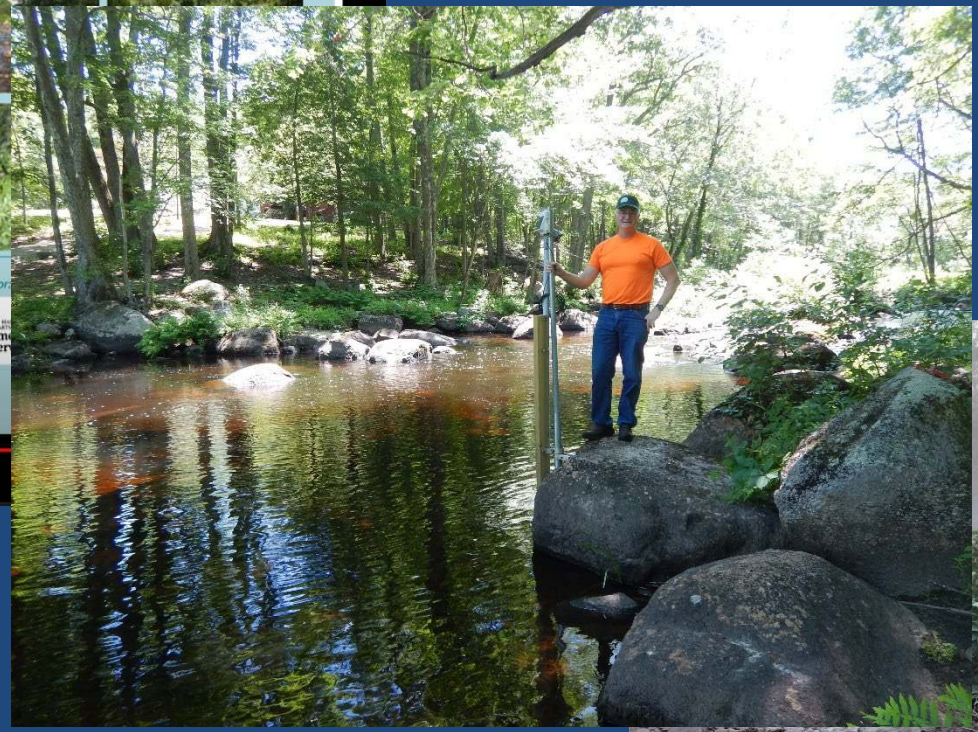
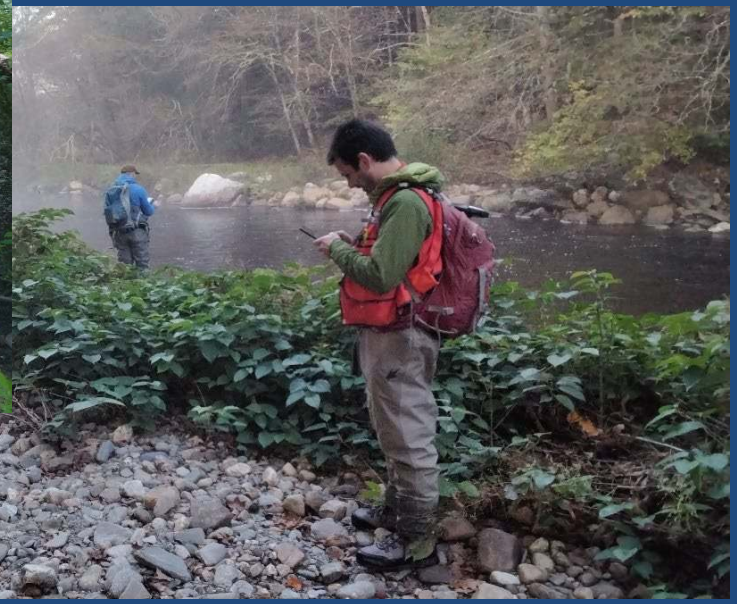




NEW HAMPSHIRE DEPARTMENT OF Environmental Services

NHDES Instream Flow Program
for the BIA/NHDES 2022 NH Air and Water Regulatory Conference
September 21, 2022

Instream Flow (ISF) Program Objectives

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

For each Designated River:

- Develop protected instream flow (PISF) criteria, using the Natural Flow Paradigm
- Create *Water Management Plans* for larger water users and larger impoundments

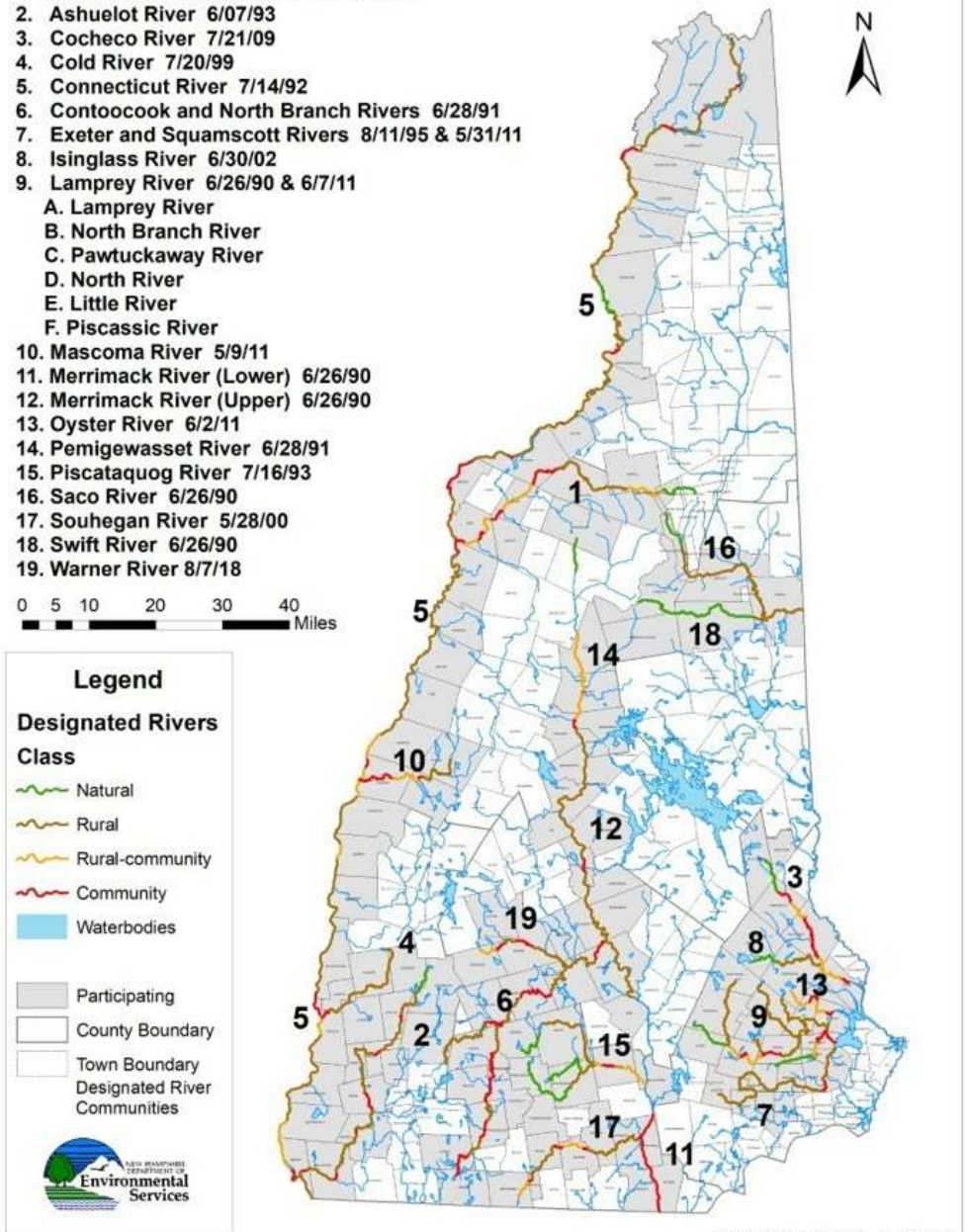
DESIGNATED RIVERS of NEW HAMPSHIRE

NH Rivers Management & Protection Program

Designated Rivers

1. Ammonoosuc River 8/10/07 & 9/13/09
2. Ashuelot River 6/07/93
3. Cocheco River 7/21/09
4. Cold River 7/20/99
5. Connecticut River 7/14/92
6. Contoocook and North Branch Rivers 6/28/91
7. Exeter and Squamscott Rivers 8/11/95 & 5/31/11
8. Isinglass River 6/30/02
9. Lamprey River 6/26/90 & 6/7/11
   - A. Lamprey River
   - B. North Branch River
   - C. Pawtuckaway River
   - D. North River
   - E. Little River
   - F. Piscassic River
10. Mascoma River 5/9/11
11. Merrimack River (Lower) 6/26/90
12. Merrimack River (Upper) 6/26/90
13. Oyster River 6/2/11
14. Pemigewasset River 6/28/91
15. Piscataquog River 7/16/93
16. Saco River 6/26/90
17. Souhegan River 5/28/00
18. Swift River 6/26/90
19. Warner River 8/7/18

0 5 10 20 30 40 Miles



Legend

Designated Rivers

Class

- Natural
- Rural
- Rural-community
- Community
- Waterbodies

- Participating
- County Boundary
- Town Boundary
- Designated River Communities

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

NHDES Watershed Management Bureau - August 2018

Video - Water for People and Wildlife
A Primer

- Video about the general approach to NH instream flow protection
  - How much is too little
  - Flow criteria as a pattern, not a minimum flow
  - Components of a Water Management Plan
  - Public participation activities

- NHDES Instream Flow Program: Water for People & Wildlife - YouTube
- https://www.youtube.com/watch?v=rQ9Pvxf-AoE

Cold River PISF Study Results

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Table 1: Proposed Protected Instream Flows for the Cold River

Date Range	Common Flow				Critical Flow				Rare Flow			
	Common Flow (cfs)	Common Flow (cfsm)	Allowable Duration Under (days)	Catastrophic Duration (days)	Critical Flow (cfs)	Critical Flow (cfsm)	Allowable Duration Under (days)	Catastrophic Duration (days)	Rare Flow (cfs)	Rare Flow (cfsm)	Allowable Duration Under (days)	Catastrophic Duration (days)
December 1 – February 28/29	136	1.82	50	74	36.5	0.49	27	43	16	0.21	11	15
March 1 – April 15	480	6.43	21	37	63	0.84	13	21	39	0.52	8	12
April 16 – May 15	94.5	1.27	14	20	61	0.82	10	16	55.5	0.74	4	7
May 16 – July 7	125	1.68	24	48	16	0.21	9	14	10	0.13	6	8
July 8 – September 21	31	0.42	40	63	7	0.09	15	22	4	0.05	10	17
September 22 – November 30	76.5	1.03	28	64	15.5	0.21	15	27	7.5	0.10	6	10

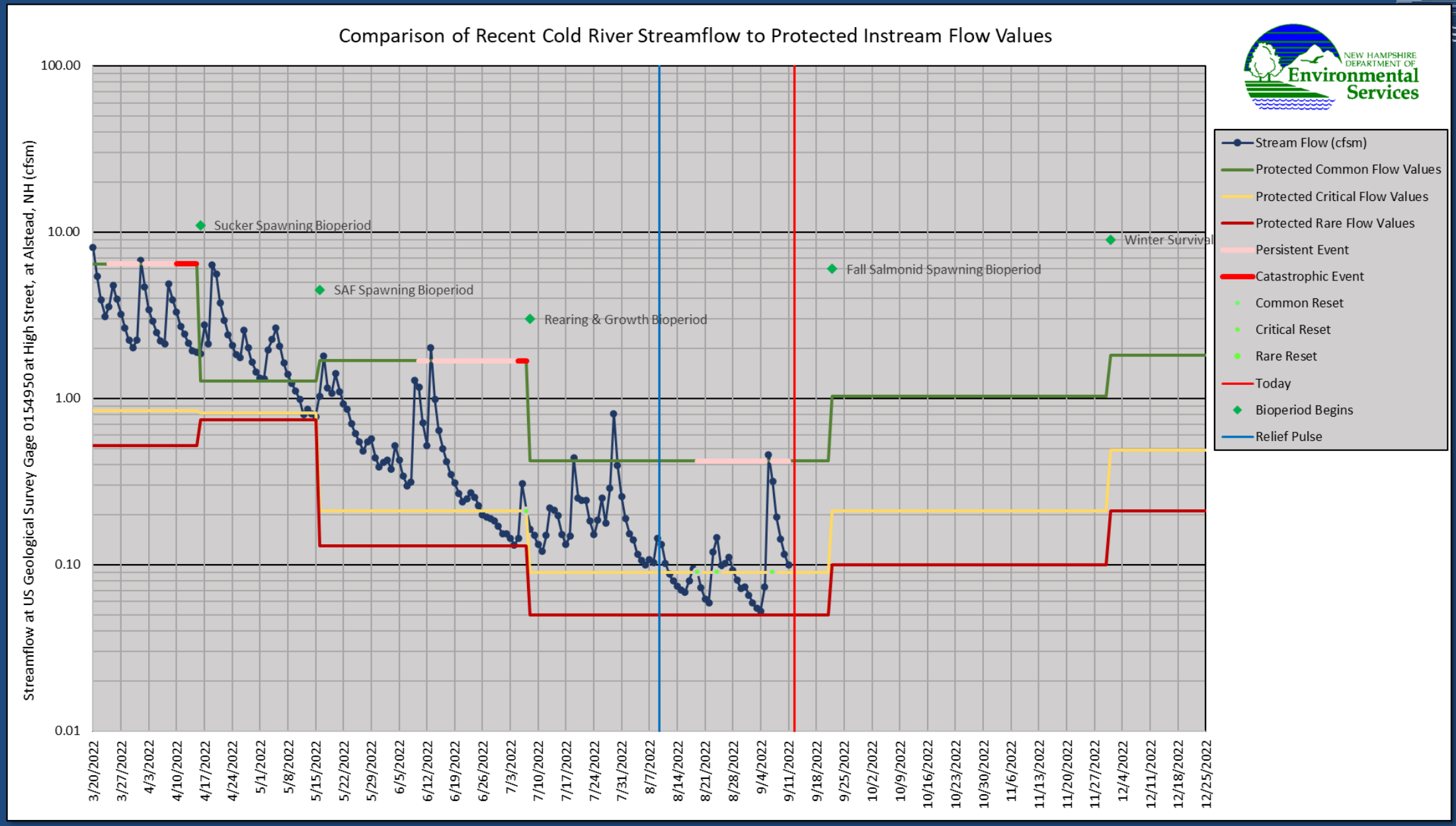
Retain Flow Event Frequencies:

- >3,730 cfs, every 10 to 25 years
- 3,710 cfs to 3,490 cfs every 10 years
- 1,080 cfs to 1,920 cfs every 2 years

Note: Flows provided are for the USGS gage in Alstead, NH (USGS Gage No. 01154950)

Cold River PISF Study Results

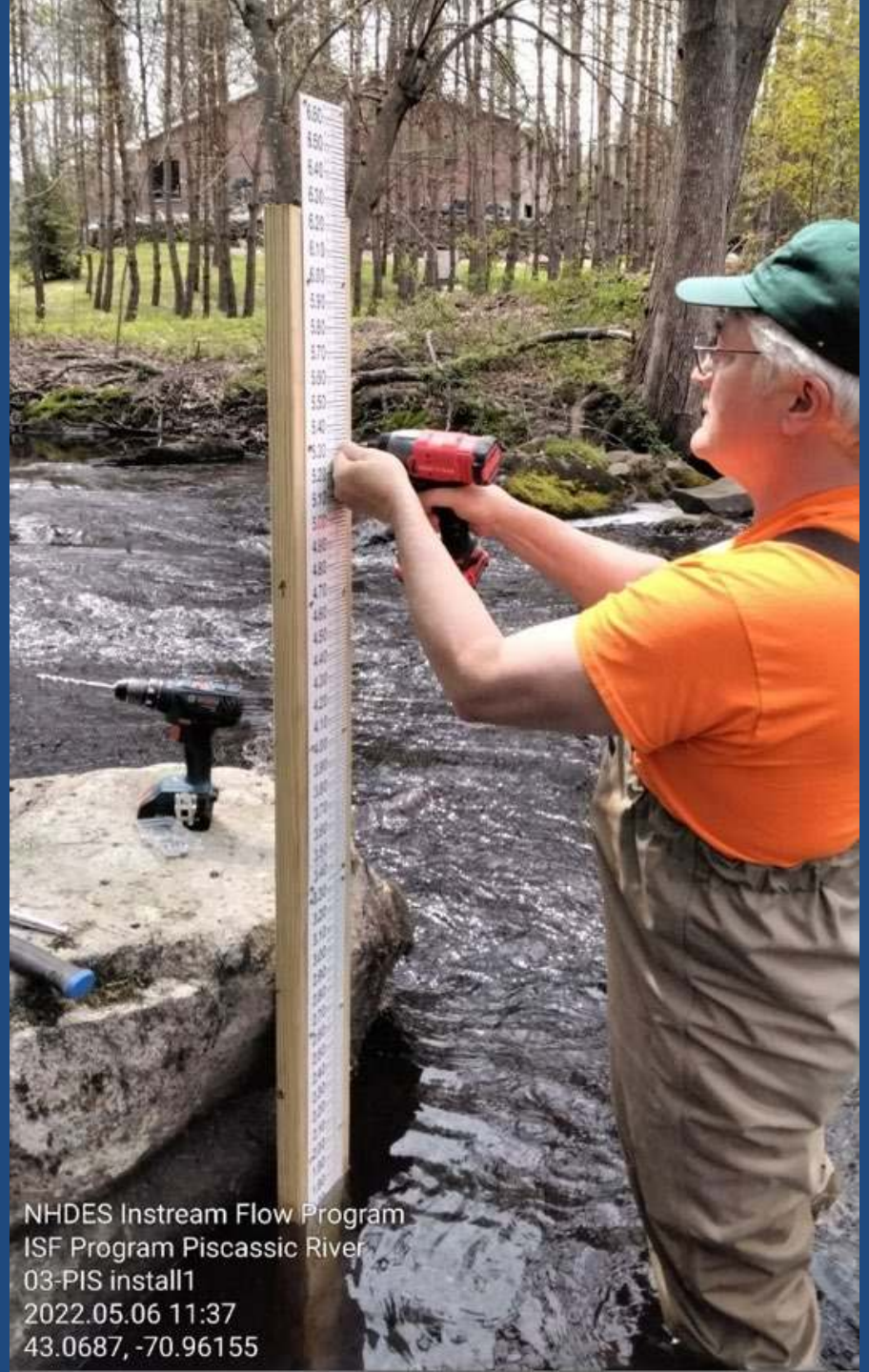
NEW HAMPSHIRE DEPARTMENT OF Environmental Services



Expanding the stream flow network to cover the 2018 Target Fish Community segments

Staff gage

In spring of 2021, we began installed stilling wells, staff gages and water level reporting stations.

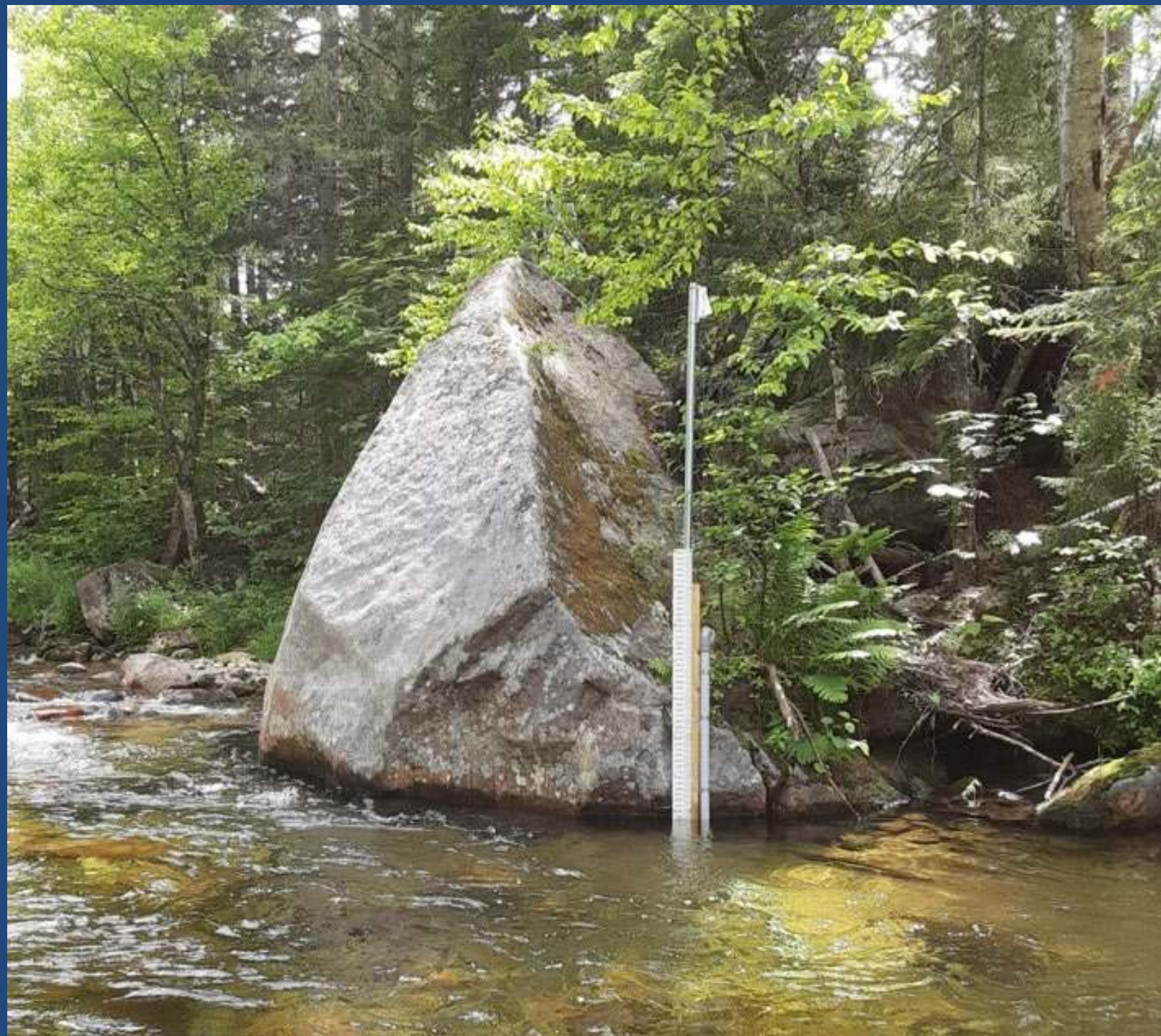


Stilling well and logger uplink

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Data from the stations are posted to NHDES' Instream Flow webpage.

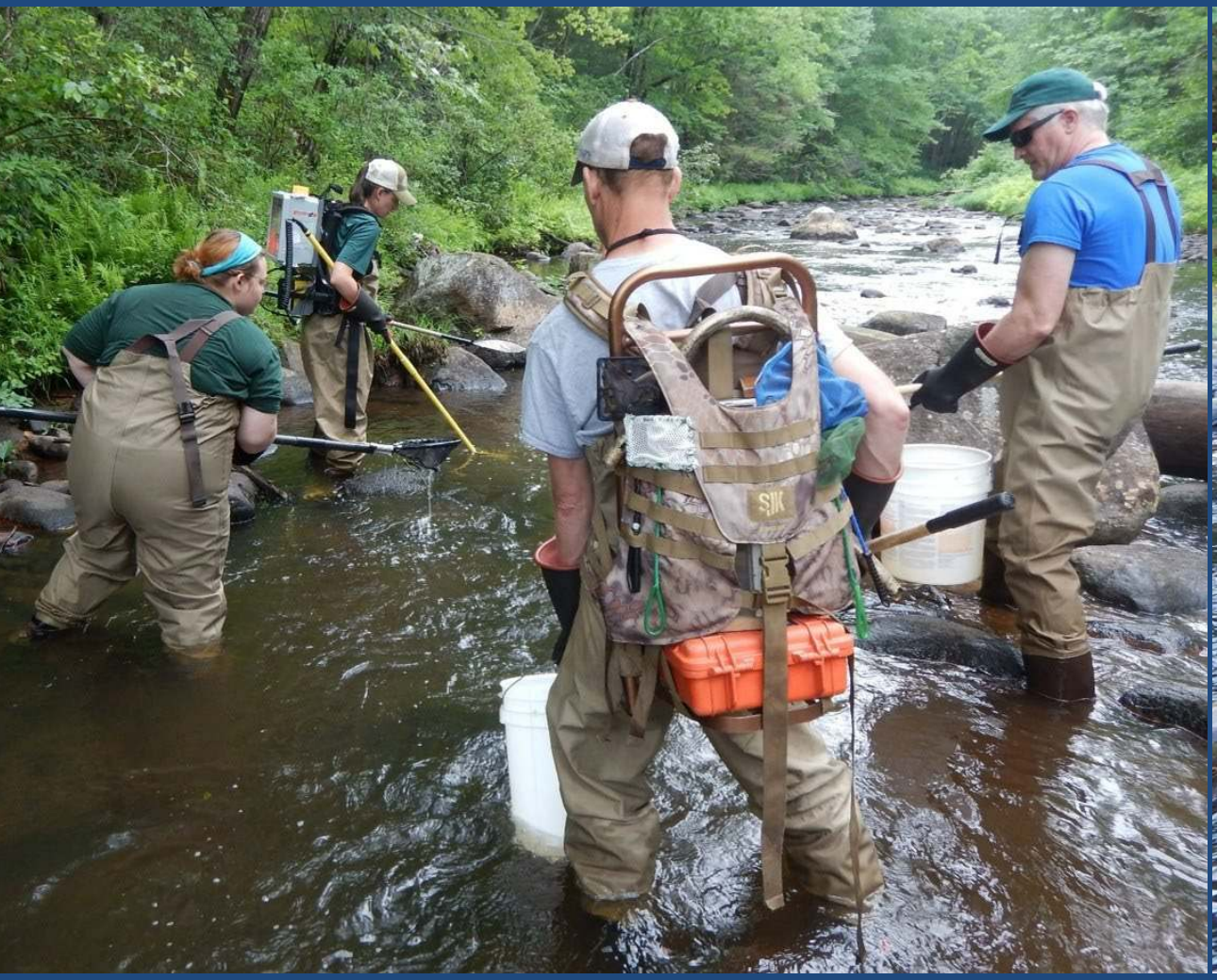
- Stream flow uplink station and staff gage at 28G-AMM



Water Management Plans

- Coordinated with the water users and dam interests:
  - Water Conservation Plan – reduce overall water losses and waste
  - Water Use Plan – reduce and delay withdrawal impacts on stream flow
  - Dam Management Plan – release water from storage to support stream flow.
- Results in a plan to respond to excessively long, low flow conditions

Is the ISF Program working?




CHOLOR-RITE PIPE

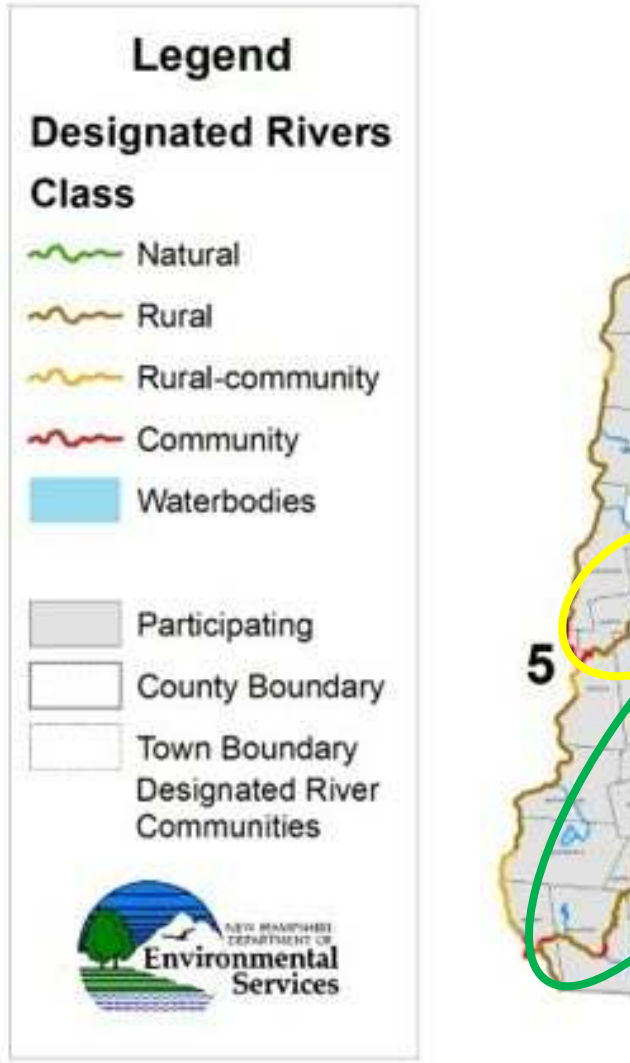
Baseline Data Collection – PISF Study

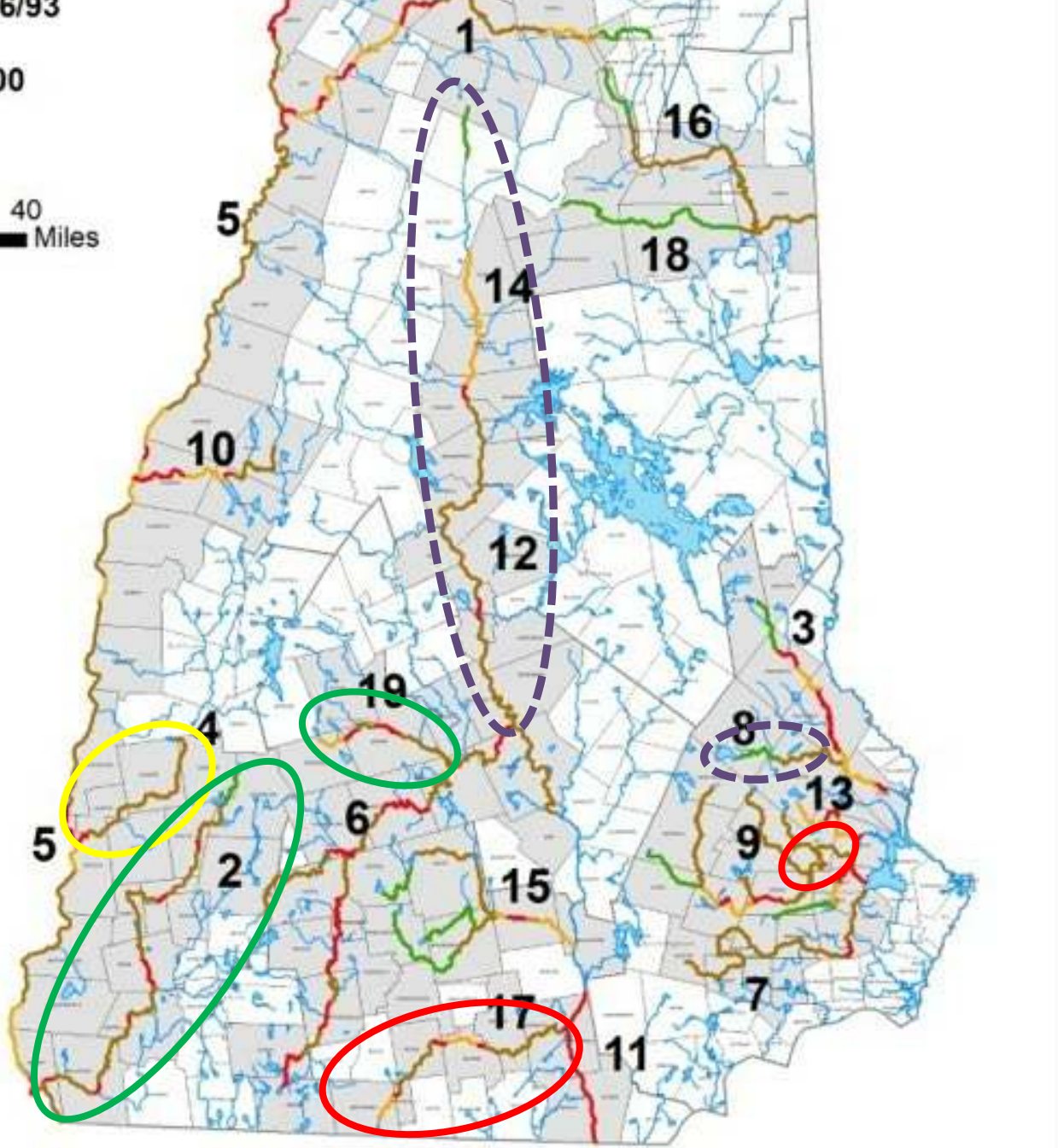
NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Mapping of riparian ecosystems at transects across river floodplains

15. Piscataquog River 7/16/93
16. Saco River 6/26/90
17. Souhegan River 5/28/00
18. Swift River 6/26/90
19. Warner River 8/7/18

0 5 10 20 30 40 Miles





NHDES Watershed Management Bureau - August 2018

Instream Flow Program Goals

- Yearly completion of PISF studies
- Development of stream flow stations to support PISF studies and guide management activities
- Subsequent adoption of Water Management Plans
- Long-term monitoring of fish communities, riparian communities, and water quality conditions