Fisheries Habitat Program

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John Magee, Fish Habitat Biologist
Fish and Game Department Headquarters
April 20, 2011

Fisheries Habitat Program

- Good for fish.
- Good for all the wildlife that depend on healthy water and habitat.
- Good for us.
- We work with many partners
- Watershed/landscape level

Two topics:

Fisheries Habitat Account

- Provide funding to projects – only with Commission approval

Fisheries Habitat Program

- Technical Assistance to projects
- Research

Overview

- One State-wide Fish Habitat Biologist
- Several Regional Fish Biologists – but mostly one who works in habitat program
- Multiple project partners on most projects

- Fisheries Habitat Account – RSA 214:1-g
  - $1 from each license sold goes into the account
  - ~$150,000 each year

Approach

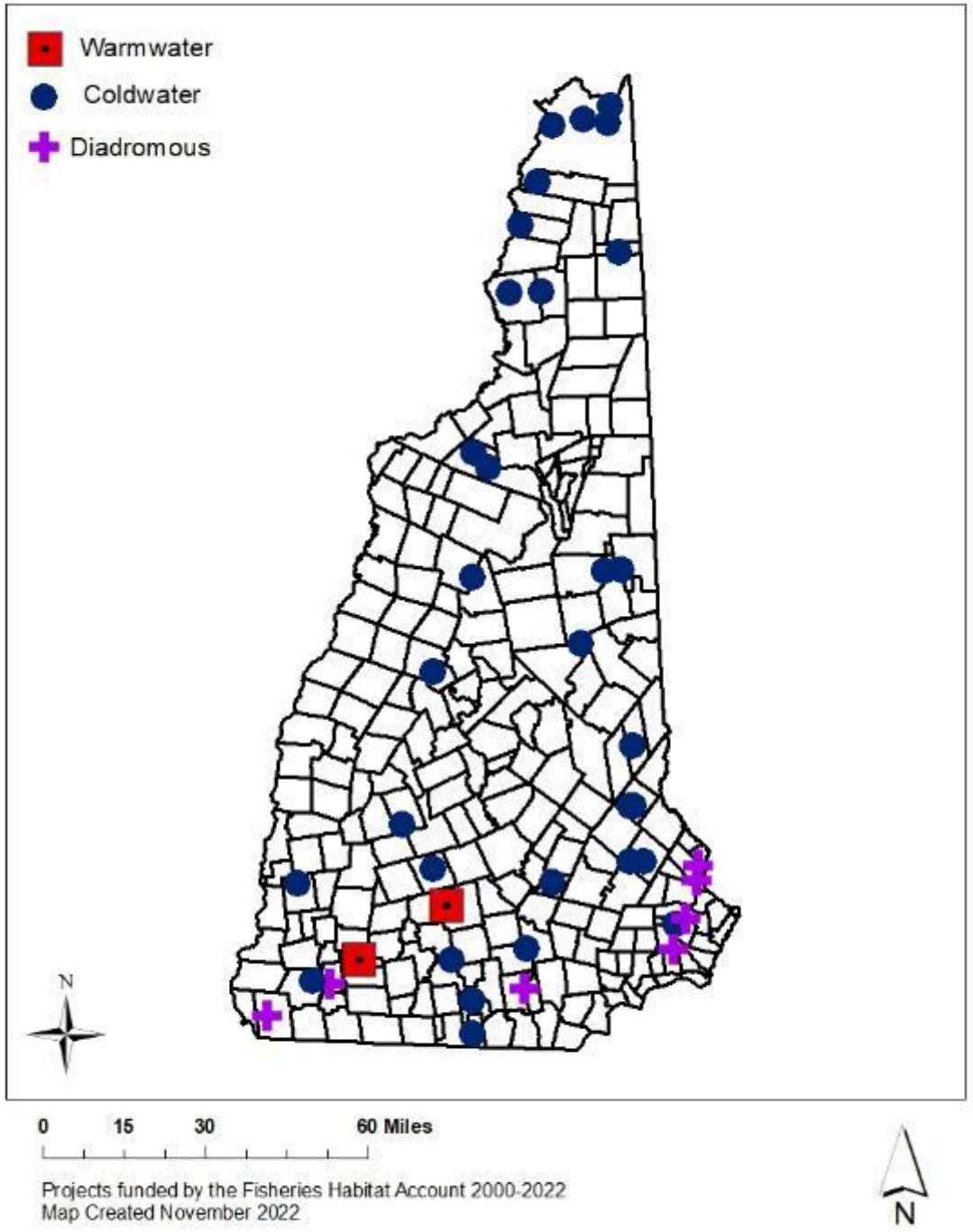
- Common theme: use natural processes
  - Fish are adapted to these processes, so the best way to restore/enhance habitat is to mimic these processes,
  - Focus on Watersheds as much as possible,
  - Typically costs much less to let Nature do most of the work

- Biggest angling bang for the buck
  - Rating Method

Fisheries Habitat Account expenditures

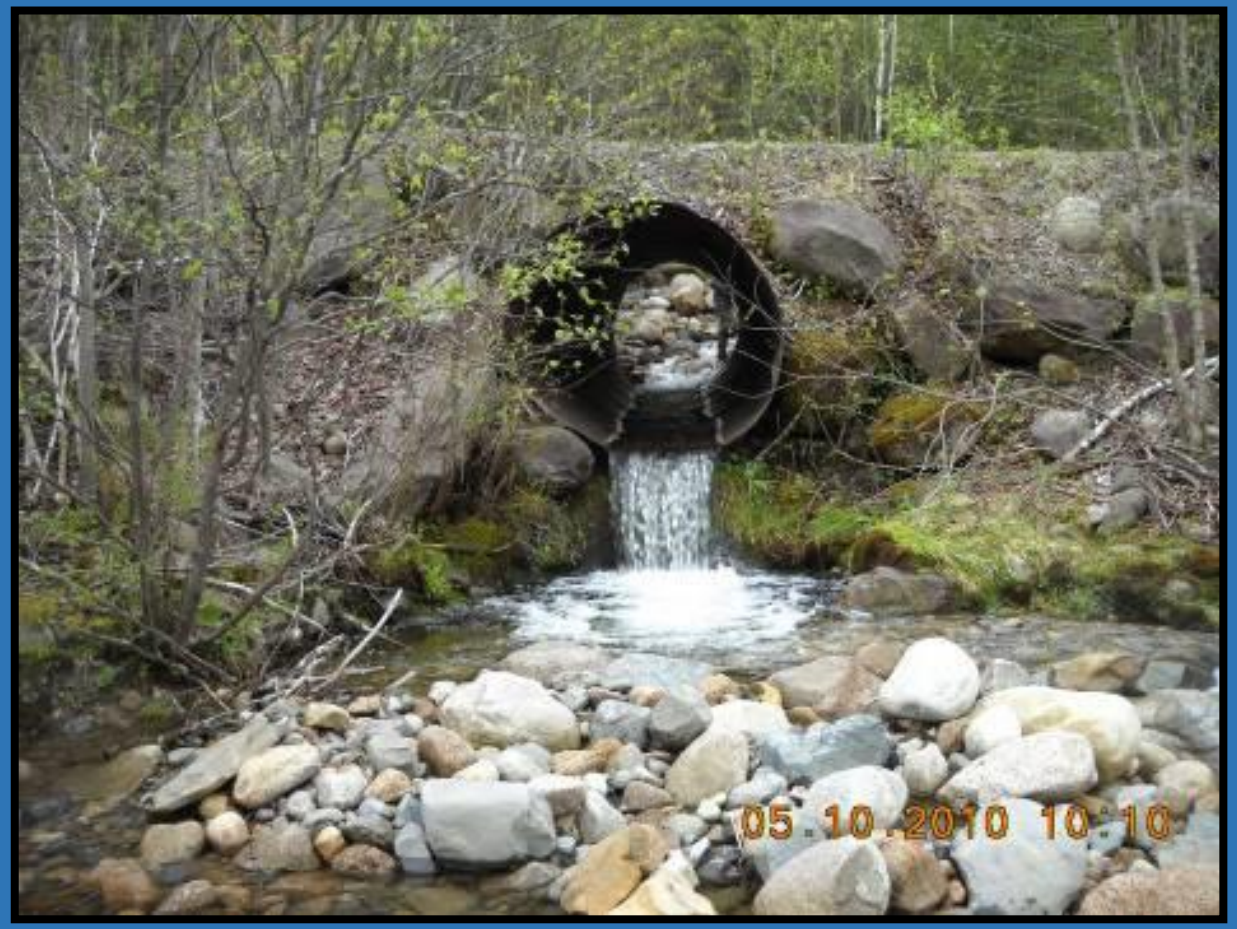
Fisheries Habitat Program

Would completely cover the map



Connectivity

Stream Restorations



Horseshoe Brook, Nash Stream Forest

Snow Brook, Eaton

NHDOT project

Fish Ramp
NHDOT project

Wood is as natural to streams and lakes as is the water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Stream Restorations

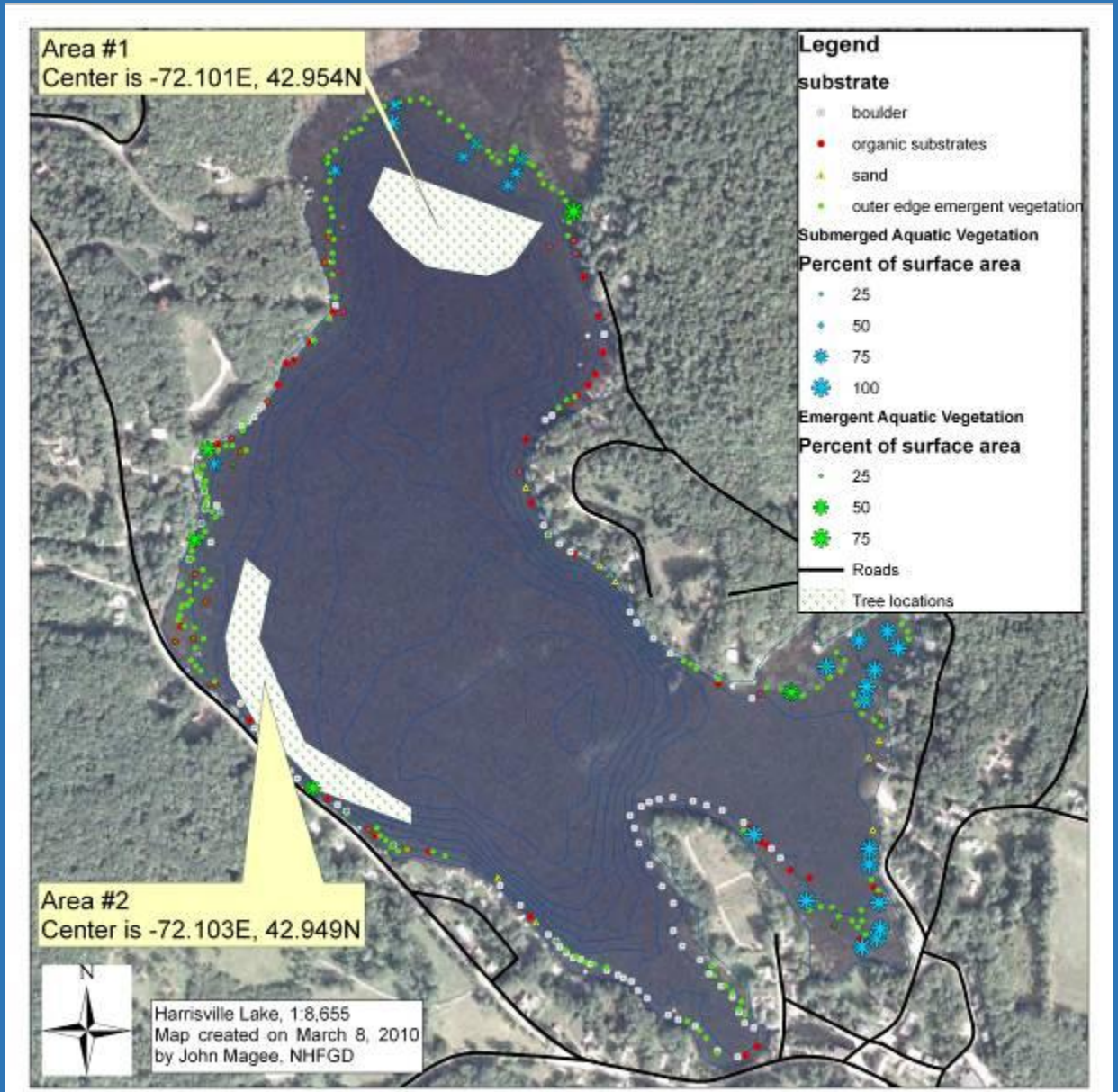
Stream Restorations

Warren Brook, Alstead

Lake Habitat

Harrisville Pond

Discarded Christmas trees for structural fish habitat



Lake Habitat - Lake Horace Marsh

March 2007

June 2009

Dam Removals

Merrimack Village Dam, Souhegan River

Dam Removals

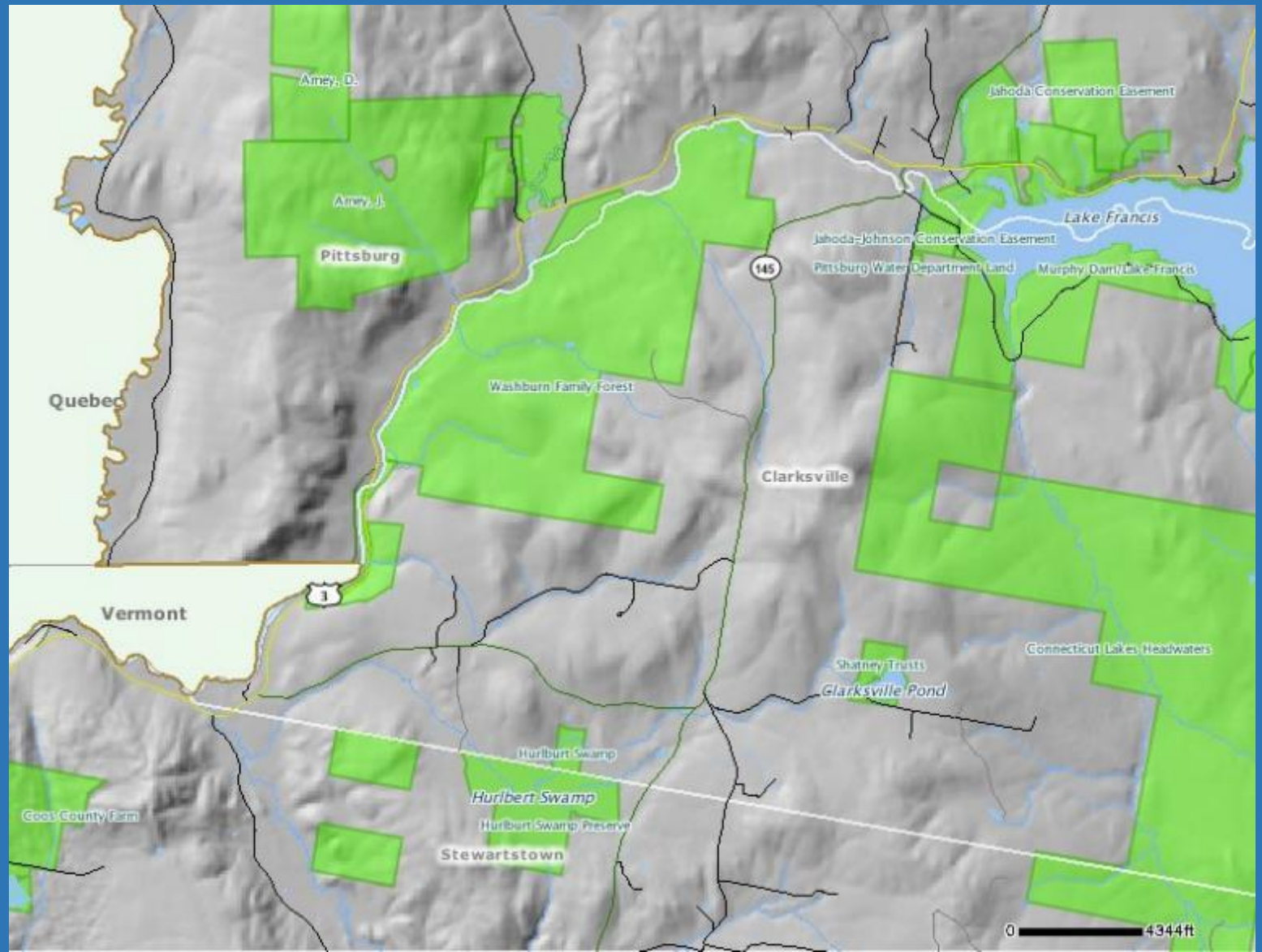
South Branch Gale River

Land Conservation

Stonehouse Pond, Barrington

Land Conservation

Washburn Family Forest, Clarksville



Fisheries Habitat Account expenditures 2000-2022

Expense Type	Net expenditure	Net percent (rounded)
Habitat restoration	$467,501	18%
Dam rebuild	$425,119	16%
Land conservation	$414,277	16%
Administrative Fees	$281,707	11%
Dam removal	$247,793	10%
Habitat assessment	$251,729	10%
Permanent staff	$202,860	8%
Dam registration	$180,675	7%
Research	$131,384	5.0%
Public outreach	$12,500	0.5%
Personnel Training	$640	0.0%
total	$2,616,184	

Most of this was from federal grants

$2,944,577 – $328,392 federal reimbursement for staff

Rating Method

Project Rating Criteria	Point Values	Score
1. The project protects healthy fisheries habitat in a natural aquatic system. The following (existing and potential future) attributes will be assessed: • Riparian buffers • % Impervious area in the watershed upstream of the project area • % area in watershed protected • Number of impacting stream crossings per mile of stream • Proportion of free flowing (no dams) habitat • % watershed in agriculture • Other attributes as necessary	20	
2. The project re-establishes the natural functions, processes, or linkages among the components of the watershed NO = 0 pts; Somewhat = 1-14; Fully so = 15 pts	15	
3. The project reconnects fragmented aquatic habitat that provides fish with access to historic spawning, nursery, or rearing grounds	15	
4. The project increases the quality and quantity of fish habitats that support a broad diversity of fish and other aquatic species 0 species = 0 pts 1 species = 5 pts 2-3 species = 10 pts 3 or more species = 15 pts	15	
5. The project increases recreational fishing opportunities None = 0 pts Somewhat = 5 pts High = 10 pts	10	

Rating Method

6. The project benefits fish species in greatest need of conservation None = 0 1 species = 5 pts ≥2 species = 10 pts	10	
7. The project targets fish habitat that is identified as a priority in a formal document NO = 0 pts YES = 5 pts	5	
8. The project is using matching funds that equals or exceeds the amount of Fisheries Habitat account requested funding No matching funds = 0 pts ≥1:1 match = 2 pts 2:1 match = 3 pts >2:1 match = 5 pts	5	
9. The project is being officially supported by multiple partners 1 partner = 1 pt 2-3 partners = 3 pts >3 partners = 5 pts	5	
Total Score		

Research
Habitat – Instream wood

Tracking survey

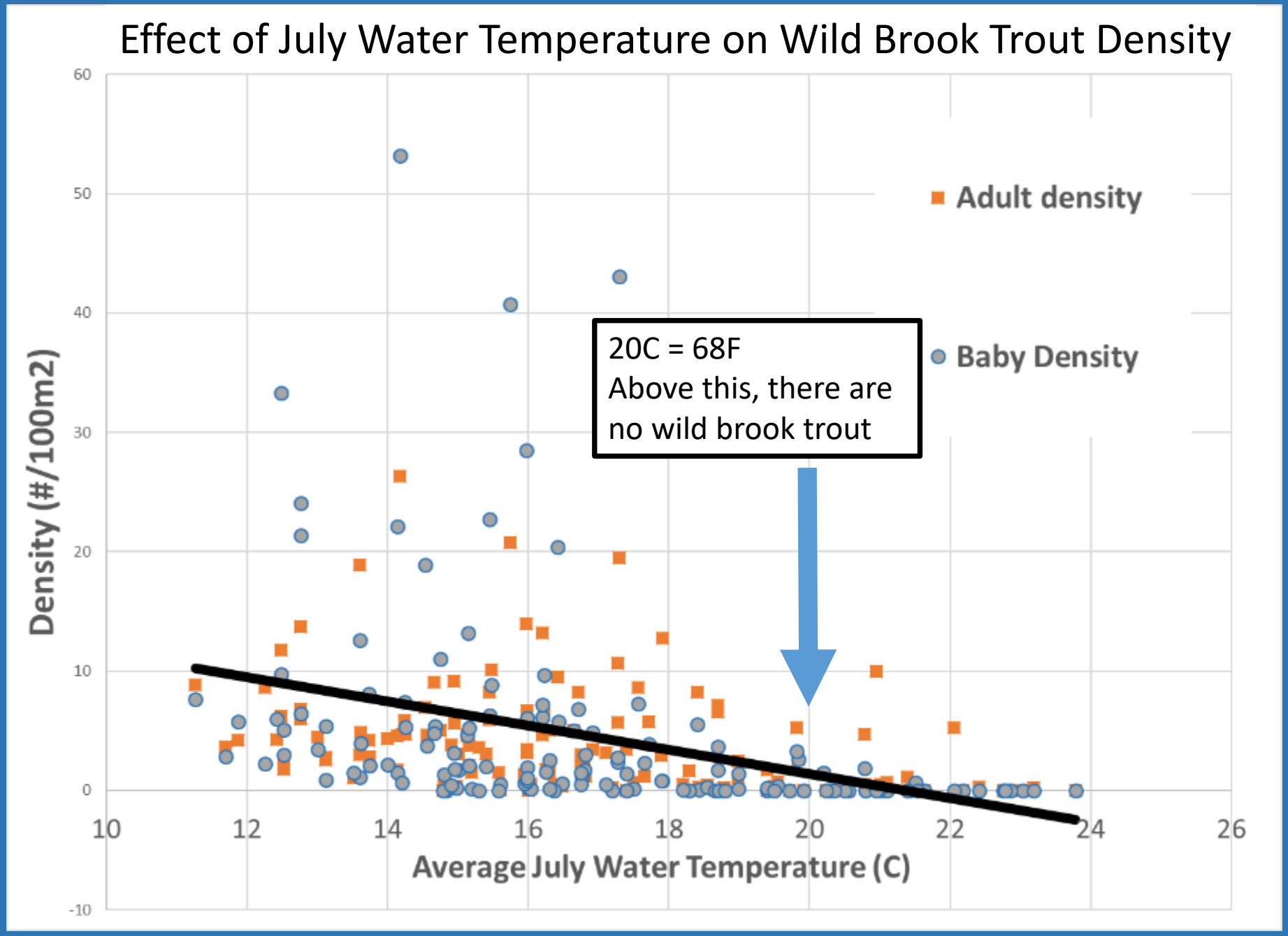
Brook trout are clustered around instream wood

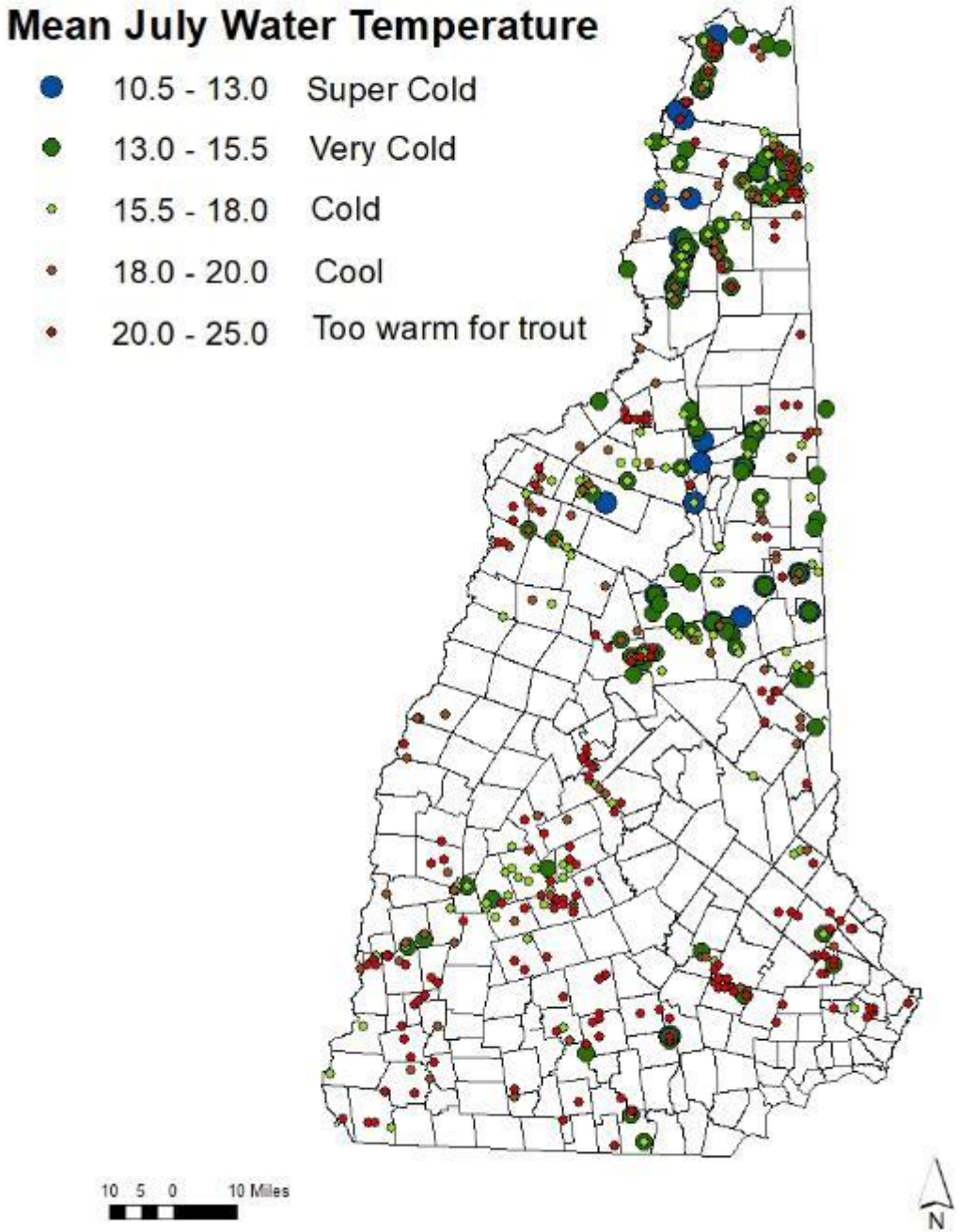
More wood and pools = more brook trout

Research
Water Temperature

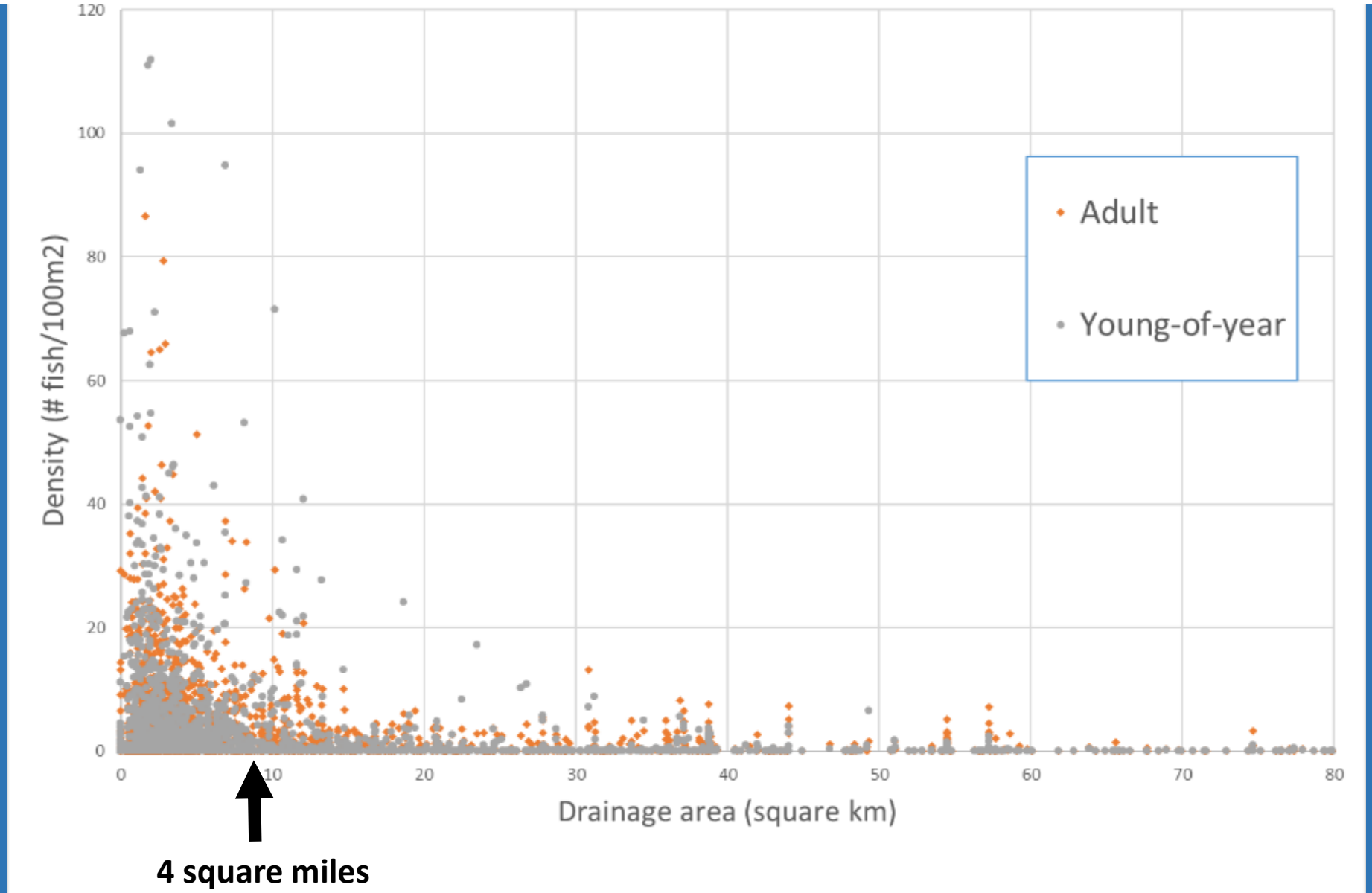
From: NJ Department of Environmental Protection

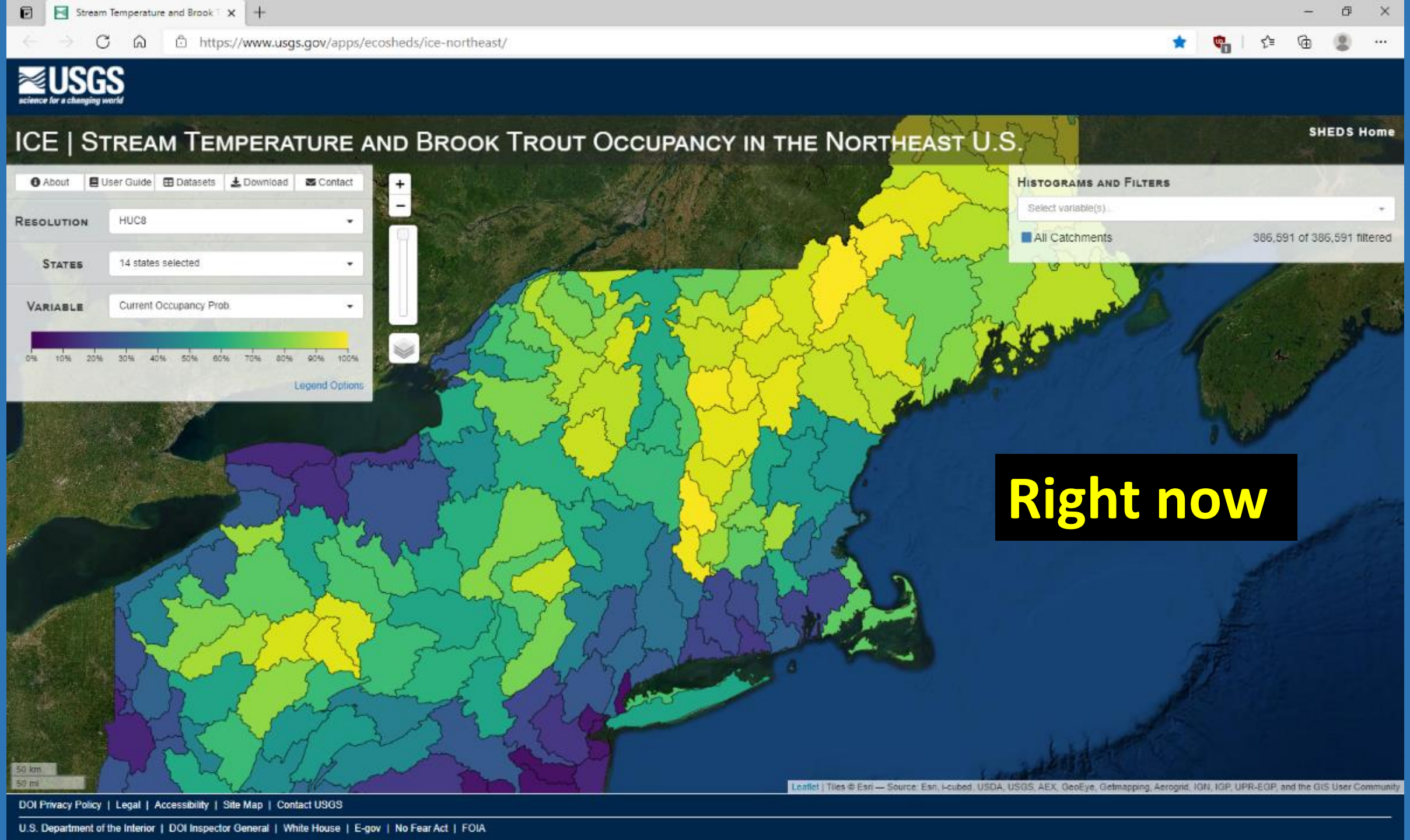
Effect of July Water Temperature on Wild Brook Trout Density




Mean July Water Temperature
10.5 - 13.0 Super Cold
13.0 - 15.5 Very Cold
15.5 - 18.0 Cold
18.0 - 20.0 Cool
20.0 - 25.0 Too warm for trout
10 5 0 10 Miles
N

Drainage Area vs. Density of Wild Brook Trout

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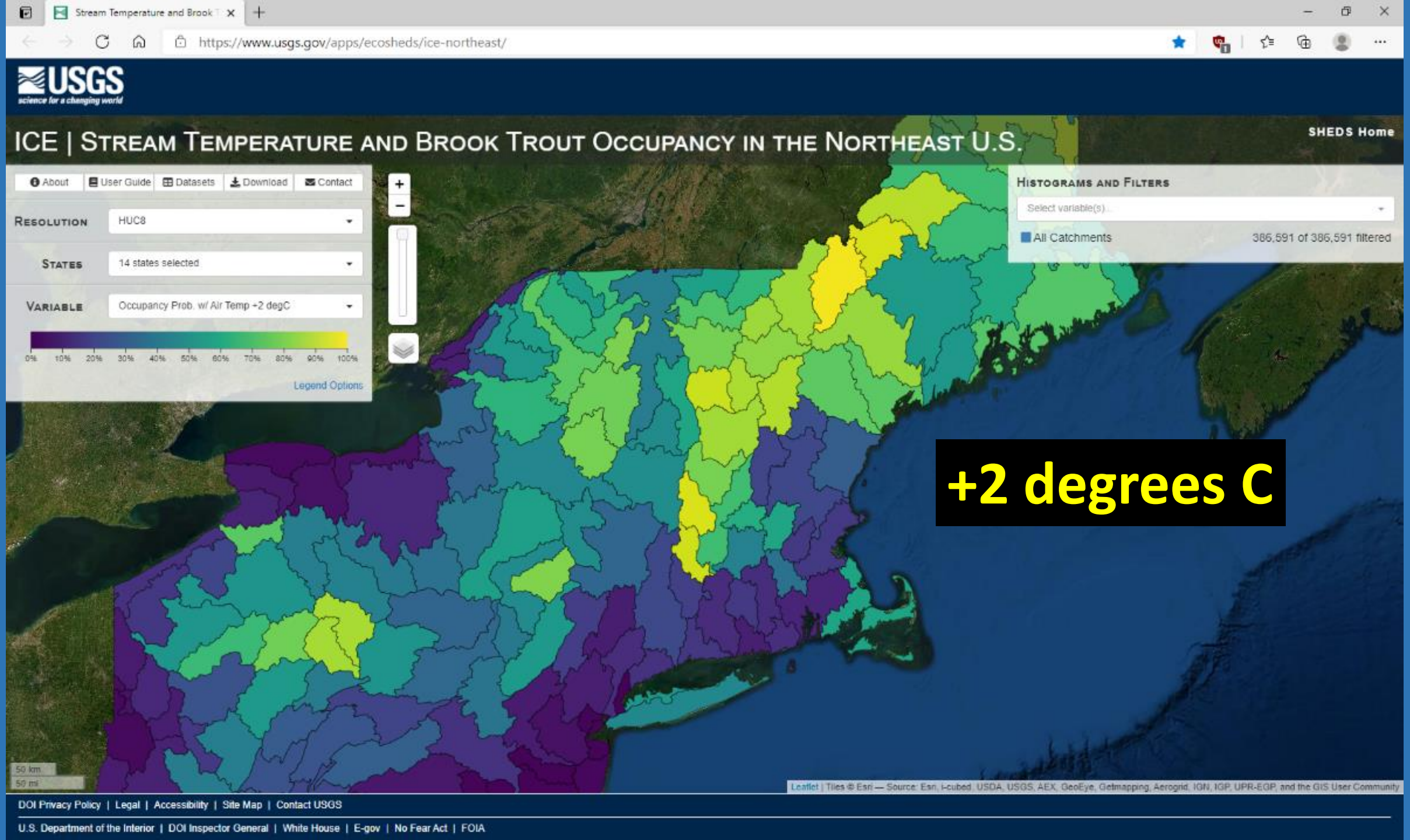
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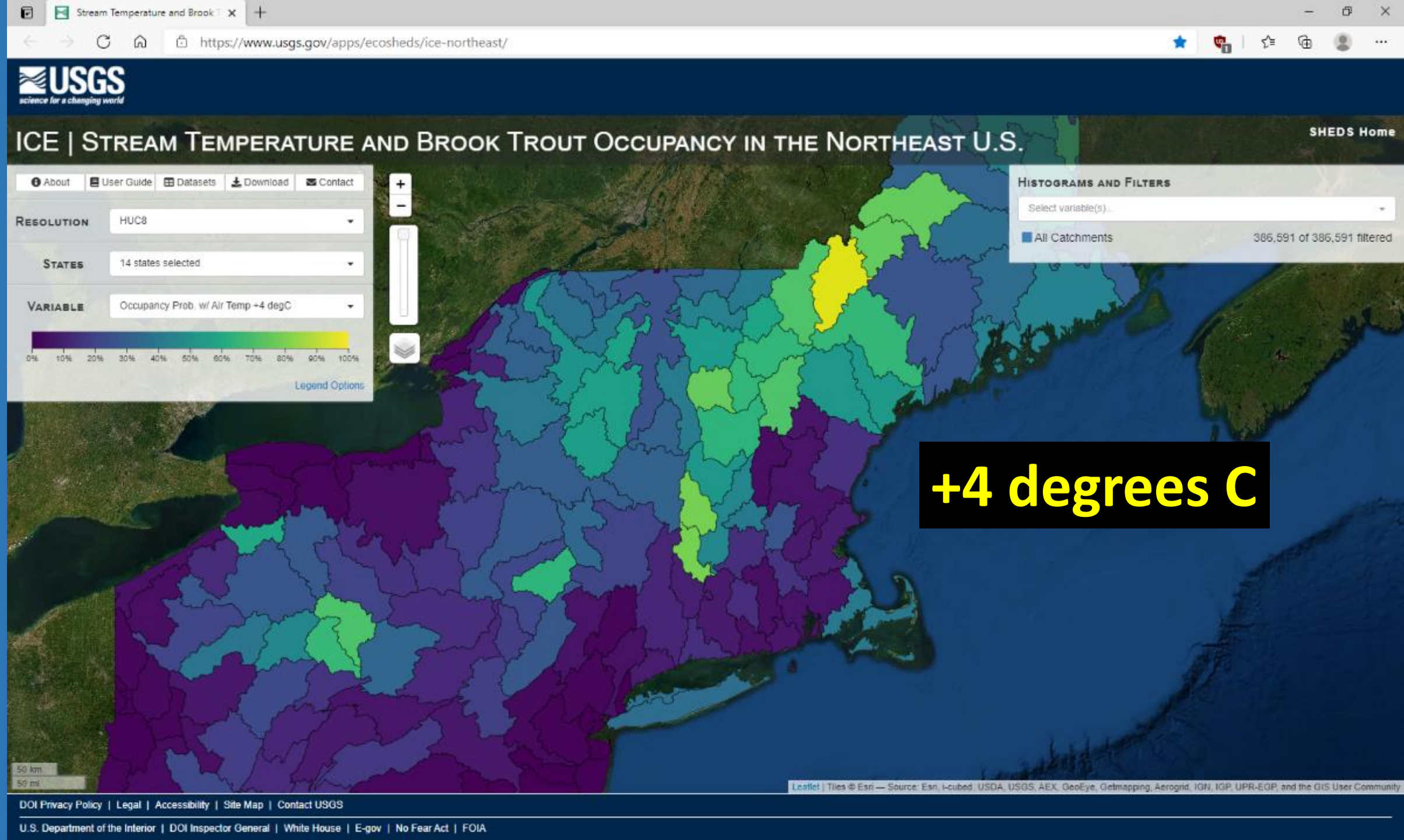
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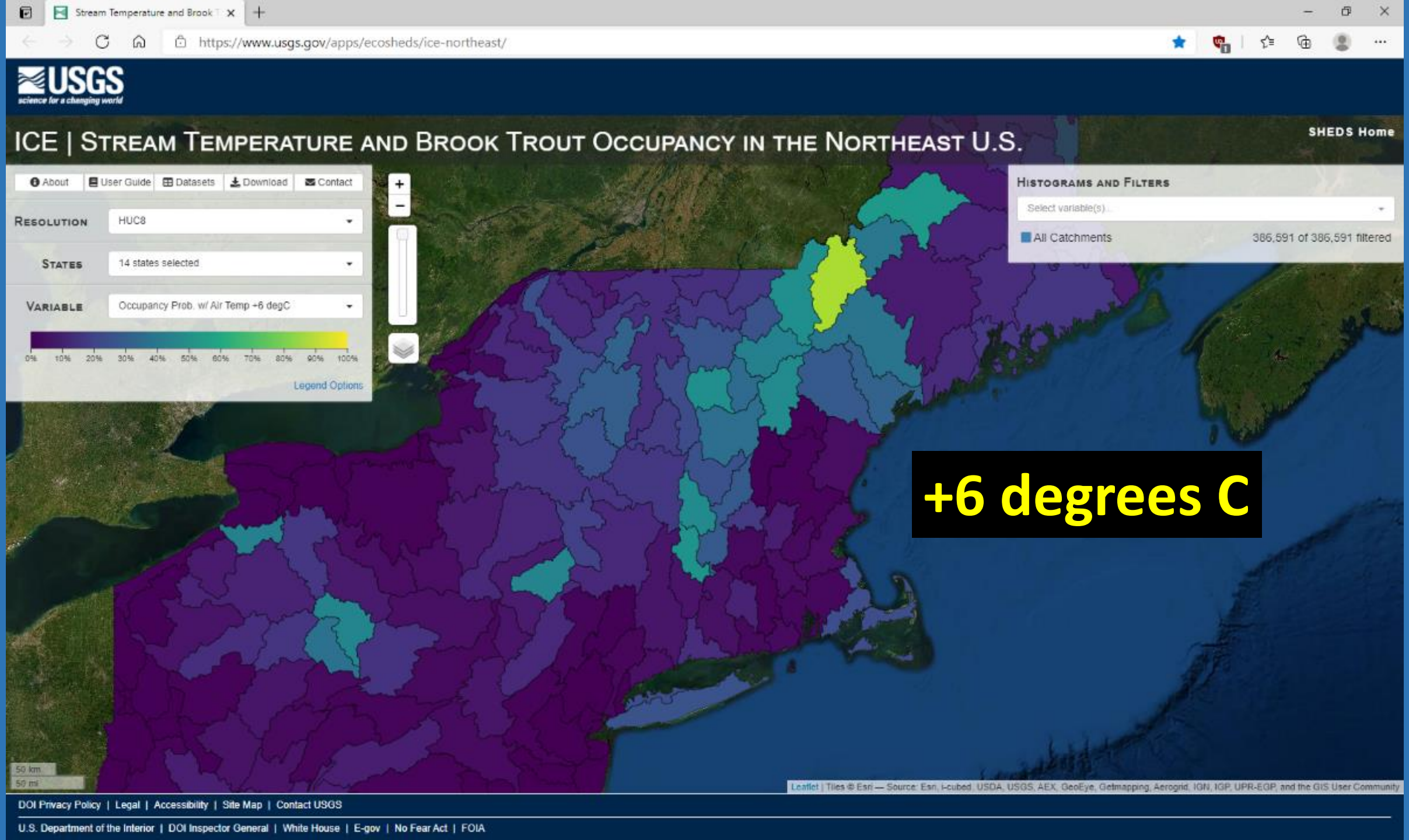
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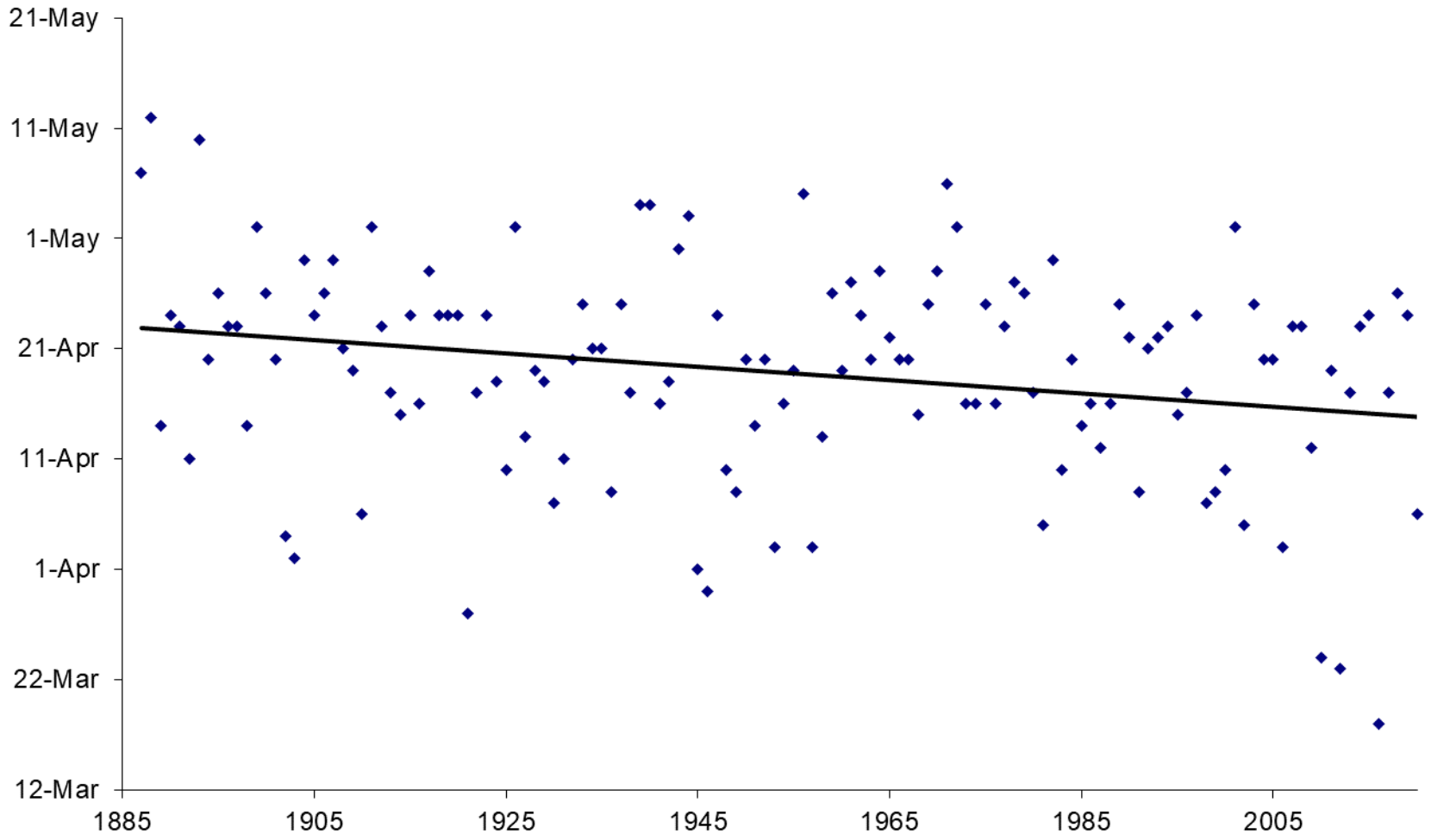
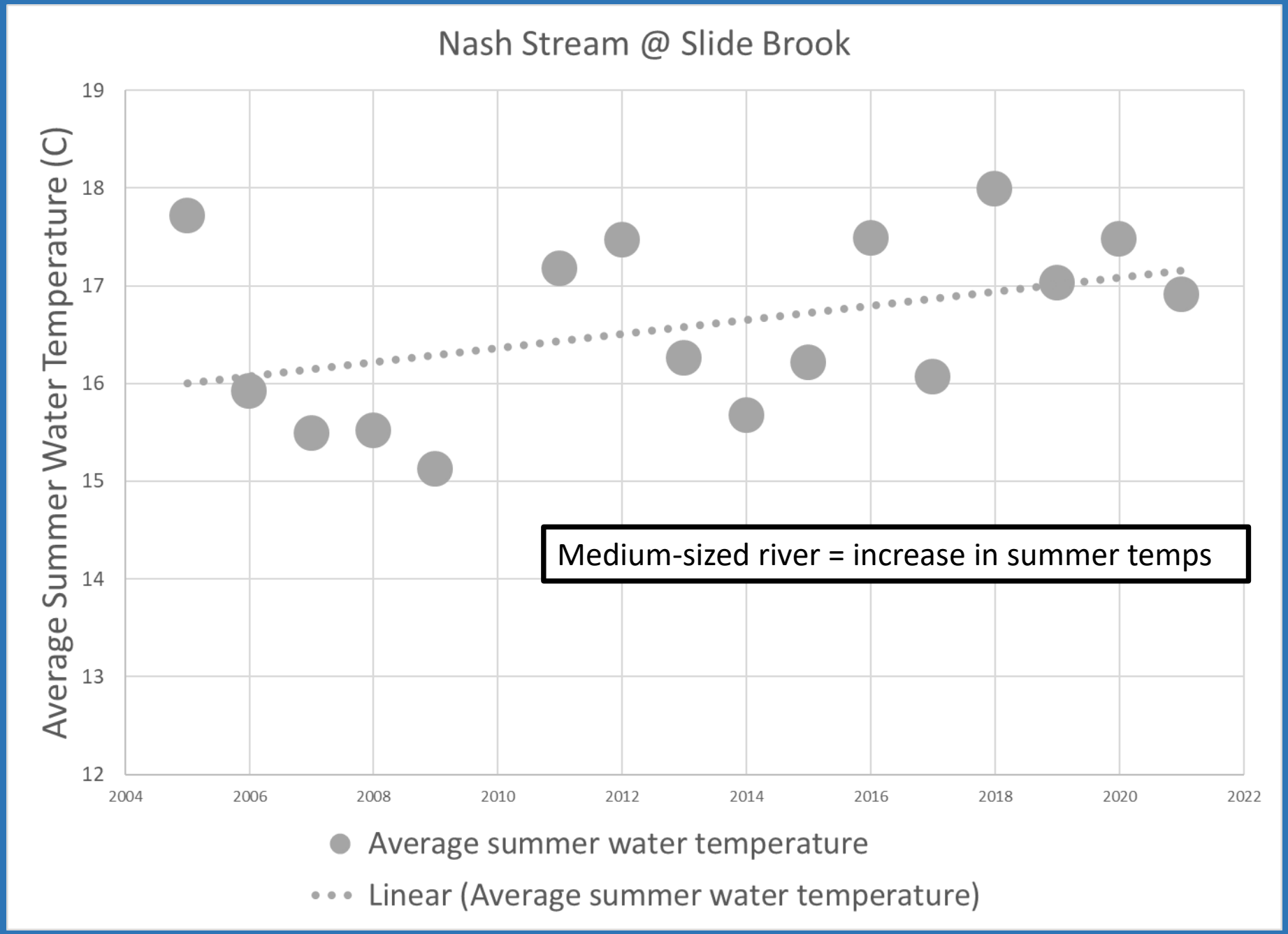
Lake Winnipesaukee Ice-Out



Data from: https://www.winnipesaukee.com/index.php?pageid=iceout


Nash Stream @ Slide Brook
Average Summer Water Temperature (C)
19
18
17
16
15
14
13
12
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Medium-sized river = increase in summer temps
Average summer water temperature
Linear (Average summer water temperature)

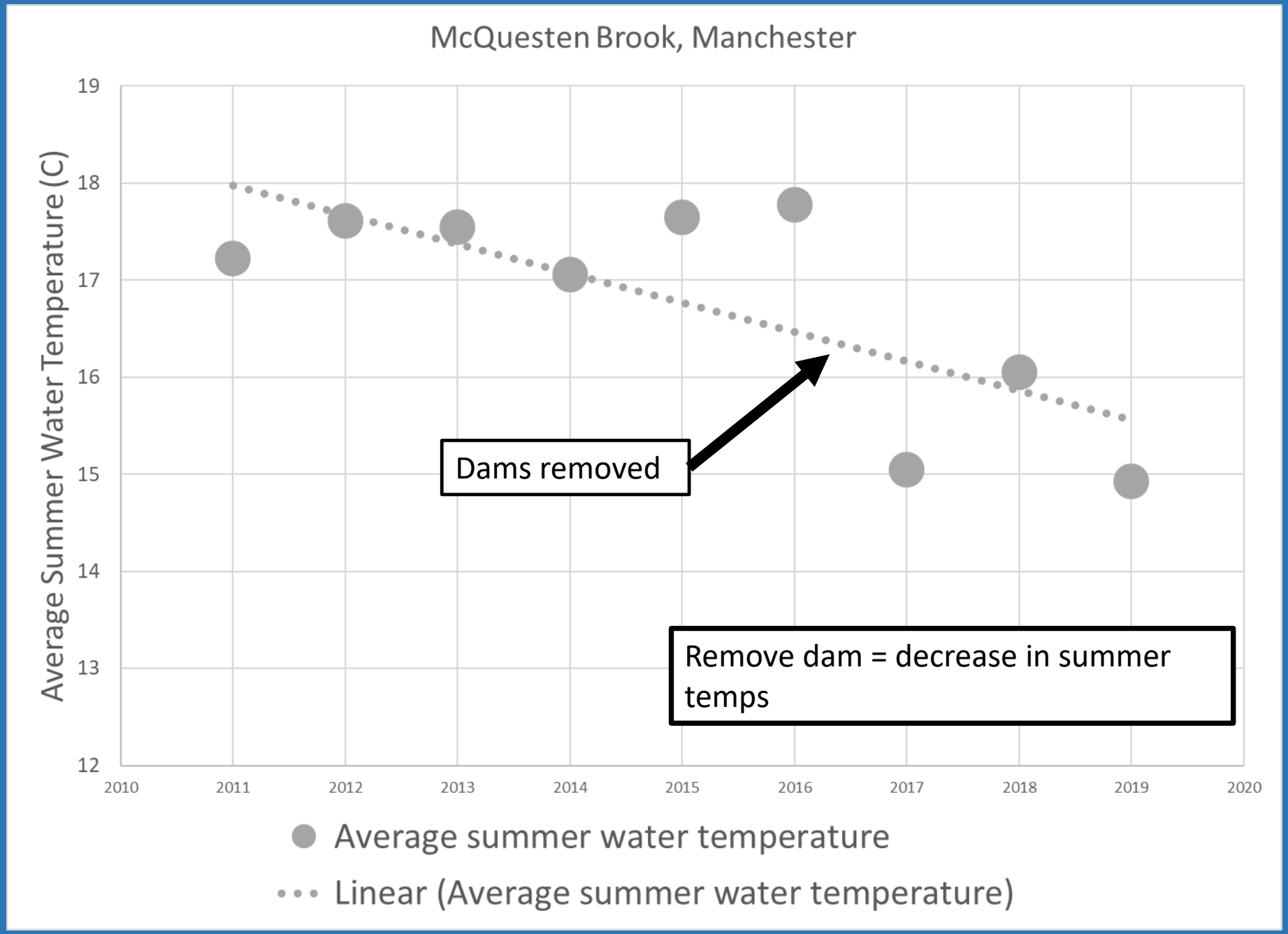

McQuesten Brook, Manchester
Average Summer Water Temperature (C)
19
18
17
16
15
14
13
12
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Dams removed
Remove dam = decrease in summer temps
Average summer water temperature
Linear (Average summer water temperature)

Photo by Dianne Timmins, NHFGD

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