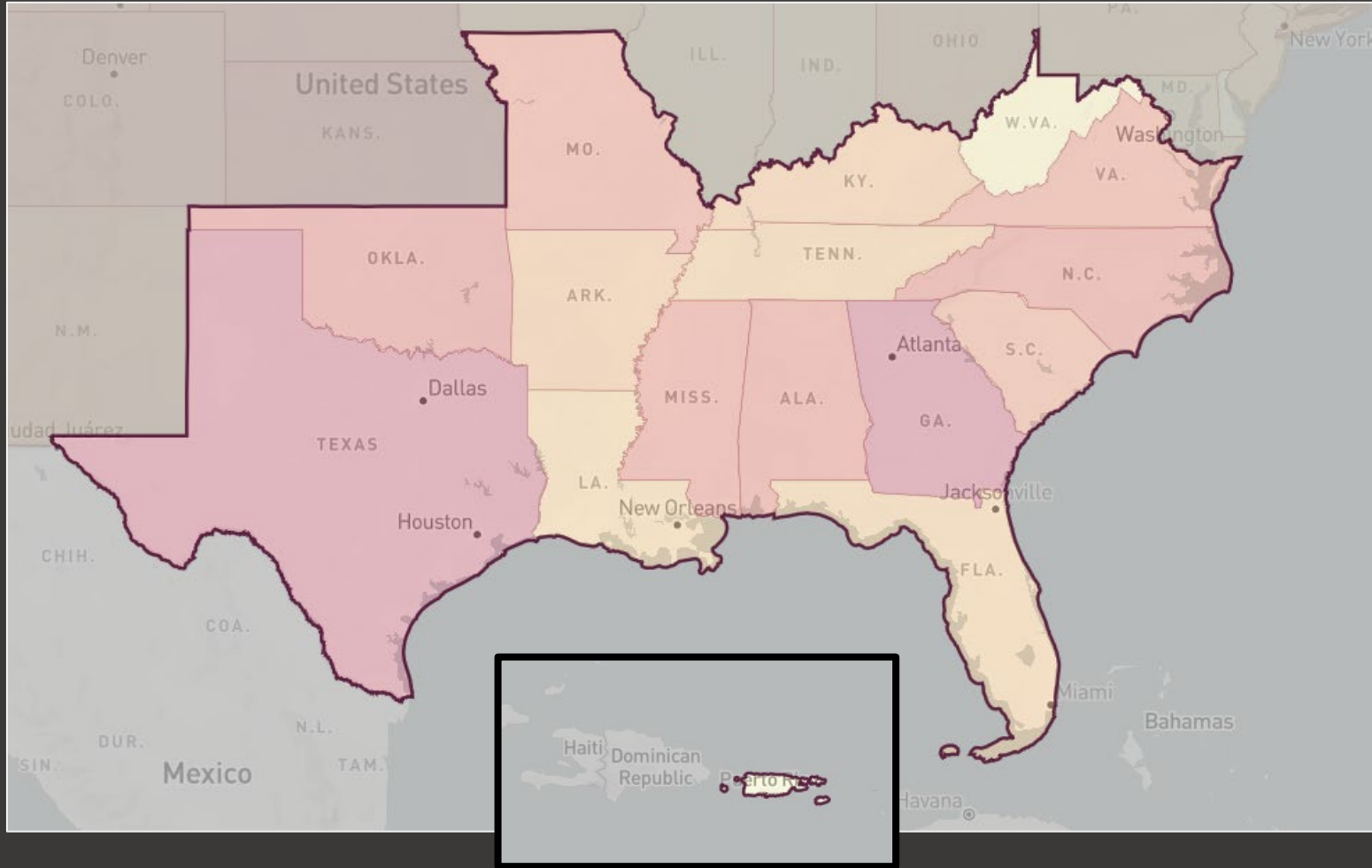


Working to Increase Aquatic Connectivity at a National Level

Shawna Fix*, Todd Ewing, Kat Hoenke
Southeast Aquatic Resources Partnership



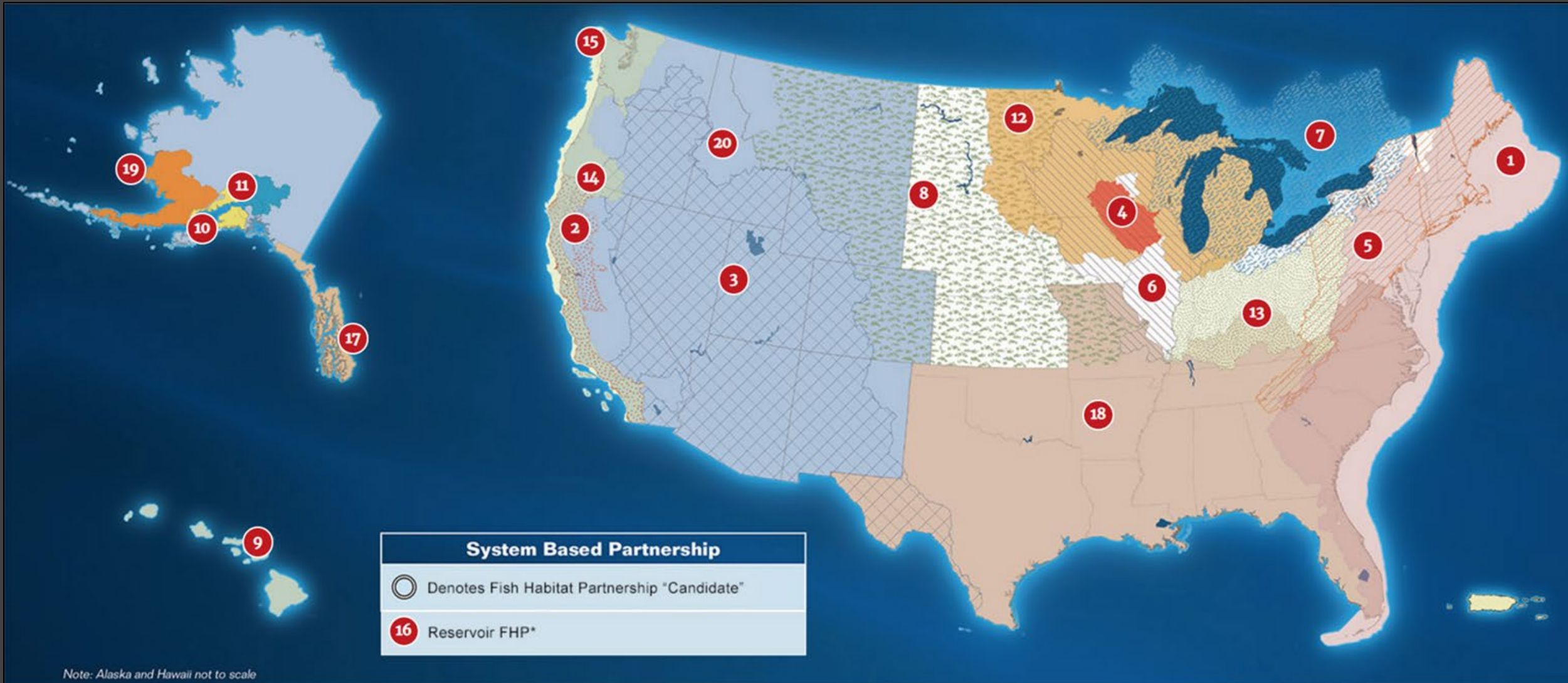


Mission

SARP will, **with partners**, protect, conserve and restore aquatic resources including habitats throughout the Southeast for the continuing benefit, use and enjoyment of the American people.

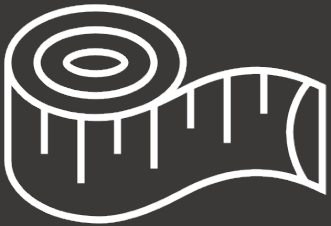


Fish Habitat Partnerships



SARP Aquatic Connectivity Program

Inventory



Prioritization



Connectivity
Teams



SARP Aquatic Connectivity Program

- 1) To build a compilation **inventory** to understand the degree of aquatic habitat fragmentation from man-made barriers in the US and Territories.
- 2) To identify the **highest priority** aquatic barriers to remove or remediate.
- 3) To build a **community** of practice in the US and to leverage existing resources and capacity to achieve measurable success on the ground.



National Aquatic Barrier Inventory & Prioritization Tool

Improve aquatic connectivity by prioritizing aquatic barriers for removal using the best available data.

Aquatic connectivity is essential

Fish and other aquatic organisms depend on high quality, connected river networks. A legacy of human use of river networks have left them fragmented by barriers such as dams and culverts. Fragmentation prevents species from dispersing and accessing habitats required for their persistence through changing conditions.

Recently improved inventories, brought to you by the [Southeast Aquatic Resources Partnership](#) (SARP) and partners, enable us to

Aquaticbarriers.org

INVENTORY

WHAT IS CONSIDERED AN AQUATIC BARRIER?



Dams

- Manmade structures built to impound water
- Includes large and small unregulated structures, diversion structures, lowhead dams
- Includes information on passability



Assessed Road-Stream Crossings

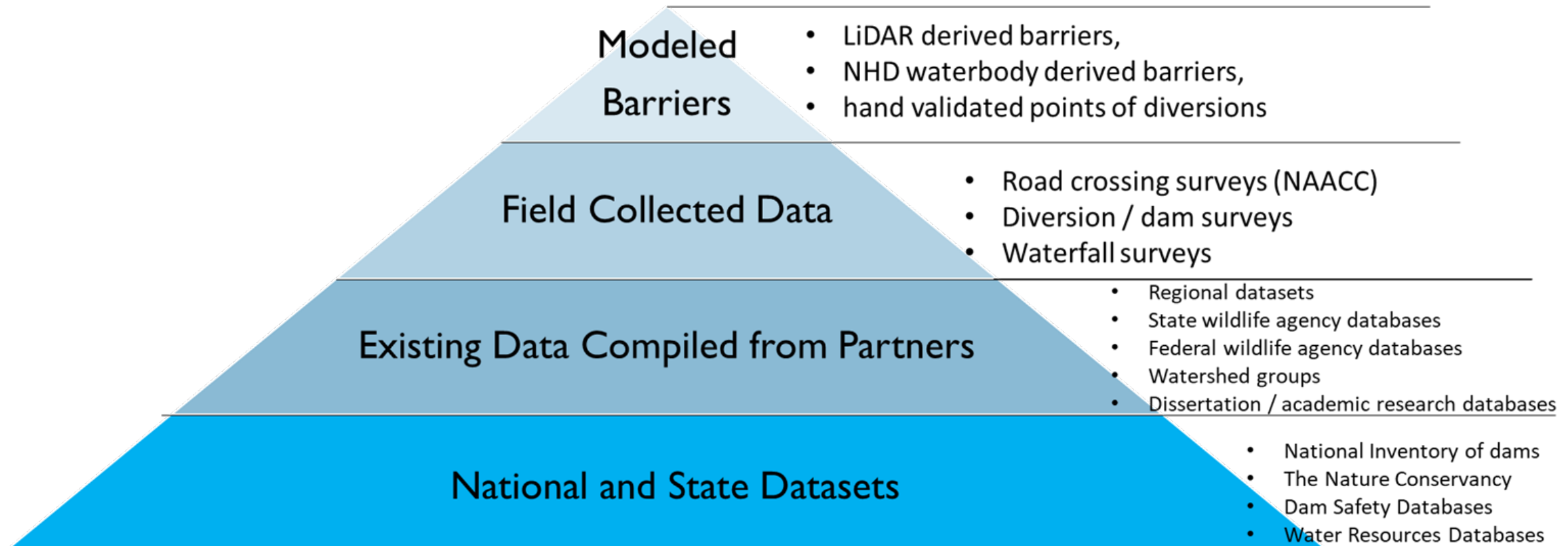
- Manmade structures built to pass water under a road
- Includes culverts, fords, slabs, low water crossings, bridges
- Includes structures considered passable and impassable



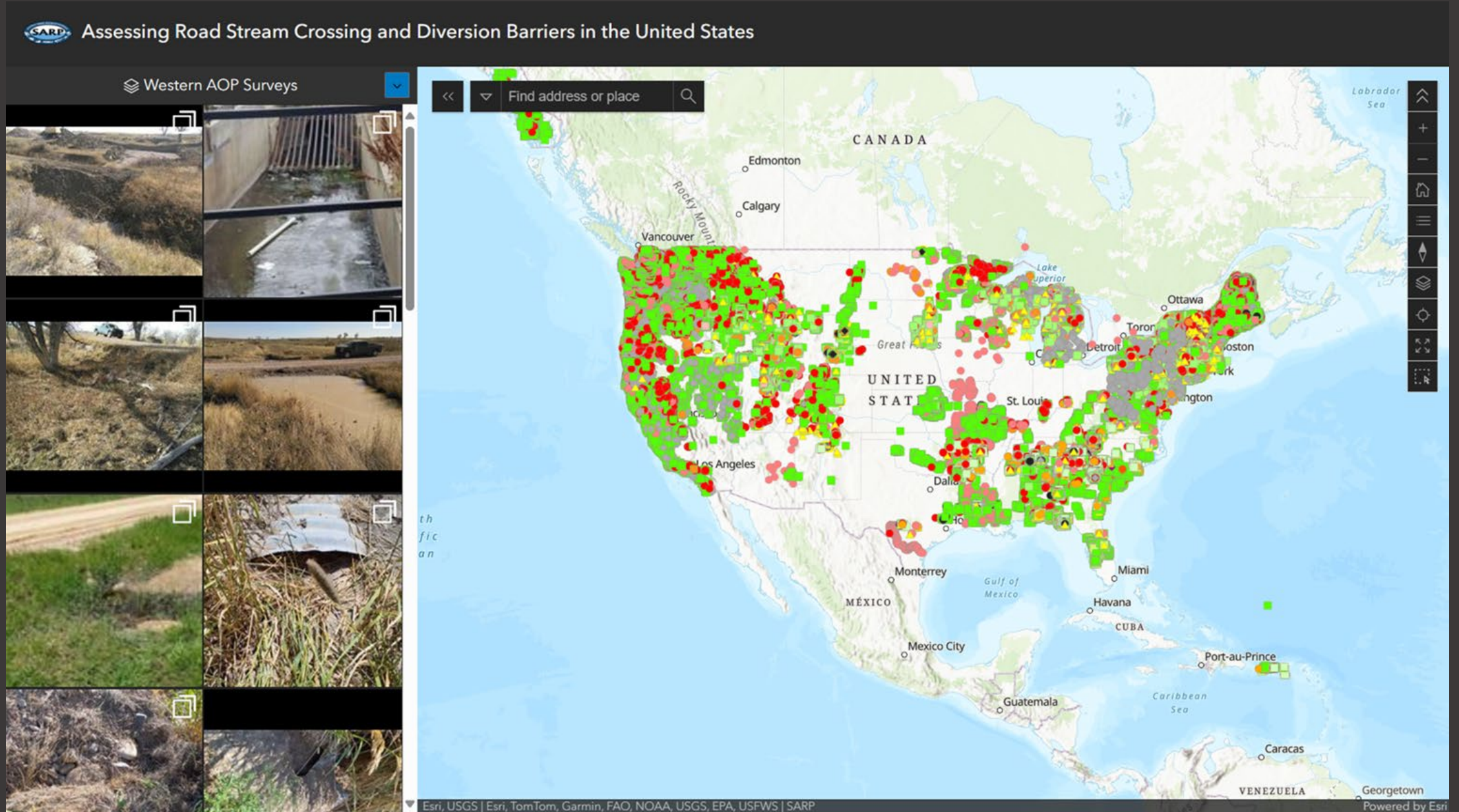
Waterfalls

- Natural rock/bedrock structures
- Based on USGS National Dataset
- Not used to prioritize, but to break network and calculate miles opened.
- Includes structures considered passable and impassable

INVENTORY COMPILATION FRAMEWORK



Multiple Assessment Protocols for Road-Stream Crossings



INVENTORY



Assessing Road Stream Crossing and Diversion Barriers in the United States

Eastern AOP Surveys



3 of 4

2-344 Aquaculture Rd, Starkville, Mississippi, 39759

_05012019_SARP_AOP_Stream_Crossing_Survey_Protocol:
14798

Date 10/17/2024, 12:00 PM

Crossing Code xy887902334286

County Oktibbeha County

Stream Name Tributary of Catalpa Creek

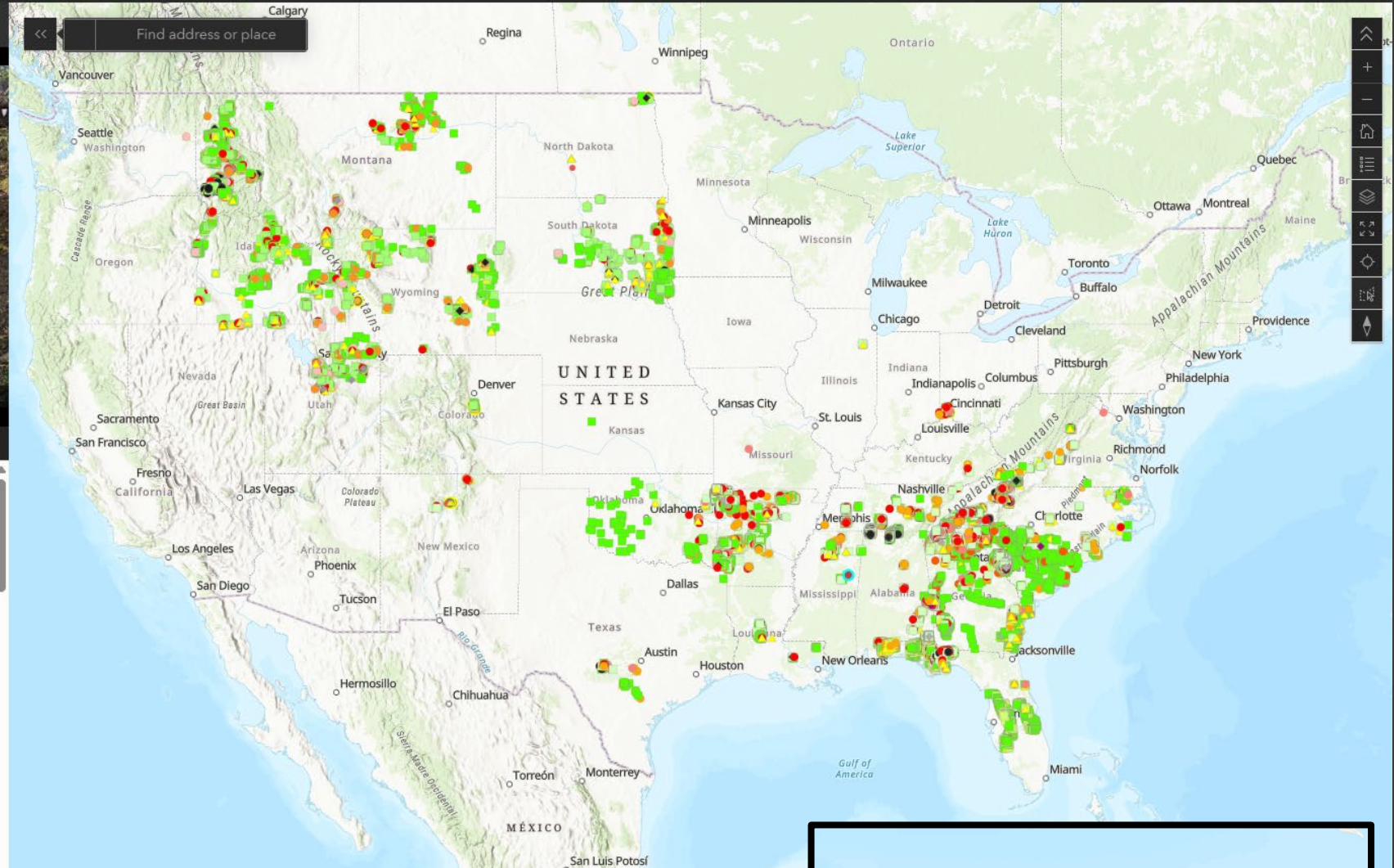
Road 264 Aquaculture Rd

Road Type Unpaved

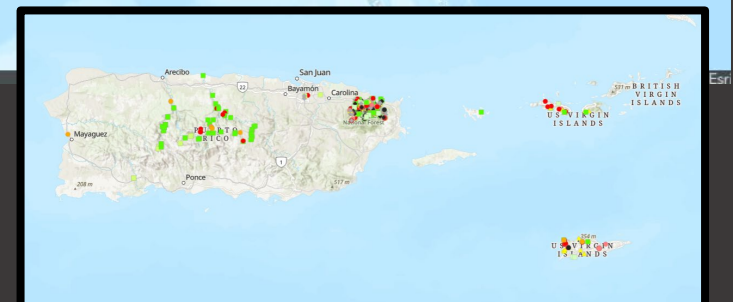
Crossing Type Culvert

Coordinates 33.42868548564971
-88.79024972494183

Location Comments Adjacent to South Farm Aquaculture
Facility. General area surrounded by



Esri. USGS | Esri. TomTom. Garmin. FAO. NOAA. USGS. EPA. USFWS | SARP





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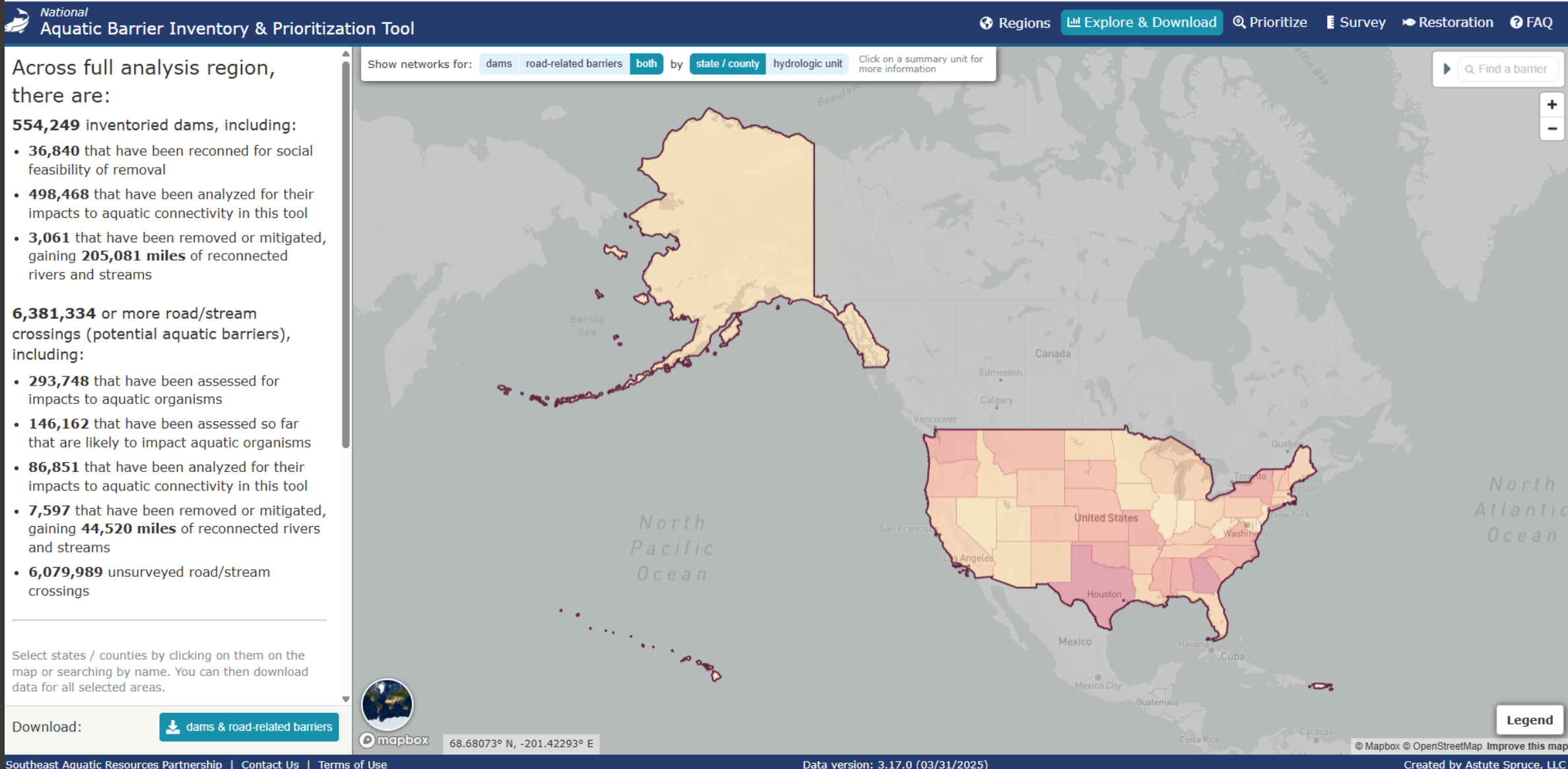
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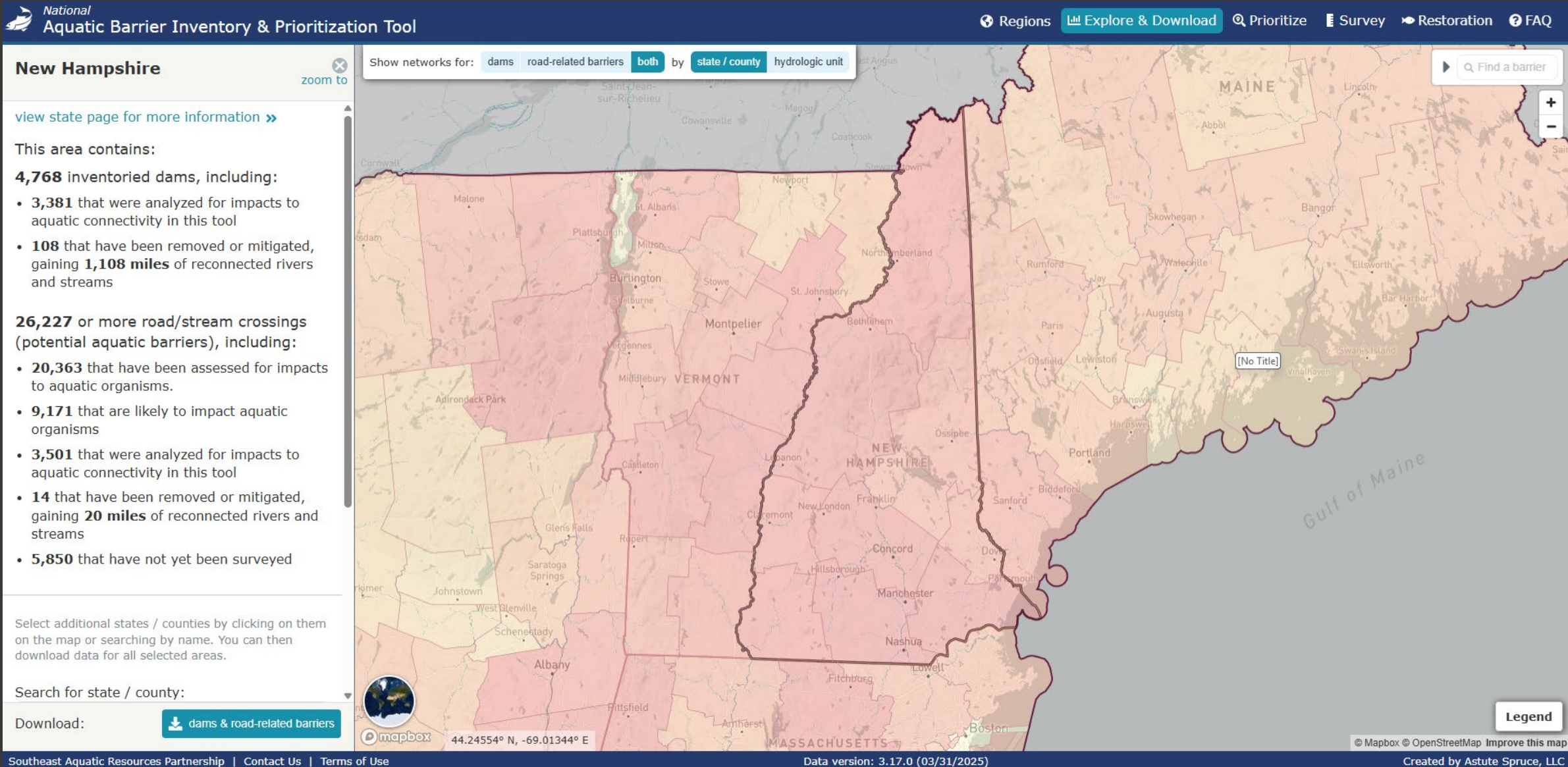
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Aquaticbarriers.org

INVENTORY – By State



INVENTORY – By State/County



Across full analysis region,
there are:

554,249 inventoried dams, including:


- **36,840** that have been reconned for social feasibility of removal
- **498,468** that have been analyzed for their impacts to aquatic connectivity in this tool
- **3,061** that have been removed or mitigated, gaining **205,081 miles** of reconnected rivers and streams

6,381,334 or more road/stream crossings (potential aquatic barriers), including:

- **293,748** that have been assessed for impacts to aquatic organisms
- **146,162** that have been assessed so far that are likely to impact aquatic organisms
- **86,851** that have been analyzed for their impacts to aquatic connectivity in this tool
- **7,597** that have been removed or mitigated, gaining **44,520 miles** of reconnected rivers and streams
- **6,079,989** unsurveyed road/stream crossings

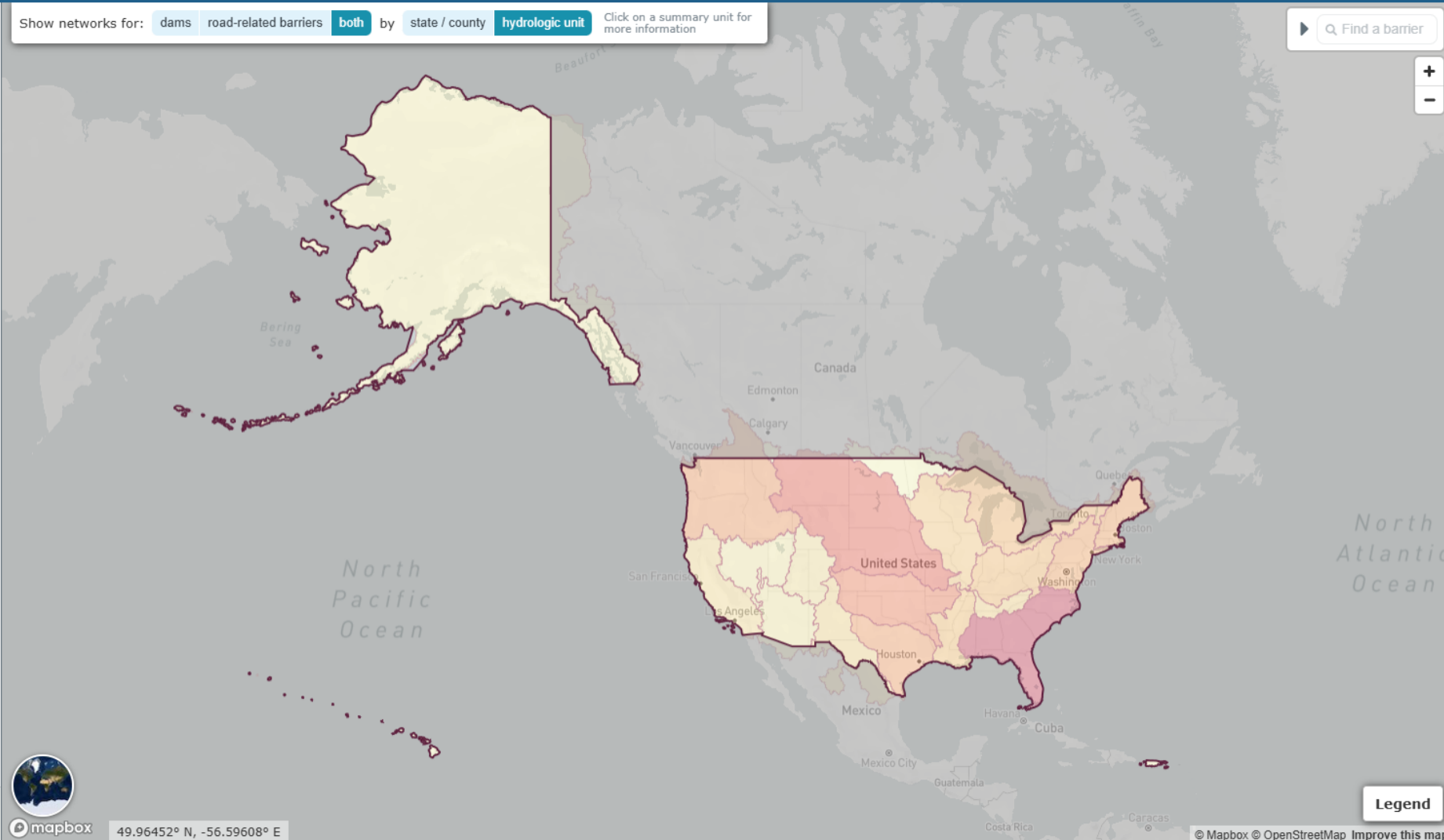
Select hydrologic units by clicking on them on the map or searching by name. You can then download data for all selected areas.

Download:

 dams & road-related barriers

Show networks for: **dams** **road-related barriers** **both** by **state / county** **hydrologic unit** [Click on a summary unit for more information](#)

 Find a barrier



49.96452° N, -56.59608° E

**Black River-Connecticut River
Subbasin**

HUC8: 01080106

zoom to

This area contains:

588 inventoried dams, including:

- **438** that were analyzed for impacts to aquatic connectivity in this tool
- **19** that have been removed or mitigated, gaining **134 miles** of reconnected rivers and streams

5,756 or more road/stream crossings
(potential aquatic barriers), including:

- **4,214** that have been assessed for impacts to aquatic organisms
- **2,474** that are likely to impact aquatic organisms
- **1,050** that were analyzed for impacts to aquatic connectivity in this tool
- **2** that have been removed or mitigated, gaining **4.2 miles** of reconnected rivers and streams
- **1,540** that have not yet been surveyed

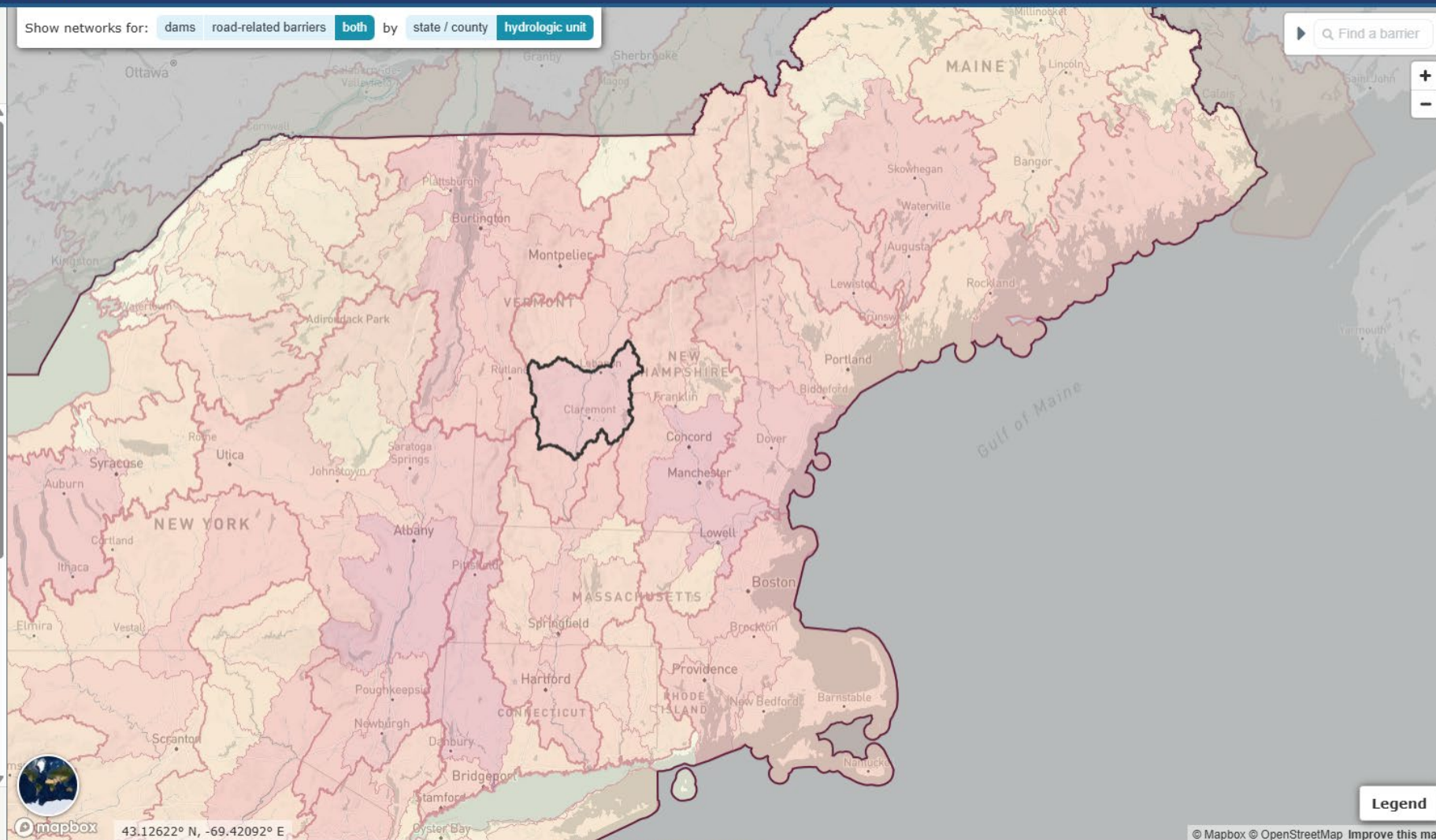
Select additional hydrologic units by clicking on them on the map or searching by name. You can then download data for all selected areas.

Search for hydrologic unit:

Download:

dams & road-related barriers

Show networks for: dams road-related barriers both by state / county hydrologic unit



Legend

© Mapbox © OpenStreetMap Improve this map



National Aquatic Barrier Inventory & Prioritization Tool

Improve aquatic connectivity by prioritizing aquatic barriers for removal using the best available data.

Aquatic connectivity is essential

Fish and other aquatic organisms depend on high quality, connected river networks. A legacy of human use of river networks have left them fragmented by barriers such as dams and culverts. Fragmentation prevents species from dispersing and accessing habitats required for their persistence through changing conditions.

Recently improved inventories, brought to you by the [Southeast Aquatic Resources Partnership](#) (SARP) and partners, enable us to



How to prioritize barriers:

- 1 Select area of interest.**

You can select areas using state, county, and watershed boundaries.

Prioritization is limited to areas with dams or assessed barriers depending on the scenario.
- 2 Filter barriers.**

You can filter barriers by feasibility, height, and other key characteristics to select those that best meet your needs.
- 3 Explore priorities on the map.**

Once you have defined your area of interest and selected the barriers you want, you can explore them on the map.
- 4 Download prioritized barriers.**

You can download the inventory for your area of interest and perform offline work.

Prioritization scenarios available:

Dams

Prioritize dams based on aquatic networks cut by dams and waterfalls.

» Start prioritizing

498,729 available

Road-related barriers

Prioritize road-related barriers based on aquatic networks cut by dams, waterfalls, and road-related barriers with at least moderate barrier severity.

» Start prioritizing

86,375 available

Dams & road-related barriers

Prioritize dams and road-related barriers based on aquatic networks cut by dams, waterfalls, and road-related barriers with at least moderate barrier severity.

» Start prioritizing

585,104 available

Large-bodied fish barriers

Prioritize dams and road-related barriers that are likely to impact large-bodied fish species based on aquatic networks cut by dams and waterfalls that do not have partial or seasonal passability to salmonids and non-salmonids, and road-related barriers with severe or significant barrier severity.

» Start prioritizing

558,183 available

Small-bodied fish barriers

Prioritize dams and road-related barriers based on aquatic networks cut by dams, waterfalls, and road-related barriers with at least minor barrier severity.

» Start prioritizing

617,090 available

modify area of interest

Filter dams

[OPTIONAL] Use the filters below to select the dams that meet your needs. Click on a bar to select dams with that value. [Show more ...](#)

- ▶ **Social Benefits & Partners**
3 filters available
- ▶ **Conservation benefits**
7 filters available
- ▶ **Climate resilience**
2 filters available
- ▶ **Regulatory & Removal Cost**
5 filters available
- ▶ **Dam characteristics**
7 filters available
- ▶ **Aquatic network characteristics**
7 filters available
- ▶ **Marine connectivity & diadromous species information**
5 filters available
- ▶ **Land and barrier ownership**
2 filters available
- ▶ **Invasive species management**
1 filter available

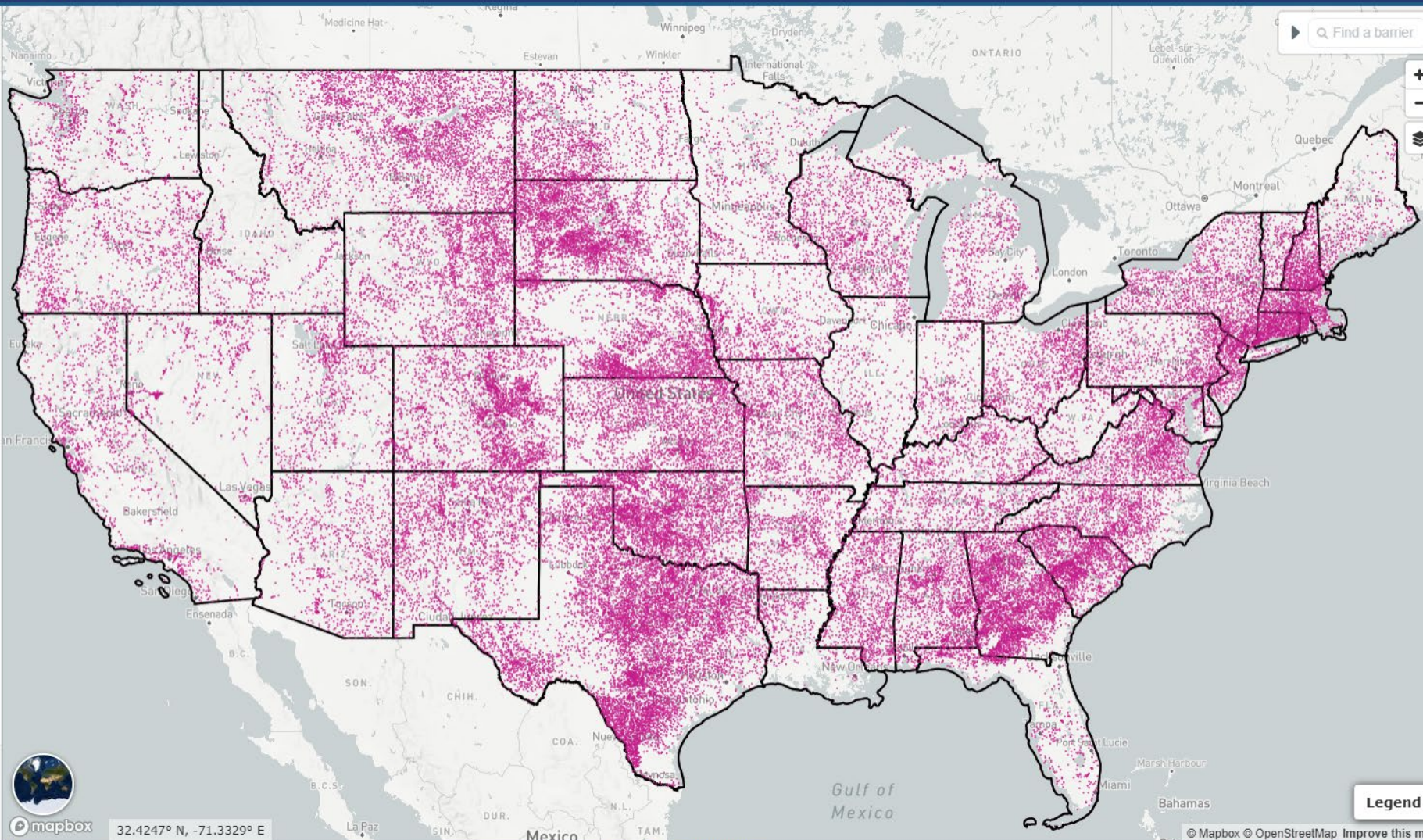
selected: 496,917 dams



» Prioritize selected barriers



32.4247° N, -71.3329° E



Legend

National Aquatic Barrier Inventory & Prioritization Tool

[Regions](#)
[Explore & Download](#)
[Prioritize](#)
[Survey](#)
[Restoration](#)
[FAQ](#)

[modify area of interest](#)

Filter dams & road-related barriers

[OPTIONAL] Use the filters below to select the dams & road-related barriers that meet your needs. Click on a bar to select dams & road-related barriers with that value. [Show more ...](#)

- Social Benefits & Partners**
3 filters available
- Conservation benefits**
6 filters available
- Climate resilience**
2 filters available
- Regulatory & Removal Cost**
5 filters available
- General characteristics**
2 filters available
- Dam characteristics**
5 filters available
- Road-related barrier characteristics**
5 filters available
- Aquatic network characteristics**
7 filters available
- Marine connectivity & diadromous species information**
selected: 3,381 dams and 3,501 road-related barriers

[Prioritize selected barriers](#)

43.14396° N, -69.4787° E

© Mapbox © OpenStreetMap Improve this map

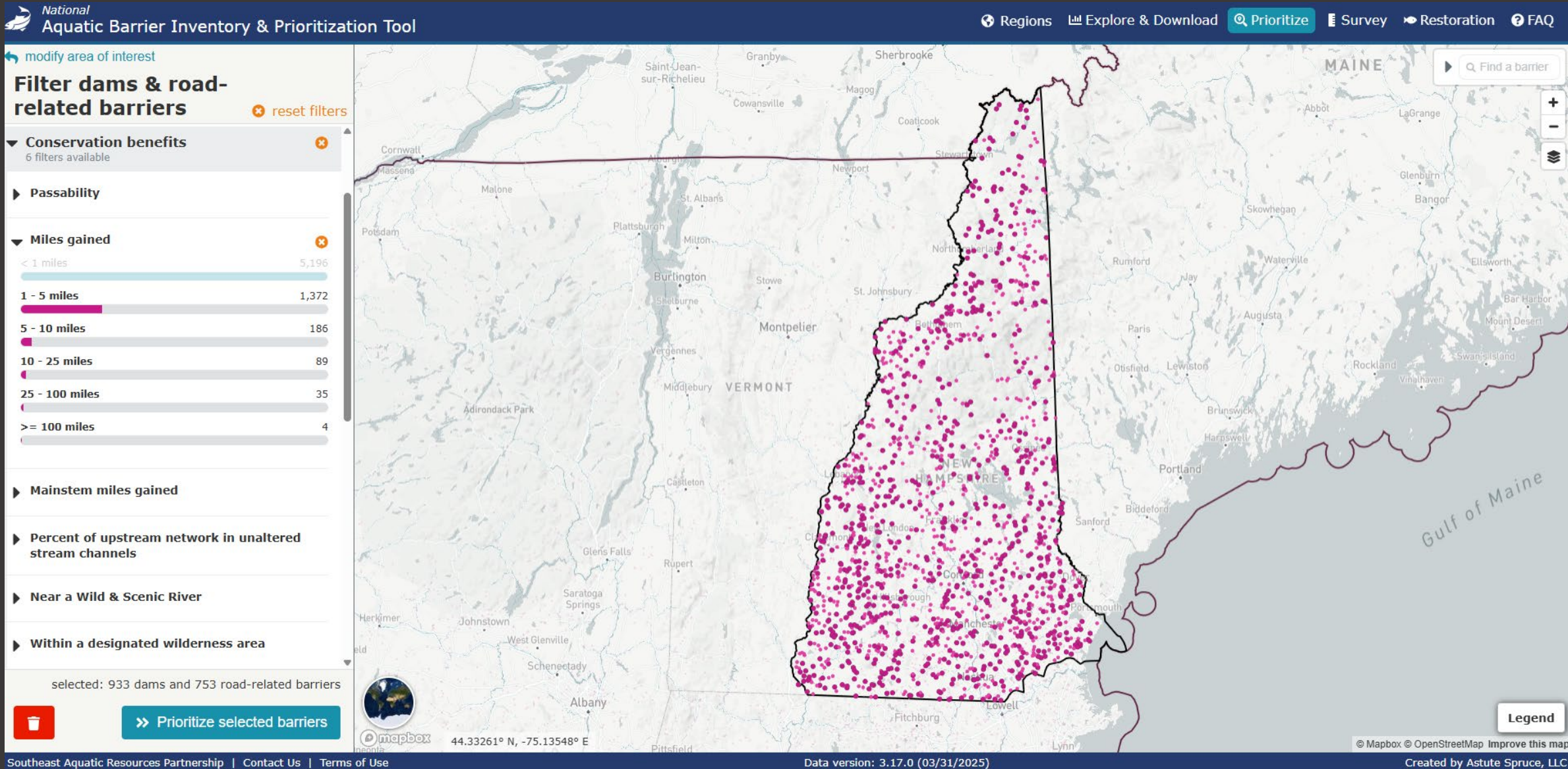
Legend

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Data version: 3.17.0 (03/31/2025)

Created by Astute Spruce, LLC

PRIORITIZATION



[Regions](#)
[Explore & Download](#)
[Prioritize](#)
[Survey](#)
[Restoration](#)
[FAQ](#)

[← modify area of interest](#)

Filter dams & road-related barriers

[reset filters](#)

Land and barrier ownership
2 filters available

Land ownership type

unknown (likely privately owned) 1,421

Department of Defense 6

National Park Service 1

US Fish and Wildlife Service land 5

USDA Forest Service (ownership boundary) 70

USDA Forest Service (admin boundary) 51

Other Federal land 1

State land 53

Joint Ownership or Regional land 58

Other private conservation land 20

This information is derived from the USFS ownership parcels dataset and Protected Areas Database (PAD-US v4) to highlight ownership types of particular importance to partners. NOTE: this does not include most private land.

Barrier ownership type

selected: 60 dams and 61 road-related barriers

[» Prioritize selected barriers](#)

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Data version: 3.17.0 (03/31/2025)

Created by Astute Spruce, LLC

modify filters

Explore results

121 prioritized dams & road-related barriers

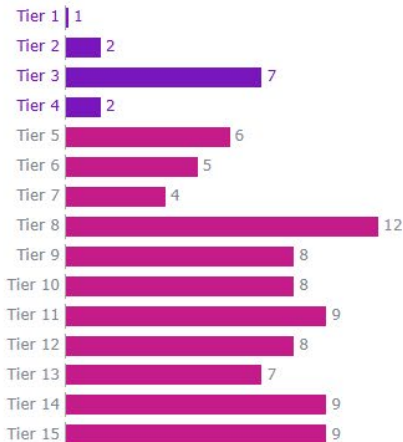
Dams & road-related barriers are binned into tiers based on [Show more ...](#)

Choose top-ranked dams & road-related barriers for display on map

Lowest tier Highest tier

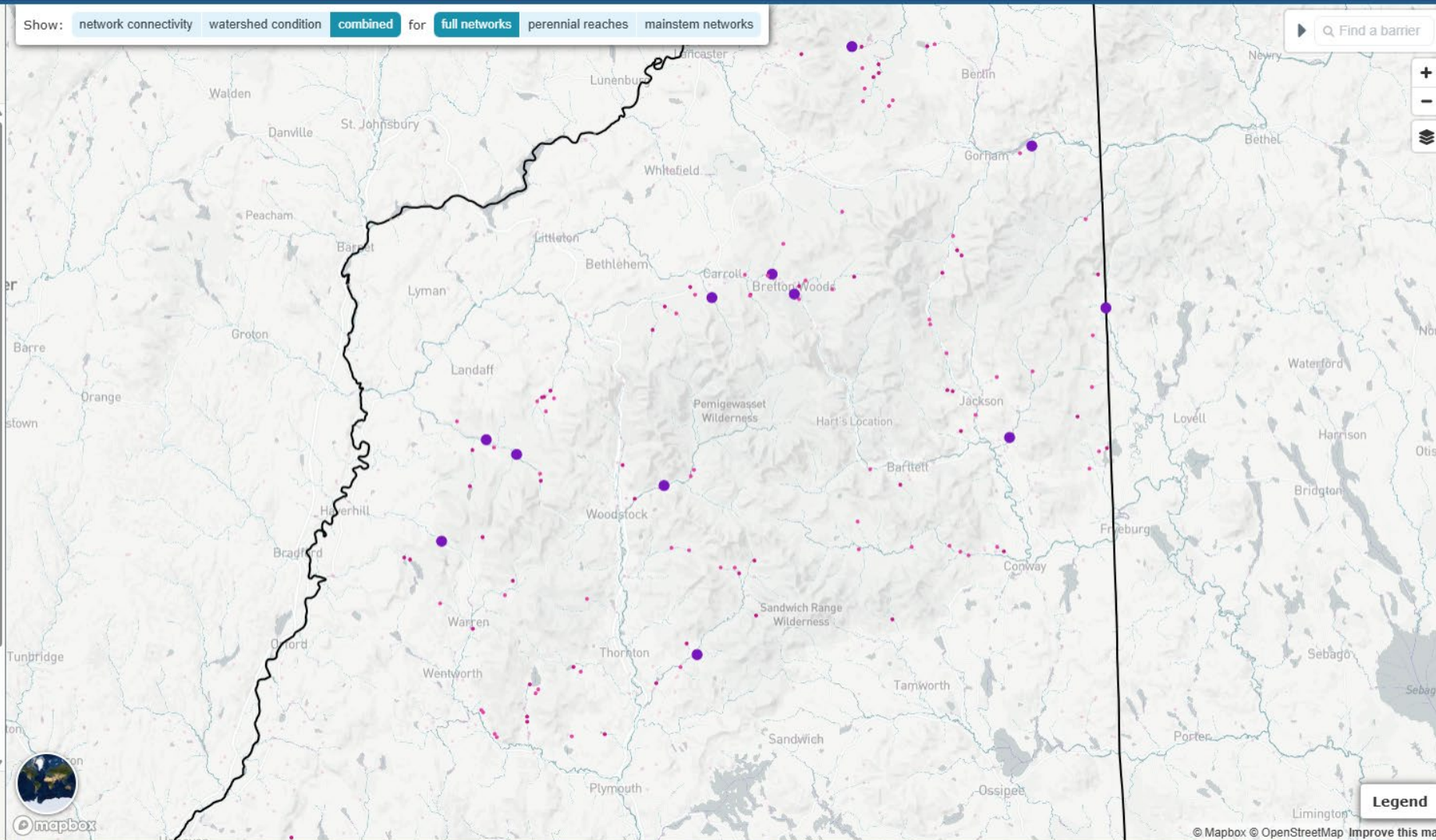
Use this slider to control the number of tiers visible on the map. Based on the number of dams & road-related barriers visible for your area, you may be able to identify dams & road-related barriers that are more feasible in the top several tiers than in the top-most tier.

Number of dams & road-related barriers by tier



Download prioritized barriers

Show: network connectivity watershed condition **combined** for full networks perennial reaches mainstem networks



Show: [network connectivity](#) [watershed condition](#) **[combined](#)** for **[full networks](#)** [perennial reaches](#) [mainstem networks](#)

Find a barrier



Connectivity Ranks

1

dam

body Rd

[illegible][illegible]

1

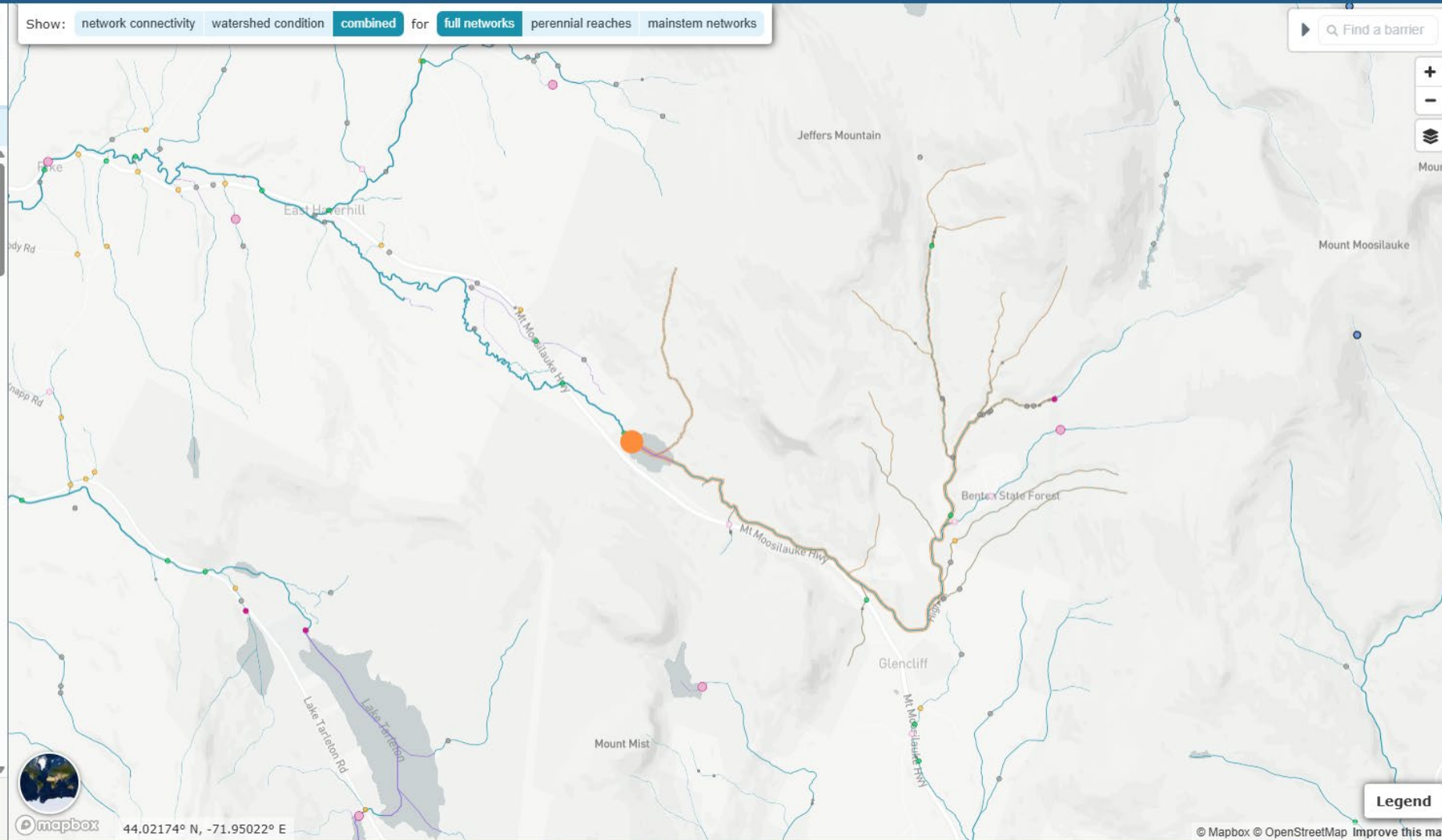
App Re

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100

[illegible][illegible]

Year	Percentage of Population Aged 65 and Over
1950	7
1960	8
1970	9
1980	10
1990	11
2000	12
2010	13
2020	14
2030	15
2040	16
2050	16

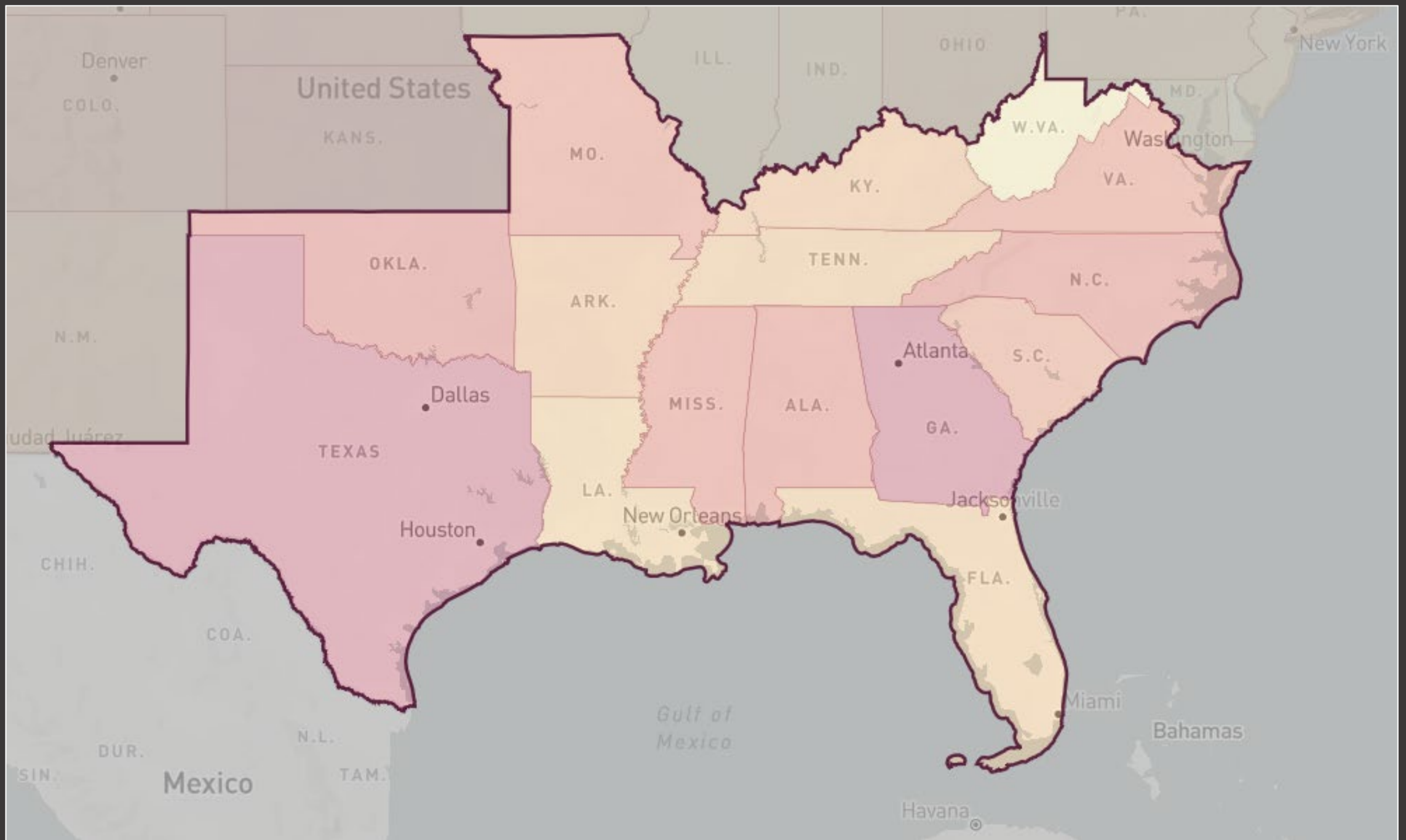
[illegible]



In Development: The National Aquatic Connectivity Collaborative



CONNECTIVITY TEAMS



CONNECTIVITY TEAMS



Connectivity Teams Goal:
Restore connectivity, habitat, and ecological functions to rivers and streams and restore public safety by identifying and removing barriers to aquatic species passage and those that are threats to communities.

CONNECTIVITY TEAMS

- Each team consists of 50-200+ diverse partners
- Teams meet in-person once a year, more virtually
- Led by 2-3 team leads



CONNECTIVITY TEAMS



So much work
can be
accomplished...



when we just
talk to each
other!



- Bringing partners together during meetings and trainings



Catawba Nation, South Carolina



South-Central Tennessee

The Overarching Benefits

- Strength in numbers
- Strength in partnership diversity
- Projects of wider scope (watershed approach)
- Maintain the momentum
- Successful projects!!



Questions?

Shawna@southeastaquatics.net

Join a State Aquatic
Connectivity Team

