MASSWILDLIFE

Massachusetts Coldwater Fisheries Resources

(featuring Blackstone River Watershed)

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What is a CFR?

Massachusetts Division of Fisheries and Wildlife definition:

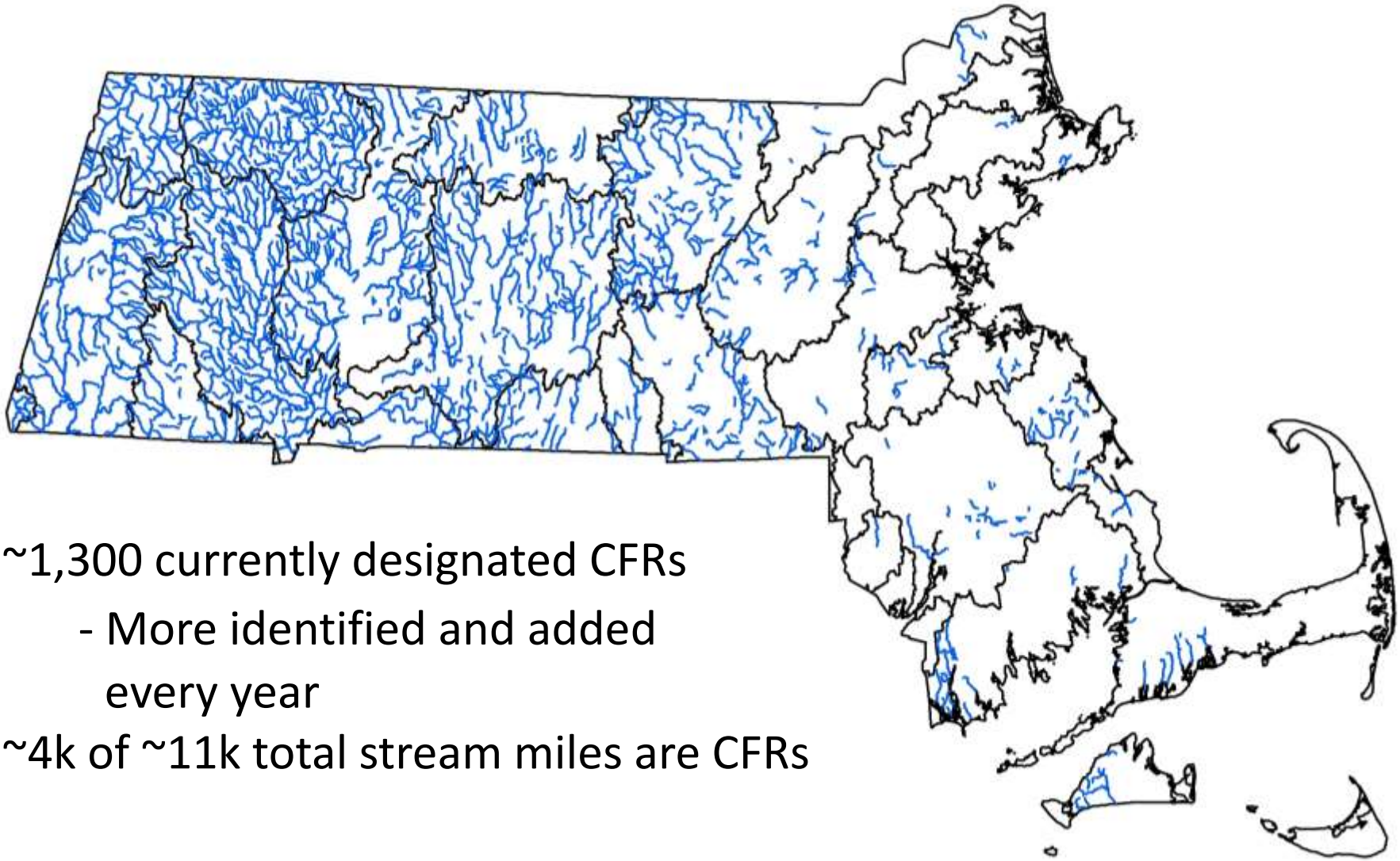
"A CFR denotes a waterbody that contains Coldwater Fish that reproduced in that waterbody or a tributary thereto and use such waters to meet one or more of their life history requirements"

- Slimy Sculpin (*Cottus cognatus*)
- Longnose Sucker (*Catostomus catostomus*)
- Lake Chub (*Couesius plumbeus*)
- American Brook Lamprey (*Lampetra appendix*)
- Burbot (*Lota lota*)
- **Brook Trout (*Salvelinus fontinalis*)**
- **Brown Trout (*Salmo trutta*)**
- **Rainbow Trout (*Oncorhynchus mykiss*)**
- Landlocked Salmon (*Salmo salar*)
- Lake Trout (*Salvelinus namaycush*)
- Rainbow Smelt (*Osmerus mordax*)

CFR Applications

- Regulation
  - Water Quality Standards
    - Critical area status…protect water quality
  - Water Management Act
    - Minimize impact of water withdrawals…protect water quantity
  - River Protection Act and Wetlands Protection Act
    - 200-foot riparian buffer, other protections to riparian

Statewide CFRs



~1,300 currently designated CFRs

- More identified and added every year

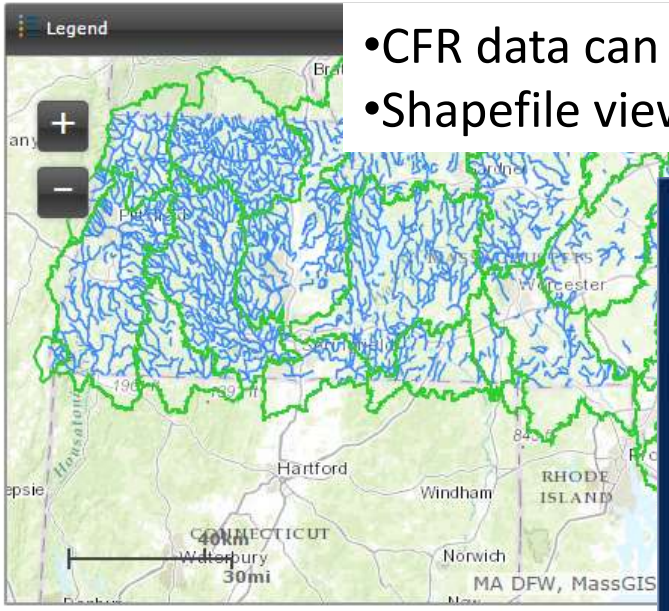
~4k of ~11k total stream miles are CFRs





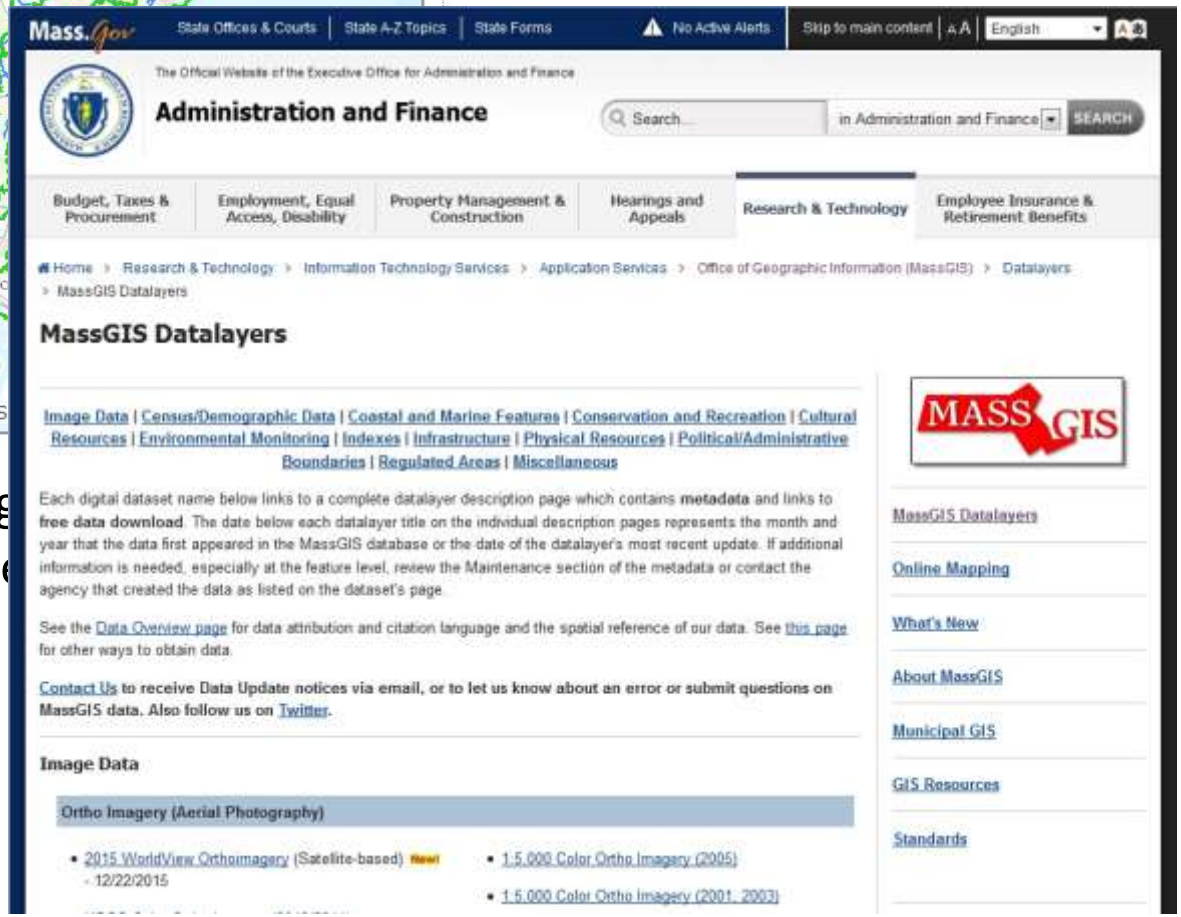

Coldwater Fish Resources Map

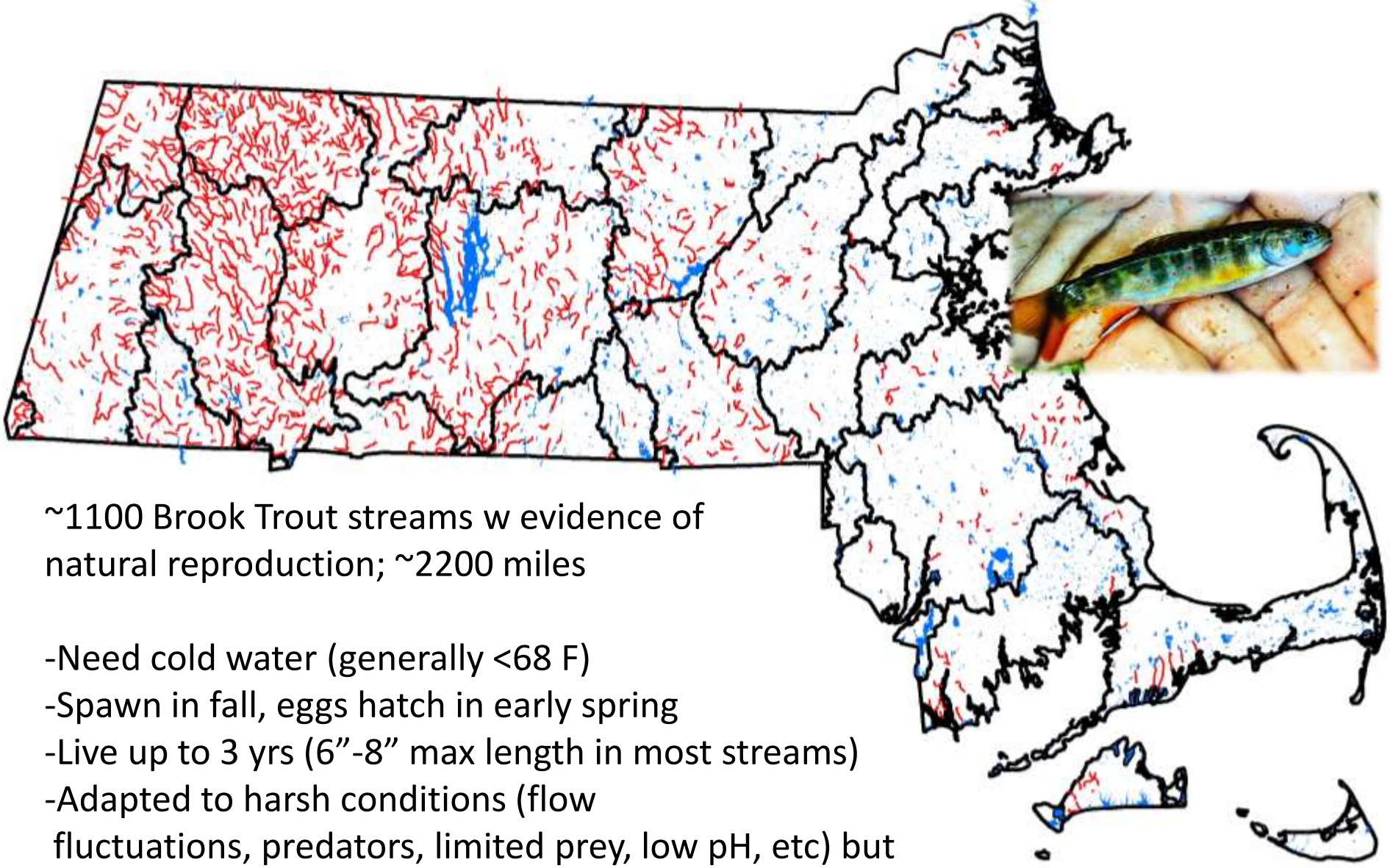
Below is an interactive map of Coldwater Fish Resources (CFRs) in watersheds across Massachusetts. Zoom in and then click on a stream for its name and unique SARIS code.



- CFR data can be downloaded from Mass GIS (Google “Mass GIS”)
- Shapefile viewed in ARC GIS

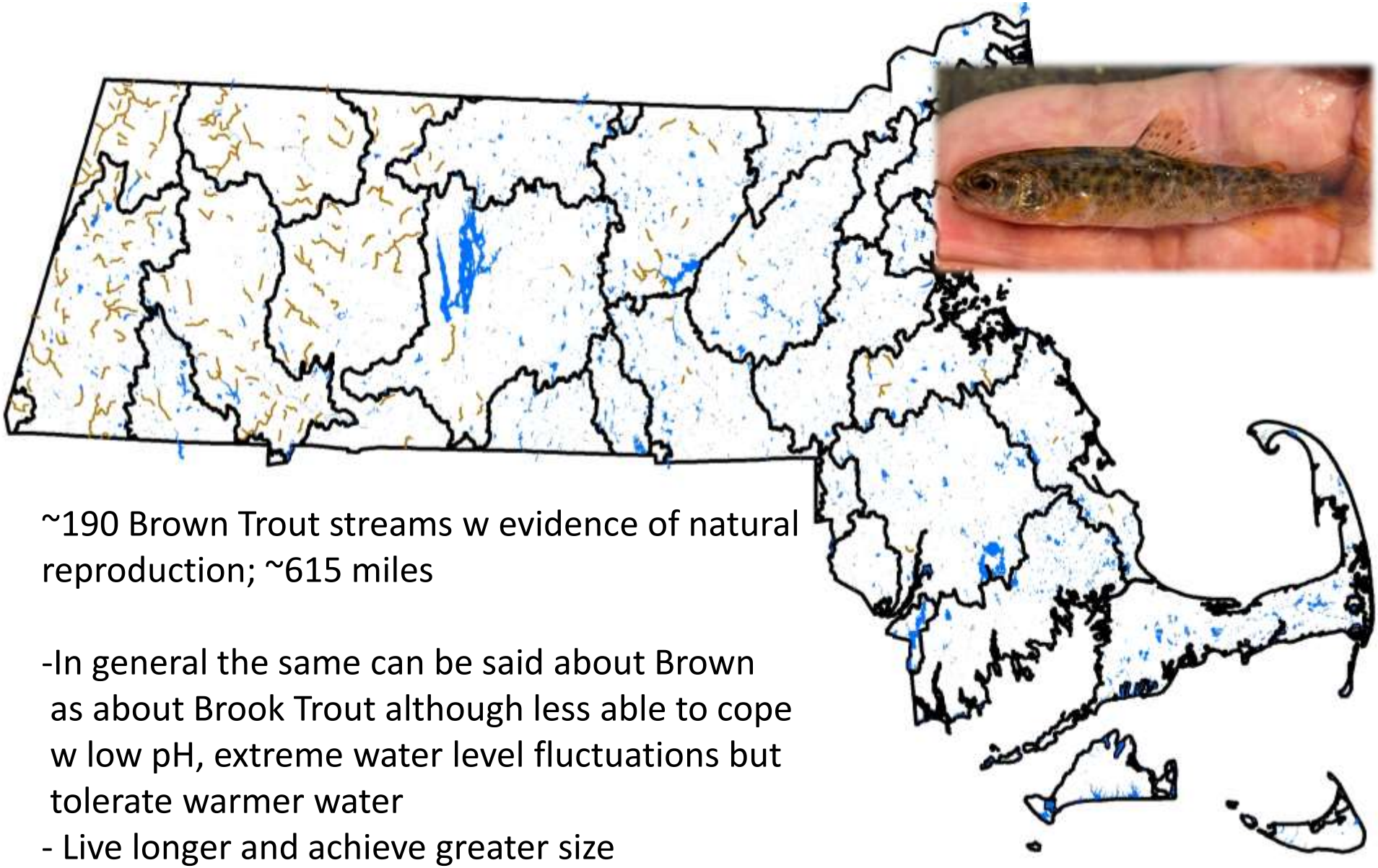
- CFR data can be viewed using
- Google “Mass coldwater fish





~1100 Brook Trout streams w evidence of natural reproduction; ~2200 miles

-Need cold water (generally <68 F)
-Spawn in fall, eggs hatch in early spring
-Live up to 3 yrs (6”-8” max length in most streams)
-Adapted to harsh conditions (flow fluctuations, predators, limited prey, low pH, etc) but need cold water, relatively silt-free spawning substrate

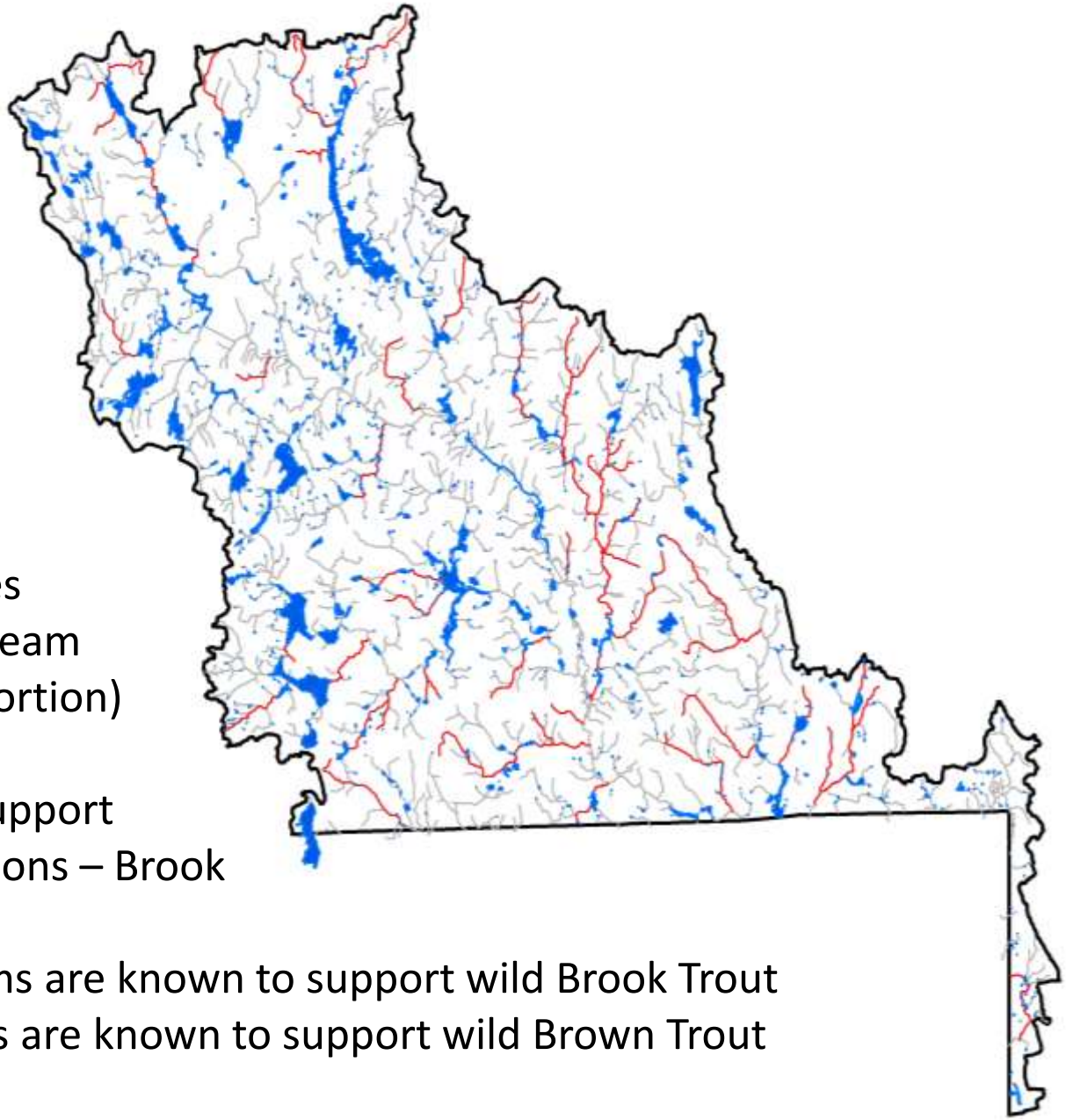


~190 Brown Trout streams w evidence of natural reproduction; ~615 miles

-In general the same can be said about Brown as about Brook Trout although less able to cope w low pH, extreme water level fluctuations but tolerate warmer water

- Live longer and achieve greater size

Blackstone River Watershed Coldwater Streams



- ~690 total miles of streams in the Blackstone River Watershed (BRW)

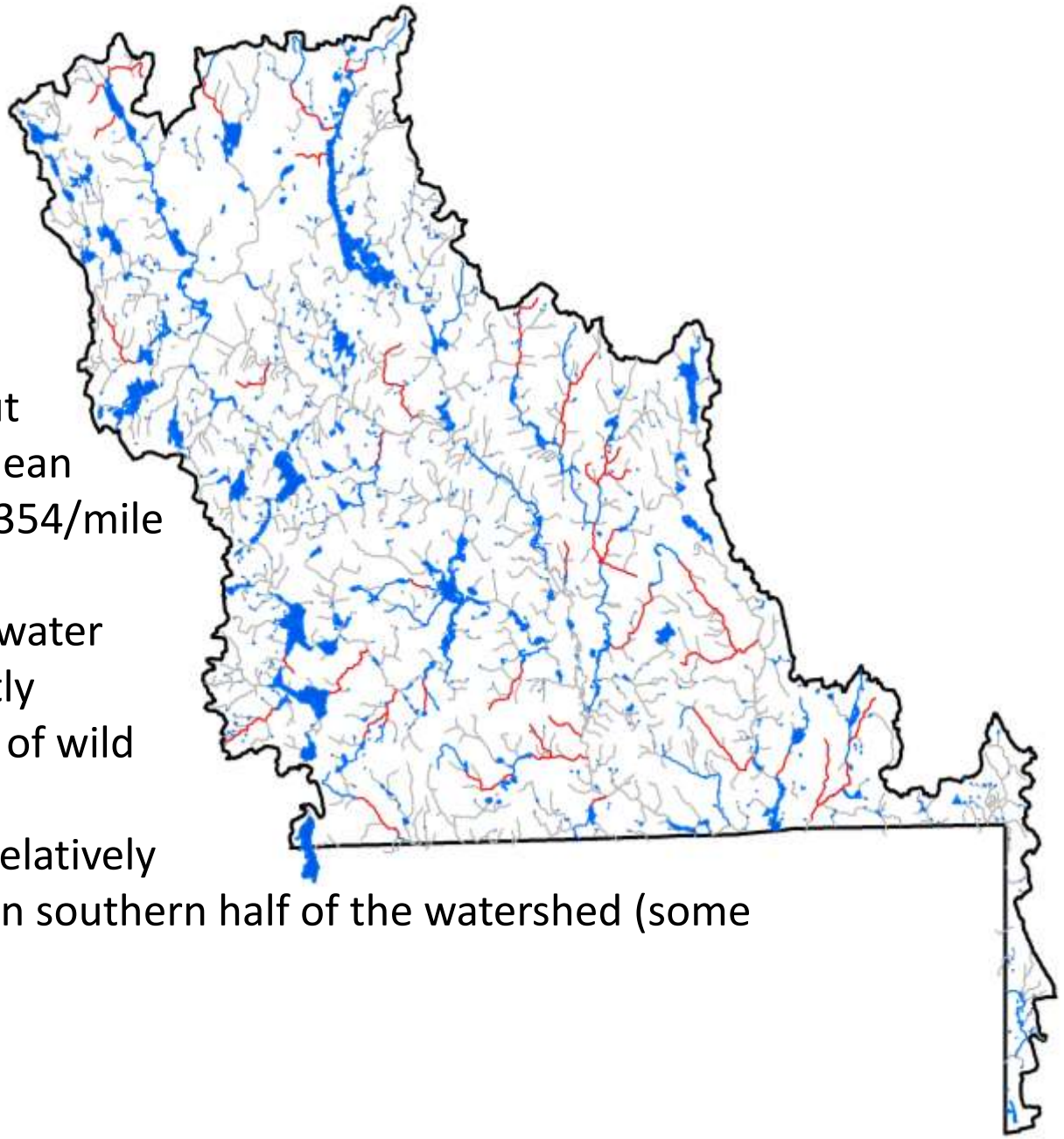
- 53 CFRs stretching 110 miles (only about 16% of total stream miles; a relatively low proportion)

  > A fraction of CFR miles support viable wild trout populations – Brook Trout dominate

  > 62 miles across 47 streams are known to support wild Brook Trout

  > 14 miles across 6 streams are known to support wild Brown Trout

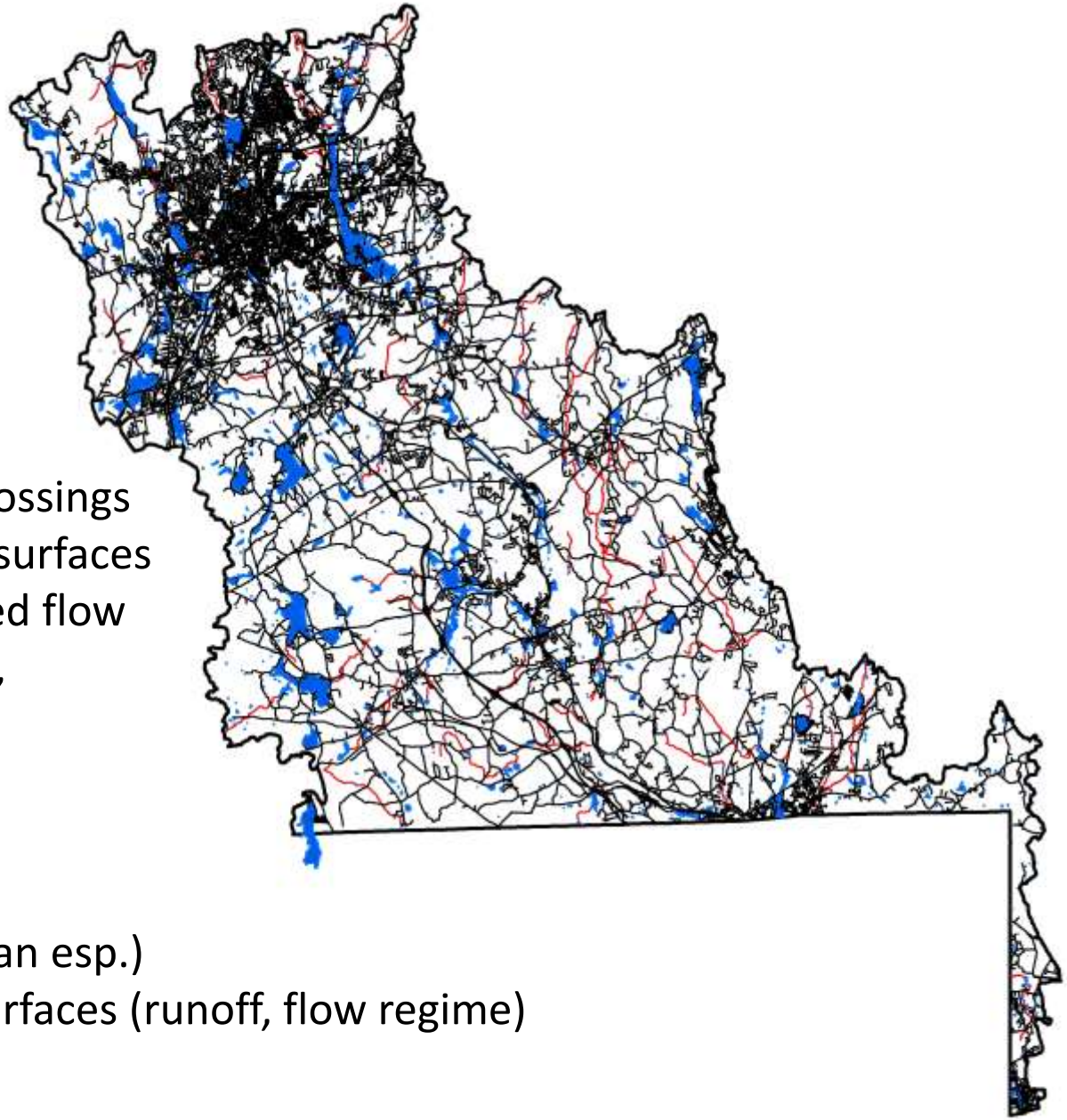
Blackstone River Watershed Coldwater Fisheries



- Statewide mean Brook Trout density is 603/mile; BRW mean Brook Trout density is only 354/mile

- Relatively few miles of coldwater streams in the BRW currently support *robust* populations of wild Brook Trout
  - Those that do: no dams, relatively undeveloped landscapes in southern half of the watershed (some exceptions)

Threats to Coldwater Fisheries



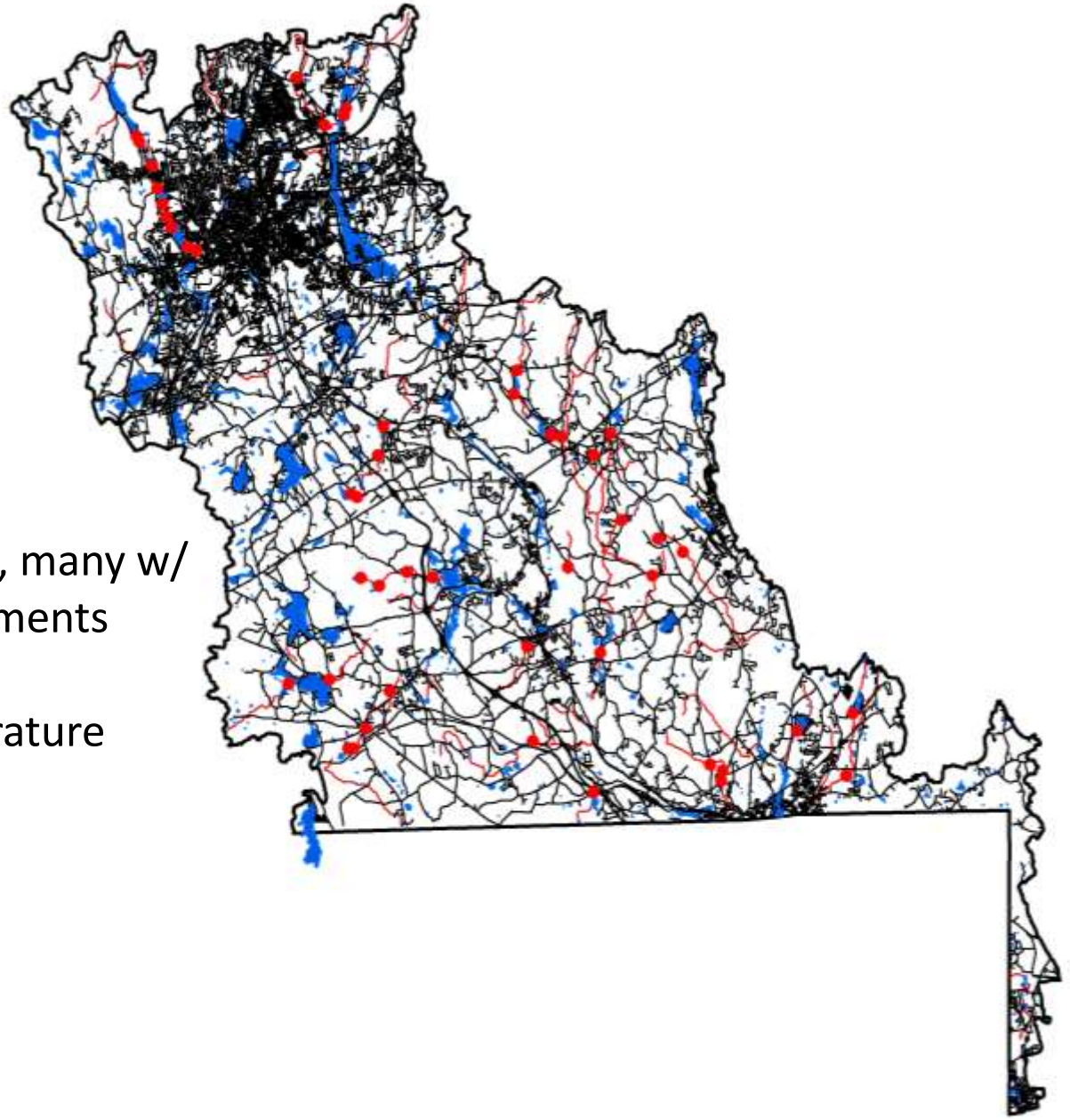
- Roads
  >2200 miles of roads in the BRW alone
  - 1000's of road-stream crossings
  - Runoff from impervious surfaces (thermal pollution, altered flow regimes, road chemicals, sediment,…)

- Development
  - GW withdrawal
  - Habitat alteration (riparian esp.)
  - Additional impervious surfaces (runoff, flow regime)
  - Nutrients, pollutants

Threats to Coldwater Fisheries

- Roads
- Development

- Dams
  - 48 known dams on CFRs, many w/ corresponding impoundments
  - Barriers to movement
  - Altered flow and temperature regime



What can be done

- Protect remaining high-quality wild trout streams
  - Only 10% of known wild trout water
  - Work w local groups to limit development, esp in riparian buffer and wetlands (or at least mitigate w sediment traps, retention basins, bankside vegetation, etc)
- Identify and remedy negative impacts to marginalized coldwater fisheries
  - Majority of known wild trout water in BSRW is marginal, esp on the few larger rivers
  - Dam removals, culvert replacements
  - Habitat improvements, restoration

- Extend surveys into previously unsurveyed sections of coldwater streams
  - Unsure of wild trout population status in 30% of designated coldwater stream miles, esp headwater streams and sections of larger rivers; strategic surveys to fill in gaps
  - Dozens of unsurveyed, potential CFRs; working through one-by-one, notify DFW of potential unrecorded coldwater fisheries or wild trout populations

Key to conservation is developing a strong working relationship

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