



Abstract

Identifying the Threatened Ecosystem Services Provided by Diadromous Species [†]

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Abstract: Diadromous fish are declining across their Atlantic distribution, and the status of their future is very worrying with the additional threat posed by climate change right now. European stakeholders and policy makers know very well the benefits provided by these species, from uses such as selling fish. However, in addition to that, the diadromous fish populations provide other lesser known benefits to society, known as ecosystem services (ESs), that are now in danger. In this research, developed under the framework of the INTERREG Atlantic Area DiadES Project, ESs linked to diadromous fish are identified by reviewing existing evidence and considering ESs provided in a set of case studies across the AA (from the Gipuzkoa rivers in Spain and Loire and Mondego rivers in France and Portugal, to the Rivers Tamar, Frome and Taff in the UK). ESs identified to be related to diadromous fish populations include food provision (provisioning service), nutrient exchanges between coastal and inland habitats (regulating service) and recreational fishing and tourism linked to the societal interest for diadromous fish (cultural service). The contribution of diadromous species to supporting gastronomic festivals, brotherhoods, the knowledge systems (environmental education and research), the local identity, traditional know-how or even to the natural heritage around diadromous fish also relates to cultural ESs. Potential trade-offs are identified between services provided by diadromous fish populations and other services provided in AA rivers that support alternative benefits (i.e., flood control; electricity production; agriculture (pollution); sand extraction). By providing this list and a monetary assessment of ESs derived from diadromous fishes, DiadES wants to convey to stakeholders and policy makers the importance of these ESs, as they must consider them as part of the decision-making process. Enhancing the assessment of ESs related to diadromous fish species, including the full diversity of ESs the species contribute to (across provisioning, regulating and cultural ESs) and the health of the habitats that support them, is a major necessity to advance towards an ecosystem approach to diadromous fishes' management.

Keywords: river ecosystems; diadromous fish; Atlantic Area; ecosystem services; assessment framework; empirical knowledge



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