Josh Royte
Senior Conservation Scientist

The Nature Conservancy
Maine

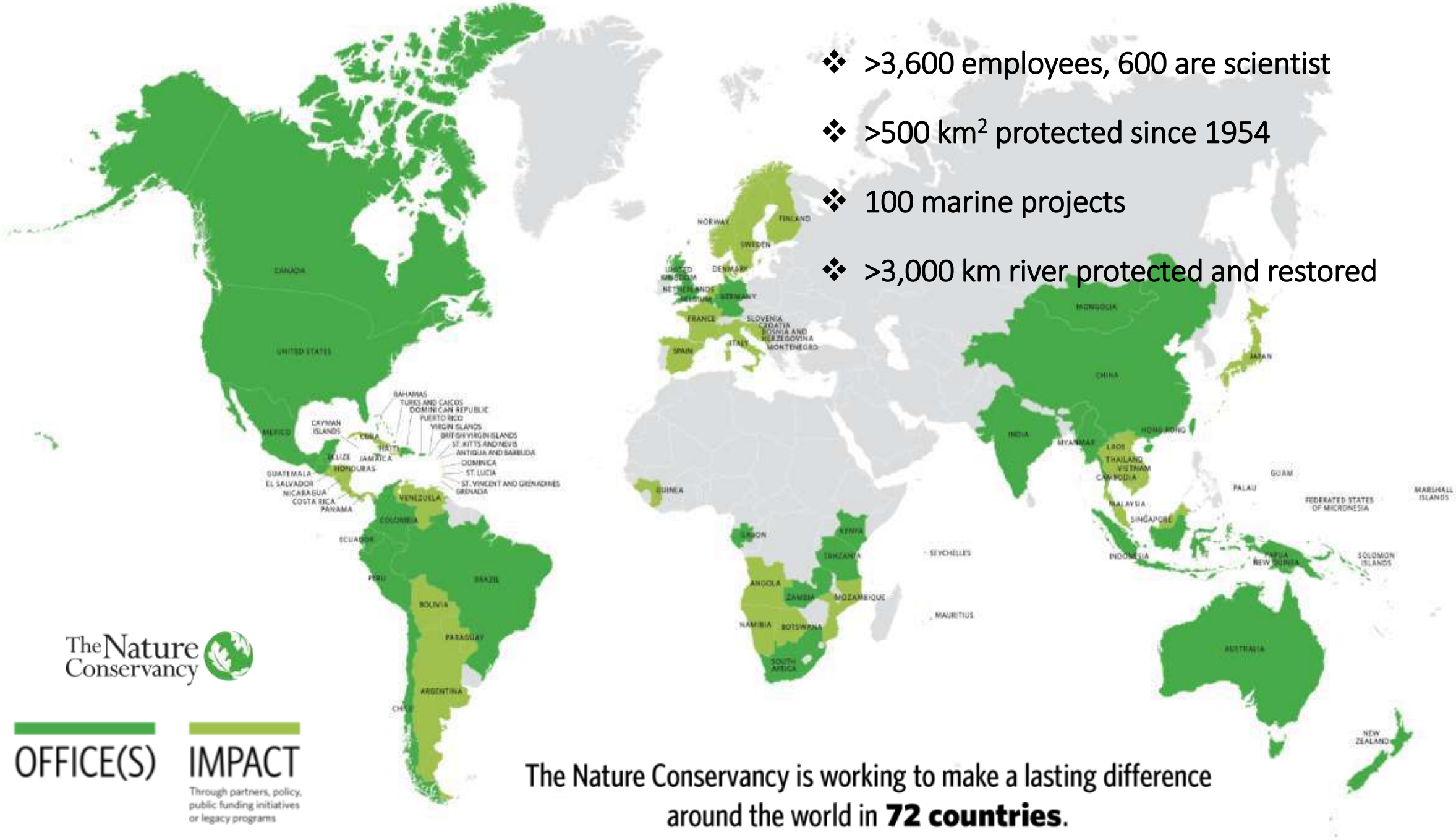
OUR SHARED CONSERVATION AGENDA

PROVIDE FOOD AND WATER SUSTAINABLY

BUILD HEALTHY CITIES

PROTECT LAND AND WATER

TACKLE CLIMATE CHANGE



- >3,600 employees, 600 are scientist
- >500 km^2 protected since 1954
- 100 marine projects
- >3,000 km river protected and restored

The Nature Conservancy

OFFICE(S)

IMPACT

Through partners, policy, public funding initiatives or legacy programs

The Nature Conservancy is working to make a lasting difference around the world in **72 countries**.

Just beginning FW work in Europe

- Water security – exploring potential Water Funds sites,
- Freshwater Conservation & Restoration (dam removals)
- Very important opportunities in Southeast Europe

In Southeastern Europe

- Working with partners to find renewable energy solutions for people and nature;
- Define mechanisms to protect precious remaining free-flowing rivers; and
- Strategically restore rivers to recover endangered species, revitalise fisheries for human and natural communities within changing climate.

New: Dam Removal Toolkit for Practitioners

Synthesizes resources

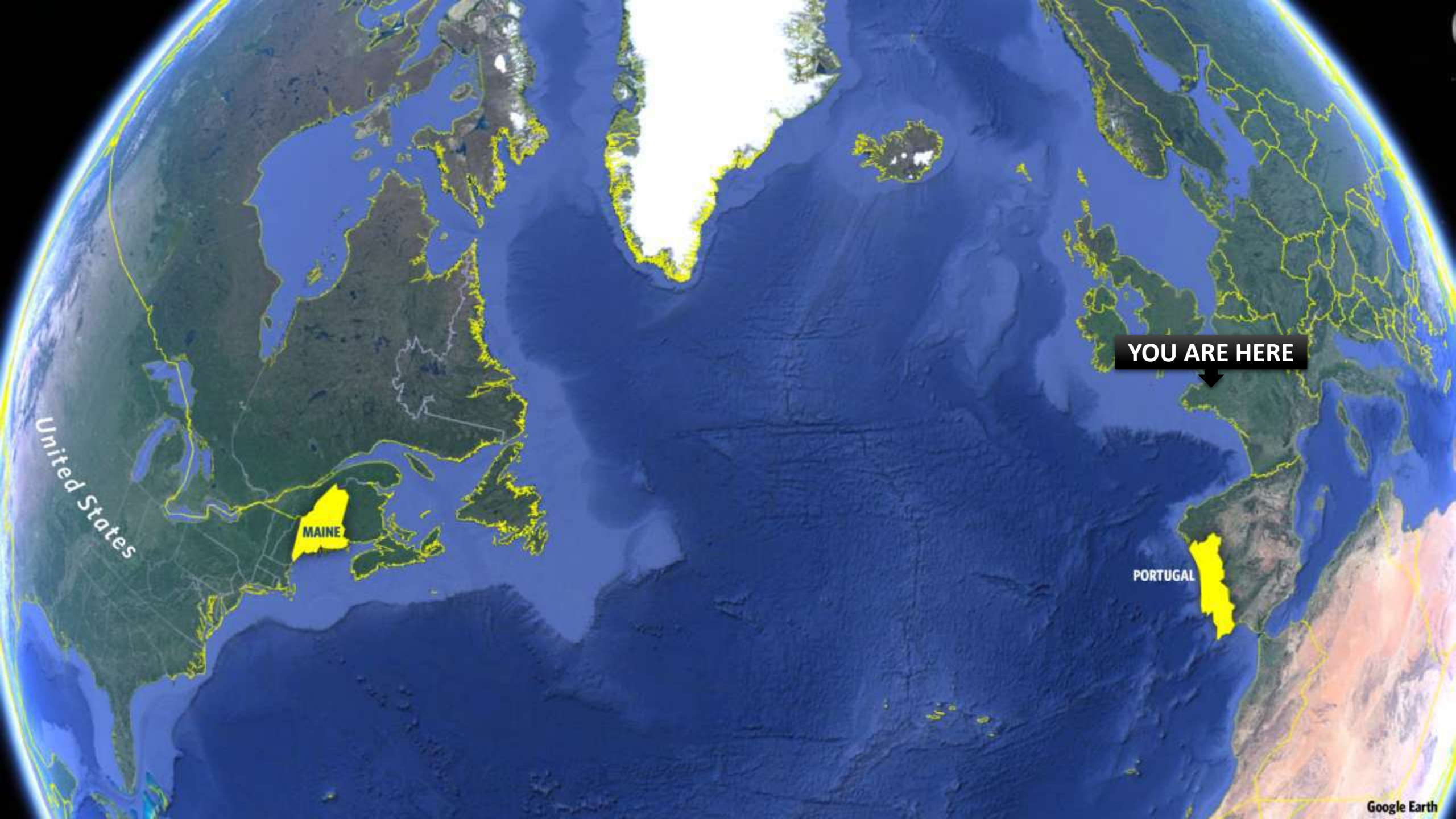
- Ecological, social & economic benefits
- Finance options
- Process & common issues that drive projects

This toolkit will serve as the foundation for a more comprehensive practitioner's guide and in-person training in 2020.

www.nature.org/europe

Summary of work in North America

- Removed more than 100 stream barriers to restore more than 10,000 km of habitat
- Develop science for monitoring and tools for regional barrier prioritization
- Advance policies: streamlined permitting; dam liability and water extraction limits
- Drive innovative finance including environmental markets for barrier removal


YOU ARE HERE
United States
MAINE
PORTUGAL
Google Earth

"The Nature Conservancy is the only group I know which is doing something practical about actually preserving areas."

Ecologist and author Rachel Carson
Founder of the Maine Chapter in 1956

CONSERVING THE FUTURE OF FORESTS

TRANSFORMING OCEAN MANAGEMENT

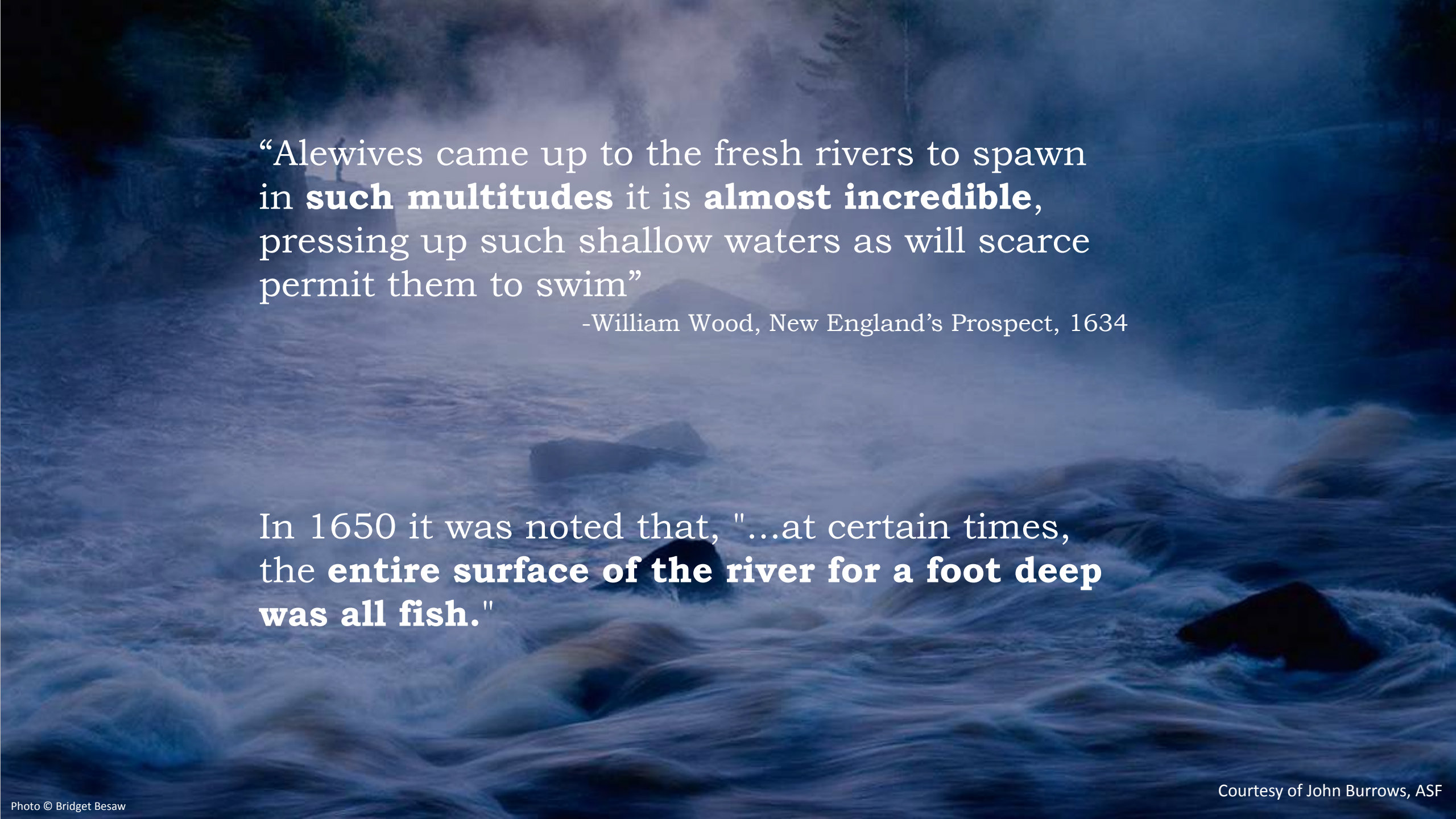
INSPIRING CLIMATE ACTION

RESTORING FREE-FLOWING RIVERS

Twelve Species of Diadromous Fish

Alewife
Shad
Blueback herring
Atlantic salmon (ES)
American eel (ESA Reconsider)
Sea lamprey
Striped bass
Searun brook trout (salts)
Rainbow smelt
Tomcod
Atlantic sturgeon (proposed TS)
Shortnose sturgeon (ES)

Potentially 13th..hickory shad



“Alewives came up to the fresh rivers to spawn in **such multitudes** it is **almost incredible**, pressing up such shallow waters as will scarce permit them to swim”

-William Wood, New England’s Prospect, 1634

In 1650 it was noted that, "...at certain times, the **entire surface of the river for a foot deep was all fish.**"

Photo © Bridget Besaw

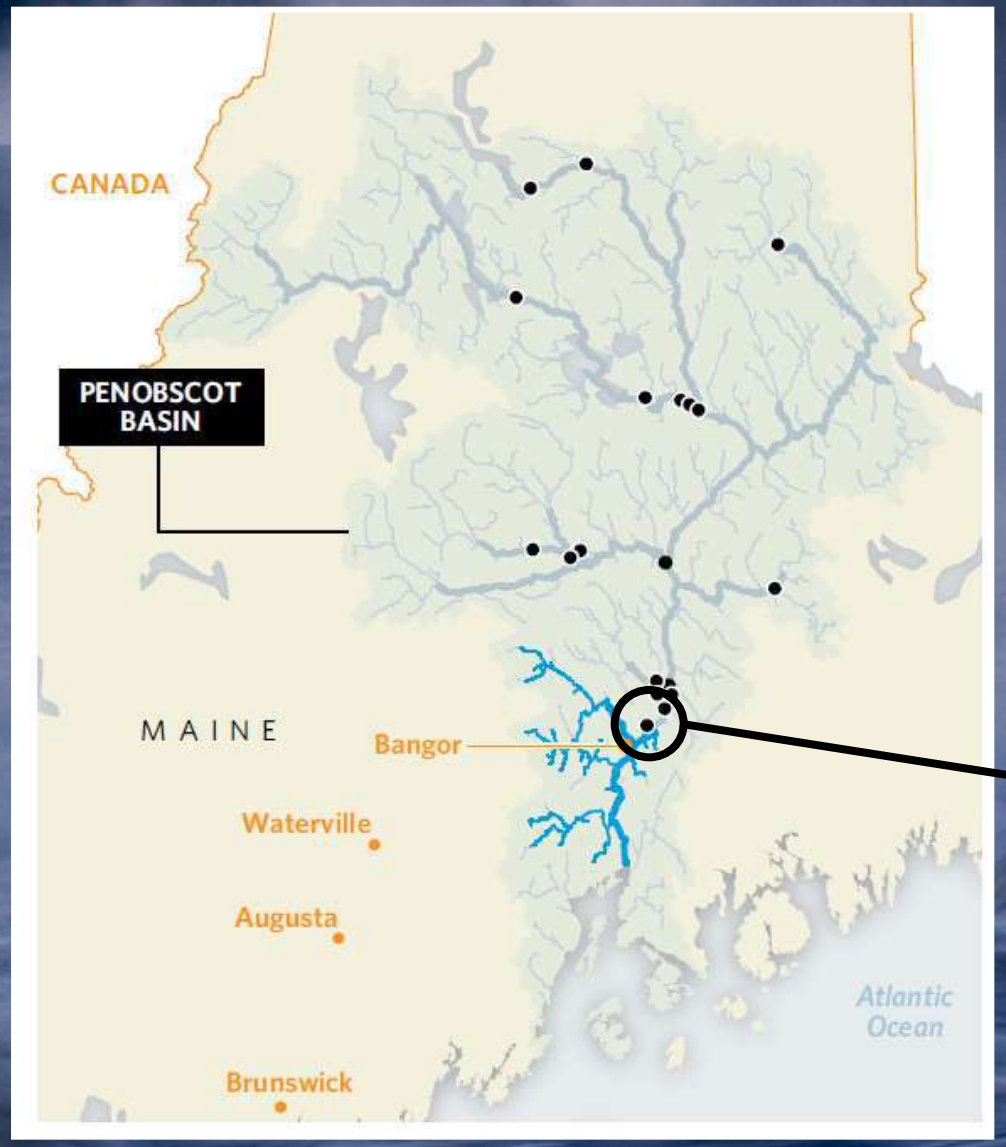
Courtesy of John Burrows, ASF

PARKER'S For Your 4th of July
Penobscot River Salmon
AND GREEN PEAS
All Kinds of Boston and Native Produce
NATIVE STRAWBERRIES SOUSED CLAMS
Closed all day Friday. Open until 11 P. M. Thursday. Last delivery at 8.30 P. M.
PARKER'S BANGOR'S REAL FISH MARKET
Free Delivery 64 P. D. SQUARE Tel. 3600
To Appear at Bangor-
FOR CRIPPLED

Edwards Dam, Kennebec River, built 1837 (Augusta, Maine)

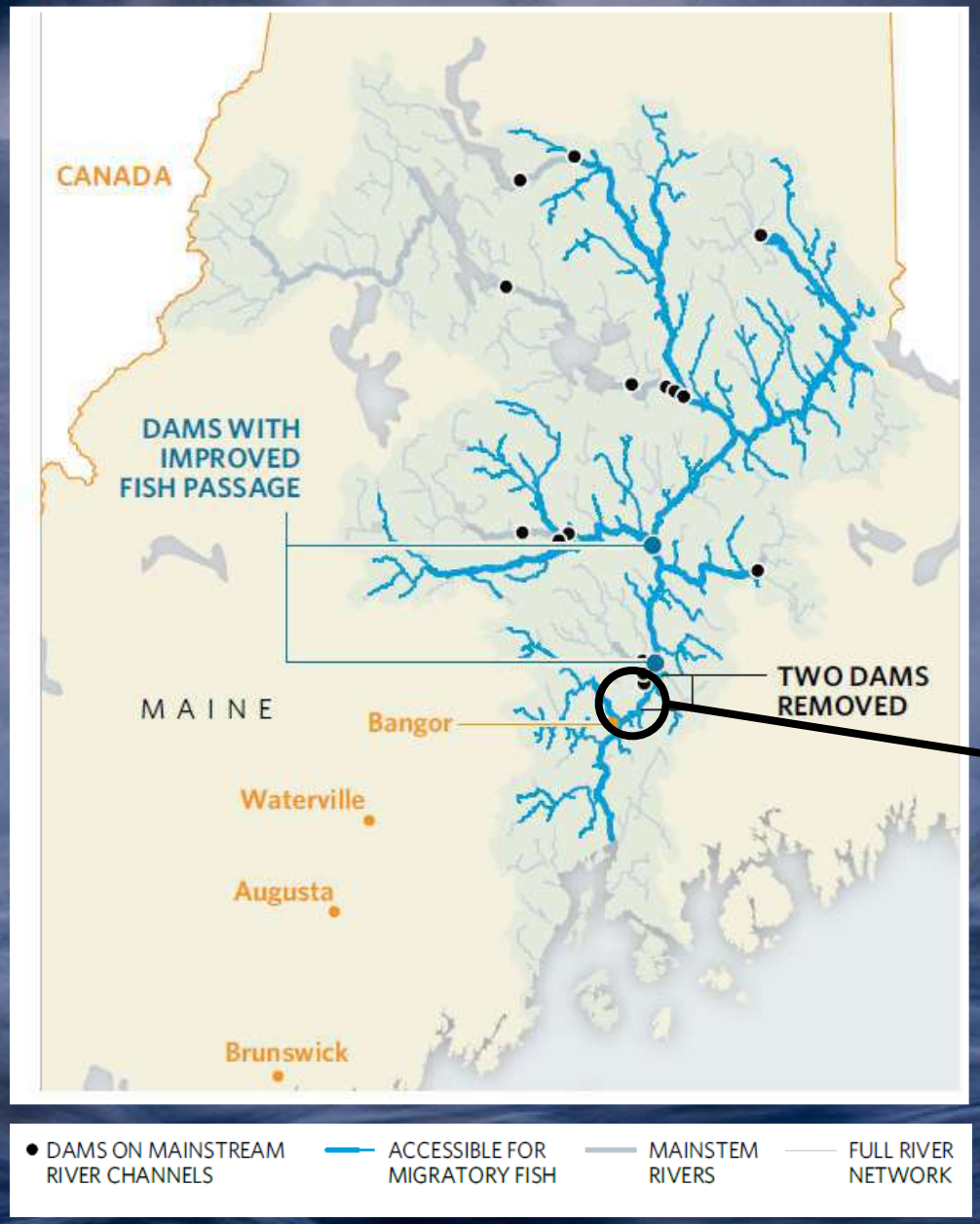
AFTER **July 1, 1999**

Penobscot River (1800s to 2012)



4% of historical habitat accessible

Penobscot River (2016 to present)



+ 2,600 km (62%) of habitat accessible

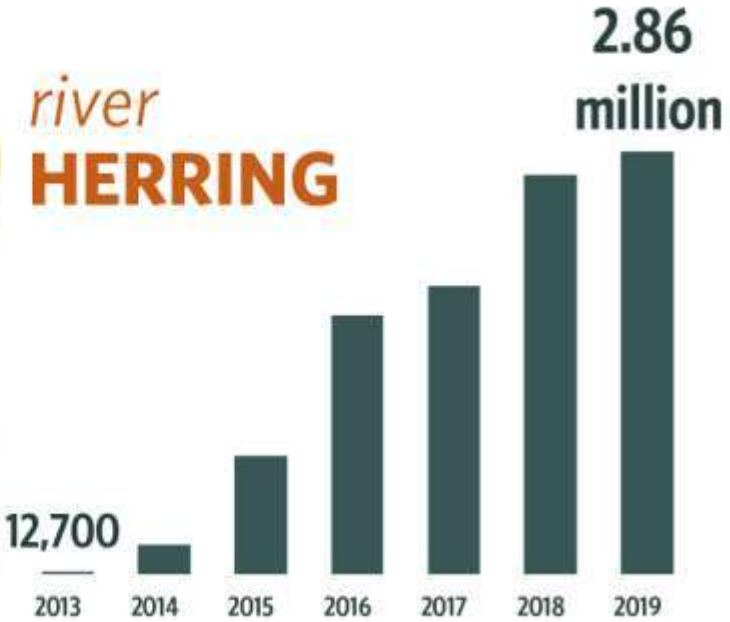
Photo © Bridget Besaw


CAT
CAT

Ecological Response

searun **FISH**

river **HERRING**



birds

marine

native **FISH**

Economic Response

river herring
HARVESTS

64,500 Euros

Town revenue quadruples over a 10 year period.

resource
AVAILABILITY

increased
GROUNDFISH

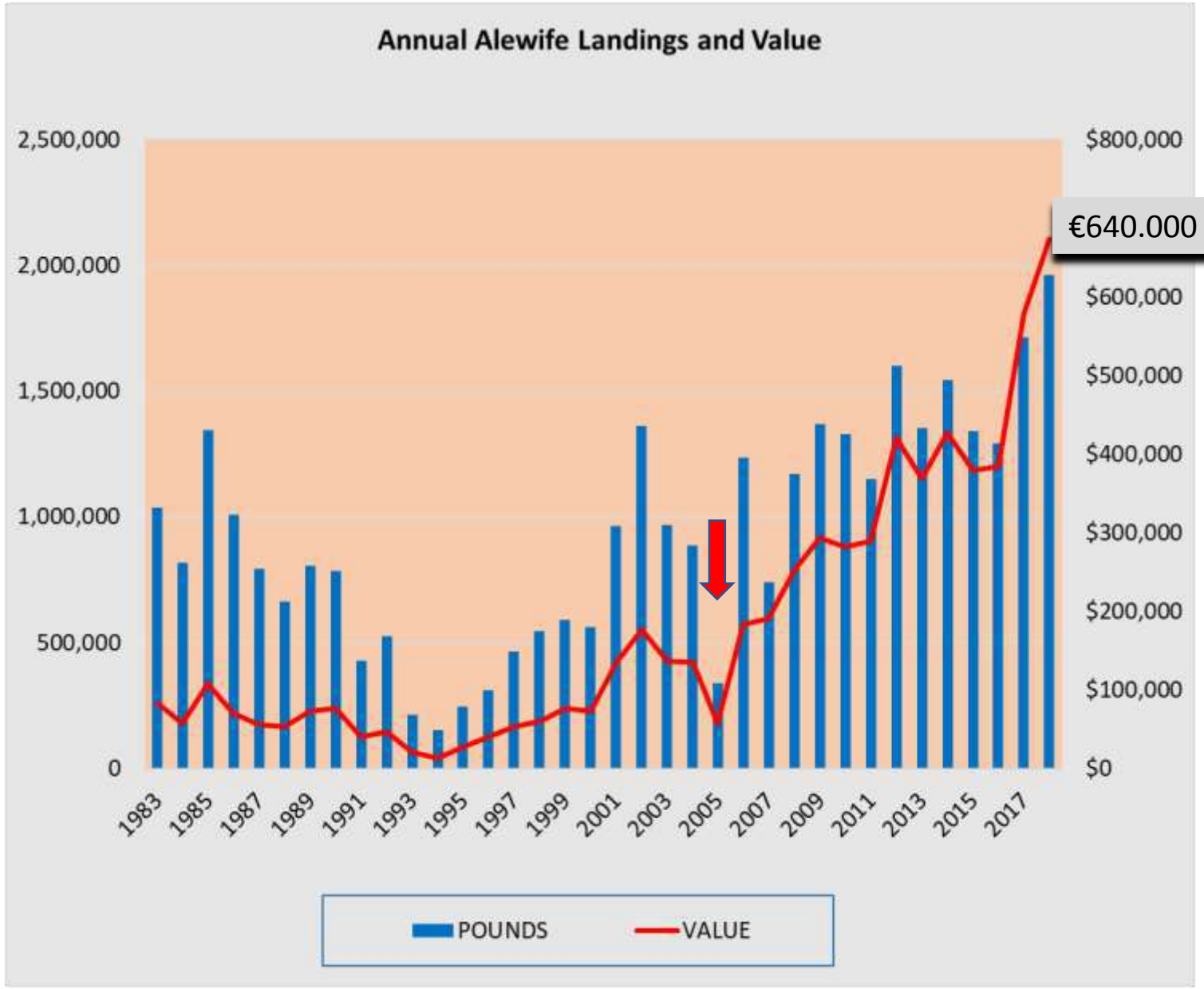
food
RELIEF

lobster
INDUSTRY

How are the alewives used?

Bait for €450 million lobster industry.

- **Edwards Dam removal in 1999 created first resurgence of alewife populations.**
- **Lobster bait prices 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**



Social Response

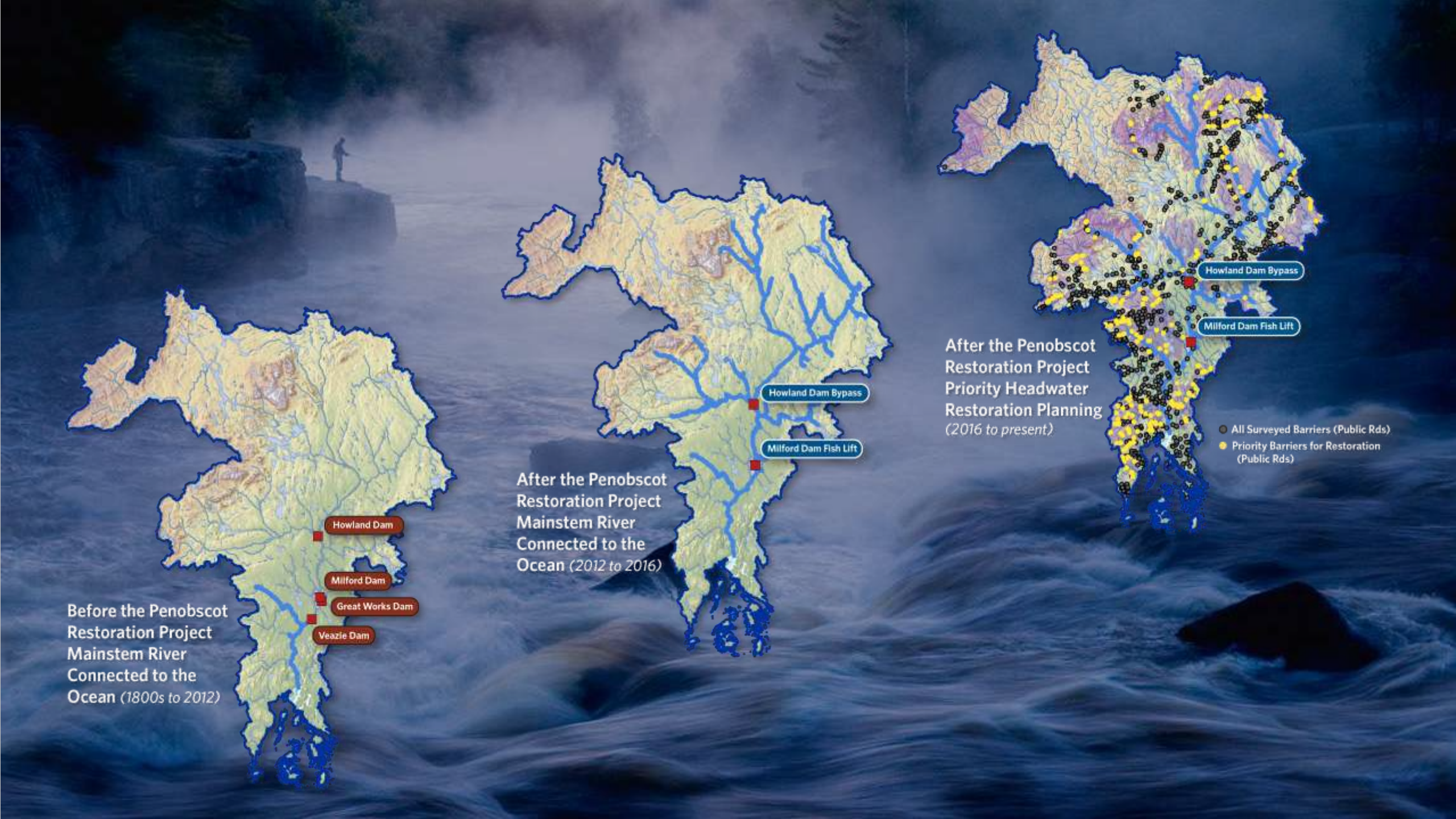
restoring treatise
FISHING RIGHTS

healthier
FOOD SOURCE

boating

fishing
INCREASE

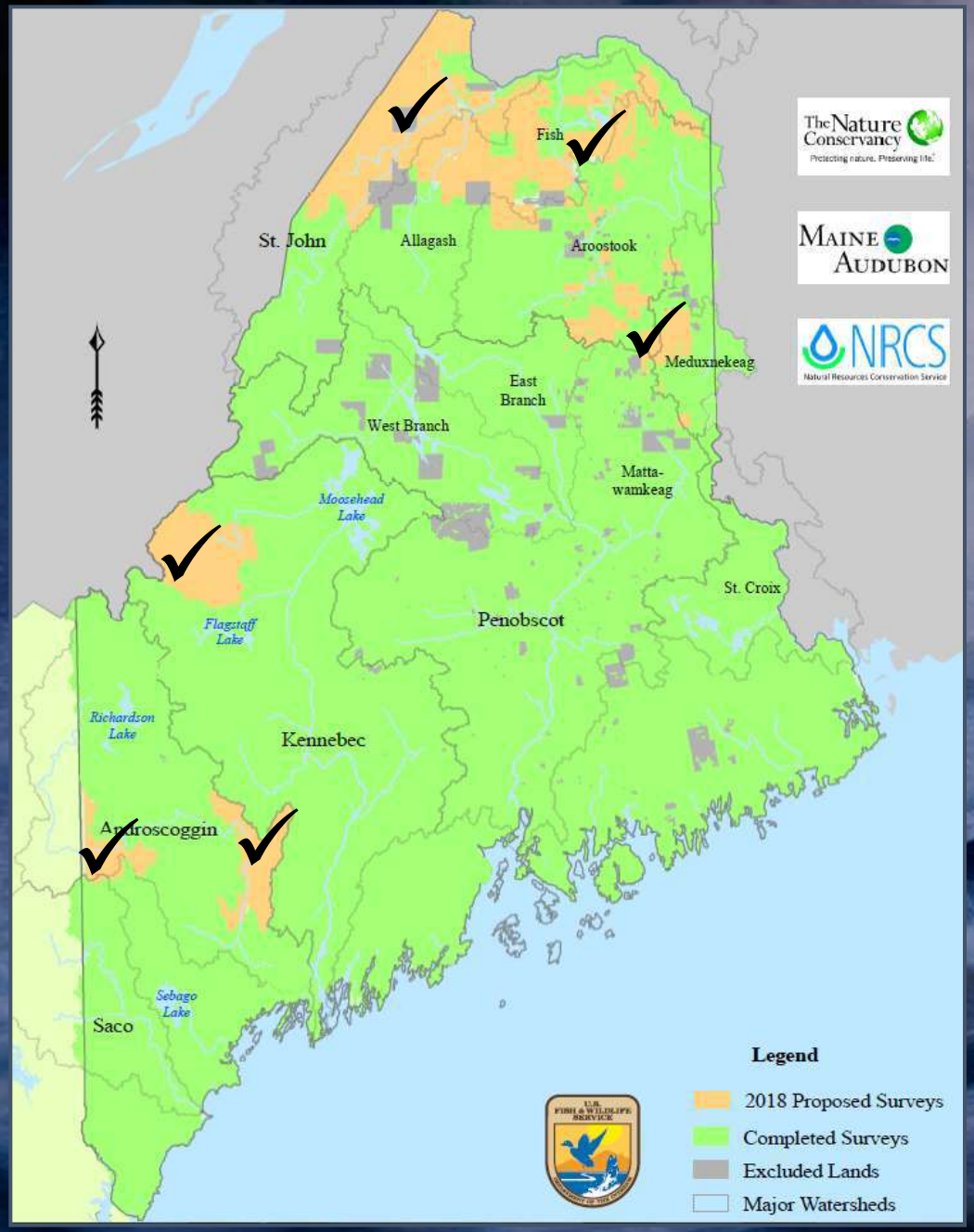
community
CONNECTIONS



Before the Penobscot Restoration Project Mainstem River Connected to the Ocean *(1800s to 2012)*

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

After the Penobscot Restoration Project Priority Headwater Restoration Planning *(2016 to present)*



The Nature Conservancy
Protecting nature. Preserving life.

Maine Audubon

NRCS
Natural Resources Conservation Service

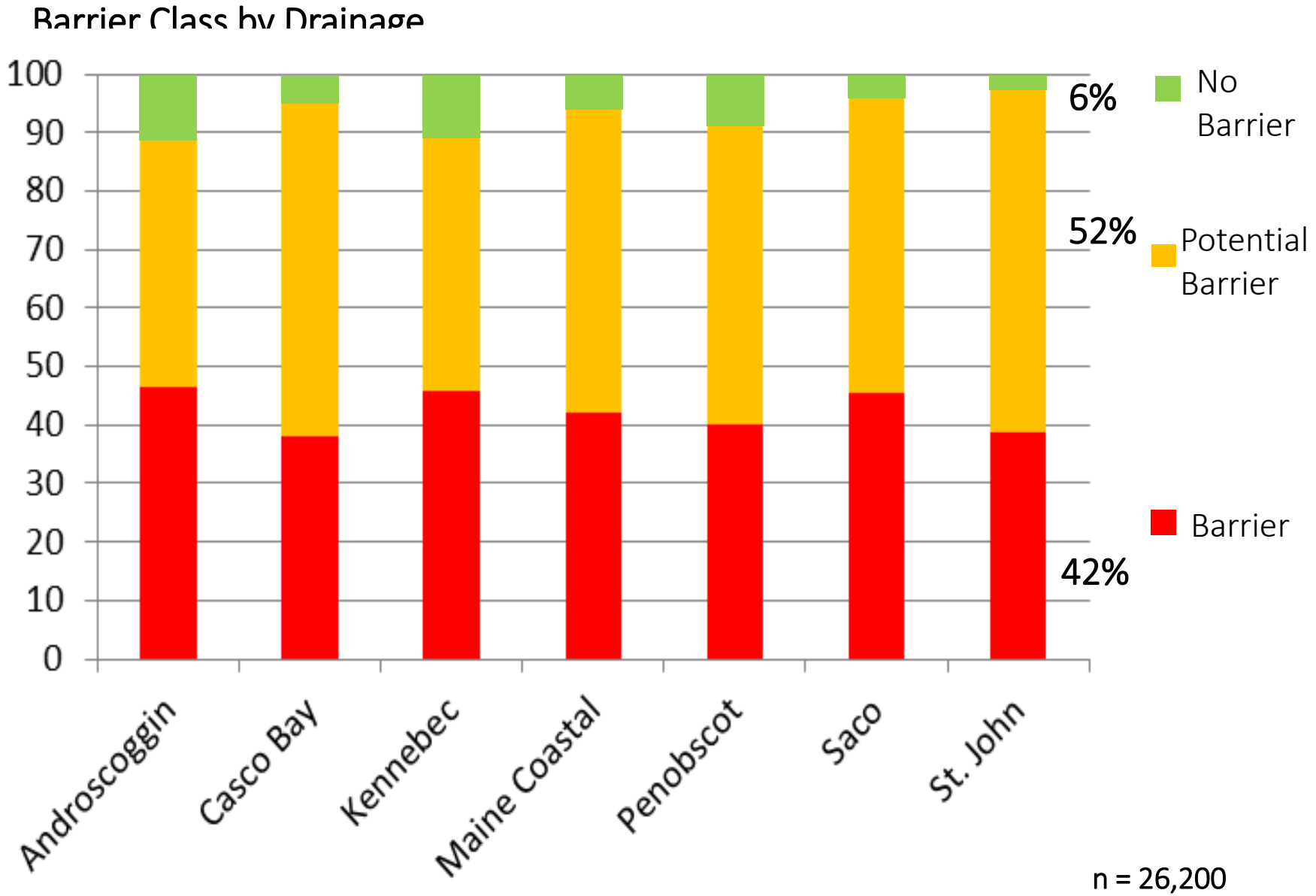
More than 27,000 data points

70,000 photographs

90% of Maine

30-50% are barriers to fish passage

Culvert Survey Results



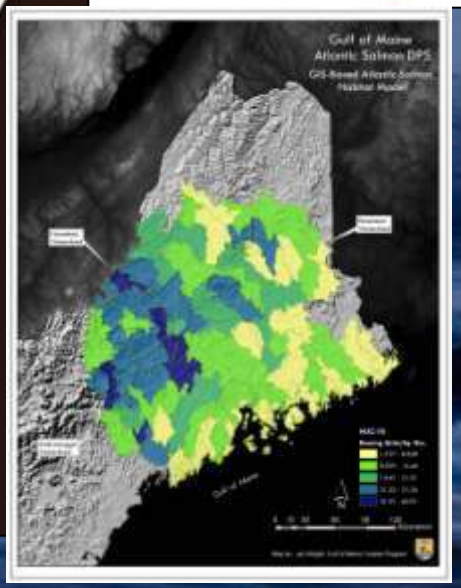
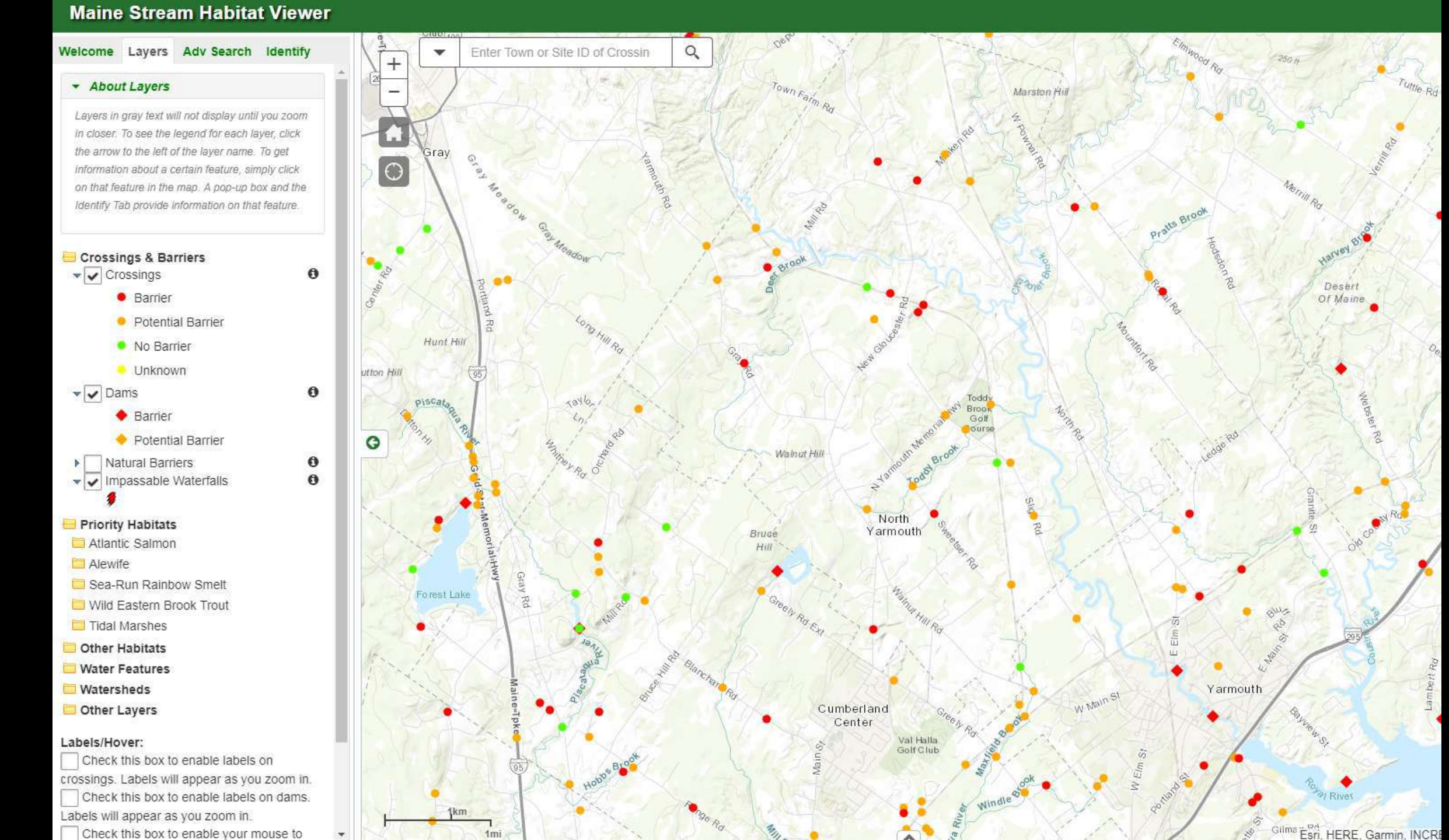


Photo © Bridget Besaw

Maine Stream Habitat Viewer



Aquatic Barrier Prioritization

At a Glance | Explore | Custom Analysis

Explore Prioritized Barriers

Select an Extent & Prioritization Scenario

Piscataquis | Diadromous

Choose to display priorities relative to the entire Penobscot Basin or the selected subwatershed.

(•) Penobscot Basin ( ) Subwatershed

▸ Assess a Barrier

▸ Filter the Results

▾ **Layers**

Learn more about your area of interest by selecting from these additional information layers.

This window must be open to identify map layers other than the prioritized barriers.

- [x] Barriers
- [ ] Barriers by Type
- [ ] Rivers
- [ ] HUC 8
- [ ] HUC 10
- [ ] HUC 12
- [ ] Salmon Critical Habitat
- [ ] Natural Barriers

▸ Documentation

Basic

Map Legend

Penobscot Diadromous

- Crossing-01 (Higher Priority)
- Crossing-02
- Crossing-03
- ...
- Dam-20 (Lower Priority)
- Dam-Not Prioritized

View 37 more

10km
6mi

Before

After

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