch and more than 20 percent of inland capture fisheries production originates from Low income and food deficit countries (LIFDC). In European countries, inland capture fisheries have increasingly provided recreational benefits, including eco-tourism, and contributed to biodiversity and wider landscape conservation. Fish retained from recreational fisheries can also make important contributions to food security and nutrition that are not always recognised. Inland waters are also home to around 40 percent of all fish species.

II. BACKGROUND

2. Almost all inland fisheries are small-scale, with inland capture fisheries accounting for almost one third of total global small-scale fisheries catches. Inland fisheries provide an essential source of nutrients for vulnerable populations, accessible directly or at an affordable price. Globally, more than 50 million people depend on inland fisheries for their income, whether through full-time fishing, part-time foraging or recreational activities. In many cases, fishing can be particularly important at certain times of the year and may be linked to or engaged in alongside other livelihood activities. Fishers exhibit adaptive strategies, such as using different fishing gears at different times of the year and moving around according to the abundance and distribution of fish.

3. Examples from around the world also show how inland fisheries can contribute to preserving and restoring aquatic environments, improving ecological connectivity and improving water quality and nutrient flows. Changing landscapes and societies create new challenges and opportunities for inland capture fisheries. The development of infrastructures such as dams and irrigation schemes can disrupt and degrade capture fisheries but can also create new bodies of water conducive to new fishing activities, often supported by fish stocking and the creation of fish farms. In some places, the restoration of fish stocks and fisheries justifies initiatives to remove or modify hydraulic infrastructures and restore watercourses. As noted in many national reports received by FAO, many inland fisheries remain poorly documented or recognized, remaining invisible and therefore at risk of neglect.

Improving the quality of statistics

4. There remains a need to improve the information base on inland fisheries. Inland capture fisheries statistics are often not routinely collected or reported with a consequent underestimation of their value. In other cases, the nature of inland fisheries makes collecting data challenging. The status and methods for fisheries data collection in inland capture fisheries across Europe varies, primarily because countries manage inland fisheries individually, including within the European Union (EU). Among EIFAAC member countries not all routinely collect data on inland recreational fisheries catch and while there have been country-level and occasional social and economic studies, there are no regular or systematic European-wide assessments of inland fisheries (Vehanen *et al.*, 2020). The challenges of data collection provide opportunities for complementary approaches and methods including citizen science and the application of predictive models based on fish habitats or fisher numbers, or household consumption

studies. These have the potential to overcome existing obstacles to direct observation and improve the extent and detail of inland fisheries statistics.

The relational nature of inland fisheries: a food systems perspective

5. Considering inland capture fisheries as part of food systems highlights the complex interactions and interdependencies that exist between production, processing and distribution (supply), consumption patterns and the impact on food security and nutrition. Such a perspective can highlight the nature of fisheries economies, revealing differences between fish production activities (e.g. commercial, and recreational capture fisheries and aquaculture). These can include differences in the fish produced, its distribution and ultimately who benefits from the activity. A food systems perspective also reveals important social and economic dimensions, including the role of tenure, markets and informal economic activities. Such a perspective can be important for fisheries management and policy providing a means to recognize and be inclusive of the wider roles and benefits associated with inland fisheries.

Strengthening management

6. The diversity and dispersed and dynamic nature of many inland fisheries can be challenging for fisheries management. Despite this, globally there is evidence of the enduring success of traditional fishing and management practices across many inland fisheries. These practices go beyond the single objective of regulating fishing effort and embrace holistic resource management that is consistent with the ecosystem approach to fisheries, promoting environmental stewardship and balancing the needs of different stakeholders. Many traditional practices involve informal arrangements and donations, reciprocity and collective fishing practices, often complementing or providing alternatives to formal management structures. Prioritizing practices of care that emphasize equitable outcomes and social cohesion can foster a sense of shared responsibility for the resource and can be the basis for innovation in management. As part of advancing an ecosystem approach through stewardship and care, fisheries and development policies need to recognize the potential of traditional practices, local knowledge and values and address how they can contribute to management strategies, to sustainability and to social and environmental well-being.

Contributions to integrated water resources management

7. Inland capture fisheries are influenced by many factors that originate outside the sector. Examples include climate change, hydropower production, changes in land use and urbanisation. Decisions related to these factors lie outside the sector and can be made at different scales. Used at basin or sub-basin level, integrated assessments can help to identify priority areas, critical threat factors and measures to be included in basin management plans and inform integrated water resources management (IWRM) initiatives. Improving decisions across sectors also highlights the potential for fish and fisheries to contribute to monitoring and detecting changes in aquatic environments that can contribute to improved planning and policy.

III. REGIONAL SUMMARY OF INLAND FISHERIES IN EUROPE

8. Total production from inland fisheries in Europe for 2021 was estimated to be 167 187 tonnes, representing 1.47 percent of total global inland fish production (Table 1). Countries in Europe reporting inland fisheries may be grouped into sub-regional groups reflecting common climatic characteristics or shared water resources (for example, countries in the same basin). For Europe, these sub-regional groups and their production characteristics are summarized in Table 1 and further details of the fisheries within each sub-region are provided in Appendix A.

Table 1. Inland capture fisheries production in Europe and contributions to the global catch

European Subregion	Countries and territories	Inland capture fisheries catch (tonnes in 2021)	% global inland capture fisheries catch	Per capita inland fish production (kg/cap/year)
Eastern	Belarus; Bulgaria; Czechia; Hungary; Republic of Moldova; Montenegro; Poland; Romania; Serbia; Slovakia; Slovenia; Ukraine	59 223	0.52	0.38
Southern	Albania; Bosnia and Herzegovina; Croatia; Cyprus; Greece; Israel; Italy; North Macedonia; Malta; Portugal; Spain; Türkiye	49 568	0.44	0.21
Northern	Denmark; Estonia; Finland; Iceland; Latvia; Lithuania; Norway; Sweden	36 214	0.32	1.08
Western	Andorra; Austria; Belgium; Channel Islands; Faroe Islands; France; Germany; Ireland; Liechtenstein; Luxembourg; Netherlands (Kingdom of the); Switzerland; United Kingdom of Great Britain and Northern Ireland	22 183	0.20	0.08
TOTAL		167 187	1.47	0.24

9. The relative contributions to the regional total of 167 187 tonnes differs between countries from 20 percent (Türkiye) to less than one percent (United Kingdom of Great Britain and Northern Ireland, Belarus, North Macedonia, Croatia, Austria, Bosnia and Herzegovina, Belgium, Norway, Latvia, Denmark, Slovenia, Montenegro, Iceland, Ireland, Bulgaria, Cyprus, Portugal, Republic of Moldova and Luxembourg). These differences reflect not just the productivity of water resources but also the nature of the fisheries and fisheries management (see Appendix A for details). Relative contributions to the regional total by the countries in Table 1 are shown in Figure 1 below.

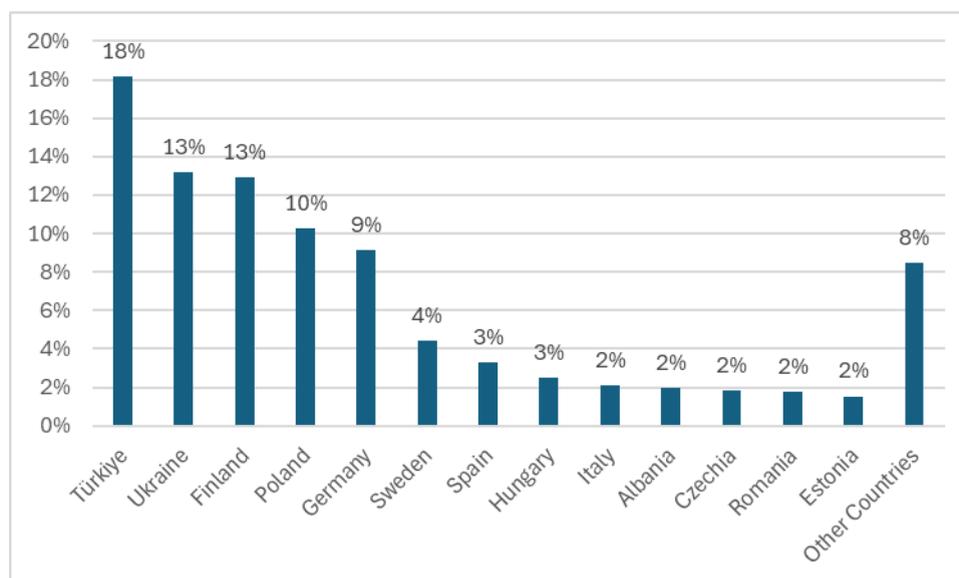


Figure 1. Relative contribution in percent to the total European inland fisheries production by individual countries based on catches reported to FAO in 2021.

10. Different forms of commercial and recreational fisheries are present across the European sub-regions. These fisheries target a range of species across different aquatic environments using different gears. While production overall and per capita is generally low, there are exceptions. Estonia and Finland report relatively high per capita production. Recent trends in catches reported to FAO suggest that catches have generally remained stable, although there are some declines in some migratory species, including European eel, salmon and sturgeon. While still important in some areas, commercial fishing in inland waters represents only a small part of total regional fish production. The numbers of commercial fishers are difficult to assess, not least because it can be part-time or seasonal and reporting is incomplete. However, a focus on the numbers can overlook the local contributions and cultural values associated with these fisheries. Fishing methods and gears are often local and traditional and based on local knowledge of the fish and the aquatic environments.

11. Recreational fisheries are an important element of inland fisheries across Europe and take place in rivers, streams, lakes (including frozen lakes), reservoirs and other natural and man-made waterbodies (e.g. Arthur, 2024). Participation in recreational fisheries can be extensive and over 30 million people are estimated to participate annually (e.g. Lynch *et al.*, 2024; Embke *et al.*, 2022) and consequently recreational catches from inland waters in many European countries (Finland, Sweden, Germany, France, Poland, Hungary, Czechia, Serbia, Slovakia, Slovenia) were higher than catches from commercial fishing. While catch and release is a common practice in recreational fisheries (e.g. Brownscombe *et al.*, 2017), fish can also be retained for consumption, a practice that is more prevalent in Northern and Eastern Europe.

12. Although reported catches from inland fisheries in Europe are relatively low from a global perspective, they can play an important role at the local level as sources of food, income and employment. Activities associated with fishing are important aspects of inland fisheries and local economies. Within Europe, fish trade can play important roles in the accessibility of inland fish to consumers and there is evidence of specialized marketing techniques, most notably around ecolabels and local branding. Examples include the Lake Hjälmaren, Lake Mälaren and Lake Vänern pikeperch fisheries.

13. Management of inland fisheries involves a variety of regulations, including gear restrictions, allowable catches and licensing that represent more restrictive regulations, as well as restoration and enhancement measures. The latter include measures such as ‘conservation aquaculture’ (Froehlich, Gentry and Halpern, 2017) and stocking (e.g. for trout, salmon). Other measures seek to address interactions and habitat quality and include and measures to address piscivorous (e.g. cormorants and mink) and invasive (e.g. signal crayfish) species (e.g. Ovegård *et al.*, 2021; Krieg, King and Zenker, 2020). Measures have also been introduced related to fish welfare, including in Germany where demonstrating knowledge of fish welfare is part of recreational fishing licenses (e.g. Arlinghaus *et al.*, 2014). To support fisheries and wider habitat management there has been an increase in citizen science initiatives that contribute to monitoring and assessment (e.g. Gundelund *et al.*, 2020).

14. Fish stocks are affected not only by fishing. Reflecting this, efforts have also been made to coordinate activities, improve water quality, maintain and restore habitats and restore connectivity. Examples include increasing coherence between activities, promoting responsible practices in aquaculture and managing water through a variety of measures including reforestation and riparian habitat management. This includes through barrier removal and impact mitigation using fish passes (e.g. Garcia de Leaniz and O’Hanley, 2022).

Eastern Europe

15. Eastern Europe has significant river and lake resources that are centered on the extensive Danube Basin, and the Dnieper and Dniester rivers and inland fisheries have been an important source of food in many eastern European countries. Reservoirs in Ukraine and lakes in Poland are important and contributed about 41 percent and 32 percent of sub-regional fish production in 2021 respectively.

Regional catches consist mainly of cyprinid species (especially common carp, *Cyprinus carpio*). A wide range of species are stocked in lakes and reservoirs to support the remaining commercial fisheries and growing participation in recreational fisheries. Participation in recreational fishing, or fishing for household consumption, is reported to be high in the subregion. In contrast, commercial fishing has been declining in Eastern Europe with no commercial fishing allowed in Hungary, Czechia, Slovakia, Republic of Moldova and Bulgaria (except the Danube region). Inland fisheries are affected by a range of pressures, including invasive species, loss of connectivity and water quality and habitat degradation.

Southern Europe

16. Southern Europe has a diverse mixture of aquatic environments including lake and river resources. Catches from the subregion have declined since the mid-1980s. The principal producer is Türkiye, which accounts for 66 percent of the total, followed by Spain with 12 percent, Italy with 8 percent and Albania with 7 percent. FAO has estimated the catch of Spain since 1996, and of Italy since 2011. Therefore, the figures for this subregion may not be reliable.

Northern Europe

17. The main inland aquatic resources of Northern Europe are found around the extensive glacial lake networks that pervade the sub-region. There are many short, steep rivers. Catches in Northern Europe are dominated by Finland, which contributed 65 percent of the total of this sub-region. Commercial inland fisheries include vendace (*Coregonus albula*), perch (*Perca fluviatilis*), pike perch (*Sander lucioperca*), bream (*Abramis brama*) and some crustaceans and can be conducted either in private water, leased private water or in public water owned by the state. Recreational fisheries are extensive and include different gears and methods, including ice fishing and target species include salmon (*Salmo salar*), perch, pike (*Esox lucius*), trout (*Salmo trutta*), pike perch (*Sander lucioperca*) and Arctic char (*Salvelinus alpinus*).

Western Europe

18. The main inland fisheries in Western Europe are found in the numerous rivers, lakes and reservoirs. There are about 50 inland fish species found in Western Europe that, with only one or two exceptions, are fished. While some commercial fisheries remain, recreational fisheries are frequently the main focus, including both retained catches and catch and return fisheries. Overall inland fish production in this sub-region is dominated by Germany, which has significant commercial inland capture food fisheries. Catches remain stable, with some declines in some migratory species. Measures to address these declines include species conservation measures, improving water and habitat quality and connectivity and reintroducing species, such as the burbot. Aquatic environments and fisheries have been affected by introduced and invasive species, including North American crayfish (*Pacifastacus leniusculus*).

IV. CONCLUSIONS

19. Inland capture fisheries continue to make important contributions to livelihoods, cultures and economies across Europe through commercial and recreational fishing activities. Based on catches reported to FAO, in 2021 the total production from inland capture fisheries in Europe amounted to 167 187 tonnes, representing 1.5 percent of total global production. Fish from inland capture fisheries also contributed to regional annual per capita consumption of 0.24 kg. The number of commercial fishers is difficult to assess, not least because it can be part-time or seasonal and reporting is incomplete. Nevertheless, often based on traditional methods and knowledge of the fish and aquatic environments, this fishing can be culturally important as well as making important contributions to local livelihoods and economies. Recreational fishing is important in many parts of the region with high levels of participation in many countries. This has highlighted that production and consumption figures can overlook the contribution of retained recreational catches, which can also be high in some countries.

20. Inland capture fisheries are important to substantial parts of the European population and need to be prioritized accordingly. While commercial inland capture fisheries remain important in many countries, catches are higher from recreational fisheries, reflecting often high levels of public participation. For some groups, retained catches from recreational fisheries can contribute to household food strategies. There is a need for improved information on the drivers, roles and trends in inland capture fisheries in Europe and this may require strengthening and diversification in data collection methods.

21. Inland capture fisheries are affected by competition for water resources and a range of drivers that can interact in complex ways to impact fish, fish habitats and fish habitat connectivity. In response, there has been increased attention to monitoring water quality and aquatic habitats, including a role for citizen science initiatives. This has informed management responses including restoring and improving the quality of water, fish stocks and aquatic habitats through fisheries management and broader integrated water resources management interventions such as barrier removal and improved habitat connectivity. There is a need to learn from these initiatives and experiences to inform wider efforts to maintain and improve fisheries and water resources management.

22. Far from being a marginal or last resort activity, inland fisheries remain a fundamental pillar of local livelihoods and economies. Its contribution goes far beyond the simple context of disadvantaged populations, bringing a multitude of collective and individual benefits. However, inland fisheries are faced with multiple pressures, often regional in scale, over which fishers and managers have limited control. One of the major challenges lies in addressing the gap that exists between local relevance and importance on the one hand, and the more global perception of an uncertain or limited future on the other. To achieve this, it is imperative to better demonstrate the roles and contributions of inland fisheries so that its opportunities are fully recognised and realised. Improving management and governance and addressing this to identify the potential for positive transformations can start by focusing on the knowledge, skills and creative capacities of those who make a living from these fisheries.

APPENDIX A

This section provides a summary of the status of inland capture fisheries by sub-region and country. The summaries draw on information submitted to FAO for fisheries (FAO, 2023) and population (United Nations Population Division, 2022) together with other sources of information related to the fisheries (recreational and commercial), fishing, fisheries management and key opportunities and challenges for inland capture fisheries and their management.

A1. EASTERN EUROPE

Country/territory	Inland capture fisheries catch (tonnes in 2021)	Percentage of global inland fish catch	Population (2021)	Per capita inland fish production (kg/cap/year)
Ukraine	24 124	0.21	43 531 422	0.55
Poland	18 785	0.17	38 307 726	0.49
Hungary	4 601	0.04	9 709 786	0.47
Czechia	3 314	0.03	10 510 751	0.32
Romania	3 224	0.03	19 328 560	0.17
Serbia	2 354	0.02	7 296 769	0.32
Slovakia	1 815	0.02	5 447 622	0.33
Belarus	611	0.01	9 578 167	0.06
Slovenia	161	0.00	2 119 410	0.08
Montenegro	145	0.00	627 859	0.23
Bulgaria	89	0.00	6 885 868	0.01
Republic of Moldova	0	0.00	3 061 506	0.00
TOTAL	59 223	0.52	156 405 446	0.38

Eastern Europe has significant river and lake resources centred on the extensive Danube Basin, its tributaries and delta, as well as the Dnieper and Dniester rivers. The reservoirs of Ukraine and the extensive lake district of Poland are important resources as these two countries dominate the production of this region.

Inland fisheries have been an important source of food in many eastern European countries, especially during the period when governments invested in stocking and promotion of inland fisheries as part of the centrally planned economies. This support declined following the breakup of the Union of Socialist Soviet Republics and this was reflected in the reported catches until about 1998. The production of Ukraine increased after 1998, with the country's dominant position driving the regional trend, although the catch of other countries has remained largely stable throughout.

Based on data for 2021, Ukraine contributed about 41 percent of the catch for the subregion and Poland about 32 percent, with Hungary contributing a further 8 percent. The rest of the catch was shared between the other countries with catches ranging between 89 tonnes and 3 314 tonnes. The region's catches consist mainly of cyprinid species (especially common carp). However, a wide range of species are stocked in lakes and reservoirs to support the remaining commercial fisheries and growing participation in recreational fisheries.

There are reports of high levels of participation in recreational fishing, or fishing for the family in the Eastern European subregion. This suggests that there may be considerably more fish consumed as part of household diets than is revealed in the reported catch statistics. Indeed, commercial fishing has been declining in Eastern Europe with no commercial fishing allowed in Hungary, Czechia, Slovakia, Republic of Moldova and Bulgaria (except the Danube region).

Ukraine

The total area of all inland freshwater waterbodies in Ukraine is about 24 000 km²: 73 000 rivers and streams (about 250 000 km total length), about 20 000 lakes and estuaries, 1 160 reservoirs and 28 700 artificial ponds, 1 190 km of large canals, and another 1 032 km of sluices. The largest rivers are the Danube, the Dnieper and the Southern Bug, and the largest dam is the Dnieper Cascade with a total area of 6 920 km². Most Ukrainian lakes are in the drainage basins of the Danube, Dnieper, Pripjat, South Donets. Fish biodiversity is estimated to be 30 to 35 species, mostly non-indigenous and indigenous cyprinids, perches, pike, catfish and clupeids (Movchan, 2015). Flow regulations of the main rivers have degraded the conditions for natural reproduction and feeding of many fishes, and blocked migration routes. In the past there have been attempts to mitigate these losses through stocking programmes mainly using non-indigenous species; currently some 20 non-indigenous species have been introduced, of which 9 have become established (Movchan, 2015).

According to FAO statistics, inland fisheries catches in Ukraine reached 24 123 tonnes in 2021. No recent data were found on how catches are distributed geographically although data for the period 1997 to 2003 suggest that reservoirs on the Dneiper and the Lower Dneiper River were historically the most productive. In that period catches from inland fisheries made up about 20 percent of all capture fisheries production in the country. Ukraine has traditionally had high levels of participation in inland recreational fisheries and Embke *et al.* (2022) estimated that nearly 11 percent of the population participated. There was also a significant catch by recreational fisheries, although many catches remained unreported.

Poland

Poland has 5 810 km² of inland surface waters, of which the Vistula and Oder rivers are the most important watercourses (GUS, 2022). There are 2 800 km² of lakes where most of the commercial fishing takes place, and over 750 professional fishers are involved in capture fisheries. Including post-harvest employment, inland fishing employs about 1 590 people (IRŚ-PIB, 2023, 2022). Important species for the commercial fisheries include indigenous cyprinids (including common bream, roach, white bream, and tench among others), other important species were vendace, pike, perch, pike-perch and European eel. The volume of eel catches has significantly decreased, but overall still remains important.

Recreational fisheries are also significant and in Poland, there are between 1.5 million to 2 million recreational fishers (Embke *et al.*, 2022; Czarkowski, Wołos and Kapusta, 2021; Wołos *et al.*, 2016; Czerwiński, 2016). Overall, recreational catches are higher than professional ones and it is estimated that in 2020 the catches from recreational fishing exceeded 9 000 tonnes. However, statistical data, covering an area of approximately 3 650 km², indicated that recreational fishers caught less than 3 000 tonnes (2 904 tonnes in 2020 and 2 775 tonnes in 2021), which is 1.5 times higher than professional landings (IRŚ-PIB *et al.*, 2023, 2022). Data on recreational catches are collected from smaller area compared to professional catches and subject to considerable delay.

The average annual per capita consumption of fish and seafood was 14.2 kg in 2021. Among freshwater and anadromous fish, the most important fish consumed are salmon (0.8 kg per capita), trout (0.6 kg) and carp (0.5 kg). Embke *et al.* (2022) estimate that 45 percent of the inland fish catch is retained for consumption. Overall, however, much of the inland fish consumed comes from aquaculture, partly from import (IERiGR-PIB and Hryszko, 2022). Wild fish caught in inland waters (such as vendace, eel, pike, pike-perch, and perch) is often a rare and exclusive commodity.

Hungary

The total surface area of water suitable for inland fisheries in Hungary is 1 400 km². In this respect, the Danube and the Tiesza, its main tributaries, are the two most important rivers. Several large lakes are also important, namely Lake Balaton (596 km²), Lake Fertő (75 km²) and Lake Velence (7.5 km²) and the Lake Tisza reservoir (64 km²) (Specziar and Erős, 2016). According to the current Hungarian law governing fisheries and aquaculture (Act CII. of 2013 of the Hungarian Parliament on fisheries management and fish protection), no commercial fishing has been permitted in the country since 1 January 2016. Apart from recreational use (angling), inland capture fisheries are restricted to selective capture for ecological reasons, research, and occasional demonstration of traditional fishing methods. The total landing from these types of fisheries is negligible, reported by Kiss-Horváth, Kosáros and Lengyel (2022) as 181 tonnes in 2021.

Angling is by far the most common type of recreational fishing in Hungary. According to the Hungarian National Federation of Anglers (*Magyar Országos Horgász Szövetség* – MOHOSZ), the number of registered anglers exceeded 750 000 in 2023. This compares with a figure of around 550 000 provided by Embke *et al.* (2022). Anglers have spent a cumulative total of over 7 million fishing days on the rivers and lakes with 473 547 national and 17 945 tourist angling licences bought. The total landing by anglers was 4 375 tonnes in 2021 of which common carp had the highest share, representing around 20 percent of all catches. It is estimated that around 40 percent of the recreational catch is retained and consumed. The productivity of several stocks, including common carp is dependent on regular and continued stocking (e.g. Specziar and Erős, 2016).

Czechia

Since Czechia is without access to the sea, inland fisheries constitute 100 percent of annual production. There are more than 24 000 ponds and reservoirs in the Czechia, with a total area of almost 52 000 ha, of which more than 41 000 ha are used for fish farming. In Czechia, there are more than 2 000 fishing grounds with an area of approximately 42 000 ha. Recreational fishing is practised by 330 000 registered members of the two largest users of fishing grounds: the Czech Anglers Union and the Moravian Anglers Union.

Recreational fishers in Czechia caught a total of 3 314 tonnes of fish in 2021, with the catch dominated by common carp (*Cyprinus carpio*). Most anglers (around 90 percent) are active anglers who fish at least once per year. Catch composition varies depending on the aquatic environment (Lyach, 2023). Common carp form the bulk of the catch on the medium-sized rivers (78 percent), followed by Bream (10 percent) and piscivorous fishes (including Northern pike, Zander, and European catfish, which collectively make up around 10 percent of catches). On small streams, rainbow trout dominate the angler catches (80 percent by biomass), followed by brown trout (10 percent) and European chub (8 percent). It is estimated that around two-thirds of the recreational catch is consumed (Embke *et al.*, 2022).

Catches of have been relatively stable in recent years, with possible annual fluctuations due to unfavourable climate or pressure from piscivorous predators. It has been noted that the damage caused by piscivorous predators has been increasing in recent years (especially damage caused by river otters and cormorants). Their predation has a particular impact on salmonid species as well as affecting aquaculture production facilities. The development and operation of hydroelectric power plants is also negatively affecting fish migration (catadromous, anadromous and potamodromous). Other barriers on watercourses are having a particular impact on the critically endangered river eel.

Romania

Romania is estimated to have an area of almost 500 000 ha of area covered with standing water and 66 000 km of flowing water from the lowland, hilly, and mountainous areas. The commercial inland fisheries area is formed by the Danube River (1 074 km) together with all its branches (almost 576 km), partially by the Prut River (only 100 km), alongside 290 000 ha represented by the aquatic complex

lakes of the Danube Delta as well as 17 000 ha of reservoirs (artificial lakes) on the courses of the rivers Prut, Siret and Olt (Zugravu and Rahoveanu, 2011). Inland fisheries in Romania were affected by the transition to a market economy. Highest-recorded production was achieved in 1987 with 26 690 tonnes, but there was an almost continuous decline until about 2010 when 2 457 tonnes were landed. Since then there has been a slight increase, with catches hovering around 3 300 tonnes in recent years (2018–2023). Catches from the Danube Delta Biosphere Reserve (DDBR) represent over 80 percent of the total catch.

Most freshwater fish exploited by inland fisheries are caught to supply local traditional demand. The highest catch is represented by Prussian carp with 41 percent of the total followed by Danube shad with 11 percent. The Danube shad varies greatly from season to season depending on migration, the highest catch in recent years (635 tonnes) was recorded in 2019 which represented 17 percent of the total catch. Native cyprinids, with the exception of Prussian carp (*Carassius gibelio*), represent 33 percent of the total catch (the most common being freshwater bream at 9 percent, common carp at 7 percent and roach at 5 percent). Predatory species represent 12 percent of the catch, with European catfish having the largest share at 5 percent. (National Agency for Fishing and Aquaculture, n.d.). However, there are probably significant amounts of unrecorded landings, and there are no statistics of the increasingly important recreational fisheries, although there are 200 000 registered anglers.

Some 3 550 fishers were active in inland waters in 2022, using 1 900 registered vessels. The fishers use boats that are less than 6 metres in length with small outboard motors and utilize traditional fishing methods that have been practised for decades and sometimes centuries. Until the 1950s inland fisheries was the main economic activity along the Danube and its delta, today it is the main economic activity only in the delta region where 1 200 people work in inland fisheries. Besides these fishers, the local population of the DDBR has the right to fish for subsistence (family) purposes. In this respect, inland fisheries continue to be important for traditional fishers as a full-time occupation and also as a subsistence activity for people with insufficient income from other sources (Zugravu and Rahoveanu, 2011).

Average annual per capita fish consumption dropped from more than 8 kg in 1989 to a low of about 2 kg between 1993 and 1999, but has since recovered – reaching around 8 kg in 2020 (EUMOFA, 2024). However, although the country was able to meet the national demand almost entirely during the planned economy, the country is now relying on imported fish for about 85 percent of the supply (EUMOFA, 2024). Since the 1950s, the policy of controlling the floods and converting the floodplains into arable land by damming the Danube has not had the expected positive impacts on agriculture, with fish catches declining severely as a response. Additionally, the two Iron Gate hydroelectric dams have blocked the upstream migration of fishes, especially sturgeons.

Serbia

Serbia is a landlocked country with no marine fisheries. The rivers that flow through the Republic of Serbia, including the Danube, the Sava and the Tisza, flow into the Aegean and Adriatic seas and the Black Sea Basin. The Black Sea drainage basin covers 92 percent of the territory of the Serbia. The fishing waters of Serbia are divided into 17 fishing districts managed by fishing district managers that are empowered by the Law on Protection and Sustainable Use of the Fish Stocks.

Commercial fishing is carried out on the Danube, Sava, and Tisza rivers. Although these are the largest rivers flowing through Serbia, their geographic contribution in relation to the entire territory is limited to one-third of the country's territory. Fishing vessels operating on the inland waters are small size vessels (less than six metres in length) and they use mostly gillnets, seines, traps and longlines, the latter may have up to 100 hooks. The total number of registered commercial fishers has declined slightly from 523 fishers in 2013 to 404 fishers in 2022 (Statistical Office of the Republic of Serbia, 2023).

Recreational fishing remains a very popular activity on Serbian rivers, streams, ponds and lakes. The number of recreational fishers in the period 2013–2022 from 72 989 fishers in 2013 to 88 734 fishers in 2022. In total, inland capture fisheries take place in 66 000 km of rivers and streams and about

150 artificial lakes and reservoirs, as well as 30 000 km of canals in the northern part of the country. Recreational fishing can be conducted in all Serbian waters and permits are valid for the whole territory, except for protected areas in which it may also be allowed (8.2 percent of Serbian territory is under protection). Recreational catches were estimated at 1 664 tonnes, of which 39 percent was retained for consumption (Embke *et al.*, 2022). Serbian waters are characterized by a high diversity of fish species. There are around 110 freshwater species of which 20 percent are allochthones and 10 percent are non-indigenous. The most popular species in the recreational fisheries are common carp (*Cyprinus carpio*), wels catfish (*Silurus glanis*), pike-perch (*Sander lucioperca*), pike (*Esox lucius*) and bream (*Abramis brama*) as well as other cyprinids. One of the priorities for fisheries management is the conservation of sturgeon species (of which there are six species) in the Danube River and its tributaries in accordance with national and regional strategic documents and agreements.

Changes in the number of active commercial fishers and recreational fishers affect the landings. Overall there has been an increase in recreational fishing and a simultaneous decrease in landings of commercial fishers. In 2021, professional fishers and recreational fishers landed 927 tonnes and 1 426 tonnes respectively (Statistical Office of the Republic of Serbia, 2023).

Slovakia

Slovakia is drained by rivers forming part of the Danube basin, which drains an area of 47 087 km². In addition, there are 8 164 km of canals for drainage, irrigation and navigation (Novomeská and Kovač, 2016). The country also features many relatively small, mainly artificial, waterbodies (ponds and reservoirs) with a total area of 938 km² (Novomeská and Kovač, 2016). Fishing is only recreational, with 120 000 registered fishers. Commercial fisheries essentially ceased when the country became independent (Novomeská and Kovač, 2016). Total recreational catches were estimated at 1 800 tonnes, of which only 37 percent was retained and consumed (Embke *et al.*, 2022).

Belarus

Belarus has 53 rivers that are more than 100 km long, with a total length of 9 500 km. The biggest are the Dniepr, Prypiat, Zapadnaya and Neman rivers. There are 10 000 lakes in the country of which 90 percent are oxbows of the Dniepr and Prypiat rivers. Twenty-two lakes are larger than 10 km², of which the largest are the Naroch, Chervonoe, Vygonovsoe, Lukomlskoe, Nescherdo and Drisviaty lakes. In addition, there are 144 reservoirs with volume greater than 1 km³.

Annual catches have varied between 553 tonnes and 1 122 tonnes since 2000. In 2021, 611 tonnes were landed. Most of the catch is cyprinids – the most important among them bream (*Abramis brama*), which makes up 30 percent of total catches – alongside other important species such as goldfish and roach (FAO, 2023). In contrast, Semenchenko, Rizevski and Ermolaeva (2015), report that total catches reached 8 961 tonnes in 2010, of which roughly 30 percent came from the large lakes and 5 percent from reservoirs. It is not clear what is behind this discrepancy, however, it appears that catches by recreational fishers, which added up to more than 8 000 tonnes in 2010 (Semenchenko, Rizevski and Ermolaeva, 2015), are not reported to FAO. Participation in recreational fishing is high, with around 10 percent of the population fishing in inland waters (Embke *et al.*, 2022).

The fishery is managed through stocking programmes and licensing. According to Semenchenko, Rizevski and Ermolaeva (2015), many lakes and rivers appear to be affected by fishing pressure as the total fisheries potential is approximately 5 000 tonnes. Other negative impacts result from invasive species, dam construction and spawning habitat degradation.

Slovenia

Inland fish catch in Slovenia in 2021 was reported as 161 tonnes. The highest reported catches were in 1994 with 339 tonnes. In spite of the low volume of the catch, the level of detail is impressive with more than 90 percent of the landings reported at the species level. The dominant species is common carp at 45 percent, followed by rainbow trout at 14 percent (FAO, 2023). There were more than

14 000 recreational fishers in the country in 2004 (IUCN, 2004), and this has risen to an estimated 21 000 in recent years (Embke *et al.*, 2022). Recreational catches have been estimated at 199 tonnes, of which 41 percent is retained for consumption (Embke *et al.*, 2022).

Montenegro

The annual catch in Montenegro was 145 tonnes of fish in 2021. The catch comprises mostly carp (*Cyprinus carpio*). The aggregated catches has remained fairly stable, however there is no definitive view as to stock status. There are 400 licensed fishers with 200 small-scale fishing vessels. Skadar Lake is the largest lake in Montenegro, and there is a high demand for its products at local markets. Most of the fish (mainly smoked carp) is sold informally, but around 270 tonnes of fish is sold annually to a fish canning factory that has a fishing concession on Lake Skadar (MAFWM, 2006). Recreational fish catches are estimated to amount to nine tonnes, of which about 56 percent is retained for consumption (Embke *et al.*, 2022).

Bulgaria

Natural waterbodies in Bulgaria are limited, consisting of 570 ha of lakes and a total length of rivers of 20 231 km (150 km²), including 471 km of the Danube River (NAFA, 2007; Mitchell, Vanberg and Sipponen, 2010). Bulgaria has 5 107 dams with a total water surface area of 637 km². A review of fish species diversity in five rivers in the northwest of Bulgaria (Voinishka, Vidbol, Archar, Tsibritsa and Ogosta) in 2005 found a total of 27 fish species belonging to seven families (Trichkova *et al.*, 2009). Of these, 24 species were indigenous to the Danube Basin.

Since August 2012, commercial fishing is allowed only on the Danube River, due to an amendment in the national legislation. Inland fish catches were reported as 86 tonnes in 2021, just 3 percent of what was landed less than three decades ago in 1999 when the highest catch of 2 475 tonnes was recorded (FAO, 2023). A decade ago, inland fisheries constituted 10.3 percent of the commercial landings, with 17 percent of this coming from the Danube River and the remainder from reservoirs.

Although production levels from inland fisheries are relatively low, they play an important role at the local level in less developed areas bordering the Danube River as a source of income and employment. The fisheries for key species appear to have declined including common carp, Prussian carp, silver carp and bighead carp. During 2012, the landings of these four species were 1 239 tonnes (FAO, 2023). In 2017, 375 full-time and 1 776 part-time fishers (all male) were reported. Recreational fishing (which can only be carried out with a permit) is popular in Bulgaria with an estimated 70 000 participants (about 1 percent of the population) and catches of 1 470 tonnes – of which 41 percent is retained (Embke *et al.*, 2022). The main threats to fish populations are regulation by weirs and dikes in the lower reaches, water pollution, excessive fishing and poaching, and the construction of micro-hydropower stations along the river courses (Trichkova *et al.*, 2009).

Republic of Moldova

The Republic of Moldova is framed by two large rivers and a few medium-sized ones, and it is crossed by several thousand other smaller rivers and water flows. Both the topography and water resources of the country are ideal for the construction of small water reservoirs and fish ponds. This is why the total artificial water surface in the country is so large. In total there are 41 707 ha of water reservoirs and ponds, of which 20 507 ha (49.2 percent) are used as fish farms. With reference to the practice of aquaculture, in 2021 domestic fish production was 13 900 tonnes and in 2022 14 200 tonnes.

No commercial fishing activity is practiced in the Republic of Moldova since 2016, when a moratorium on commercial fishing was introduced. As there is no commercial fishery, no record of catches are kept. The moratorium on commercial fishing in natural water basins is believed to have produced some positive results and in 2021, ichthyological investigations conducted in the Lower Dniester ecosystem identified 16 cases of the species *Caspiosoma caspium*. This was the first recording of this species after 50 years of absence and significant as the species is included in *The Red Book of the Republic of*

Moldova. According to its taxonomic affiliation, it is unique in the Republic of Moldova from the genus *Caspiosoma*, belonging to the class Actinopterygii, order Perciformes, and family Gobiidae. It was believed that the species could only be found in the Cuciurgan Reservoir, being identified only once in 1969 in the number of a single specimen.

There is a small recreational fishery in inland waters with around 3 400 participants which catch around 70 tonnes annually, of which nearly 40 percent is retained (Embke *et al.*, 2022).

A2. SOUTHERN EUROPE

Country/territory	Inland capture fisheries catch (tonnes in 2021)	Percentage of global inland fish catch	Population (2021)	Per capita inland fish production (kg/cap/year)
Türkiye	33 140	0.29	84 775 404	0.39
Spain	6 000	0.05	47 486 935	0.13
Italy	3 800	0.03	59 240 329	0.06
Albania	3 544	0.03	2 854 710	1.24
Greece	940	0.01	10 445 365	0.09
Israel	925	0.01	8 900 059	0.10
North Macedonia	514	0.00	2 103 330	0.24
Croatia	384	0.00	4 060 135	0.09
Bosnia and Herzegovina	300	0.00	3 270 943	0.09
Cyprus	20	0.00	1 244 188	0.02
Portugal	1	0.00	10 290 103	0.00
Malta	0	0.00	526 748	0.00
TOTAL	49 568	0.44	235 198 249	0.21

Southern Europe has a diverse mixture of aquatic environments including lake and river resources. Catches from the subregion have declined since the mid-1980s and as of 2021 are stabilizing at about 15 503 tonnes.

Türkiye

Türkiye's inland resources are diverse in terms of water quality, trophic status, altitude, climate, ecosystem diversity and species diversity. The total area of inland waters is 17 000 km². Türkiye has 6 000 km² of lakes and reservoirs, where 3 260 licensed fishing boats were engaged in fishing activities in 2023. Lake Van, Atatürk and Keban dam reservoirs are the major fishing grounds in eastern Türkiye with significant contributions to inland capture fisheries. Freshwater biodiversity is high, with a 340 species, 78 of which are endemic, partly due to its location at the junction of three zoogeographic regions (Atalay, Kirankaya and Ekmekçi, 2017; Tarkan, Marr and Ekmekçi, 2015).

Despite this diversity, the fisheries are mainly focused on four species: tarek (*Alburnus tarichi*), which is caught only in Lake Van and its tributaries; common carp (*Cyprinus carpio*); the non-indigenous gibel carp (*Carassius gibelio*); and sand smelt (*Atherina boyeri*), a translocated marine fish, are widespread (Atalay, Kirankaya and Ekmekçi, 2017). The crayfish, *Pontastacus leptodactylus* (Eschscholtz, 1823), is the only crustacean harvested from Türkiye's inland waters. In 2023, 736 tonnes were caught, almost all of which were exported. Crayfish prices are relatively high, making them a valuable source of income for fishers. Other species that are caught include mullet (*Mugil* sp.) and eel (*Anguilla anguilla*), in addition to finfish, frogs and snails. (TurkStat, 2024).

Türkiye's inland waters host 3 260 fishing boats, the vast majority of which are under 10 meters in length. However, 80 boats exceed 10 meters, all of which operate on Lake Van, Türkiye's largest lake. Fishing in these inland waters primarily utilizes gillnets and trammel nets (MoAF, 2024). Most of the inland capture fisheries catch is landed by cooperatives in Mediterranean, Eastern and Central Anatolia regions (Rad and Rad, 2012). Recreational fisheries are also important with an estimated 574 000 people (0.7 percent of the population) participating. Recreational catches have been estimated at 1 331 tonnes, of which 49 percent is retained for consumption, contributing to fish supply (Embke *et al.*, 2022).

The inland catch of Türkiye was 42 824 tonnes in 2000 and has been slowly declining to 33 140 tonnes in 2021 and the current levels of 33 532 tonnes in 2023. Despite declining catches, demand for carp remains high. Gibel carp and sand smelt, despite making up a large proportion of landings, are not consumed locally but are exported (Atalay, Kirankaya and Ekmekçi, 2017). Average per capita fish consumption is relatively low, although the contribution of inland fisheries to this total can vary. In 2023, annual per capita fish consumption was 7.2 kg. Inland fish represent just 10 percent of total capture fisheries production, yet they play an important social role in developing and sustaining the fishing and fish consumption culture in the inland regions of Türkiye, far from the sea.

There is evidence of the increasing economic importance of aquaculture contributing to the diminished role for inland capture fisheries (Rad and Rad, 2012). In 2023, aquaculture production accounted for 55 percent of the total fisheries production in Türkiye. During the same year, total production in inland waters reached 157 000 tonnes, with trout being the most farmed fish species (TurkStat, 2024)

Several issues impact inland fisheries including water quality and water management problems, sand mining, flood, erosion, pollution, habitat degradation, draining of wetlands, conflicts between water users, illegal fishing, overfishing, and non-indigenous species (Yerli, 2015). The spread of non-indigenous species, including the gibel carp, are also identified as having the potential to adversely affect indigenous fish through competition for food and space.

Spain

Spain has an area of about 506 000 km², with a inland waterbodies covering 655 000 ha (Mitchell *et al.*, 2010). There are a limited number of large natural lakes, but a significant number of reservoirs and lagoons. There are about 72 000 km of permanent rivers, including the Ebro, Tajo, Guadalquivir, Duero, Miño and Guadiana. Rivers include short, fast-flowing rivers in the north and longer rivers that flow through broad valleys in the South (Antunes, Cobo and Araújo, 2016). There is a relatively high diversity of fish species with around 60 species.

Spain's commercial inland fisheries are concentrated primarily in the rivers and estuaries. (Mitchell, Vanberg and Sipponen, 2010). Salmonid fisheries exist in the north of Spain where there is some stocking to support the fisheries. Information on recreational fisheries are limited although Embke *et al.* (2022) estimated that there were over 4.5 million people participating in inland recreational fisheries in Spain, equivalent to about 9 percent of the population. Total catches in the recreational fisheries have been estimated at 38 tonnes, of which around 44 percent is retained. Fisheries in Spain are regulated through the Autonomous Communities of Spain.

Italy

Italy has 7 230 km² of inland waterbodies comprising of lakes (2 045 km²), reservoirs (500 km²), lagoons (1 500 km²) and principal rivers (7 782 km), the largest being the river Po which drains the Alpine region of Italy and the northern Apennines (Bianco and Ketmaier, 2015). Commercial inland fishing in Italy is limited to some lakes and reservoirs and to a few reaches of the larger rivers. The commercial inland fish catch (3 915 tonnes) during 2007–2008, was composed of 20 percent of cyprinid species, 10 percent of salmonoids, 5 percent of pike and perch and 3 percent of eels (Martin, 2008).

Commercial inland fishing is concentrated in relatively small waterbodies in Lombardia and Umbria and lacks appropriate fisheries management models. It increasingly depends on direct restocking for fish recruitment. In addition, recreational fisheries are popular with just over 1 million participants reported in a recent review by Embke *et al.*, 2022 – equivalent to about 1.7 percent of the population. These fisheries can also make contributions to food security and nutrition with over 40 percent of catches retained for consumption (Embke *et al.*, 2022). Inland waters suffer from pollution and habitat modification especially the river Po, whose tributaries cover an area populated by approximately 16 million people and approximately 45 percent of all Italian industries (Mitchell, Vanberg and Sipponen, 2010; Bianco and Ketmaier, 2015).

Albania

Albania has more than 150 rivers and streams and seven main rivers cross the territory of the country from the east to west. There are six main river basins, these being the Drini/Buna, Mati, Ishmi, Shkumbini, Semani, and Vjosa. Natural lakes cover around 4 percent of Albanian territory or 60 percent of Albanian inland water bodies. There are three large lakes and 247 small lakes. In addition to the freshwater lakes, there are also coastal lagoons that are connected to the sea through one or more channels.

Fishers, particularly those operating in the natural and artificial lakes and two coastal lagoons are organized through Fisheries Management Organizations (FMO). There are currently six FMOs, representing a total of 550 boats and 1 100 fishers. The top three commercial fish species of inland waters by catch volume are common carp (*Cyprinus carpio*), roaches nei and Crucian carp (*Carassius carassius*). Commercial catch in 2022 was estimated to be 3 388 tonnes, slightly lower than the total catch of 3 544 tonnes reported for 2021. Recreational fisheries are not considered to be significant (Mitchell, Vanberg and Sipponen, 2010). Embke *et al.* (2022) estimate that there are 3 100 fishers who catch around 15 tonnes annually, of which over half is consumed.

Greece

Greece has inland water resources of 3 060 km², with 80 percent of river flow coming from the catchment area of eight large rivers. There are 39 natural lakes with a combined area of 568 km² and 21 artificial lakes or reservoirs occupying a total of 334 km². There are 378 wetlands with an area of 2 000 km² (Leonardos, 2016). The main lakes are located in the centre and north of Greece, and most of the estimated 70 lagoon capture fisheries are in the Messalonghi region of Central Greece. Greece has a relatively high diversity of inland water fish species, with a total of 177 species in 88 genera, 27 families and 15 orders recorded. Cyprinids represent the most dominant family with 86 species.

In 2011 there were an estimated 400 people employed in commercial fishing in inland waters (Ernst and Young, 2011). Of the main target species, six species contributed more than 90 percent of catches. The group of cyprinids including the common carp (*Cyprinus carpio*) and bleak (*Alburnus* spp.) comprised 52 percent of catches, followed by the common roach (*Rutilus rutilus*) at 19 percent and the Macedonian shad (*Alosa macedonica*), which made up almost 8 percent of catches. All other species contributed less than 3 percent each (Moutopoulos *et al.*, 2022). In 1996 approximately 57 percent of the inland catch volume came from coastal lagoons with the main species caught being seabream, seabass, eel, mullet, white bream and sole (Mitchell, Vanberg and Sipponen, 2010). These are classified as marine capture catch and not inland catch therefore are not reflected in the statistics provided by FAO. Recreational fisheries are also taking place in inland waters and there are an estimated 132 360 participating fishers.

Historically, inland fishery production rose between 1950 and the early 1960s, then declined – partly due to the effects of urbanization, migration and the drainage of lakes for agriculture. This was followed by an increase in production from 1970 to the 1980s with return of migrants and increase in fishing effort. During 1988 to 2009 fishing production declined again from about 3 903 tonnes to about 940 tonnes in 2009, due to a combination of ecosystem degradation, pollution, eutrophication, the extinction of several native species, and high fishing pressure associated with the commercial species (Moutopoulos *et al.*, 2022; Leonardos, 2016). Current catches from inland waters provided by FAO for 2021 remain at 940 tonnes.

Israel

Israel has a total area of 22 070 km², with inland waterbodies occupying 430 km² (FAO, 2015). The transboundary Jordan River flows south into the Dead Sea Lake. Lake Kinneret (also known as the Sea of Galilee or Lake Tiberias) is part of the Jordan River system and, at approximately 170 km², is the sole freshwater lake in Israel and also used as a source of freshwater reservoir for the country. There are about 10 rivers which run broadly east to west across the coastal area, flowing into the Mediterranean Sea. Species compositions differ with coastal rivers supporting catadromous eel (*Anguilla anguilla*) and mullets (*Mugil cephalus* and *Liza ramada*), as well as cichlid and clariid species and the cyprinodont *Aphanius mento* (Goren and Ortal, 1999).

The Jordan River system has the richest native fish diversity, dominated by cyprinid and cichlid species (at 10 and 7 species respectively), while Lake Kinneret has the richest overall fish diversity with 19 species (Goren and Ortal, 1999). About 15 fish species have been introduced to the inland waters of Israel. This includes the translocation and stocking of mango tilapia (*Sarotherodon galilaeus*) which is a local fish in lake Kinneret, and reproduces spontaneously in it, and stocking with mugilid fish (*Mugil cephalus* and *Liza ramada*). Until 2013 there was also stocking of silver carp (*Hypophthalmichthys molitrix*) which like the mugilid are unable to reproduce in lake Kinneret. Other introductions have followed that of mosquitofish (*Gambusia affinis*) to control mosquitoes and the escape from aquaculture of cichlids into the Jordan River (Goren and Ortal, 1999).

Commercial inland fisheries (using purse seine and gillnets) occur in Lake Kinneret. In 2005, three purse seiners and about 68 small boats (< 11 m) with gill and/or trammel nets operated in Lake Kinneret (FAO, 2007). In 2005, the commercial catch in Lake Kinneret was 1 396 tonnes (representing 5.3 percent of total fish catch) with this considered to be fully exploited. Yields of stocked species were correlated to stocking densities (Gophen, 2018). Other fishery management measures imposed have capped capacity (fishing licences) and reduced fishing effort (three-month fishing ban) (Mitchell, Vanberg and Sipponen, 2010). From 1994 to 2006 fisheries management measures were also used to manipulate lake food webs to improve water quality and increase the condition of commercial fish stocks. This was achieved by decreasing the number of lanvun (*Mirogrex terraesanctae*) through removals of between 300 and 900 tonnes annually between 1994 and 2006. The north part of the lake is enlarged as a nature reserve (Bethsaida Valley) and is used as a spawning area for the tilapia fish, and there is a ban on fishing there all year round (Fishery Regulations in Israel).

The total catch was reported in 2021 to be 925 tonnes. The principal species are cichlids, including (*Sarotherodon galilaeus* and *Oreochromis aureus*). Other important species include carps, barbs and mullets. The main inland recreational fisheries are for carps and cichlid species in the Upper Jordan River. Recreational fishing is prohibited in the inland-water nature reserves that are the principal measure for fish conservation (Goren and Ortal, 1999). Annual per capita fish consumption averaged about 22 kg in 2016. While imports account for the largest share of total domestic supply of fish for human consumption, domestic fish production – including inland capture fisheries and aquaculture – still make important contributions.

North Macedonia

Surface waters cover 477 km², that represent almost 2 percent of the territory. There are about 35 rivers as well as 53 natural and artificial lakes. The four main areas associated with inland fish and fisheries are Vardar, Crni Drim, Strumica and the area of Juzna Morava. Vardar includes the area around the River Vardar with its tributaries up to the border with Greece, including part of Lake Dojran. Within North Macedonia, the River Vardar has length of 301 km. The more important tributaries of the Vardar are the rivers Treska, Lepenec, Pcinja, Bregalnica, Crna and Bosava. Total catch from inland fisheries was 24 tonnes in 2021. There are estimated to be only about 4 260 recreational fishers fishing in inland waters who catch 18 tonnes, of which around 46 percent is retained for consumption (Embke *et al.*, 2022).

Croatia

Croatia has 620 km² of inland waterbodies and 21 000 km of rivers and creeks. Commercial inland fishing in Croatia is confined to only the larger lowland rivers, including the Danube and the middle and lower stretches of the Sava River. Commercial fishing is not allowed in smaller waterbodies such as creeks, as well as in lakes, reservoirs or estuaries. The total number of commercial inland fisher licences is 36, however, some fishers will have more than one licence to enable them to fish in different locations. Common carp (*Cyprinus carpio*), other cyprinid species, catfish, pike and pike-perch are the most important species in the commercial catches.

In 2022 commercial inland catches in Croatia totalled 37.5 tonnes. The retained catch in recreational fisheries in 2022 was estimated to be 326 tonnes, so the total retained catch (both commercial and non-commercial) in 2022 totalled 363.5 tonnes. There are an estimated 42 000 recreational fishers in Croatia (just under 1 percent of the total population) who target inland fish such as common carp, grass carp and wels catfish. The number of recreational fishers has been increasing (Embke *et al.*, 2022; Treer, 2019). Competition for space and conflicts between recreational and commercial fisheries, may reduce the potential for maintaining a viable commercial inland fishery in the future (Jensen, 2021).

Bosnia and Herzegovina

Quantitative information is unavailable on inland fisheries. Inland waterbodies occupy 470 km². Professional inland fisheries are carried out in the River Sava, but there are no professional fisheries in lakes, reservoirs or estuaries. There is some recreational fishing with an estimated 17 100 participants and catches of about 320 tonnes, of which an estimated 40 percent is consumed (Embke *et al.*, 2022). FAO estimates total catch at 300 tonnes (2021).

Portugal

The main aquatic environments for inland fisheries in Portugal include the Minho River, Douro, Tagus and Guadiana rivers, along with lakes and extensive reservoirs like Alqueva, the largest reservoir in Western Europe. These water bodies support an array of native species, such as the lampreys (Petromyzonidae), sturgeon (*Acipenser sturio*), European eel (*Anguilla anguilla*), Allis shad (*Alosa alosa*), Twaite shad (*A. fallax*), and brown trout (*Salmo trutta*). Additionally, exotic species introduced to enhance recreational fishing, like common carp (*Cyprinus carpio*), largemouth black bass (*Micropterus salmoides*), rainbow trout (*Oncorhynchus mykiss*), are now well-established and contribute significantly to the fishing activities (Antunes, Cobo and Arujo, 2016).

Commercial fishing within these inland waters, though smaller in scale with a production of 1 tonne in 2021 (FishStat, 2023) compared to Portugal's marine fisheries and are performed mainly in the lower stretches of the rivers. These fisheries focus on diadromous species such as eels and shad. The sea lamprey (*Petromyzon marinus*) is also caught commercially in the lower stretches of streams particularly in northern Portugal. Fishing techniques predominantly involve traditional methods such as nets and rod-and-line, targeting specific areas known for their abundant fish stocks. The production from these fisheries generally supplies local markets, playing a vital role in supporting rural economies and traditional livelihoods (Antunes, Cobo and Arujo, 2016).

Recreational fishing in Portugal's inland waters is a popular activity in the northern basins, with a participation rate of 1.2 percent participation with trout, zander (*Sander lucioperca*), barbel and black bass being targeted. Management of these fisheries is multifaceted, involving regulatory measures like fishing licenses, seasonal restrictions, and limits on catch sizes to ensure sustainable exploitation of fish populations. Environmental management efforts also include habitat restoration projects aimed at improving water quality and fish habitats, crucial for maintaining the health of river ecosystems and supporting biodiversity.

Cyprus

Inland fisheries in Cyprus primarily in streams, the longest being the 100 km long Pedieos and numerous reservoirs, with the Asprokremmos Reservoir being one of the largest and most significant. Cyprus has some of the highest dam density in the world with more than 100 dams and 20 reservoirs constructed for agricultural purposes (Griffiths *et al.*, 2021; FAO, 2024). These fragmented bodies of water are home to both native species such as the Mediterranean killifish (*Aphanius fasciatus*) and the European Eel (*Anguilla Anguilla*) and introduced species like the rainbow trout (*Oncorhynchus mykiss*) and largemouth bass (*Micropterus salmoides*) that are the target of recreational fisheries (Griffiths *et al.*, 2021; Zogaris, 2012).

Commercial fishing within these inland waters is limited but focuses on species well-suited to reservoir environments, such as carp and trout and production is estimated to be 20 tonnes (FAO, 2023). Common fishing methods include netting and angling, primarily conducted in larger reservoirs where these species thrive. Management practices are in place to support sustainable fishing and ecological health, including habitat restoration and the regulation of fishing activities.

Malta

There has been no inland fisheries catch reported to FAO.

A3. NORTHERN EUROPE

Country/territory	Inland capture fisheries catch (tonnes in 2021)	Percentage of global inland fish catch	Population (2021)	Per capita inland fish production (kg/cap/year)
Finland	23 574	0.21	5 535 992	4.26
Sweden	8 098	0.07	10 467 097	0.77
Estonia	2 795	0.02	1 328 701	2.10
Lithuania	984	0.01	2 786 651	0.35
Norway	226	0.00	5 403 021	0.04
Latvia	214	0.00	1 873 919	0.11
Denmark	207	0.00	5 854 240	0.04
Iceland	116	0.00	370 335	0.31
TOTAL	36 214	0.32	33 619 956	1.08

The main water resources of Northern Europe are found around the extensive glacial lake networks that pervade the subregion. There are many short, steep rivers suitable for migratory salmonids, although some of these have lost connectivity because of damming.

Finland

The catch of Northern Europe is dominated by the catch of Finland, which contributed 65 percent of the subregion catch. Finland has a very large area of inland waters, which total 31 560 km² or 9.3 percent of the country's total land area. The commercial inland fishery catch was 5 100 tonnes in 2021, with vendace being the most important fish species in terms of volume – accounting for 40 percent of the total catch. The commercial inland pike-perch catch increased strongly during the 2010's, with more than 80 percent of the commercial pike-perch catch being caught from inland waters at the end of the decade. In the 1990s, 90 percent of the commercial pike-perch catch was caught in marine waters. The value of the catch in 2021 was EUR 15.9 million, with vendace being the most significant inland species. Together, vendace and pikeperch accounted for 80 percent of the value of the catches in the commercial inland fisheries. The total number of commercial fishers in 2021 was around 1 750 in inland waters, of which 340 were full-time fishers.

According to the 2022 recreational fishing statistics, the number of recreational fishers has increased to 1.8 million, suggesting up to one-third of all Finnish people went fishing. The number of fishers aged between 25 and 44 years grew the most, showing an increase of more than 50 percent from 2020. The last time the number of recreational fishers was at this level was in 2008. The composition of fishers indicates that a total of 43 percent of men and 23 percent of women went fishing. Total recreational fishing catch increased to slightly more than 33 000 tonnes in 2022 from just under 31 000 tonnes that were recorded in 2020. In addition, 2 500 tonnes of recreational caught fish was released. The total catch increased the most for pike-perch and roach. The pike catch increased from 6 500 to 8 200 tonnes, the pike-perch catch from 2 700 to 4 300 tonnes, and the roach catch from 1 600 to 3 100 tonnes. In contrast, the perch catch decreased from 11 400 to 9 900 tonnes and the vendace catch from 2 600 to 1 000 tonnes. A total of 33 percent of the recreational catch was caught using gillnets, while the corresponding figure in 2020 was 36 percent. Fish traps and trap nets accounted for 10 percent of the total catch. In 2020, the corresponding figure was 18 percent. In terms of angling gear, the largest catch was recorded by using a spinning rod or by trolling, accounting for 30 percent of the total catch. Recreational fisheries can be an important source of food given the scale and level of participation and it is estimated that almost 50 percent of catches are retained for consumption (Embke *et al.*, 2022).

Sweden

Sweden has a large area of inland waters, with more than 500 000 km of rivers and nearly 100 000 lakes larger than 10 000 m², covering almost 9 percent of the country's total area (SLU, 2023). There is a mixture of northern and southern species and most of the fish stocks reproduce naturally, except in some regulated lakes and rivers where some salmonid populations are stocked. In some small, enclosed waters fish are also stocked for put-and-take fishing.

Ownership of fishing rights is divided between public water and private water. Private water consists of stretches of water closest to the shoreline around the coast and islands longer than 100 m in the five largest lakes (Vänern, Vättern, Mälaren, Hjälmaren and Storsjön). For inland fisheries, all fishers are allowed to sell the catches (except for European eel and live signal crayfish). Commercial fisheries are defined as licensed fisheries and are conducted either in private water, leased private water or in public water owned by the state. In the last decade an ambition to introduce ecosystem-based fishery management (EBFM) has been realized and several of the large lakes have developed plans for fishery management together with the stakeholders. For many smaller lakes and rivers local plans have been developed by local fishery conservation area associations.

Swedish commercial inland fisheries are mainly conducted in the four largest lakes (Vänern, Vättern, Mälaren and Hjälmaren). About 175 licence holders utilize 275 vessels. The landed weight reached 1 659 tonnes with an estimated value of SEK 153 million in 2022 (Swedish Agency for Marine and Water Management, and Statistics Sweden, 2023). This is compared with 139 000 tonnes in commercial marine fisheries with an estimated value of SEK 827 million in 2022 (Swedish Agency for Marine and Water Management and Statistics Sweden, 2023). Swedish commercial inland fisheries are estimated to contribute SEK 86 million to the Swedish GDP as well as up to 170 full-time employment positions (Enhol Blomqvist and Swahnberg, 2020). There is a large variation in species targeted based on where the commercial fishing is conducted. Overall, the most important species in terms of number of licences, landed weight and landed value are pike-perch and signal crayfish. Swedish inland fisheries are considered profitable and new licence requests are high for some lakes. All the large lakes show positive revenues even though variations exist between them. The processing at all levels of fisheries products in Swedish inland fisheries is relatively high. Several projects have been carried out to increase the value of fish products and to diversify the fisheries.

Recreational fisheries are extensive and occur in nearly all inland waters. Catch data for recreational fisheries are scarce but an annual national survey for recreational fisheries in Sweden has been conducted since 2013 and shows that during 2022, a total of 1.2 million people between the ages of 16 and 80 went fishing at least once, of which 350 000 were women and 850 000 were men (Swedish Agency for Marine and Water Management and Statistics Sweden, 2023). This is similar to the earlier estimate of 1.3 million participants provided by Embke *et al.* (2022). The total number of fishing days was 8.6 million days in lakes and rivers. The retained part of all catches equalled 8 500 tonnes and released part of all catches equalled 12 500 tonnes in lakes and rivers, totalling 21 000 tonnes. The most important species for inland recreational fisheries are perch, pike, trout, pike-perch and char. There is an extensive framework of regulations for inland fisheries and a website has been produced to provide an overview of these regulations.¹

A survey from 2011 estimates that 400 000 estates in Sweden include fishing rights, most of them are households (377 000) and the rest are companies, municipalities, the Swedish church, or other institutes (Krögerström, 2021). Fishing in privately owned waters is sometimes on a commercial scale. In many lakes, fishery conservation area associations have been formed to provide fishery management on a local scale, including regulation and charging fishers money for fishing in their waters.

¹ See www.svenskafiskeregler.se

Estonia

Estonia has 420 rivers of which 10 are longer than 100 km. There are 1 200 lakes larger than one hectare, with a total area of 2 115 km². Most lakes are eutrophic although water quality is improving. The most important waterbody is Lake Peipsi-Pihkva, a relatively shallow and productive lake that is shared and jointly managed with the Russian Federation. Lake Peipsi-Pihkva is the fourth-largest lake in Europe (3 558 km²). Estonia reported a catch of 2 630 tonnes in 2022, of which 2 172 tonnes was from Lake Peipsi-Pihkva. According to the Republic of Estonia Agriculture and Food Board, the catches were dominated by perch (836 tonnes), bream (622 tonnes), pike-perch (386 tonnes), and roach (191 tonnes). Management of the fishery in Lake Peipsi-Pihkva is according to an agreement with the Russian Federation, On the Estonian side the fishery uses Danish seines, and licence holders may own several boats that they rotate in use to make the most of their licences. Gillnets are also widely employed, especially when the lake is covered by ice.

A small-scale fishery in Lake Võrtsjärv for European eel relies on the stocking of eels (Mitchell, Vanberg and Sipponen, 2012). In 2022, the largest amount of European eel (49.5 tonnes) was caught in Lake Võrtsjärv in the last 29 years. The most successful fishing months were May, June and September.

Recreational fishery is important in Estonia and may involve up to 4 percent of the population (Embke *et al.*, 2022; Orru *et al.*, 2014). Recreational fishing caught 83 tonnes of fish from inland lakes. Three types of recreational fishing are distinguished depending on the fishing gear used, fishing place and fishing time. Angling (free), recreational fishing with up to three angling (paid) and fishing on the basis of a fishing card (paid).

Lithuania

Lithuania is rich in waterbodies. Of the country's 3 000 lakes, 2 827 are larger than 0.5 ha and 2 675 are large enough to support a commercial fishery. There are also 650 reservoirs and 1 589 ponds are larger than 0.5 ha (874 km²). The largest waterbody, and the most important for fisheries, is the brackishwater Curonian Lagoon, which is shared with the Russian Federation (413 km² or 26 percent belong to Lithuania) (FAO, 2005; Mitchell, Vanberg and Sipponen, 2012). There are 30 000 rivers (of which 733 are longer than 10 km), as well as numerous streamlets, brooks and canals. The largest river is the Nemunas and its basin covers about two-thirds of the country. The Kaunas Dam was built on the Nemunas River for hydropower generation (FAO, 1997). Other basins are the Lielupe, the Venta and the Daugava, whose basins are shared with neighboring countries (FAO, 2005; Mitchell, Vanberg and Sipponen, 2012).

Lithuania regularly reports inland catches to FAO, with landings in 2021 of 984 tonnes. Landings data for recent years reveal a trend of decreasing catches from the highest catch of 5 970 tonnes in 1990. In 2021 the catch was distributed among some 12 species. The most abundant species in the catches were: freshwater bream at 522 tonnes (53 percent), roach with 159 tonnes (16 percent), Vimba bream at 71 tonnes (7 percent), pike-perch with 68 tonnes (7 percent), European perch at 39 tonnes (4 percent), European smelt with 28 tonnes (3 percent), and vendace at 27 tonnes (3 percent) (FAO, 2023).

The Curonian Lagoon is the most significant inland fishing area. It is shared with the Russian Federation and has annual productivity of over 30 kg per hectare. The lagoon accounts for about 80 percent of all inland fish and is fished by about 75 companies. Elsewhere, ponds yield 100 to 150 tonnes per year, and rivers 150 to 170 tonnes, however rivers are important as spawning and nursery grounds for many species (Mitchell, Vanberg and Sipponen, 2012). Fishing pressure on salmon and trout especially in the Curonian lagoon is significant. In addition, aquatic habitats are severely impacted by dams, polders, and reduction of natural spawning sites (Aps, Sharp and Kutonova, 2004).

Inland fisheries constitute about 2 percent of total national fish landings and employ about 1 500 people, of which 300 are part of commercial operations operating 200 vessels. As in many other countries, recreational fishing is increasing in importance. There are estimated to be 750 000 to 1 million recreational fishers in Lithuania (Embke *et al.*, 2022; Aps, Sharp and Kutonova, 2004) out of a total population of 3.3 million people. Recreational fisheries are also very important for the tourist industry and contribute to food security, with an estimated 55 percent of the catch being retained for consumption.

Norway

Norway has about 1 000 main rivers. The longest are the Glomma River (598 km), Tana River (360 km) and Numedalslågen River (337 km). There are 300 000 lakes with the largest being Mjøsa (368 km²), Femund (210 km²) and Røsvatn (201 km²). There are 11 major reservoirs, however many natural lakes have been impounded for hydropower generation which obscures the distinction between reservoirs and natural lakes (Dill, 1990).

Norwegian lakes and rivers are naturally oligotrophic with low productivity and most suitable for salmonids. For example, the Mjøsa has an annual yield of 5 kg per hectare consisting mostly of whitefish, but also of trout, pike, perch and burbot. The maximum annual sustainable yield of Arctic char in mountain lakes of central Norway has been estimated at 7 kg per hectare (Jonsson cited in Dill, 1990).

Towards the end of the 1990s Norway reported landings of 11 species, but many of these seem to have disappeared from the catches (FAO, 2023). However, Dill (1990) discusses the challenges with obtaining reliable data on inland catches and indicates that official reports are serious underestimates. In 1980 for example, the total yield of Norway's inland fisheries was estimated to be approximately 5 000 tonnes (Swang cited in Dill, 1990). Norwegian rivers also support European eel (*Anguilla anguilla*) populations, although Norway represents the northern limit of their distribution area (Durif *et al.*, 2020). Inland fisheries in Norway are dominated by recreational fisheries. It is estimated that 250 000 people participate in the fishing for non-anadromous species in inland waters. Catches from these fisheries are unreported although Embke *et al.* (2022) estimate catches of 843 tonnes, of which 48 percent is retained for consumption.

Norway has more salmon rivers than any other country and in Norway it is mandatory to report catches of anadromous salmonids. No catch reports are demanded for other species. The total inland catch reported in 2022 was 425 tonnes. The catches consist mostly of Atlantic salmon (89 percent), but also sea trout (10 percent) and Arctic char (1 percent). Of the total catch, 35 percent were released. Since the first report to FAO in 1970, salmon landings have varied between 200 tonnes and 573 tonnes. In addition to official statistics of anadromous salmonids in freshwater, some non-official figures of catches from commercial inland fisheries exist: approximately 15 tonnes of brown trout and 50 tonnes of common whitefish.

Most salmon rivers continue to be productive despite hydroelectric development. This is partly the result of mitigation measures, including the construction of 300 fishways. Eutrophication has in some cases (e.g. Lake Mjøsa), led to excessive algal development in naturally oligotrophic lakes, and there are issues with acidification of both lakes and streams (particularly in southern Norway) as a result of air pollution with sulphur and nitrogen oxides. This is affecting the reproductive stages of fish (Wright and Snekvik cited in Dill, 1990). The fish-farming industry is a major source of organic waste. The fluke (*Gyrodactylus salaris*) caused severe losses of salmon parr in the 1980s. Non-indigenous species including pink salmon and brook trout (*Salvelinus fontinalis*) are also potentially displacing native species (Dill, 1990).

Since 2006, the implementation of the European Union Water Framework Directive was intended to have a positive impact on the environmental health of freshwater aquatic ecosystems and provide a coordinated approach in monitoring procedures to assess the state of inland fisheries (Mitchell, Vanberg and Sipponen, 2012).

Latvia

Latvia has 2 256 lakes larger than one hectare corresponding to a total surface area of 1 000 km². The largest lakes are Lubana (82 km²), Razna (58 km²) and Engure (38 km²). There are 12 500 rivers, with a total length of 60 000 km, 17 of them are longer than 100 km including Daugava, Lielupe, Venta, Aiviekste, and Gauja. There are 3 052 reservoirs including three major hydroelectric reservoirs, namely Kegums, Plavinas and Riga with a total area of 102 km² (Riekstins 1999).

In 2021, Latvia reported landings of 214 tonnes from inland fisheries. Unfortunately, these fisheries have experienced nearly continuous decline since 2000 (FAO, 2023). However, inland fishing has never been of significant scale since the country has only once reported landings over 600 tonnes (1 555 tonnes in 1988), suggesting a possible shift in reporting or data collection after independence. For 2022, 18 species were reported among which the most important are bream (26 percent), river lamprey (14 percent), tench (13 percent), northern pike (10 percent) and pike-perch (9 percent) (FAO, 2021). Recreational fisheries are growing in importance, and while there are no public catch statistics, they rival commercial catches in scale.

Less than one-third of those employed in fisheries work in commercial inland fisheries. In 2022, there were 98 people working in inland fisheries, however, 85 percent of them fish only occasionally. The level of employment has witnessed a dramatic decrease over a short span, as nearly 3 500 people worked in inland fisheries until 2003.

Commercial fishing takes place in 202 lakes, 154 reservoirs and 4 rivers. Most of the species are cyprinids and are mostly caught in lakes (Aleksjevs, 2021). The only truly riverine species is the river lamprey, for which there is a traditional fishery and the species is considered a delicacy (Riekstins, 1999). The fishery is enhanced through restocking (Eurofish, 2023). Key fishing equipment includes gillnets, seines, and traps (Riekstins, 1999). However, recently there has been a move towards prohibiting fishing with traps and nets in many lakes and rivers, in favour of recreational fishery and angling, linked with the development of ecotourism in Latvia. There are an estimated 100 000 recreational fishers (equivalent to about 5 percent of the population). Around 48 percent of the

Denmark

Danish inland waters consist of about 64 000 km of streams (of which 3 970 km are fishable), two rivers longer than 100 km and five longer than 60 km. the largest is Gudenå which is 158 km long with a basin of 2 700 km². There are about 120 000 lakes and ponds less than one hectare, covering an area of 580 km² or 1.4 percent of Denmark's area. Only 87 lakes are larger than one km², and 6 are larger than 10 km²: The largest is Lake Arresø (41 km²) and the second-largest (17 km²) is Lake Esrom (Dill, 1990; Rasmussen and Geertz-Hansen, 2001). In addition, there are a number of semi-inland waters: fjords, sheltered bays, estuaries, lagoons and creeks (Dill, 1990).

Virtually all streams and lakes in Denmark are influenced by human activities. Most lakes are highly eutrophic, and the fish fauna is dominated by cyprinids with few predators, such as pike and pike-perch. Most streams have been regulated and channelized while only two percent are still in their original natural condition (Brooks 1984). However, the implementation of the Water Framework Directive is slowly improving both the physical condition of rivers and the eutrophic state of lakes through various types of restoration activity (e.g. removing barriers and re-meandering in streams, performing nutrient load reduction, phosphorous capture and biomanipulation in lakes). Wildlife predation especially from cormorants inflict an increasing pressure on fish populations in both streams and lakes (e.g. Skov *et al.* 2014; Jepsen *et al.* 2018).

Commercial inland catches have been declining during. In 2022, only 11 tonnes of fish were landed. 20 years earlier the total catch was 146 tonnes. The main reason for the decline is cessation of commercial inland fisheries, in most cases due to lack of profitability. In 2022, catches were divided among 12 species, the dominant species were eels (4 347 kg), pike (3 141 kg.), bream (1 730 kg.) and pike-perch (1 434 kg.). Eel catches, including both yellow and silver eel, were down to about 4 percent of the mean annual catch in the 1980s (120 tonnes) (FAO, 2021).

Fishing rights to streams and lakes in Denmark generally belong to the owner of the adjoining land. The only exceptions are that public authorities can own fishing rights without being landowner and a still-legally valid royal privilege that has existed for over 200 years. The fishing rights to nearly all streams are privately owned. In about 25 percent of lakes fishing rights are owned by the Danish state, whereas the remainder are privately owned. About 50 percent of those owned by the state are available for recreational fishing (Dill, 1990; Rasmussen and Geertz-Hansen, 2001), while most of the privately owned lakes are not.

In 2022, commercial inland fishing areas in Denmark include 10 lakes and two locations in rivers, all performed as part-time occupation. The largest commercial fishery in Denmark (in Arresø) was terminated in 2021 by the owner (the Danish State), indicative of the substantial decline in importance of commercial fishing, and the number of commercial fishers in Danish inland waters is expected to decrease further in the future. To these, the stream and lake fishing of several hundred landowners for household use should be added.

Recreational fisheries are very popular in Denmark and streams, and to a lesser extent lakes, are already fully exploited. Approximately 500 000 people engage in recreational fishing activities and put-and-take fisheries are increasingly popular (Embke *et al.*, 2022; Rasmussen and Geertz-Hansen, 2001; Fisheries Agency, n.d.). For lakes the main obstacle to increase recreational fisheries is private landowners being reluctant to allow angler access. During the last approximately 30 years, salmon stocks in Western Jutland rivers have been rehabilitated and the recreational fishery for these is increasingly popular but subject to management measures – including a total allowable catch and personal quotas (Koed *et al.* 2020). The socioeconomic value of this fishery is high and it is estimated that around two-thirds of the recreational catch may be retained and consumed (Embke *et al.*, 2022; Jordal-Jørgensen *et al.* 2014).

Iceland

The total area of inland water in Iceland is 2 750 km², whose source is mainly comprised of meltwater from glaciers and snowdrifts. There are about 250 large and small rivers ranging from 60 km to 237 km in length. The longest rivers are Thjórsá (237 km), Jökulsá á Fjöllum (206 km), Ölfusá-Hvítá (185 km), and Skjálfandafhljót (178 km) (Dill, 1990). Iceland has about 1 800 waterbodies (Mitchell, Vanberg and Sipponen, 2012), however they are mostly very small with only 15 larger than 10 km² and 68 between 1 and 10 km². The largest is Lake Thingvallavatn with an area of 84 km². Some lakes, including the second-largest (Thorisvatn), have no fish at all (Dill, 1990).

The Icelandic fish fauna is poor with only five indigenous species: Atlantic salmon (*Salmo salar*) which ascends about 80 rivers up to 100 km; sea trout/brown trout (*S. trutta*) found in its resident form in any lake with suitable spawning grounds and the anadromous variety in the southern and southwestern parts of the country; Arctic char (*Salvelinus alpinus*) occurs throughout the country in both a resident lake form (including a pelagic variety) and an anadromous form; European eel (*Anguilla anguilla*) is found in rivers; and threespine stickleback (*Gasterosteus aculeatus*) (Dill, 1990). In 2021 total inland catches amounted to 116 tonnes. The highest catch reported was 907 tonnes in 1993. In 2021, the catches were distributed between Atlantic salmon (55 tonnes, 46 percent), Sea trout (42 tonnes, 35 percent) and Arctic char (22 tonnes, 18 percent) (FAO, 2021).

The inland fisheries for salmon, trout and char have traditionally been an important source of food for the farmers, but increasingly serve as a source of income through renting fishing rights out to recreational fishers and mainly tourists. In particular, the salmon fisheries are among the best (and most expensive) in the world (Dill, 1990). Ninety percent of the total salmon catch in Iceland is caught by recreational fishers. The largest remaining net fishery for salmon occurs in the Ölfusa River where angling opportunities are limited (Mitchell, Vanberg and Sipponen, 2012). Fifteen rivers produce 1 500 to 3 500 rod-caught salmon per year and the most productive river, Laxá, produces 3 000 (around 15 tonnes). Recreational angling for trout and Arctic char is practiced in both rivers and lakes, whereas commercial fishing for these species only takes place in three lakes (in 1978 Lake Thingvallavatn had an annual catch of 75 tonnes of Arctic char). Lake Mývatn yields around 20 tonnes per year, of which about 10–15 percent is trout and the remainder are char (Jónasson cited in Dill, 1990). Winter fishing through the ice is practiced in some places (Dill, 1990). It is estimated that around 50 percent of the recreational fish catch may be retained and consumed (Embke *et al.*, 2022).

A4. WESTERN EUROPE

Country/territory	Inland capture fisheries catch (tonnes in 2021)	Percentage of global inland fish catch	Population (2021)	Per capita inland fish production (kg/cap/year)
Germany	16 724	0.15	83 408 554	0.20
Switzerland	1 486	0.01	8 691 406	0.17
Netherlands (Kingdom of the)	1 368	0.01	17 501 696	0.08
France	1 155	0.01	64 531 444	0.02
United Kingdom of Great Britain and Northern Ireland	724	0.01	67 281 039	0.01
Austria	350	0.00	8 922 082	0.04
Belgium	283	0.00	11 611 419	0.02
Ireland	93	0.00	4 986 526	0.02
Andorra	0	0.00	79 034	0.00
Channel Islands	0	0.00	116 109	0.00
Faroe Islands	0	0.00	52 889	0.00
Liechtenstein	0	0.00	39 039	0.00
Luxembourg	0	0.00	639 321	0.00
TOTAL	22 183	0.20	267 860 558	0.08

The main inland fisheries in Western Europe are found in the numerous rivers, some of which are large such as the Rhine, the Rhone and the Loire Rivers, lakes and reservoirs. There are about 50 species found in Western Europe that, with only one or two exceptions, are fished (e.g. Winfield and Gerdeaux, 2016). Recreational fisheries are the main focus across most countries in Western Europe, although some commercial fisheries do operate (Winfield and Gerdeaux, 2016). The trend in reported catch shows overall stable catches for all countries in Western Europe and declines in some migratory species. With no reported catches, Andorra, Channel Islands, Faroe Islands, Liechtenstein and Luxembourg are not described in the section below.

Germany

The Federal Republic of Germany has a total inland water area of about 820 000 ha (Statistisches Bundesamt, 2022). In addition to lakes – mainly confined to the northern, eastern and southern parts of the country – there are numerous small waterbodies, both natural and artificial, scattered throughout the country. The German inland waters used for inland fisheries (including angling and aquaculture) is estimated to be between 520 000 and 565 000 ha. The area is also believed to have declined from around 565 430 ha in 2010 to about 521 000 ha in 2021. Commercial and recreational capture fisheries make up the majority of use with 233 000 ha used for commercial inland fisheries, approximately 23 000 ha for aquaculture and 265 000 ha solely for recreational fisheries. A large proportion of the 233 000 ha used for commercial fishing is also available for recreational fisheries.

Commercial fisheries exist in almost all large river estuaries (including Elbe, Weser, Ems, Eider, Warnow, Peene and Schlei/Trave). Commercial river fisheries are locally significant, but not extensive. Important commercial lake fisheries are in the pre-alpine lakes in Bavaria, Lake Constance (Bodensee), the lake region of Plön-Eutin in Schleswig-Holstein, the northeastern German lake region (Mecklenburg-Pomerania), and lakes and rivers in Brandenburg and Berlin. The commercial fishery mainly targets European eel, pike-perch, pike and perch in the north and the pre-alpine region whitefish, perch and to some extent char. A 1994 census returned a total of 587 inland fishing enterprises, which likely included only the fully commercial ones. Since then, the number of fishing enterprises has decreased considerably: Whereas in 2010 the overall number of fishing enterprises (excluding aquaculture) was 866 (394 fully commercial and 472 part-time), this number has decreased to 632 enterprises (318 fully commercial and 314 part-time) in 2021.

The inland capture fisheries trend in production since 1995 has been a picture of continuous decline, from nearly 23 000 tonnes to 16 708 tonnes (2 189 tonnes commercial, 14 519 tonnes recreational). Hence, the data show a decreasing trend in the commercial fishery from 3 010 tonnes in 2010 to 2 189 tonnes in 2021. The estimates for recreational fisheries are highly variable, however the figures also reveal that the catches from the recreational fisheries far exceed the commercial catches. Recreational fishers include both urban and rural participants (Arlinghaus and Mehner, 2004). The number of valid recreational fishing licences in 2021 was around 1.65 million, and interest in recreational fishing increased during the COVID-19 pandemic. Embke *et al.* (2022) suggest the number of participating fishers could be almost as high as 5.8 million (around 7 percent of the population) and that around 50 percent of the catch is retained.

Switzerland

Switzerland has a total inland water surface area of about 1 740 km². Of this, 1 422 km² are lakes. The total length of rivers and streams is about 65 000 km. Commercial fishing in Switzerland takes the form of professional lake fishing, and in 2022 there were 240 professional fishers operating on Switzerland's lakes. The annual commercial catch in Swiss lakes for the period 2008–2018 averaged approximately 1 500 tonnes. Recreational fishing is widely practiced with an estimated 277 200 participants annually. Recreational catches have been estimated at 254 tonnes, of which around 46 percent (118 tonnes) is retained (Embke *et al.*, 2022).

Aquatic environments in Switzerland have been negatively affected by North American crayfish (*Faxonius limosus*, *Pacifastacus leniusculus* and *Procambarus clarkii*). Measures to control and eradicate these species have included intensive trapping, introduction of predatory fish (including pike, zander and European eel) and construction of crayfish barriers (Krieg, King and Zenkner, 2020).

Kingdom of the Netherlands

The inland waters of the Kingdom of the Netherlands occupy 3 574 km² and are comprised of Lake IJssel (2 000 km²) and the country's marginal lakes (145 km²), delta lakes (230 km²), polder reservoirs (790 km²) and rivers (212 km²) (FAO, 2005). The most important waterbody for commercial inland fishing is the Lake IJssel, whose commercial catch was 1 106 tonnes in 2022 and mainly consisted of pike-perch (390 tonnes), roach (223 tonnes), European eel (184 tonnes), bream (177 tonnes) and perch (75 tonnes). Other important areas include lakes Veerse, Grevelingen and Lauwer, as well as sections of rivers in the south.

Most of the value from inland fisheries is derived from the European eel fishery. Decreasing populations of eel are impacting the professional inland fishery with a decline of catches and yields. (Mitchell, Vanberg and Sipponen, 2010). The total reported catch of European eel was 563 tonnes in 2022. Recently, recreational fishing has been growing in popularity – an estimated 1.6 million people fished in inland waters at least one or more time in 2020 which has almost doubled since 2019. The main species targeted by recreational fishers are minnows and carp fish (Sportvisserij Nederland, 2022). Recreational fish catches have been estimated to be in the region of 882 tonnes. The retention of fish for consumption is relatively high for the subregion, at almost 70 percent (Embke *et al.*, 2022).

France

France has a total area of inland waterbodies of 1 400 km². There are five major river systems with a total length of 270 650 km (Seine, Loire, Garonne, Rhône and Rhine), 60 000 ha of lakes and approximately 100 000 ha of small lakes, ponds and marshes. Thus, France has a wide range of freshwater bodies, which have benefited recently from a reduction in pollution. In addition, an increasing proportion of the population has interest in locally sourced food products.

Despite these favourable geographical and ecological situations and levels of demand, French inland fisheries have been in decline since the mid-1970s. Commercial inland fisheries in France represent a traditional activity that is concentrated in the estuaries of the Loire, Gironde and Adour Rivers and several alpine lakes. This accounts for about 60 percent of catch. The remaining 40 percent is from river fisheries that focus in particular on migratory species. The most important species caught are eel, lamprey, shad, whitefish and perch. In 1997 there were 2 106 professional fishers operating in French inland waters, although by 2009 this had fallen to 532 fishers and by 2016 decreased further to 387 fishers with a catch of 1 200 tonnes total (Mitchell, Vanberg and Sipponen, 2010; Changeux *et al.*, 2024). Part of the reason for the decline in the commercial fisheries is their dependence on migratory species that are themselves in decline (Changeux *et al.*, 2024).

Recreational fishing has had a slower decline due to the creation of subannual fishing cards and expansion to younger fishers. In 2016, 2 million anglers and 400 subsistence fishers were estimated to be active in the recreational fisheries with catches of 7 600 and 200 tonnes respectively. The economic worth of the fishing industry was estimated at EUR 980 million, with recreational fishing being the main contributor. Recent estimates suggest that the number of participants could be as high as 5.6 million (Embke *et al.*, 2022).

United Kingdom of Great Britain and Northern Ireland

The United Kingdom of Great Britain and Northern Ireland has a total inland water area of 3 218 km² comprising 2 745 km² of lakes (including reservoirs), 38 802 km of rivers, over 2 000 km of canals and 3 700 km² of estuaries. Many rivers have been subject to modification that has reduced the heterogeneity of riverine habitats which, together with water pollution and the effects of introduced and invasive species, has affected freshwater biodiversity. More recently, a range of national policies and funding mechanisms have been developed and are being implemented to restore aquatic habitats, including river realignment, riparian planting, reducing diffuse pollution, the removal of barriers and reintroduction of species, such as the European beaver.

Most of the country's inland waters are exploited for recreational purposes, and there is very little commercial exploitation of inland waters. The few remaining commercial fisheries are focused on migratory species and are subject to strict controls, including European eel fisheries in some parts of the UK (excluding Scotland). Commercial harvesting of migratory salmonids is now very limited across the majority of the UK. The most important areas for professional inland fisheries in the United Kingdom of Great Britain and Northern Ireland are Lough Neagh, Lough Erne, , Severn Estuary, River Foyle Estuary, as well as a number of estuaries off the northeastern coast of England.

Recreational fishing makes up most of the inland fishing and in England and Wales, the majority of which is for coarse fish. This is the case even in areas traditionally associated with salmonid fisheries, such as the Southwest and Wales (Mawle and Peirson, 2009). Recreational fisheries range from fishing on stocks that have little management, as with the salmonid stocks of upland streams and rivers, to the more intensively managed fisheries such as some lowland coarse fish fisheries (e.g. Winfield and Gerdeaux, 2016). In Scotland, the majority of recreational salmon angling now operates on a catch and release only basis (either by statute, local fishery rules or on a voluntary basis).

Austria

In Austria, professional or commercial fisheries are located on Neusiedler See, the lakes of Salzkammergut, some Carinthian lakes and Bodensee (Lake Constance). River fisheries have ceased altogether with the exception of the Danube in Upper Austria, where fishing still provides added income in a few locations. In 2020, an estimated 225 tonnes of fish were caught, compared to 350 tonnes in 2010 (not including recreational fishing). Production is reported to be enhanced in some cases by stocking with commercially produced fish (Mitchell, Vanberg and Sipponen, 2010). Unfortunately, the quality of the data on the management of lakes and the effectiveness of stocking measures varies greatly due to structural differences. For this reason, the Federal Agency for Water Management is conducting both methodological studies (Ficker *et al.* 2020) and surveys of fish stocks. In the future, management concepts tailored to the respective lake should help fishermen to ensure the sustainability of fishing yields.

Employment for commercial inland fisheries, including aquaculture, totals about 600, but fewer than 35 professional fishers make a living from fishing. While commercial fishing is declining, recreational fishing is a popular activity in Austria with the number of anglers estimated at nearly 450 000. This activity generates an annual direct and indirect contribution to the economy of EUR 437 million (EAA, n.d.) as well as contributions to food security with almost 50 percent of the recreational catch consumed.

Belgium

Major rivers in Belgium include the Meuse and the Schelde that drain into the North Sea. Other rivers include the Rupel, Senne, Sambre, Lesse, Ourthe, Lys and Dijle, some of which are tributaries of the major rivers. Belgium also has a number of lakes, including the Lake Bütgenbach, Lake Genval and Lake Robertville, that are mainly located in the southeast as well as many artificial waterbodies and canals.

Belgium is reported to have no commercial inland fisheries operations (Newman, 2014). The inland fishery in Belgium is therefore focused on recreational fishing, including occasionally for subsistence. Over 350 000 people are estimated to participate in recreational fishing and around 50 percent of the estimated 772 tonnes caught are retained (Embke *et al.*, 2022). Much of this fishing occurs in artificial fishing areas (private ponds, fishing grounds) as well as in the country's rivers and canals (Mitchell, Vanberg and Sipponen, 2010).

Ireland

Ireland has a total area of 3 350 km² of inland waters, including freshwater lakes (1 445 km²) and main channel rivers with a total length of about 13 840 km. Habitat enhancement projects have been initiated in a number of rivers to maintain and increase fish habitats and mitigate infrastructure development (IFI, 2022). Commercial fishing activity principally comprises commercial draft-net fishing of salmon (*Salmo salar*), which since 2007 solely occurs in designated river estuaries which exceed their respective conservation limits since the coastal mixed-stock drift-net fisheries ceased operation in 2006. Some minor commercial sea trout (*Salmo trutta*) fishing also coincides with this fishery. A single commercial brown trout (*S. trutta*) fishery operates in Lough Ree (Vehanen *et al.*, 2020). As a conservation measure, there has been no commercial fishing for European eel (*Anguilla Anguilla*) since 2009. In 2022, commercial catches comprised of almost 11 tonnes of salmon and 0.01 tonnes of sea trout. The commercial salmon harvest in 2022 was the lowest recorded since 2007 when the transition to river-specific stock management was introduced. Since 2013, when 38 tonnes of salmon were harvested, there has been a progressively declining trend in annual catches recorded in the commercial salmon fishery (IFI 2023). The brown trout commercial fishery reported a harvest of 1.9 tonnes in 2022. According to information presented by Newman (2014) employment in inland fisheries in Ireland is composed of around 625 part-time fishers.

In addition to the commercial fisheries, recreational fisheries are also important in Ireland. In 2022, a total of 17 318 licences were issued for the recreational salmon fishery which reported a harvest of almost 28 tonnes. Fifty-four percent of all salmon caught in this fishery were released. No such catch information is routinely compiled at a national level for brown or sea trout recreational fisheries in Ireland and there are no recreational eel fisheries. In addition to the salmonid fisheries, there are also recreational fisheries in the lakes, loughs, canal networks and smaller waterbodies in Ireland. Recreational anglers target a mix of species including Bream, roach, perch and rudd. Total annual participation in recreational fisheries, most of which are catch-and-release, has been estimated at over 400 000 people (Embke *et al.*, 2022). Recreational fishers are prohibited from selling salmon or sea trout caught by rod and line (Vehanen *et al.*, 2020).

Fisheries in Ireland are managed through licensing of commercial and recreational fisheries for migratory salmonids, closed seasons and the use of gear restrictions for recreational fisheries (Vehanen *et al.*, 2020). A statutory body (Inland Fisheries Ireland) exists to protect, manage and conserve inland fisheries, including research and collection of fisheries statistics.

REFERENCES

- Aleksejevs, E.** 2021. *Fish Production of Latvian Lakes. Latvian Fisheries Yearbook*, Jelgava, Latvia, The Latvian Rural Advisory and Training Centre.
- Antunes, C., Cobo, F. & Araújo, M.J.** 2016. Iberian inland fisheries. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, UK, John Wiley & Sons, Ltd.
- Aps, R., Sharp, R. & Kutonova, T.** 2004. *Freshwater fisheries in Central & Eastern Europe: the challenge of sustainability*. Warsaw, IUCN Programme Office for Central Europe.
- Arlinghaus, R. & Mehner, T.** 2004. A management-oriented comparative analysis of urban and rural anglers living in a metropolis (Berlin, Germany). *Environmental Management*, 33: 331–344.
- Arlinghaus, R., Beardmore, B., Riepe, C., Meyerhoff, J. & Pagel, T.** 2014. Species-specific preferences of German recreational anglers for freshwater fishing experiences, with emphasis on the intrinsic utilities of fish stocking and wild fishes. *Journal of Fish Biology*, 85(6): 1843–1867.
- Arthur, R.I.** 2024. *Review of the state of the world fishery resources – Inland fisheries*. Fourth edition. FAO Fisheries and Aquaculture Circular, No. 942, Rev. 4. Rome, FAO and Abidjan, AfDB.
- Atalay, M.A., Kirankaya, Ş.G. & Ekmekçi, F.G.** 2017. The current state of gibel carp and sand smelt in Turkey's inland fisheries. *Yunus Research Bulletin*, 2017(1): 41–57.
- Berg, S. & Rasmussen, G.H.** 2012. De ferske vande i Danmark. In: H. Carl & P.R. Møller, eds. *Atlas over Danske Ferskvandsfisk*. Copenhagen, Statens Naturhistoriske Museum.
- Bianco, P.G. & Ketmaier, V.** 2016. Nature and status of freshwater and estuarine fisheries in Italy and Western Balkans. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, UK, John Wiley & Sons, Ltd.
- Brämick, U.** 2011. *Jahresbericht zur deutschen Binnenfischerei 2010*. Potsdam, Germany, Institut für Binnenfischerei e.V.
- Brämick, U.** 2016. *Jahresbericht zur deutschen Binnenfischerei und Binnenaquakultur 2015*. Potsdam, Germany, Institut für Binnenfischerei e.V.
- Brämick, U. & Schiewe, S.** 2022. *Jahresbericht zur Deutschen Binnenfischerei und Binnen-aquakultur 2021*. Potsdam, Institut für Binnenfischerei e.V.
- Brooks, A.** 1984. *Recommendations bearing on the sinuosity of Danish stream channels: consequences of realignment, spatial extent of natural channels, processes and techniques of natural and induced restoration*. Teknisk rapport 6, Miljøstyrelsens Ferskvandslaboratorium. Odense, Danish Environmental Protection Agency.
- Brownscombe, J.W., Danylchuk, A.J., Chapman, J.M., Gutowsky, L.F.G. & Cooke, S.J.** 2017. Best practices for catch-and-release recreational fisheries – angling tools and tactics. *Fisheries Research*, 186(3): 693–705.
- Bundesministerium für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft.** 2022 *Grüner Bericht, Die Situation der österreichischen Land- und Forstwirtschaft*. Vienna, Bundesministerium für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft.
- Changeux, T., Boisneau, P., Stolzenberg, N. & Goulon, C.** 2024. A long term overview of freshwater fisheries in France. *Reviews in Fish Biology and Fisheries*, 34: 19–41.
- Cooke, S.J., Allison, E.H., Beard, T.D., Arlinghaus, R., Arthington, A.H., Bartley, D.M., Cowx, I.G., Fuentesvilla, C., Leonard, N.J., Lorenzen, K., Lynch, A.J., Nguyen, V.M., Youn, S.-J., Taylor, W.W. & Welcomme, R.L.** 2016. On the Sustainability of Inland Fisheries: Finding a Future for the Forgotten. *Ambio*, 45, 753–764.

- Czech Statistical Office.** 2022. Population change – year 2021 – Highest fertility in the last 30 years. In: *Czech Statistical Office*. Prague, Czech Statistical Office. [Cited 22 August 2023] <https://www.czso.cz/csu/czso/ari/population-change-year-2021>.
- Czerwiński T.,** 2016. Porównanie modelu prowadzenia gospodarki rybacko-wędkarskiej i wędkarskiej In: M. Mizieliński, ed. *Użytkownik wędkarski 2016. Rola gospodarki wędkarskiej na wodach PZW w świetle zasad zrównoważonego rozwoju*. Warsaw, Wieś Jutra Publishing.
- Czarkowski, T. K., Wołos A. & Kapusta A.** 2021. Socio-economic portrait of Polish anglers: implications for recreational fisheries management in freshwater bodies. *Aquatic Living Resources*, 34: 19.
- Danish Fisheries Agency, Ministry of Food, Agriculture and Fisheries.** (n.d.). Recreational fisheries. In: *Ministeriet for Fødevarer, Landbrug og Fiskeri – Fiskeristyrelsen*. Copenhagen, Danish Fisheries Agency, Ministry of Food, Agriculture and Fisheries. [Cited 10 October 2023]. <https://fiskeristyrelsen.dk/english/recreational-fisheries>.
- Dartay, M.** 2023. Problems experienced by inland water fishers during the pandemic (Covid-19): the case of Yozgat Province. *ISVOS Journal*, 7(2): 103–108.
- Dereli, H., T. Kebapçioğlu, Ş. Yusuf, Z.S. Ölçek & M. Özdemir.** 2018. Demirköprü Dam Lake (Manisa, Turkey) fisheries: fishing gears and commercial species. *Journal of Limnology and Freshwater Fisheries Research*, 4(3): 154–168.
- Dill, W.A. & Bentuvia, A.** 1988. The inland fisheries of Israel. *Israeli Journal of Aquaculture-Bamidgeh*, 40(3): 75–104.
- Dill, W.A.** 1990. *Inland fisheries of Europe*. EIFAC Technical Paper 52, Rome, FAO.
- Diripasko, O.A., Bogutskaya, N.G., Dem’yanenko, K.V. & Izergin, L.V.** 2015. Sea of Azov: A brief review of the environment and fishery. *Aquatic Ecosystem Health & Management*, 18(2): 184–194.
- Durif, C.M.F., Diserud, O.H., Sandlund, O.T., Thorstad, E.B., Poole, R., Bergesen, K., Escobar-Lux, R.H., Shema, S., Vøllesad, L.A.** 2020. Age of European silver eels during a period of declining abundance in Norway. *Ecology and Evolution*, 10: 4801–4815.
- EAA (European Anglers Alliance).** n.d. Members – Austria. In: *European Anglers Alliance*. Brussels, EAA. [Cited 3 October 2023]. <https://www.eaa-europe.org/about-eea/members/austria.html>.
- Embke, H.S., Nyboer, E.A., Robertson, A.M., Arlinghaus, R., Akintola, S.L., Atessahin, T., Badr, L.M., Baigun, C., Basher, Z., Beard, T.D., Boros, G., Bower, S.D., Cooke, S.J., Cowx, I.G., Franco, A., Gaspar-Dillanes, M.T., Granada, V.P., Hart, R.J., Heinsohn, C.R., Jalabert, V., Kapusta, A., Krajč, T., Koehn, J.D., Lopes, G., Lyach, R., Magqina, T., Milardi, M., Nattabi, J., Nyaboke, H., Phang, S., Potts, W.M., Ribeiro, F., Mercado-Silva, N., Sreenivasan, N., Thorpe, A., Treer, T., Ustup, D., Weyl, O.L.F., Wood, L.E., Zengin, M. & Lynch, A.J.** 2022. Global dataset of species-specific inland recreational fisheries harvest for consumption. *Scientific Data*, 9: 488.
- Enhol Blomqvist, G. & Swahnberg, H.** 2020. *Ekonomisk och strukturell data rörande svenskt insjöfiske – Rapport 2020:19*. Jönköping, Sweden, Jordbruksverket (Swedish Board of Agriculture).
- EUMOFA (European Market Observatory for Fisheries and Aquaculture Products).** 2024. *EUMOFA*. Brussels, European Commission. [Cited 29 September 2023]. <https://eumofa.eu/>.
- Eurofish.** 2023. *Eurofish*. Copenhagen, Eurofish. [Cited 30 October 2023]. <https://eurofish.dk/>.
- FAO.** 1997. *Irrigation in the countries of the former Soviet Union in figures*. FAO Water Report, No. 15. Rome, FAO.
- FAO.** 2005. *FAO Fishery and aquaculture country profile: Lithuania*. Rome, FAO.

- FAO.** 2005. *Fishery country profile: The Kingdom of the Netherlands*. Rome, FAO.
- FAO.** 2006. *Fishery country profile: Ireland*. Rome, FAO.
- FAO.** 2015. *Fishery Country Profile: The State of Israel*. Rome, FAO.
- FAO.** 2023. FishStat: Global capture production 1950–2021. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.
- FAO.** 2024. *FishStat: Global production by production source 1950-2022*. [Accessed on 01 November 2024]. In: FishStatJ. Available at www.fao.org/fishery/en/statistics/software/fishstatj. Licence: CC-BY-4.0.
- FAO.** 2024. Fishery and Aquaculture Country Profiles. Portugal, 2005. Country Profile Fact Sheets. In: *Fisheries and Aquaculture*. Rome, FAO. Updated Dec 6, 2017 [Cited 23 May 2024]. <https://www.fao.org/fishery/en/facp/prt>.
- FAO.** 2024. Fishery and Aquaculture Country Profiles. Cyprus, Country Profile Fact Sheets. In: *Fisheries and Aquaculture*. Rome, FAO. Updated 25 August 2017. [Cited 23 May 2024]. <https://www.fao.org/fishery/en/facp/CYP>.
- Ficker, H., Gassner, H., Müller, M. & Haas, A.** 2020. Zusammenfassung EMFF Pilotstudie 1a: Methodenentwicklung zur fischereilichen Datenerhebung von Renken-und Seesablingsbeständen österreichischer Seen.
- Froehlich, H.E., Gentry, R.R. & Halpern, B.S.** 2017. Conservation aquaculture: shifting the narrative and paradigm of aquaculture's role in resource management. *Biological Conservation*. 216: 162-168.
- Garcia de Leaniz, C. & O'Hanley, J.R.** 2022. Operational methods for prioritizing the removal of river barriers: Synthesis and guidance. *Science of The Total Environment*, 848: 157471.
- Gophen, M.** 2018. Fishery management in Lake Kinneret: a review. *Journal of Fisheries and Aquaculture Development*, 2018(1): 100040.
- Goren, M. & Ortal, R.** 1999. Biogeography, diversity and conservation of the inland water fish communities in Israel. *Biological Conservation*, 89: 1–9.
- Griffiths, N., Wright, R., Hänfling, B., Bolland, J.D., Drakou, K., Sellers, G.J., Zogaris, S. & Vasquez, M.I.** 2021. The European eel (*Anguilla anguilla*) in Cyprus - Investigating the role of freshwaters for eel conservation using integrated monitoring methods. *ARPHA Conference Abstracts*, 4: e65417.
- Gundelund, C., Arlinghaus, R., Baktoft, H., Hyder, K., Venturelli, P., & Skov, C.** 2020. Insights into the users of a citizen science platform for collecting recreational fisheries data. *Fisheries Research*, 229, Article 105597.
- GUS (Central Statistical Office).** 2022. Rocznik Statystyczny Rzeczypospolitej Polskiej (Statistical Yearbook of the Republic of Poland). Warsaw, GUS.
- Havs- och vattenmyndigheten och Statistiska centralbyrån** (Swedish Agency for Marine and Water Management and Statistics). Kommersiellt inlandsfiske 2022, JO 56 SM 2301. [online] Cited 10 October 2023. <https://www.havochvatten.se/data-kartor-och-rapporter/data-och-statistik/officiell-statistik/officiell-statistik--fiske.html>.
- IERiGR-PIB & Hryszko, K.,** ed. 2022. *Rynek Ryb. Stan i perspektywy. Nr 33, Analizy Rynkowe*. Warsaw, Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej Państwowy Instytut Badawczy (IERiGR-PIB).
- IFI (Inland Fisheries Ireland).** 2022. *Annual report and financial statements*. Dublin, IFI.
- IFI.** 2023. *Wild salmon and sea trout statistics report 2022*. IFI/2023/1-4645. Dublin IFI.

- IRŚ-PIB, Trela, M., Wołos, A. & Draszkiwicz-Mioduszevska, H.** 2023. *Gospodarka rybacka prowadzona w publicznych śródlądowych wodach powierzchniowych w roku 2022 na podstawie analizy kwestionariuszy RRW-23*. Olszystn, Poland, Ministerstwa Rolnictwa i Rozwoju Wsi & IRŚ-PIB – Instytut Rybactwa Śródlądowego im.
- IRŚ-PIB, Wołos A., Draszkiwicz-Mioduszevska H. & Mickiewicz M.** 2021. *Gospodarka rybacka prowadzona w publicznych śródlądowych wodach powierzchniowych w roku 2020 na podstawie analizy kwestionariuszy RRW-23*. Olszystn, Poland, Ministerstwa Rolnictwa i Rozwoju Wsi & IRŚ-PIB – Instytut Rybactwa Śródlądowego im.
- IRŚ-PIB, Wołos A., Draszkiwicz-Mioduszevska H. & Mickiewicz M.** 2022. *Gospodarka rybacka prowadzona w publicznych śródlądowych wodach powierzchniowych w roku 2021 na podstawie analizy kwestionariuszy RRW-23*. Olszystn, Poland, Ministerstwa Rolnictwa i Rozwoju Wsi & IRŚ-PIB – Instytut Rybactwa Śródlądowego im.
- INSTAT** 2022 *Statistical data of commercial catch on Albanian inland waters*. Tirana, Ministry of Agriculture and Rural Development.
- IUCN**. 2004. *Freshwater fisheries in Central & Eastern Europe: the challenge of sustainability*. Gland, Switzerland, IUCN.
- Jensen, T.** 2021. Member countries – Croatia. In: *Eurofish*. Copenhagen, Eurofish. [Cited 21 September 2023] <https://eurofish.dk/member-countries/croatia/>.
- Jepsen, N, Ravn, H.D. & Pedersen, S.** 2018. Change of foraging behavior of cormorants and the effect on river fish. *Hydrobiologia*, 820: 189–199.
- Jordal-Jørgensen, J., Rønneft, A.K., Ladenburg, J., Aarestrup, K., Skov, C. & Koed, A.** 2014. *Den lokaløkonomiske værdi af laksefiskeriet i Skjern Å*. DTU Aqua-rapport nr. 287–2014. Kongens Lyngby, Demark, Technical University of Denmark.
- Kaczkowski, Z. & Grabowska, J.** 2016. Problems and challenges of fish stock management in fresh waters of Poland. In J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, John Wiley & Sons, Ltd.
- Kiss-Horváth, Á., Kosáros, T. & Lengyel, P.** 2022. *Magyarország természetes vizeinek hasznosítása 2021-ben*. Budapest, Ministry of Agriculture.
- Krieg, R., King, A. & Zenker, A.** 2020. Measures to control invasive crayfish species in Switzerland: a success story? *Frontiers in Environmental Science*, 8: 609129.
- Krögerström, L.** 2021. *Den enskilda fiskerätten i Sverige – Kunskaper och fakta*. Borgholm, Sweden, Sveriges fiskevattenägareförbund.
- Koed, A., Birnie-Gauvin, K., Sivebæk, F. & Aarestrup, K.** 2020. From endangered to sustainable: Multi-faceted management in rivers and coasts improves Atlantic salmon (*Salmo salar*) populations in Denmark. *Fisheries Management and Ecology*, 27: 64–76.
- Leonardos, I.D.** 2016. Fisheries ecology of Greece. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, UK, John Wiley & Sons, Ltd.
- Lohmeier, L.** 2024. Anzahl der Personen in Deutschland, die in der Freizeit Angeln oder Fischen, nach Häufigkeit von 2019 bis 2023. In: *Statista*. Hamburg, Germany, Statista. [Cited 7 September 2023]. <https://de.statista.com/statistik/daten/studie/171166/umfrage/haeufigkeit-von-angeln-oder-fischen-in-der-freizeit/>.

- Luke (Natural Resources Institute Finland)**. n.d. Fisheries and hunting statistics. Recreational fishing 2016. In: *Luke – Natural Resources Institute Finland*. Helsinki, Luke. [Cited 21 November 2023]. <http://stat.luke.fi/en/kala-ja-riista>.
- Lyach, R.** 2023. Fisheries and Aquaculture in the Czech Republic: history, current status, management, and regulations. *Fisheries*, 48(5): 197–203.
- Lynch, A.L., Embke, H.S., Nyboer, E.A., Wood, L.E., Thorpe, A., Phang, S.C., Viana, D.F., Golden, C.D., Milardi, M., Arlinghaus, R., Baigun, C., Beard, T.D., Cooke, S.J., Cowx, I.G., Koehn, J.D., Lynach, R., Potts, W., Robertson, A.M., Schmidhuber, J. & Weyl, O.L.F.** 2024. Recreational inland fish as food: nutrition, economic value and climate vulnerability. *Nature Food*, 5(5): 433–443.
- MAFWM (Ministry of Agriculture, Forestry and Water Management of Montenegro)**. 2006. *Montenegro's fisheries development strategy and capacity building for implementation of the EU common fisheries policy*. Podgorica, Montenegro, MAFWM & the European Agency for Reconstruction.
- Martin, J.S.** 2008. *Fisheries in Italy*. Brussels, European Parliament Committee on Fisheries.
- Ministerstvo zemědělství.** 2022. *Situační a výhledová zpráva: Ryby 2022*. Prague, Ministerstvo zemědělství.
- Mitchell, M., Vanberg, J. & Sipponen, M.** 2010. *Commercial inland fishing in member countries of the European Inland Fisheries Advisory Commission (EIFAC): operational environments, property rights regimes and socio-economic indicators. Country profiles. May 2010*. EIFAC Ad Hoc Working Party on Socio-Economic Aspects of Inland Fisheries. Rome, FAO.
- MoAF,** 2024, Fisheries Statistics 2023, Ministry of Agriculture and Forestry, General Directorate Of Fisheries And Aquaculture, Ankara, Türkiye.
- Movchan, Y.V.** 2015. Environmental conditions, freshwater fishes and fishery management in the Ukraine. *Aquatic Ecosystem Health & Management*, 18(2): 195–204.
- Moutopoulos, D.K., Koutsikos, N., Vardakas, L. & Perdikaris, C.** 2022. A history of Greek inland fishery development during 1928–2019. *Fisheries Management and Ecology*, 29(5): 681–692.
- NAFA (National Agency for Fisheries and Aquaculture)**. 2007. *National Strategic Plan for Fisheries and Aquaculture 2007-2013*. Sofia, Ministry of Agriculture and Forestry.
- National Agency for Fishing and Aquaculture,** n.d. *Operational programme for fisheries Romania 2007-2013*. https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/romania_en.pdf Bucharest, Agenției Naționale pentru Pescuit și Acvacultură.
- Newman, S.** 2014. *Inland fisheries and the Common Fisheries Policy. Report prepared for the European Parliament's Committee on Fisheries*. Brussels, European Union.
- NINA.** 2018. *Forbruket av varer og tjenester til sportsfiskere og jegere i Norge i 2018*. NINA Rapport 1605. Trondheim, Norway, NINA (Norsk institutt for naturforskning).
- Novomeská, A. & Kovač, V.** 2016. Freshwater resources and fisheries in Slovakia. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, John Wiley & Sons, Ltd.
- Orru, K., Kangur, K., Kangur, P., Ginter, K. & Kangur, A.** 2014. Recreational ice fishing on the large Lake Peipsi: socioeconomic importance, variability of ice-cover period, and possible implications for fish stocks. *Estonian Journal of Ecology*, 63(4):282–298.
- Ovegård, M.K., Jepsen, N., Nord, M.B & Petersson, E.** 2021. Cormorant predation effects on fish populations: A global meta-analysis. *Fish and Fisheries*, 22(3): 605–622.

- Rad, F. & Rad, S.** 2012. A comparative assessment of Turkish inland fisheries and aquaculture using economic sustainability indicators. *Turkish Journal of Fisheries and Aquatic Sciences*, 12(2): 349–361.
- Rasmussen, G. & Geertz-Hansen, P.** 2001. Fisheries management in inland and coastal waters in Denmark from 1987 to 1999. *Fisheries Management and Ecology*, 8: 311–322.
- Riekstins, N.** 1999. Current status and trends in inland fisheries in Latvia. In: G. Lundqvist, ed. *Current status and trends in inland fisheries – BAFICO Seminar on Inland Fisheries in Tallinn, May 1999*. Copenhagen, Nordic Council of Ministers.
- Salmi, P. & Sipponen, M.** 2016. Cultural strengths and governance challenges of a northern inland fishery. In: A.M. Song, S.D. Bower, P. Onyango, S.J. Cooke & R. Chuenpagdee, eds. *Inter-sectoral governance of inland fisheries*. St. Johns, Canada, Too Big to Ignore.
- Semenchenko, V., Rizevski, V. & Ermolaeva, I.** 2015. Nature and status of freshwater fisheries in Belarus. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, John Wiley & Sons, Ltd.
- SLU (Swedish University of Agricultural Sciences).** 2023. Sjöar och vattendrag. In: *SLU Artdatabanken*. Uppsala, Sweden, Swedish University of Agricultural Sciences. [Cited 10 October 2023]. <https://www.artdatabanken.se/arter-och-natur/naturtyper/sjoar-och-vattendrag/>.
- Skov, C., Jepsen, N., Baktoft, H., Jansen, T., Pedersen, S. & Koed, A.** 2014. Cormorant predation on PIT-tagged lake fish. *Journal of Limnology*, 73(1): 177–186.
- Søndergaard, M., Jeppesen, E. & Jensen, J.P.** 1999. *Danske søer og deres restaurering. Danmarks Miljøundersøgelser*. Temarapport fra DMU, 24/1999. Himmelev, Denmark, National Environmental Research Institute of Denmark.
- Specziar, A. & Erös, T.** 2016. Freshwater resources and fisheries in Hungary. In: J.F. Craig, ed. *Freshwater Fisheries Ecology*. Chichester, John Wiley & Sons, Ltd.
- Sportvisserij Nederland.** 2022. *Feiten en cijfers*. Bilthoven, Kingdom of the Netherlands, Sportvisserij Nederland.
- Statistical Office of the Republic of Serbia.** 2023. *Statistical Yearbook of the Republic of Serbia, 2013 – 2022*. Belgrade, Statistical Office of the Republic of Serbia.
- Statistisches Bundesamt** 2022. *Fachserie 3, Reihe 5.1. Land- und Forstwirtschaft, Fischerei. Bodenfläche nach Art der tatsächlichen Nutzung*. Wiesbaden, Germany, Statistisches Bundesamt.
- Tarkan, A.S., Marr, S.M. & Ekmekçi, F.G.** 2015. Non-native and translocated freshwater fish species in Turkey. *FiSHMED Fishes in Mediterranean Environments* 2015: 003.
- Treer, T.** 2019. Participation rates of freshwater recreational fisheries in the counties of Croatia, *Croatian Journal of Fisheries*, 77: 127–132.
- Trella, M. & Mickiewicz, M.** 2016. Recreational fisheries pressure in the Polish waters of the Vistula Lagoon and considerations of its potential impact on the development of regional tourism. *Archives of Polish Fisheries*, 24(4): 231–242.
- Trichkova, T., Stefanov, T., Vassilev, M. & Zivkov, M.** 2009. Fish species diversity in the rivers of north-west Bulgaria. *Transylvanian Review of Systematical and Ecological Research*, 8: 161–168.
- TurkStat,** 2024., Fisheries Statistics, Turkish Statistical Institute. <https://biruni.tuik.gov.tr/medas/?kn=97&locale=tr>.
- United Nations Population Division.** 2022. World Population Prospects 2022. [Accessed on 13 November 2023]. <https://population.un.org/wpp>.
- Vehanen, T., Piria, M., Kubečka, J., Skov, C., Kelly, F., Pokki, H., Eskelinen, P., Rahikainen, M., Keskinen, T., Artell, J., Romakkaniemi, A., Suić, J., Adámek, Z., Heimlich, R., Chalupa, P.,**

- Ženišková, H., Lyach, R., Berg, S., Birnie-Gauvin, K., Jepsen, N., Koed, A., Pedersen, M.I., Rasmussen, G., Gargan, P., Roche, W. & Arlinghaus, R.** 2020. *Data collection systems and methodologies for the inland fisheries of Europe*. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO.
- Vetemaa, M., Järvalt, A. & Vaino, V.** 1999. Current status and trends in inland fisheries in Estonia. In: G. Lundqvist, ed. *Current status and trends in inland fisheries*. BAFICO Seminar on Inland Fisheries in Tallinn, May 1999. Copenhagen, Nordic Council of Ministers.
- Winfield, I.J. & Gerdeaux, D.** 2016. Fisheries in the densely populated landscape of Western Europe. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, UK, John Wiley & Sons, Ltd.
- Wolos A., Kapusta A., Mickiewicz M. & Czerwiński T.,** 2016. Aktualne problemy gospodarki rybacko-wędkarskiej i wędkarskiej w pytaniach i odpowiedziach. *Komunikaty Rybackie*, Nr 3 (152). Olsztyn, Poland.
- Yerli, S.V.** 2015. The ecology of inland fisheries of Turkey. In: J.F. Craig, ed. *Freshwater fisheries ecology*. Chichester, UK, John Wiley and Sons, Ltd.
- Zogaris, S., Chatzinikolaou, Y., Oikonomou, E., Koutsikos, N., Vardakas, L., Giakoumi, S., Beaumont, W.R.C. & Economou, A.N.** 2012. Inland fishes in Cyprus: site-specific assemblages and distributions. In: A. Legakis, C. Georgiadis & P. Pafilis, eds. *Abstracts of the International Congress on the Zoogeography, Ecology and Evolution of Southwestern Europe and the Eastern Mediterranean, 18–22 June*. Athens, Hellenic Zoological Society.
- Zubcov, E., Curcubet, G., Biletschi, L., Domanciuc, V., Usatii, M., Barbaiani, L., Kovács, É., Moth-Poulsen, T. & Woynarovich, A.** 2013. *Review of fishery and aquaculture development potentials in the Republic of Moldova*. FAO Fisheries and Aquaculture Circular, No. 1055/3. Rome, FAO.
- Zugravu, N. & Rahoveanu, T.** 2011. Information system for financial analysis and economic Planning within fish farms, The XVIIth International Conference IBIMA (International Business Information Management Association) Creating global competitive economies: A 360- degree approach. Milan, Italy, IBIMA.

Globally, inland capture fisheries continue to play a crucial role, contributing significantly to human health, livelihoods and cultural economies. Despite producing over 12 percent of the world's fish, they face challenges such as environmental degradation and competition for water, remaining undervalued in decision-making and policy discussions. Inland fisheries remain important within Europe, where they provide food, cultural and recreational benefits and contribute to maintaining biodiversity. Total production reported to FAO in 2021 was 167 187 tonnes (1.47 percent of the global total) and the average annual consumption of inland fisheries products in Europe was 0.24 kg per capita per year. Information on inland fisheries at regional, subregional and national levels is also presented on fishing, fisheries and fisheries management from FAO and other sources. Priorities for responsible management are identified, drawing on the evidence from regional and global assessments. These priorities include strengthening the evidence base, including both the status of fish stocks and the social and economic benefits they provide, advancing an ecosystem approach to management through stewardship and care and considering the role of fisheries within wider landscape and catchment planning. Acknowledging the roles and importance of inland capture fisheries is critical to ensuring that inland fisheries continue to support livelihoods and cultural heritage and drive positive transformations.

ISBN 978-92-5-139545-5 ISSN 2221-6650



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CD3884EN/1/01.25