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Environmental and  
Energy Study Institute



**AMERICAN  
RIVERS**

Life Depends on Rivers™

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# **Dams in Every District: Challenges, Opportunities, and What's Ahead**

Wednesday, May 01, 2024

# About EESI



## **Non-partisan Educational Resources for Policymakers**

A bipartisan Congressional caucus founded EESI in 1984 to provide non-partisan information on environmental, energy, and climate policies



## **Direct Assistance for Equitable and Inclusive Financing Program**

In addition to a full portfolio of federal policy work, EESI provides direct assistance to utilities to develop “on-bill financing” programs



## **Commitment to Diversity, Equity, Inclusion, and Justice**

We recognize that systemic barriers impede fair environmental, energy, and climate policies and limit the full participation of Black, Indigenous, people of color, and legacy and frontline communities in decision-making



## **Sustainable Solutions**

*Our mission is to advance science-based solutions for climate change, energy, and environmental challenges in order to achieve our vision of a sustainable, resilient, and equitable world.*

# Polycymaker Education

## Briefings and Webcasts



Live, in-person and online public briefings, archived webcasts, and written summaries

## Climate Change Solutions



Bi-weekly newsletter with everything policymakers and concerned citizens need to know, including a legislation and hearings tracker

## Fact Sheets and Issue Briefs



Timely, objective coverage of environmental, clean energy, and climate change topics

## Social Media (@EESIOnline)



Active engagement on Twitter, Facebook, LinkedIn, and YouTube





# What did you think of the briefing?

**Please take 2 minutes to let us know at:**

**[www.eesi.org/survey](http://www.eesi.org/survey)**

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Wednesday, May 01, 2024



# Dams in Every District: Challenges, Opportunities and What's Ahead

Tom Kiernan, President and CEO, American Rivers

Congressional Briefing

May 1, 2024



**AMERICAN  
RIVERS**





American Rivers restores damaged rivers, protects wild rivers, and conserves clean water for people and nature.

American Rivers has been working with dam owners to remove dams for 25 years.



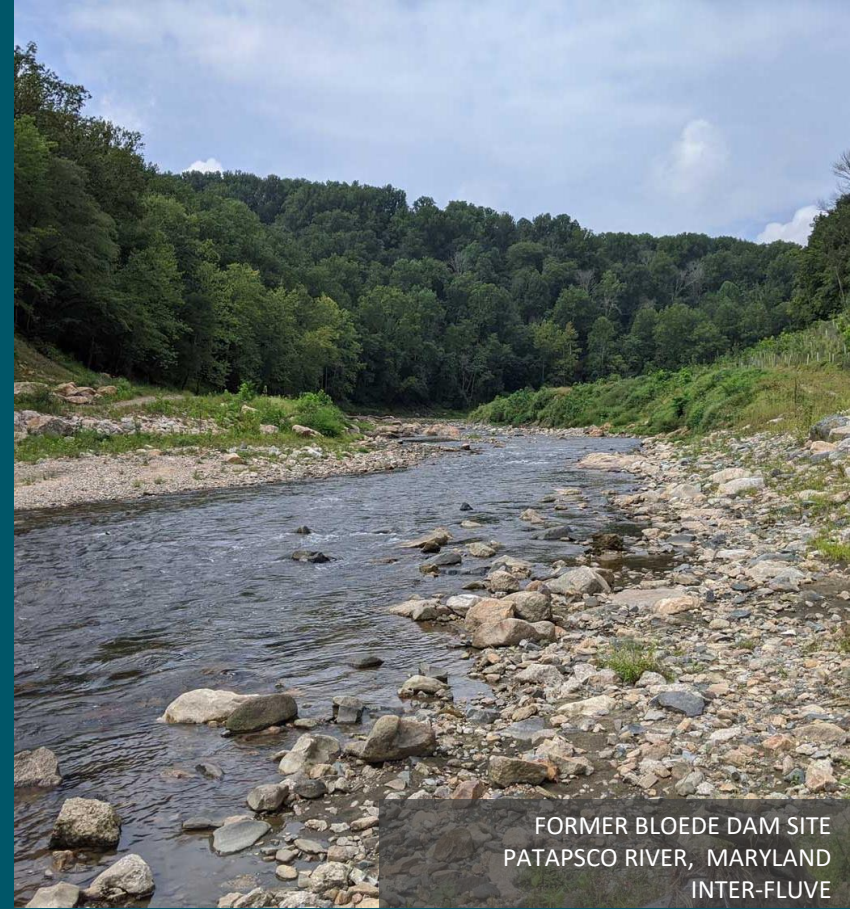




BLOEDE DAM  
PATAPSCO RIVER, MARYLAND  
JESSIE THOMAS-BLATE



REMOVING BLOEDE DAM  
PATAPSCO RIVER, MARYLAND  
JESSIE THOMAS-BLATE



FORMER BLOEDE DAM SITE  
PATAPSCO RIVER, MARYLAND  
INTER-FLUVE

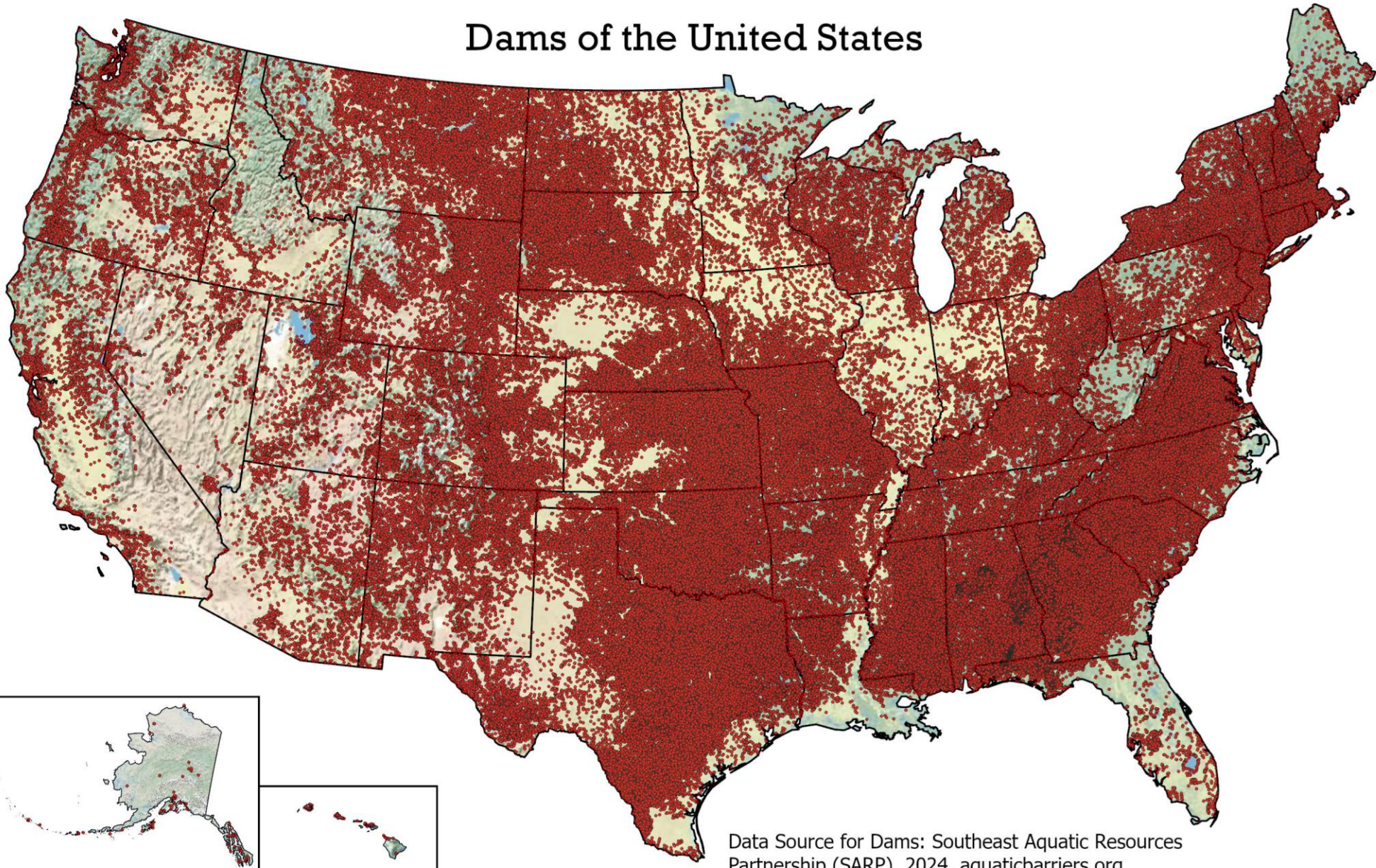
# Bloede Dam Removal

## Patapsco River, MD





## Dams of the United States



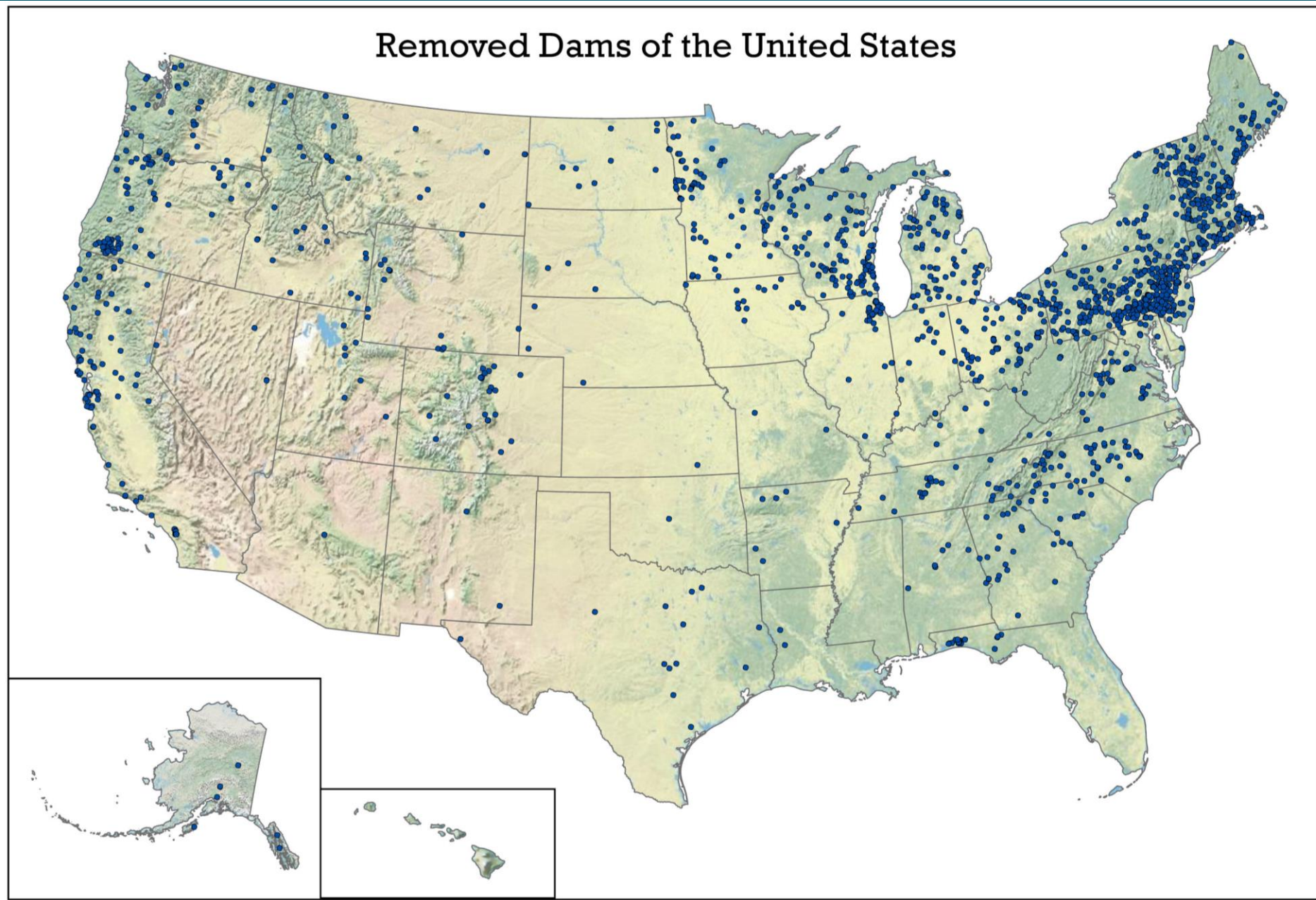
533,429  
dams in  
the United  
States

Data Source for Dams: Southeast Aquatic Resources  
Partnership (SARP). 2024. [aquaticbarriers.org](http://aquaticbarriers.org)





## Removed Dams of the United States



2,119 dams  
removed  
in the  
United  
States



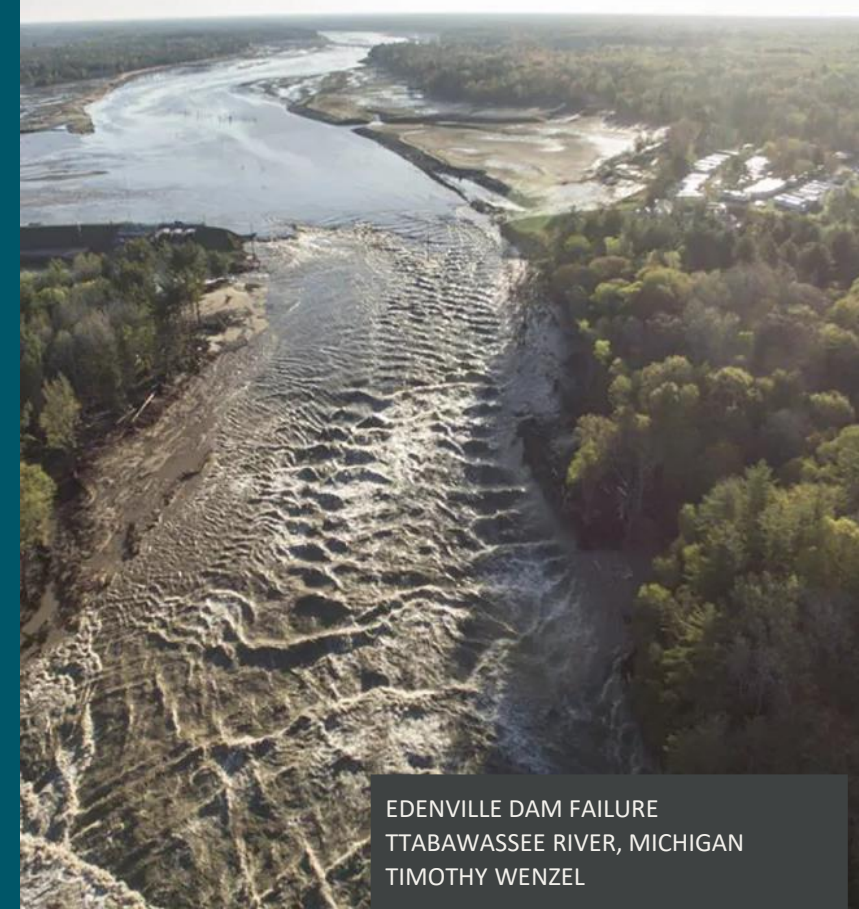




PENOBSCOT RIVER, MAINE  
CHEK WINGO



KLAMATH DAM REMOVAL ADVOCACY  
PATRICK MCCULLY



EDENVILLE DAM FAILURE  
TTABAWASSEE RIVER, MICHIGAN  
TIMOTHY WENZEL

# Importance of Dam Removal



# Uncommon Dialogue on Dams

Remove

Rehabilitate

Retrofit





# Life Depends on Rivers<sup>SM</sup>



**AMERICAN  
RIVERS**





# Malcolm Woolf

NHA President  
and CEO





The background of the slide features a large, semi-circular image on the left side showing blue water with ripples. The rest of the background is a light, hazy image of a dam structure with water flowing over it, set against a bright sky.

# **Small % of Dams, Yet Major Source of Renewable Electricity**

- Provides power to roughly 30 million+ Americans
- About 30% of U.S. renewable energy
- 96% of current U.S. electricity storage capacity
- 80 GW of hydropower capacity
- 22 GW of pumped storage hydropower capacity
- Globally produces more electricity than all other forms of renewables combined



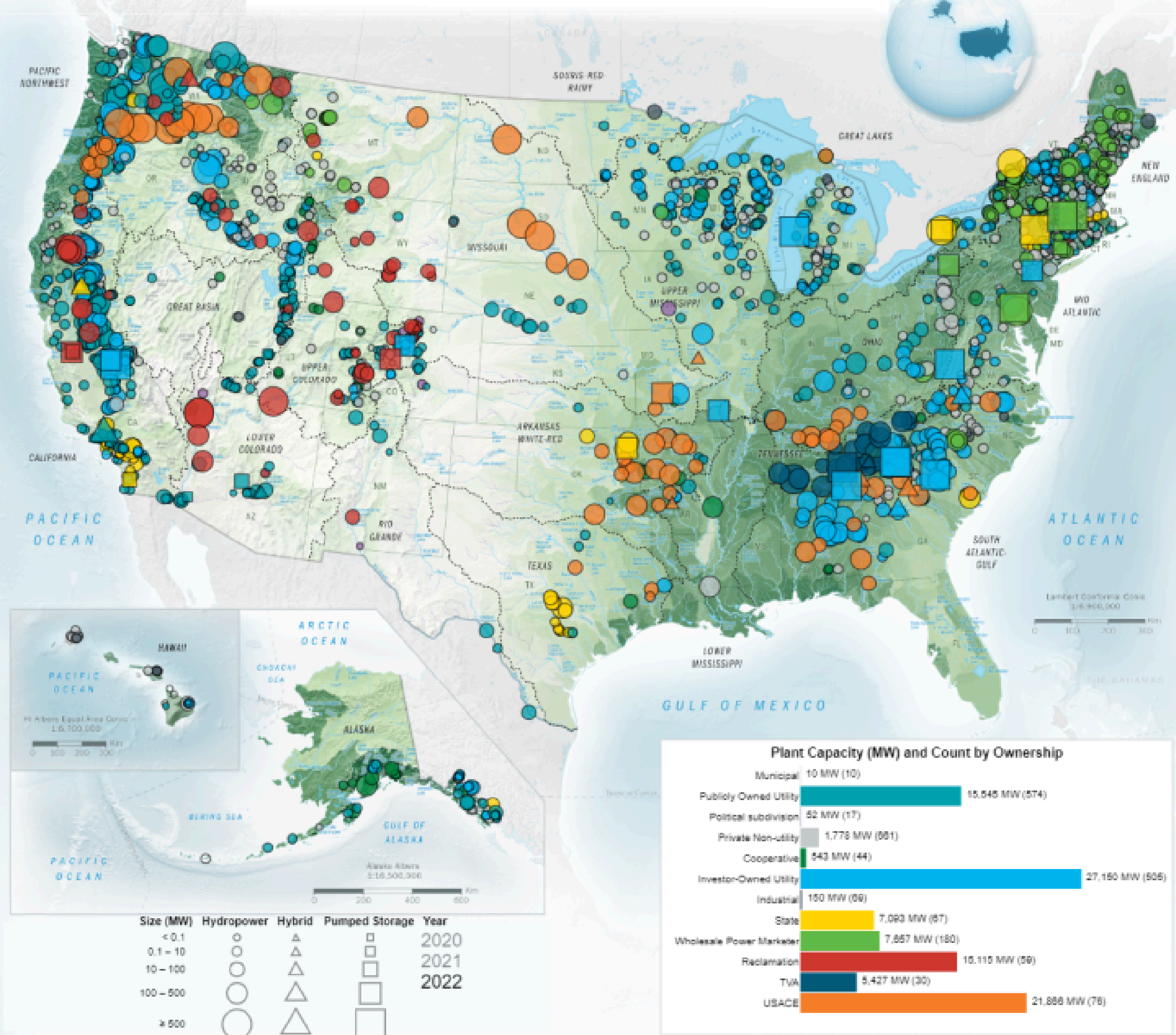
# Clean Power in Nearly All States

## Hydrosource.ornl.gov/



### The Interactive National Hydropower Map

A Visualization of the Geospatial Distribution and Characteristics of Operational Hydropower Plants in the United States from 2020 to 2022  
Use the mouse wheel to zoom. Click and drag to pan. Click year or chart elements to filter.





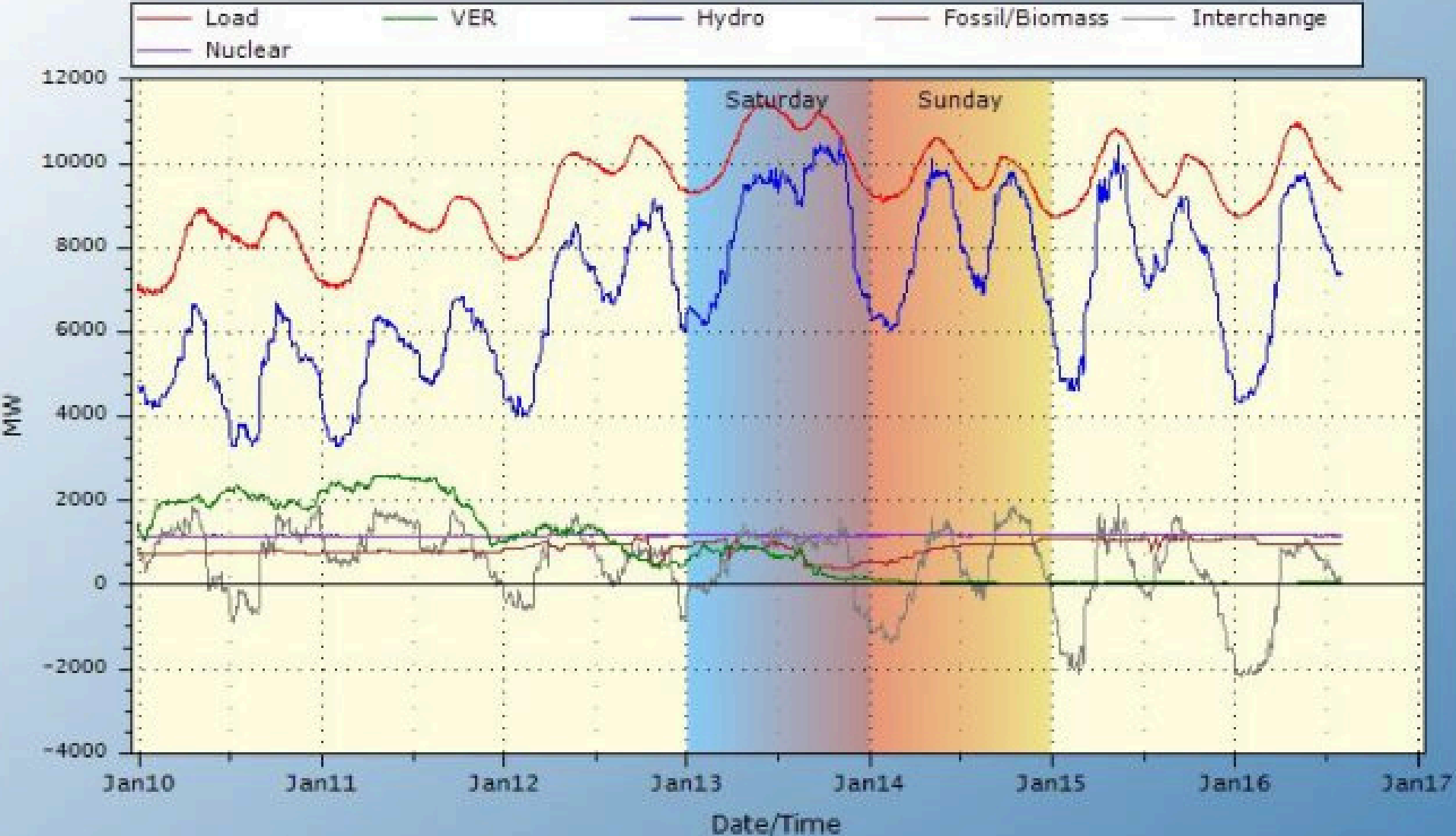
# Critical to 24/7 Reliability on a Clean Energy Grid

Stronger winter weather is coming: More stormy conditions approach Pacific Northwest for weekend

**WEATHER**  
Powerful winter storm whips into Portland area, across Oregon

How the Pacific Northwest's Federal Hydro System Powered the Region Through an Arctic Blast

BPA Balancing Authority Load & VER, Hydro, Fossil/Biomass, Nuclear Generation, and Net Interchange Last 7 day 10Jan2024 - 17Jan2024 (last updated 16Jan2024 14:00:28)



Based on 5-min readings from BPA's SCADA system for points 45583, 177167, 79682, 79685, 164377, and 70681  
Balancing Authority Load in Red, VER in Green, Hydro Gen. in Blue,  
Fossil/Biomass Gen. in Brown, Nuclear Gen. in Cobalt and Net Interchange in Gray.  
BPA Technical Operations (TOT-OpInfo@bpa.gov)

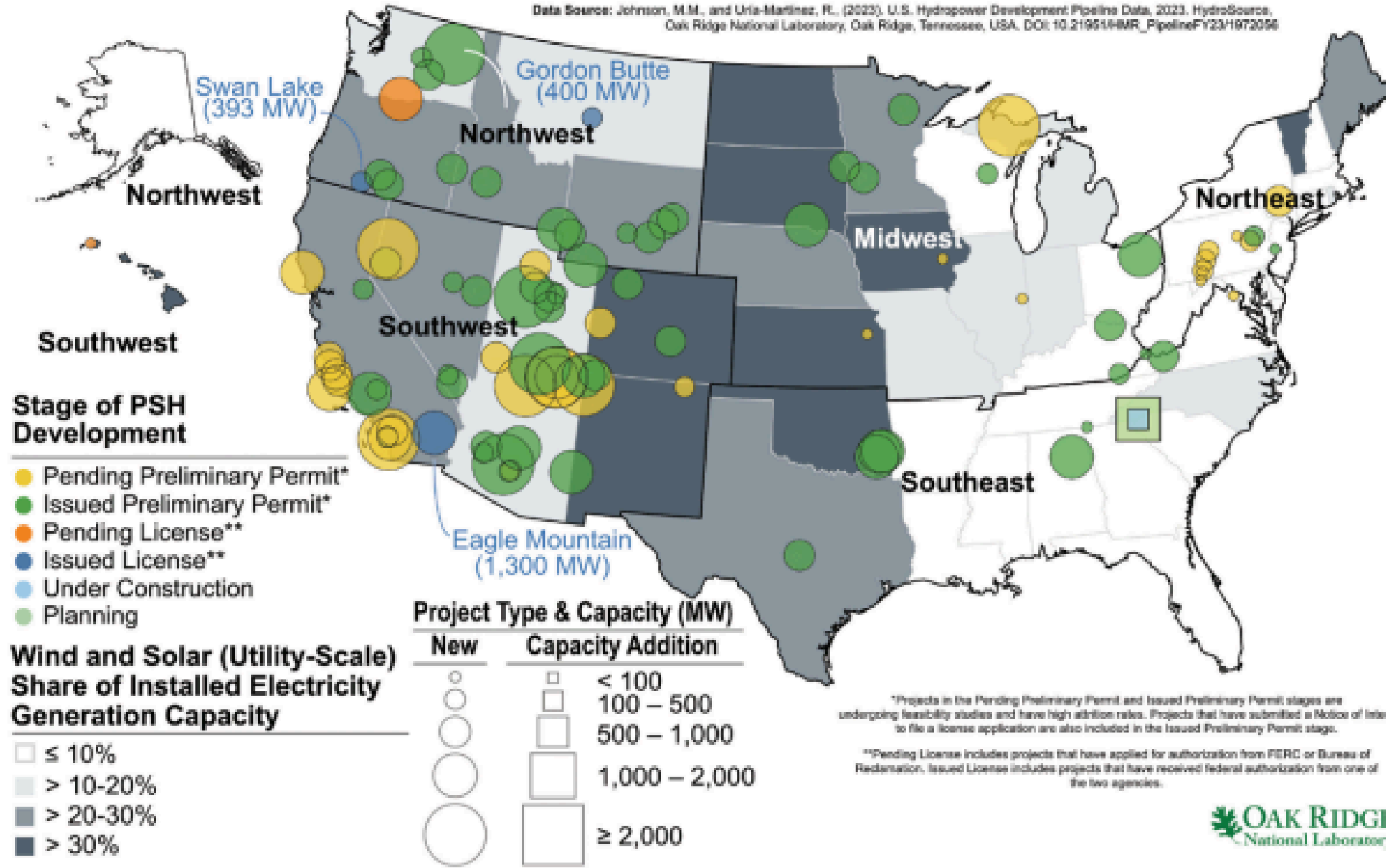
This represents loads and resources in BPA's Balancing Authority (BA) including some that are not BPA's. It does not include BPA loads served by transfer, scheduled out of region, or scheduled to customers with their own BAs such as Seattle and Tacoma



# Growth Opportunities Using Existing Infrastructure

## U.S. Pumped Storage Hydropower Development Pipeline, 2023

Map Source: Schmidt, E., Johnson, M.M., and Uribe-Martinez, R. 2023. U.S. Pumped Storage Hydropower Development Pipeline Map FY2023. HydroSource, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA. DOI: 10.21951/HMR\_PipelineMaps/1972069  
 Data Source: Johnson, M.M., and Uribe-Martinez, R., (2023). U.S. Hydropower Development Pipeline Data, 2023. HydroSource, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA. DOI: 10.21951/HMR\_PipelineFY23/1972096



As of 2023, the U.S. hydropower development pipeline included:

96 PSH projects with a combined power storage capacity of 91 GW

117 new facilities with a combined capacity of 1.2 GW

23 active upgrade projects, which would increase the capacity of the existing feet by 254 MW

Figure 11. PSH project development pipeline by region and status in relation to state variable renewable (wind and solar) shares of electricity generation capacity





# Potential Wave of Retirements

- Licenses for 459 hydropower facilities, representing 17GWs, are set to expire by 2035.
- Relicensing takes, on average, 7.6 years to complete, but often much longer.
- Relicensing requires millions of dollars of paperwork and potentially hundreds of millions in project upgrades.
- Survey: 36.4% of hydropower industry asset owners said that they were “actively considering” decommissioning a facility.



# Current Challenges

- Lack of federal tax parity for existing hydropower (S.2994, H.R. 6653)
- Antiquated licensing process (S.1521, H.R. 4045)
- Market design failures



# Dam Removal: No Longer a Four Letter Word (in Appropriate Circumstances)



Environmental And Energy Industry Groups Commit To Working Together On (Some) Hydro Projects

By Courtney Flatt on October 12, 2020

The New York Times

## *Environmentalists and Dam Operators, at War for Years, Start Making Peace*

Facing a climate crisis, environmental groups and industry agree to work together to bolster hydropower while reducing harm from dams.

ENERGYWIRE

THE T

RENEWABLE ENERGY

DOE-backed hydro group launches to cut CO2

David Iaconangelo, E&E News reporter

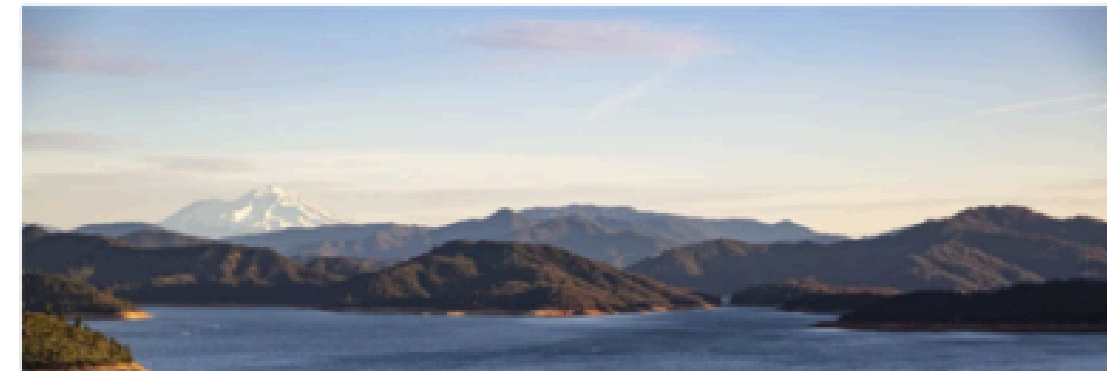
Published: Wednesday, October 14, 2020

## UNCOMMON DIALOGUE

“U.S. **Hydropower**: Climate Solution and Conservation Challenge”

Los Angeles Times

CLIMATE & ENVIRONMENT  
Can hydropower help solve the climate crisis? This \$63-billion plan is banking on it



HYDROPOWER + RIVER + CLIMATE





# Thank you!





# Federal Emergency Management Agency (FEMA) National Dam Safety Program (NDSP)

Kayed Lakhia, AIA, NCARB, LEED AP, CFM  
Director, National Dam Safety Program  
April 30 – May 1, 2024



# FEMA





# Overview of Dam Safety Activities



## Leadership

- Interagency Committee on Dam Safety
- National Dam Safety Review Board



## Public Awareness

- National Dam Safety Awareness Day
- Strategic communication campaigns
- Participate in conference and public forums
- Training internal/external partners
- Public awareness of dam risks

## Technical Assistance

- Collaborative Technical Assistance Program
- Research
- Maintenance of NDSP publication library
- Funds software – Decision Support System for Water Infrastructure Security (DSS-WISE™)



## Financial Assistance

- State Assistance Grant Program
- Rehabilitation of High Hazard Potential Dams Grant Program



# Overview of Bipartisan Infrastructure Law (BIL)

- November 2, 2021 – Congress passed the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act)
- Act contains significant increases in funding for several dam safety programs and infrastructure







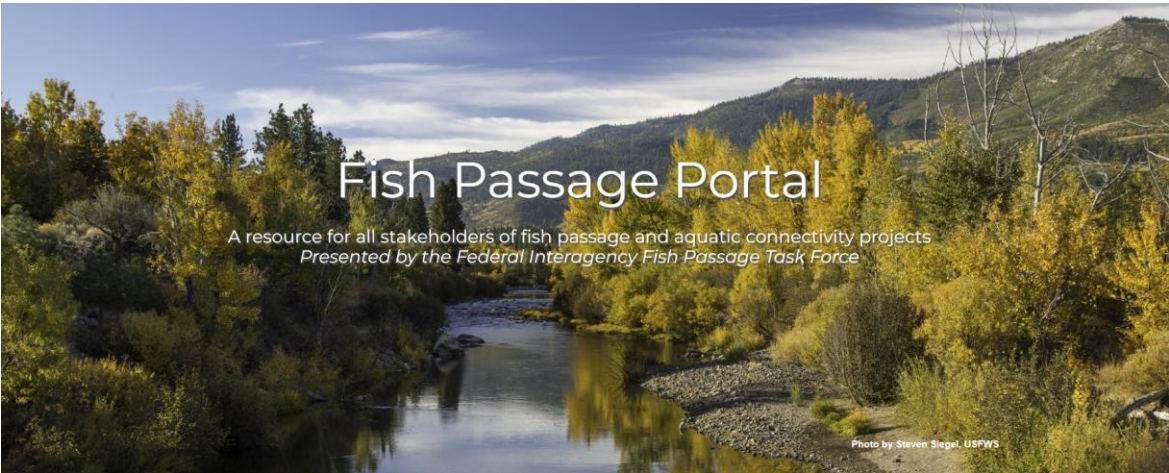
## The “3Rs”

- “3Rs”:
  - Rehabilitate for Safety
  - Retrofit for Power
  - Remove for Conservation
- \$3 billion in the Bipartisan Infrastructure Law
  - \$75 Million for Dam Removal – FEMA NDSP
- \$1 billion in America the Beautiful
- \$2 billion in the Inflation Reduction Act

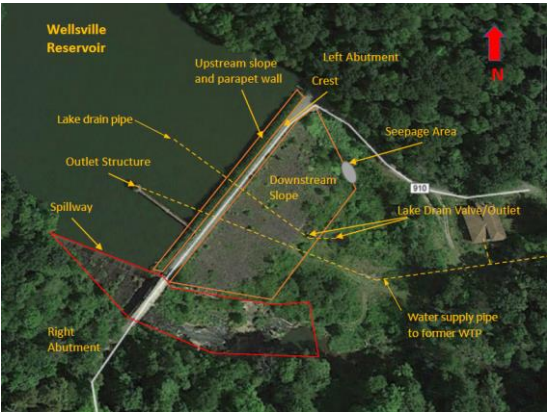
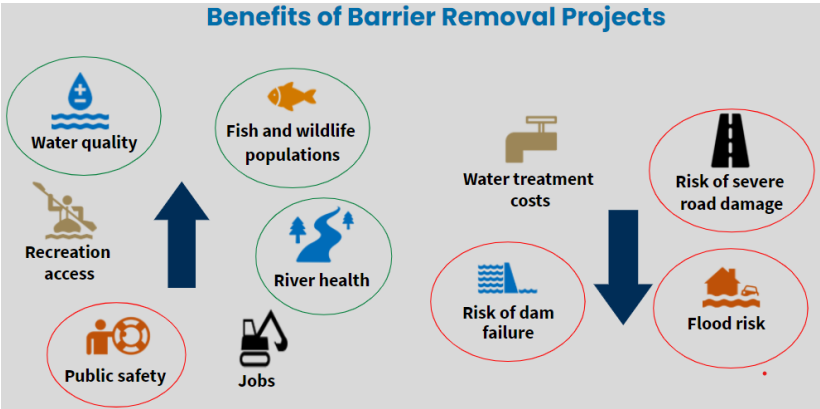


# FEMA and US F&WS Collaboration

*Working with others to conserve, protect and enhance **fish, wildlife, plants** and their habitats for the continuing benefit of the American people.*

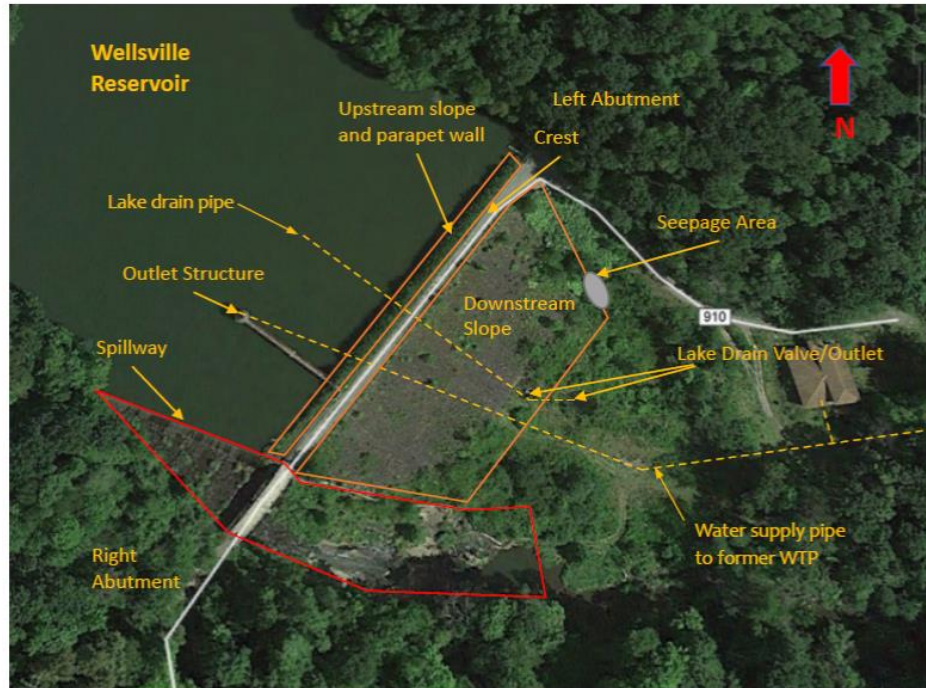


*To help **people** before, during and after disasters.*



**FEMA**

# Wellsville Reservoir Dam Decommissioning: A HHDP Success & Lessons Learned Story



**1926:** Dam constructed as a water supply for the village of Wellsville

**1937:** Spillway modified, roadway added, larger bridge over spillway added

**1979-2008:** Multiple US Army Corps of Engineers inspections documents the dam eroding. No repairs were made.

**2018-2019:** First Emergency Action Plan completed, identifying hazardous condition and downstream impact of a failure.

**2020:** Wellsville decided to decommission

**2021:** Wellsville applied for grants HHPD, state grants

**2022:** Breached and decommissioned



**FEMA**



# Thank You Questions?

Kayed Lakhia, AIA, NCARB, LEED AP, CFM  
National Dam Safety Program Director  
[fema-ndsp-support@fema.dhs.gov](mailto:fema-ndsp-support@fema.dhs.gov)



# FEMA





Fish and Aquatic  
**CONSERVATION**  
est. 1871

# Dams in Every District: Challenges, Opportunities, and What's Ahead

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Siva Sundaresan, USFWS

May 1, 2024





# Challenge...

## Or Opportunity?





# Community Benefits

- Liability Reduction
- Drinking Water Security
- Water Quality
- Connectivity for fish and aquatic organisms
- Recreation
- Climate Resilience
- Reduce Flooding



# NFPP Accomplishments since 1999

**64,000**

**Stream Miles  
Reopened**

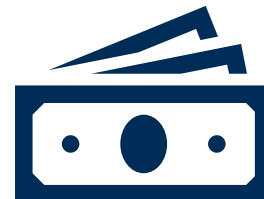


**2,000**

**Partners Involved**

**3,500**

**Barriers Removed**



**3:1**

**Funds Leveraged**





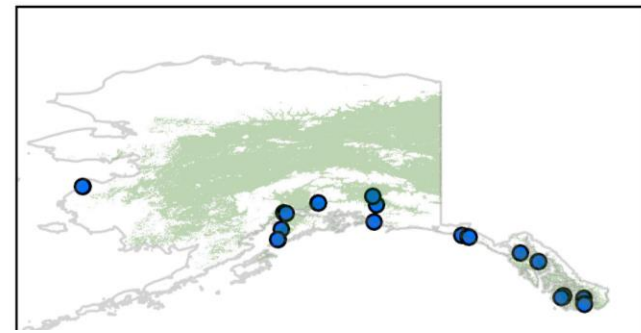
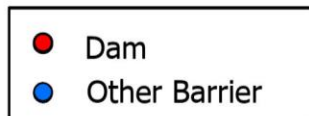
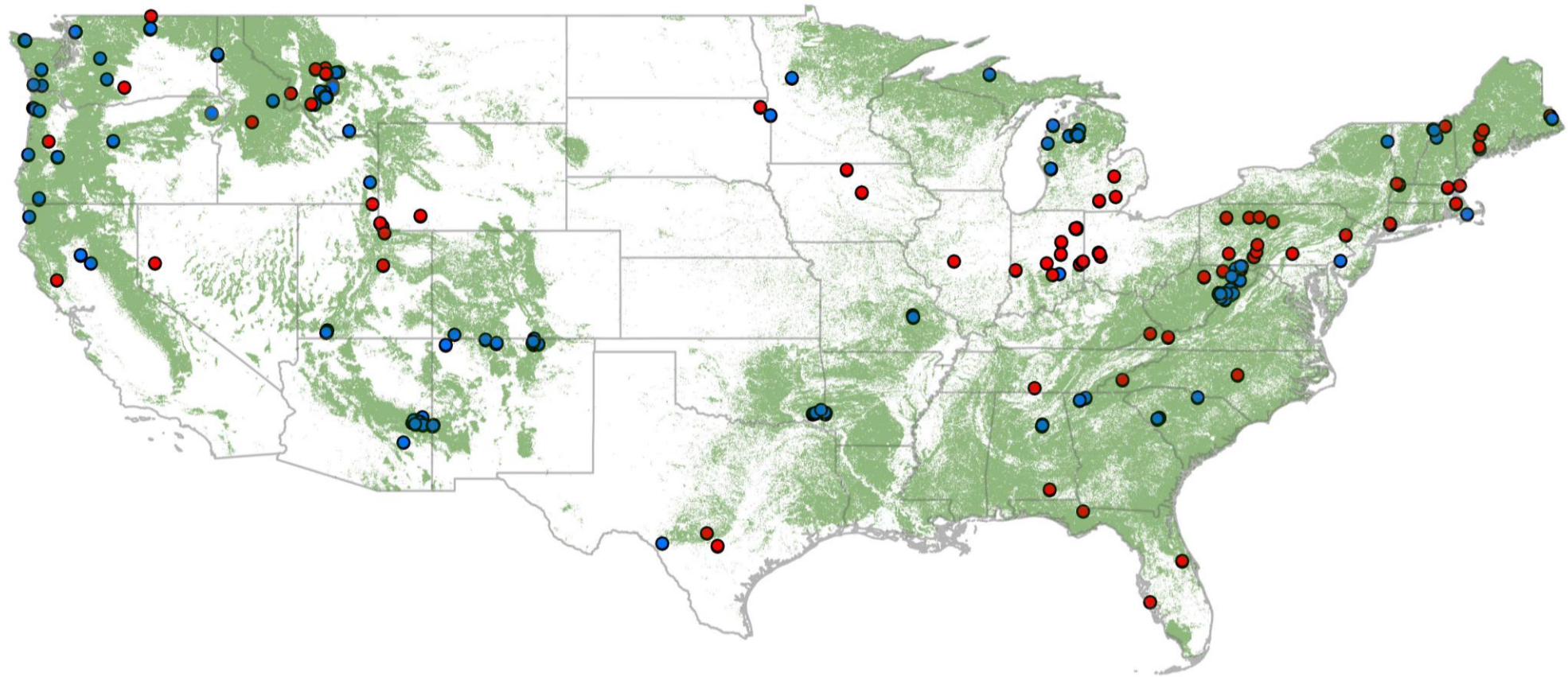
# National Fish Passage Program

**BIL 2022-2025**

- **\$143 million** invested across 122 projects in 40 states, plus Puerto Rico
- Projects leveraged **\$192 million**
- When complete, these projects would remove **346 barriers** opening **12,272 miles** and **924,622 acres** of river and floodplain habitats

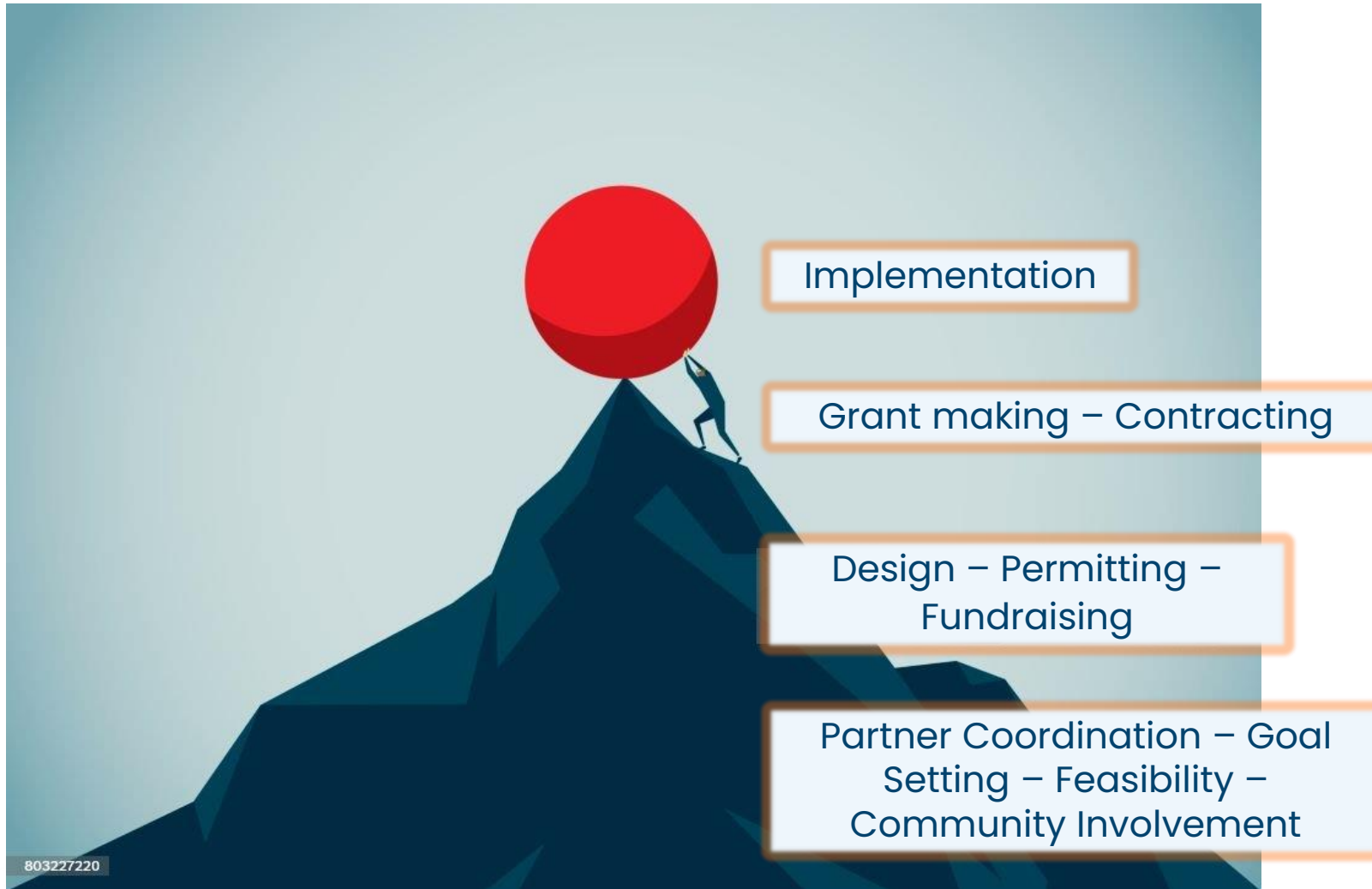


# NFPP BIL Funded Dam Removals





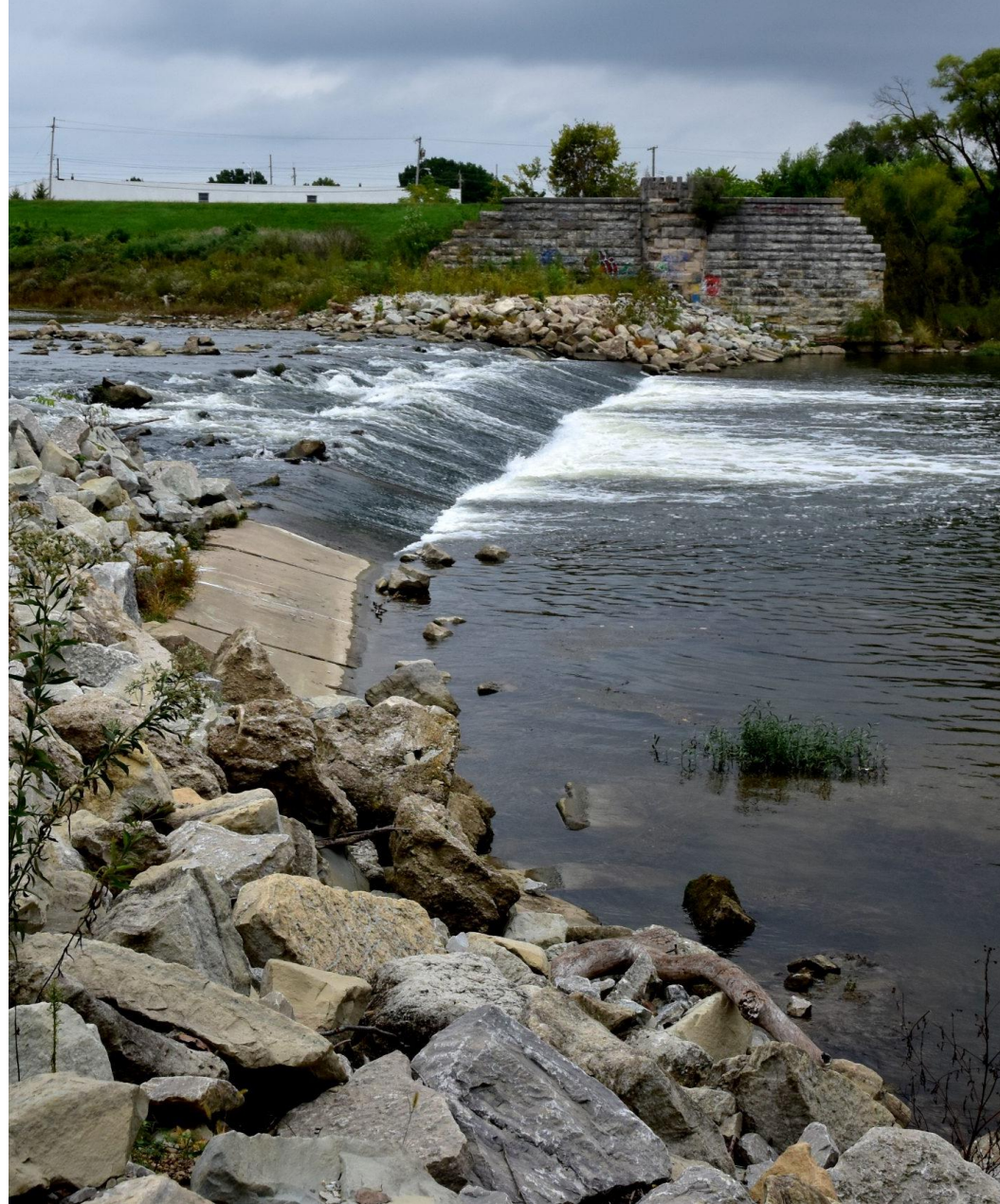
# Up Front Work is Critical





**NFPP BIL Year 3:**  
**\$575M**

**Transformational  
Fish Passage: \$1.8B**







# Federal Interagency Fish Passage Task Force



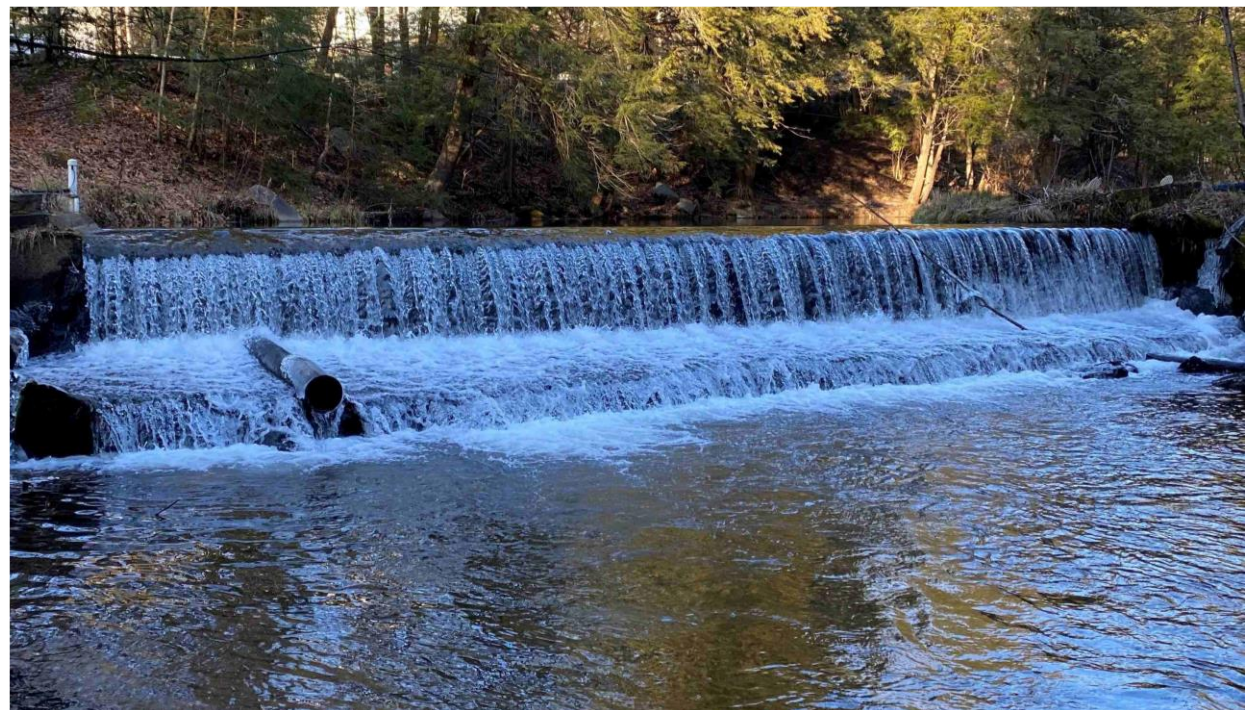
FEMA



U.S. DEPARTMENT OF ENERGY  
**ENERGY**







Fish and Aquatic  
**CONSERVATION**  
est. 1871



# Municipal Dam Removals



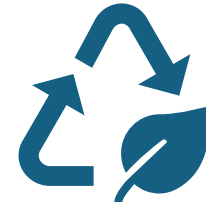
## Public Safety

Unsafe dams, downstream residents, bridge and culvert crossings.



## Financial Benefits

Inspections, maintenance, infrastructure, utilities (sewer, water, stormwater)



## Ecological Benefits

Connectivity, water quality, resiliency.



A large school of herring swimming in a stream. The fish are silvery with a dark stripe along their sides. They are moving in a coordinated pattern through the water. In the background, there is a rocky bank with some green vegetation and a building partially visible.

5 dams removed on historic stream  
since 2001

Cost benefit sharing for 4 new bridges  
and culverts – NOAA and USFWS

Herring run population from 30,000 to  
235,000 fish



# Dam Removals: A Common Practice in Plymouth, Massachusetts



13 dams removed



7 new bridges and culverts installed-



Thousands of linear feet of new water and sewer lines



Improved water quality



Resilient streams for fish and wildlife and people