



Why Restore and Protect Rivers, and Why Now?

*An Introduction to the
Topic*

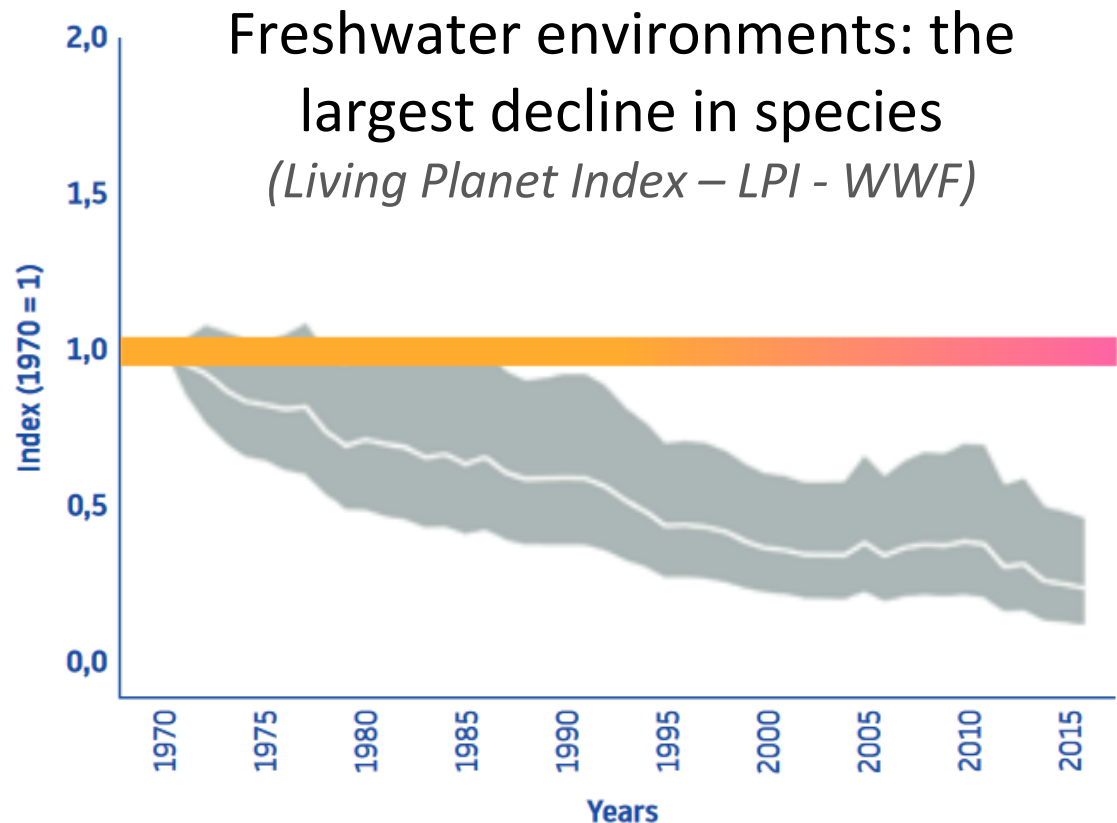


Why Restore and Protect Rivers, and Why Now?

- *Extreme Freshwater Biodiversity Decline*
- *The political and legislative momentum*
- *River ecosystems have not been in the spotlight compared to others*



“The Reason”: an urgent need for biodiversity recovery



https://wwf-eu.awsassets.panda.org/downloads/lpi_migratory_freshwater_fish_low_min_1.pdf

- Recently the LPI for freshwater decreased **roughly 4% per year**
- As of the 1970's, in the observed **1406 populations**, of **247** species of **Fishes** have declined in abundance at an average of **76% from the 1970's**
- **Habitat loss** and **degradation** are the main reasons – i.e. Fragmentation & Alteration
- In-stream barriers are the main cause for **poor conservation status** of migratory fish species

(Reid et al. 2019; Carvajal-Quintero et al. 2019; Vörösmarty et al. 2010)

“The Enabling Conditions”: There is a developing momentum both globally and regionally for increased river restoration and protection measures

In the EU

Current Legislation in Place

Water Framework Directive

- + Floods Directive
- + Groundwater Directive...

+Others

Nature Directives

- + Habitats & Birds Directives...

All with the aim to achieve “Good Ecological Status” and healthy, connected ecosystems within the next 7-10 years (and beyond).

- We have seen some initiatives for Protection of rivers in the past in certain EU Member (& Non-Member) States outside/inside the Frame of EU Water Legislation

However, these are limited to certain countries

- There are several restoration initiatives underway at National Governmental & Non-Governmental Level

However, there is need for a more system scale approach and widespread approach across the Region



As for the future political and legislative momentum?

The conversation is happening now

Broad acknowledgment and knowledge of freshwater ecosystem decline:

- Degradation, Pollution & Biodiversity Decline

The UN Decade of Restoration:

- The global political stage has recognized the issue of restoration & protection of our ecosystems as most pressing

Global & Regional Biodiversity Objectives, Goals & Strategies coming up:

- EU 2030 Biodiversity Strategy & Green Deal
- Convention on Biological Diversity
- National Biodiversity Strategies and Action Plans (EU/Non-EU) [globally]

Recognizing a need for boosting implementation of EU Nature and Water Legislation:

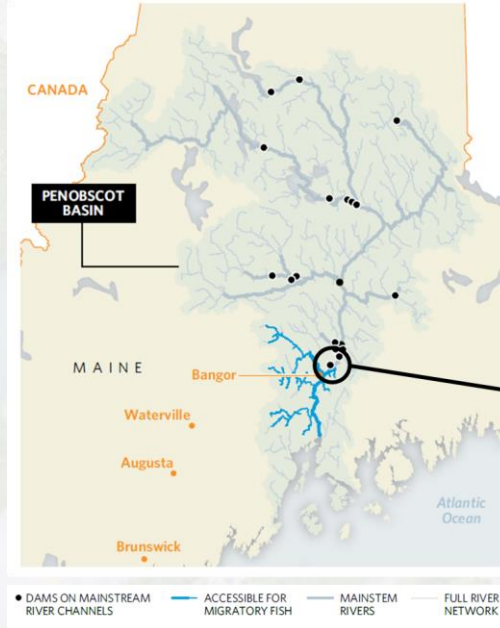
- To achieve the WFD's 2027 Objectives, Member States need to step up efforts
- Restoration measures (barrier removal) and protection designations are result-driven and strongly supportive actions

The Benefits of Barrier/Obstacle Removal for Biodiversity, Economy, Society

Obstacle removal in the Penobscot Basin, North-Eastern US

1820-2012

- 4% of historical habitat accessible



2016-Present

- 62% of habitat accessible
- Connected 2,600 Km of river



Ecological Response

- A return of larger populations of searun fish to the river network

searun
FISH



birds



- Increase in migratory and local birdlife due to increased food source

native
FISH

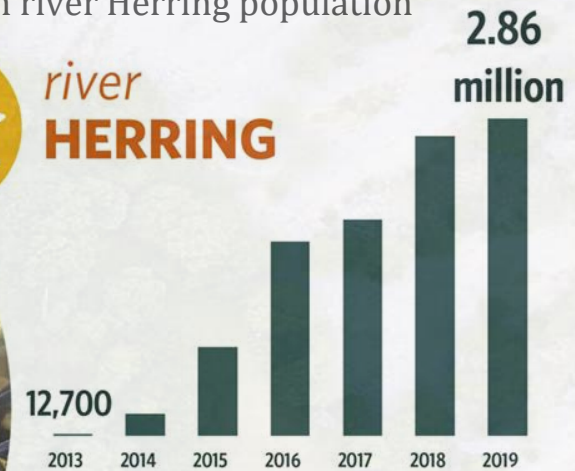


- Surge in native fish population numbers



river
HERRING

- Exponential response seen in river Herring population



marine

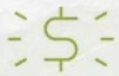
- Increased presence of marine fish species at the mouth of the river

Economic Response

- river herring*
HARVESTS
- Increased local economic activity and profit

\$71,988

Town revenue quadruples
over a 10 year period.



- resource*
AVAILABILITY
- More resilient fish stocks and larger fishing quotas



- increased*
GROUNDFISH
- More fishable species



- food*
RELIEF
- Haiti disaster aid
 - Export of catch

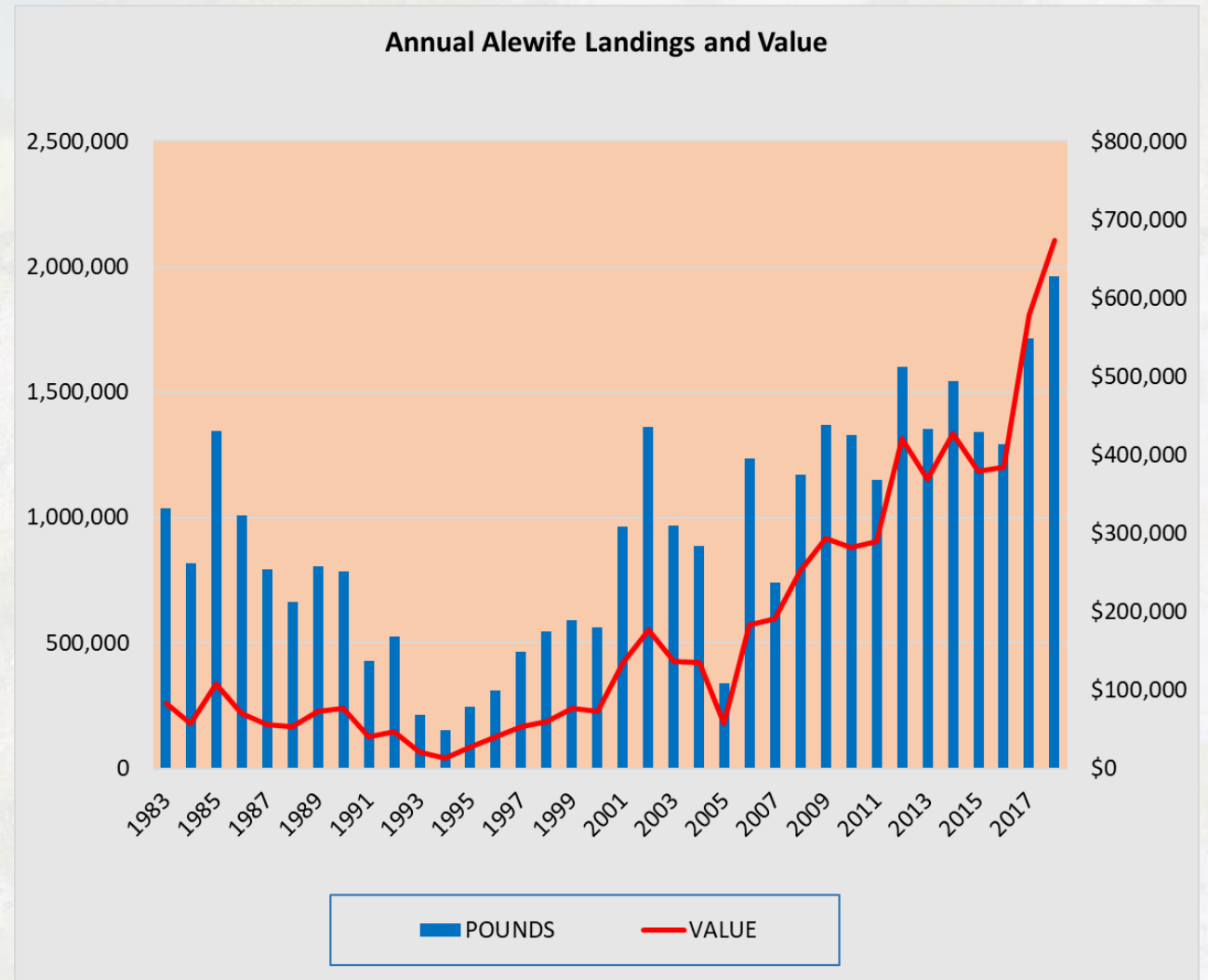


- lobster*
INDUSTRY
- Cheaper and readily available bait and greater financial return \$

Economic Response

Bait for €450 M lobster industry

- Dam removal in 1999
River herring >10M fish/year statewide
- Lobster bait prices had surged
after 2009 as local bait
sources became more scarce
- Alewives now 50% of the bait supply for
months of May and June, with demand
increasing
- Elver fishery in 2019 = €8.2M in revenue



Social Response

restoring treatise **FISHING RIGHTS**

- Penobscot Indian Nation historic rights consolidated for the first time



boating

- Increase in recreational value and tourism revenue \$



healthier **FOOD SOURCE**

- Less imported fish
- Fresh supply
- Smaller carbon footprint



fishing **INCREASE**

- Increased revenue from fishing licenses



community **CONNECTIONS**

- Increased local and public interest and interaction with the river



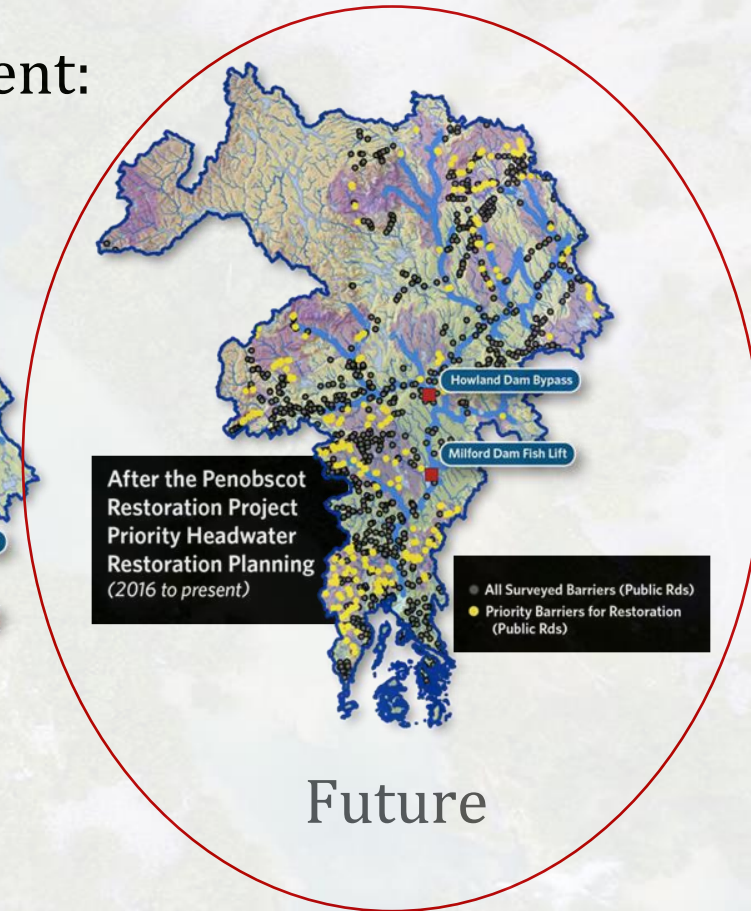
The Future for the Penobscot Catchment: *Connecting the headwaters*

Before



After the Penobscot Restoration Project Mainstem River Connected to the Ocean (2012 to 2016)

After



Future



EU Biodiversity Strategy for 2030: *Freshwater, “the hows”?*

River Connectivity Restoration:

- “at least **25,000 km** of rivers will be restored into **free-flowing rivers** by 2030 through the **removal of primarily obsolete barriers** and the restoration of floodplains and wetlands” (*EU 2030 Biodiversity Strategy*)

Restoration, Protection & the Trans-European Nature Network – the Future:

1. Consider Freshwater Bodies [entire rivers] an **integral part of the protection and strict protection target** (“30 by 30”) of the Strategy
1. **Ensure Freshwater restoration efforts are durable in the long-term**, building on, and utilizing, the **current legislative framework** for water and nature, and by the inclusion of other effective **area based conservation/protection measures** where applicable or necessary
1. Within the *Trans-European Nature Network*, **integrate freshwater protection and restoration** using a basin-scale approach
2. **Ensuring harmonisation of other EU policies and guidelines** (Energy, transport, climate, etc.)
3. **Ensure adequate financing** – build the “business case” – Penobscot example, Green Deal, Covid recovery, etc.
1. **Develop an EU-wide methodology for prioritisation of freshwater** protection designations and restoration investments for optimal biodiversity conservation outcomes