NLC Climate Change Work Group
Module 03: Climate Change Adaptation Workshop

February 13, 2025

Agenda

Climate Change Workgroup
- History
- Mission

Climate Change Resource Modules
- Module 1 - Coordinator Role
- Module 2 - Science
- Module 3 - Adaptation
- Module 4 - Advocacy
- Module 5 - Education

Next Steps
- Conduct training
- Continue recruiting coordinators

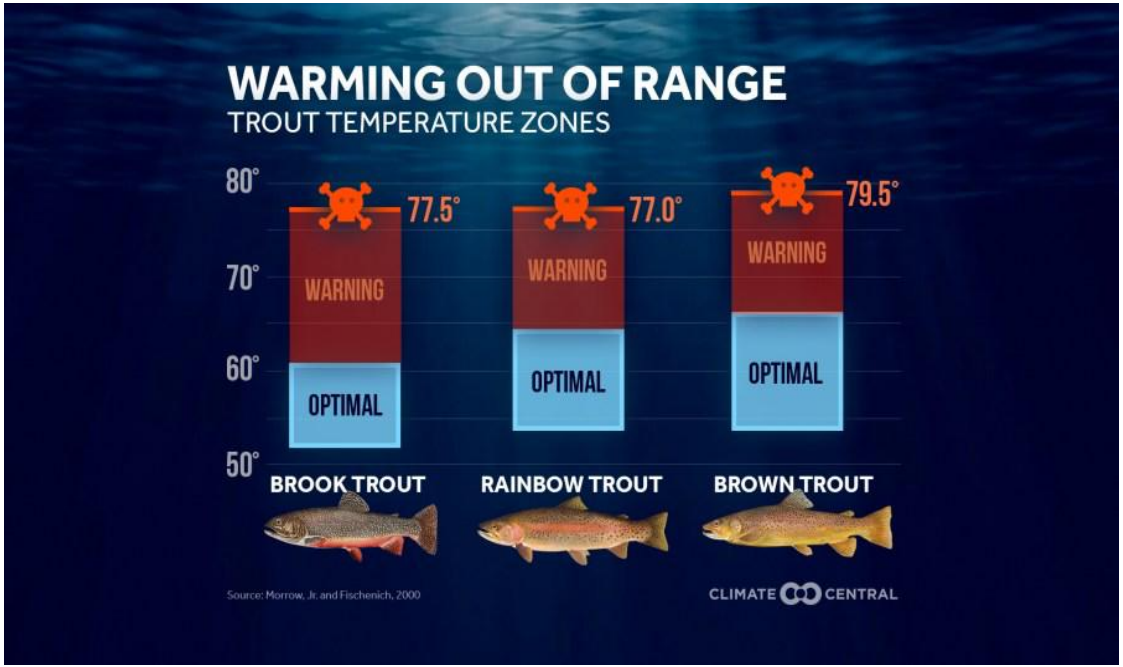

Ed Northern, Mackay Reservoir Idaho

Climate Change Work Group History

Founded in 2013

to raise awareness

of climate change.



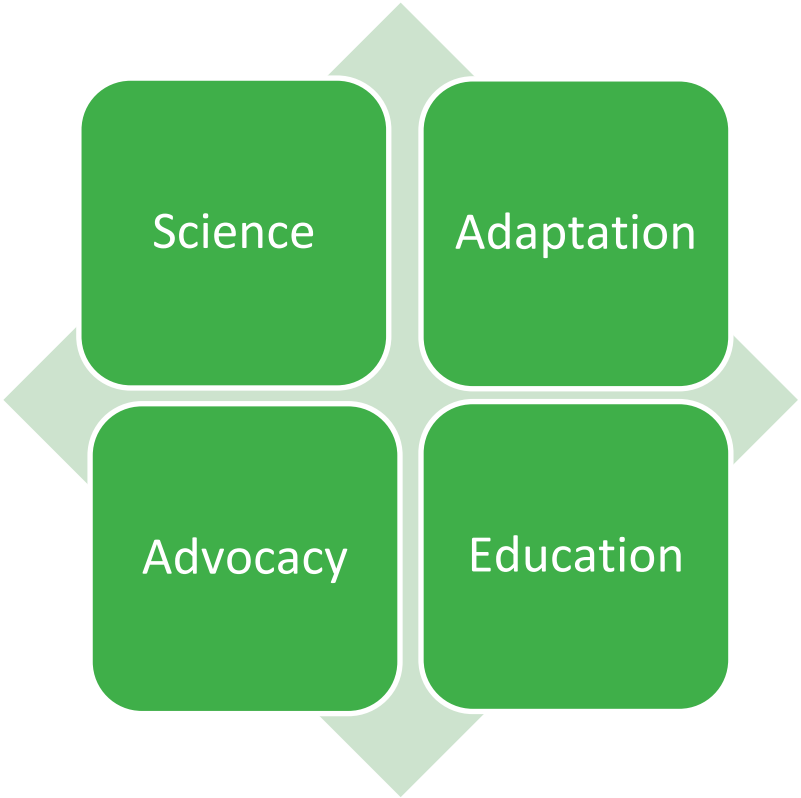
Climate Change Work Group Mission

Empower TU members to become **effective champions** for TU climate change policy and initiatives, in their communities, regionally and nationally, through science-based education, communication, and advocacy.

CCWG Module Resources

Our most effective messaging is peer-to-peer!

CCWG Resource Modules



CCWG Module Resources

- Tools
- Tips
- Facts
- References
- Links
- Contacts

Note that third party perspectives and opinions presented in the resources and examples may not be endorsed by TU.

You can draw upon and adapt the CCWG resources to your own situation and outlets such as newsletters, websites and social media, in person presentations, articles, and more ...

Climate Change Coordinator Training - Trout Unlimited

Home > Get Involved > Volunteer Tackleboxe > Council Leader Resources > National Leadership Council > NLC Conservation Workgroups > Climate Change Workgroup > Clim

Climate Change Coordinator Training Manual

Module 03: Adaptation

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Long Mountain Brook culvert replacement

Climate Change Coordinator Training - Trout Unlimited

Module 03: Climate Change Adaptation

Goal

Adapt streams to lessen the adverse effects of climate change on fish habitat and to build resilience to future changes.

Purposes

The Adaptation Module provides a variety of Climate Change resources and examples are intended to help Climate Change Coordinators and others seek ways to involve their state and local chapter TU members and the public in science-based efforts to address the impact of climate change.

- Work with council and chapter leaders to incorporate climate change adaptation into council and chapter plans.
- Bring climate science to bear on habitat projects to make them resilient to climate change.
- Engage in streamside conversations about the climate chance impacts of higher stream temperatures, flooding, and drought on fishing by organizing on-stream tours and fishing events that incorporate discussions of impacts and solutions.

Table of Contents

RESOURCE 01: TU's Policy on Climate Change

RESOURCE 02: Climate Change & Trout: Impacts, Opinions & Ways you can help

RESOURCE 01: TU's Policy

1. **Conserve land and water** to increase the natural storage of carbon.
2. **Mitigate the effects** of a hotter, drier, more turbulent climate.
3. **Reduce the U.S. carbon footprint**, including greenhouse gas emissions, and encourage renewable energy.

RESOURCE 02: What TU is Doing and How You Can Help

- TU helps with the 3 primary strategies for dealing with climate change (adaptation, sequestration, and mitigation).
- TU helps and can help more by pairing science with actions.
- **You can take opportunities to reduce legacy impacts for fish and habitat and advocate for smart policy.**

PRIMARY RESEARCH ARTICLE

WILEY Global Change Biology

Carbon sequestration in riparian forests: A global synthesis and meta-analysis

Kristen E. Dybala[1] | Virginia Matzek[2] | Thomas Gardali[1] | Nathaniel E. Seavy[1]

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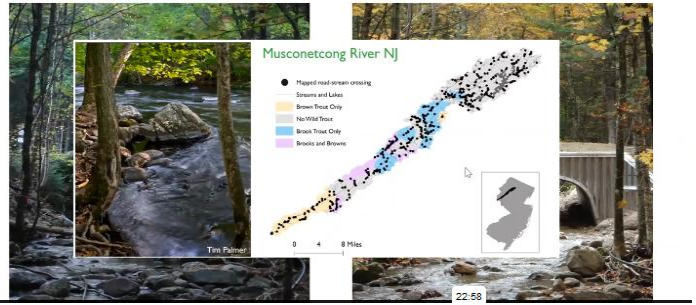
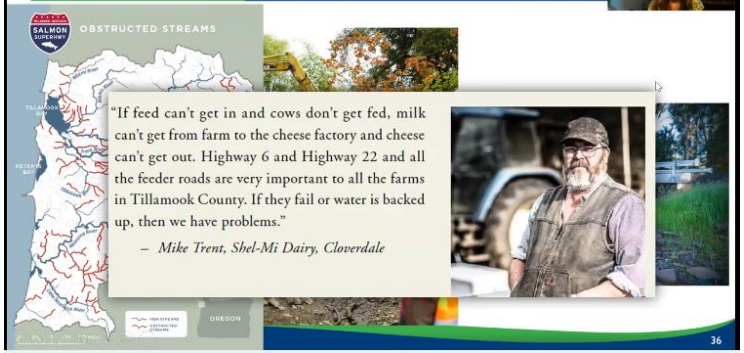
And there is LOTS to do:



Beaver Creek, Virginia

Before, 2010 | After, 2011 | After, 2017

Reconnecting streams = good for fish & people



Sequestration

TU plants 10s of thousands of trees annually:
Montana Blackfoot Chapter Planted 18,000 in one project!

We primarily focus on fish habitat: but these riparian plantings not only create shade and cover, stabilize banks, and provide food inputs for trout (i.e., that adaptation)…

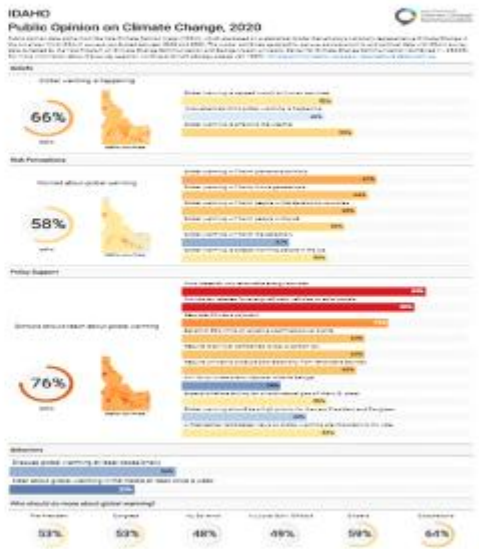
26:05

What You Can Do:

- Talk to your acquaintances, family, representatives about climate change
  - stream walks or in-district fishing outings
  - short videos for use in advocating to congressional members

Click to generate fact sheets for your state, districts, etc:

- https://climatecommunication.yale.edu/visualizations-data/factsheets/



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Do what you can where you are!

Module 03: Adaptation

RESOURCE 03: My Healthy Stream: A Handbook for Streamside Owners

RESOURCE 04: Examples of Local Collaborative Climate Change Adaptation Efforts

RESOURCE 05: Trout Unlimited Embrace-A-Stream (EAS) Grant Program

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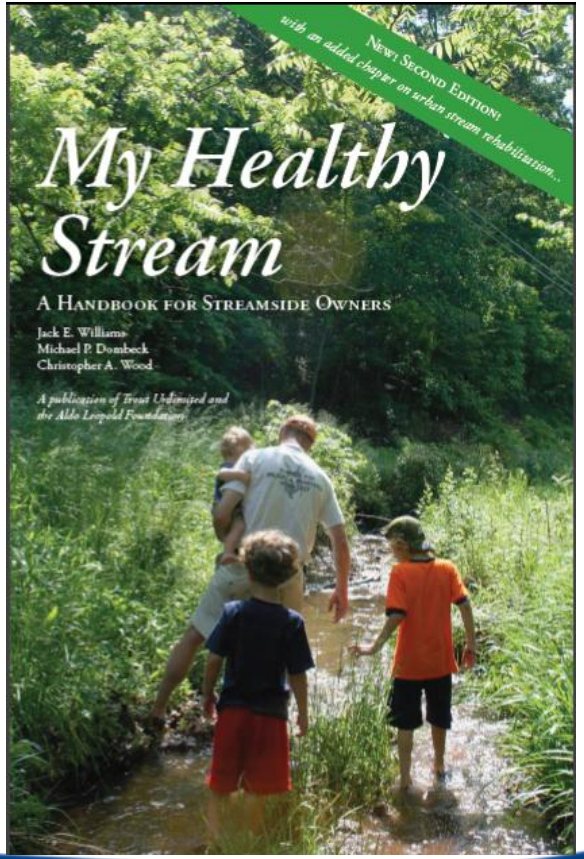
RESOURCE 03

A Handbook for Streamside Owners (TU)

1 – Celebrating Healthy Streams
2 – Thinking Like a Watershed
3 – Everything Trout Need
4 – Keeping an Eye on Stream Condition
5 – Bugs, Frogs, and Water Quality
6 – Riparian Areas: Streamside Habitat
7 – Healing Troubled Waters
8 – Urban Stream Rehabilitation
9 – Stopping Invasive Species
10 – Dealing with Extreme Weather: Floods and Drought
11 – Planning for Stream Health
12 – More Resources, Funding, and Partners



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– Thinking Like a Watershed

This watershed diagram shows how water connects the landscape.

Courtesy of Bryan Christie Design and Trout Unlimited

Module 03: Adaptation

4 – Keeping an Eye on Stream Condition

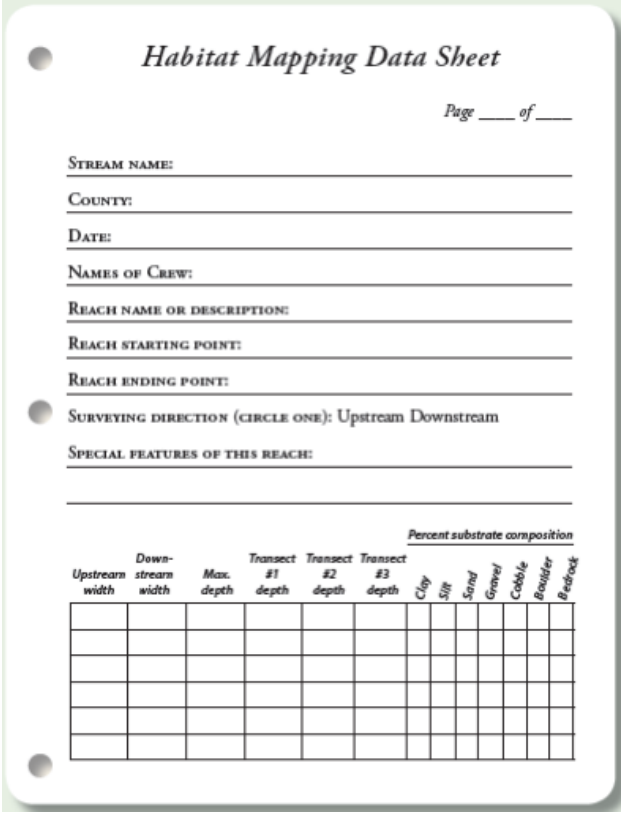
What can monitoring tell you?

1. What condition your stream is in and whether it is improving or degrading over time;

2. What kind of restoration work is most needed;

3. How effective management changes are in achieving the desired condition; and

4. How to distinguish between changes caused by management actions or natural variation.



Habitat Mapping Data Sheet

Page ____ of ____

STREAM NAME:

COUNTY:

DATE:

NAMES OF CREW:

REACH NAME OR DESCRIPTION:

REACH STARTING POINT:

REACH ENDING POINT:

SURVEYING DIRECTION (CIRCLE ONE): Upstream Downstream

SPECIAL FEATURES OF THIS REACH:

Percent substrate composition

Upstream width	*Down-stream width*	*Max. depth*	*Transect #1 depth*	*Transect #2 depth*	*Transect #3 depth*	*Clay*	*Silt*	*Sand*	*Gravel*	*Cobble*	*Boulder*	*Bedrock*

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7 – Healing Troubled Waters

Different challenges call for different restoration projects. Monitoring your stream can help you determine your restoration priorities and direct you to which methods will be most effective.

Keys to successful stream restoration projects

1. Address the root causes of decline rather than simply the symptoms (remember, the root causes may be outside your property boundary);
2. If root causes are not on your property, you may be forced to treat symptoms until root cause of decline can be addressed;
3. Work with natural forces of stream flow and erosion and assist the stream in healing itself;
4. Add structure with boulders, logs, and root wads placed unrestrained into the stream;
5. Don't rely on fixed, artificial structures, which can cause erosion problems during high flows; and
6. Be adaptive: watch how your stream functions at different flows and with different treatments and adjust management accordingly.

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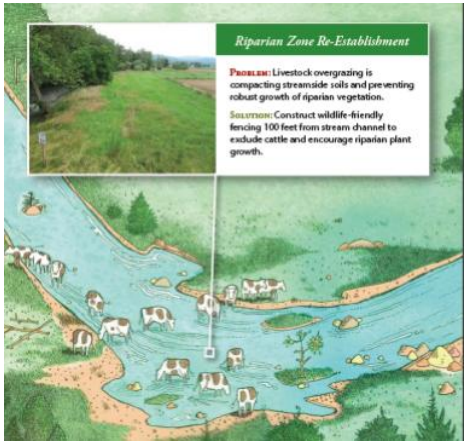

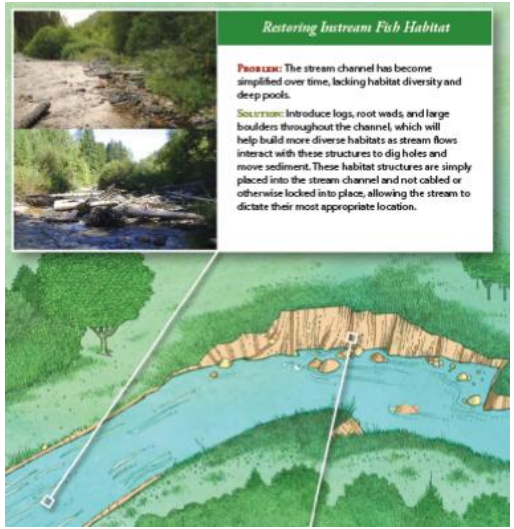

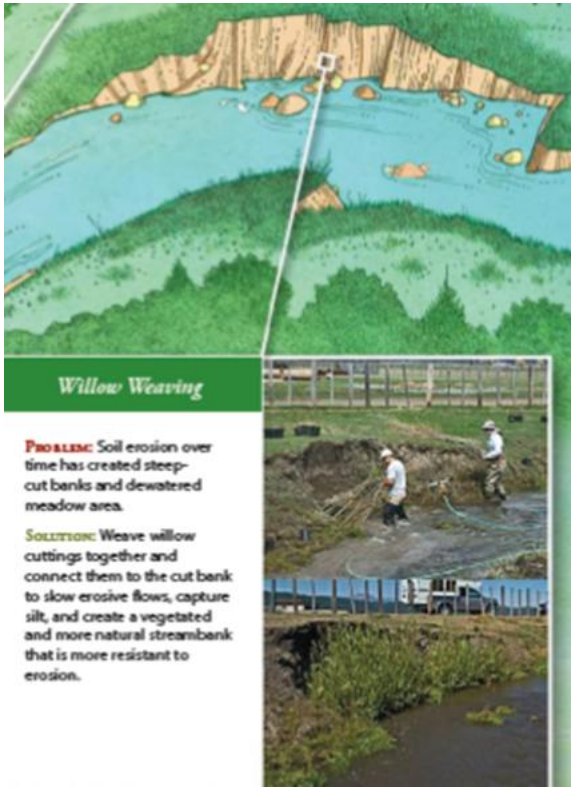

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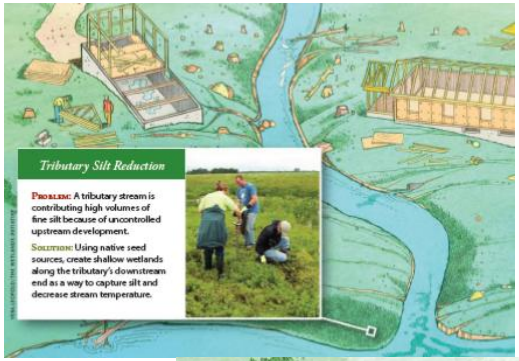

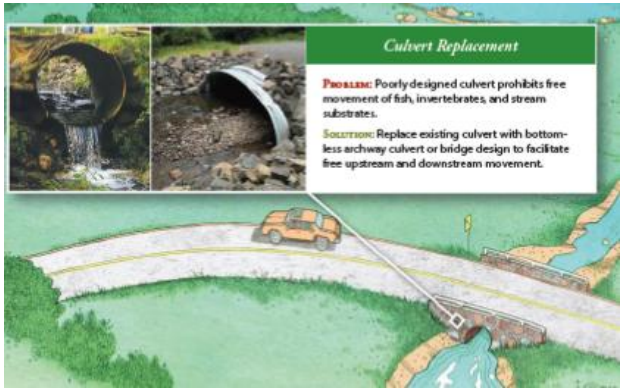

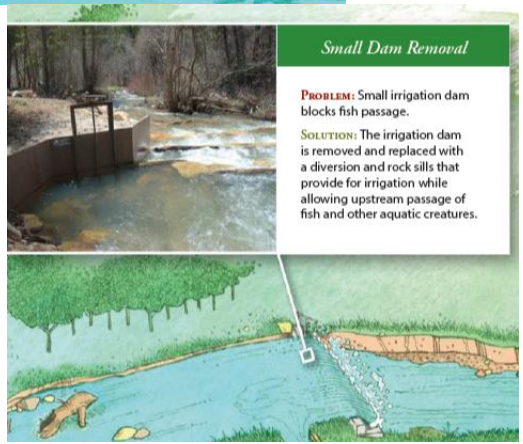

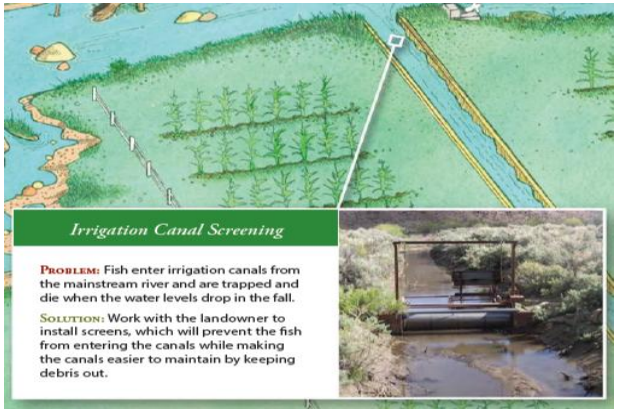

8 – Urban Stream Rehabilitation

Common Urban Conditions	*Resulting Stream Problems*
Stream channels are straightened and deepened.	Habitat quality declines and erosion increases at higher flows.
Impervious surfaces such as roads, rooftops, and parking lots dominate the landscape.	Runoff is accelerated, flows are flashy, and stream baseflows decrease.
Native streamside plant communities are eliminated.	Streamsides are often dominated by a few weedy species, little shade to cool water, and few downed trees and boulders for fish habitat.
Wetlands are filled.	No natural wetland habitat remain to filter runoff from upland areas or dissipate the energy of floods.
Pollutants increase, especially polluted runoff from streets and lawns.	Oil, pesticides, and herbicides decrease the ability of streams to support plants, insects, and fish.
Lawns are overwatered.	Water available for stream habitat is depleted.

Do-It-Yourself Stormwater Management	
Use rain barrels to collect rainwater.	Rain barrels reduce stormwater runoff from your property and provide water for later use.
Construct water bars and vegetated swales to collect runoff.	Swales are shallow, vegetated area that collect rainwater and allows it to infiltrate into the ground.
Provide streamside buffer zones.	A wide strip of native vegetation should be provided along streams to filter out pollutants from upstream areas.
Construct rain gardens.	These are bowl-shaped gardens that use soil, mulch and plants to capture and filter runoff.
Use pervious walkway pavers.	Use walkway stones that have openings that allow water to soak through.
Use water wisely.	Avoid overwatering and runoff. Sweep sidewalks and driveways rather than wash them.
Never dump wastes, including grass clippings, into storm drains.	Most storm drains feed directly to streams without going through water treatment facilities.

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Is your landscape trout friendly?

- Have you eliminated or minimized your use of fertilizers and pesticides?
- Have you found alternatives to grass lawns that incorporate native plants?
- Do you conserve water by incorporating drought-tolerant plantings and other means?
- Do you dispose of yard waste and grass clippings properly and never into lake or streams?

4 Steps You Can Take to Improve Urban Streams

1. Reduce your use of pesticides and herbicides

2. Manage stormwater runoff

3. Restore streamside zones

4. Support local stream rehabilitation efforts

RESOURCE 04: Example of Local Collaborative Climate Change Adaptation Efforts

Create a spreadsheet of Volunteer Conservation Opportunities that are offered by your chapter and / or other conservation organizations in your area.

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Inventory Area Conservation Organizations, Events, and Activities Volunteer Adaptation Opportunities

- **MLK Day of Service Restoration Event**
- **National Trails Day Restoration Project**
- **Rise Up Northwest in Unity: Education, Cultural Awareness, Solution Formation (developing concrete solutions and strategies to bolster the Northwest resilience)**
- **The Wetlands Conservancy - Father's Day bullfrog wrangle! Monthly Cleanup**

Inventory Area Conservation Organizations, Events, and Activities Volunteer Adaptation Opportunities

- **Clackamas River Basin Council and We Love Clean River - 20th Anniversary of the Clackamas Down the River cleanup!**
- **North Clackamas Watersheds Council**
- **Johnson Creek Watershed Council and Leach Botanical Garden**
- **The Tualatin Soil and Water Conservation District (SWCD) - Naturescaping: Basics Webinar**
- **Tualatin River Watershed Council – Revegetation of Balm Grove Dam Removal area on Gales Creek**

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Inventory Area Conservation Organizations, Events, and Activities Volunteer Adaptation Opportunities

- **Clean Water Services**
- **Tualatin Hills Parks and Recreation District - Earth and Arbor Day Celebration**
- **City of Sherwood - Woodhaven Natural Area Planting**
- **City of Tualatin - Family Restoration Project**
- **Native Fish Society - White Salmon Spawning Surveys, Women For Wild Fish Summer Campout!**
- **Friends of Trees - Tree For All**

Inventory Area Conservation Organizations, Events, and Activities Volunteer Adaptation Opportunities

- **Tualatin River National Wildlife Refuge - Friends of the Refuge**
- **Tualatin Riverkeepers**
- **Willamette River Keepers**
- **Eugene-Springfield River Guardians - Trashy Tuesday**
- **Deschutes River Conservancy - Lava Island Fish Rescue**
- **Friends of the Columbia Gorge**

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Dates & Times	Location & Description of Activity	Organization, Approval, Registration	Materials/Equipment	Other Info.
Saturday March 9, 2024, 9:00–12:00	Balm Grove Restoration. Join us to lay down mulch at this unique location in the town of Gales Creek, …. where Gales Creek joins the Tualatin River, … the last step in this Tualatin River Watershed Council Funded Project.	Tualatin Riverkeepers http://tualatinriverkeepers.org/events/balm-grove-restoration-project	Gloves and other equipment provided for mulching around the planted locations. Dress for the weather.	Clean Water Services owns and stewards this land and facilitated the removal of the dam. Friends of Trees is restoring the site ….

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Tualatin River Watershed Council Funded
Balm Grove Restoration Project

Trout Unlimited

Tree For All

Clean Water Services

The Intertwine Alliance

Metro

Northwest Steelheaders

Oregon Department of Fish and Wildlife

Tualatin Riverkeepers

Tualatin Soil and Water Conservation District

Module 03: Adaptation

Gales Creek aquatic life returning above demolished Balm Grove dam

https://www.hillsboronewstimes.com/news/local/gales-creek-aquatic-life-returning-above-demolished-balm-grove-dam/article_1f605de4-c590-5fdd-8275-d48c27039263.html

Module 03: Adaptation

Tualatin Valley Trout Unlimited
Published by Peter Gray
· July 11, 2023 ·

Gales Creek aquatic life returning
The removal of a small dam along Gales Creek at Balm Grove late last summer is expected to welcome the upriver return of winter steelhead, Pacific lamprey, coho salmon, cutthroat trout, mountain fish and more.
Gales Creek, whose headwaters begin in the Northern Oregon Coast Range, has long been known as a premier stream for fishing. However, except for those fish that are "really good jumpers," it has been all but impossible for most fish to... See more

HILLSBORONEWSTIMES.COM
Gales Creek aquatic life returning above demolished Balm Grove dam
In September, a small concrete dam was removed from the creek at Balm Grove.

MEETING PRESENTATION

PROGRAM
NOVEMBER CHAPTER MEETING

WILLIAMS CREEK
SALMON AND STEELHEAD
RECLAMATION PROJECT--
RAPID BIOASSESSMENT AND
eDNA APPLICATIONS -
PROJECT FUTURE

ANTONELLA FILLET—Project Manager
SCOTT McEWEN—Executive Director
TUALATIN WATERSHED COUNCIL

RESOURCE 05

Since 1975, TU's **Embrace A Stream (EAS) grant program** has awarded more than $4.9 million in funding to over 1,150 local conservation, science and education projects.

EAS WILL fund:

On-the-ground restoration, protection, or conservation efforts that benefit trout and salmon fisheries and their habitats.

EAS Criteria

- **Conservation Impact**
- **Strengthening TU Impact**
- **Public Education and Outreach**
- **Technical Merit**

Greater Boston Chapter
Urban and Suburban Threats to Trout: Lessons from the Northeast

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A joint venture between Mollyockett and Sebago Trout Unlimited Chapters
Grant Aldrich Brook, Parkertown TWP

Canandaigua Lake Chapter
Naples Reconnect Project

Designed the rock placement and grading to achieve the desired stepped riffle pools below the problem culverts to ease wild migratory rainbow trout passage from Canandaigua Lake.

RESOURCE 06: TU Training

RESOURCE 07: TU Headwaters Youth Programs

RESOURCE 08: TU Priority Waters: Get Your Hands Dirty

RESOURCE 06: TU Training

Sean Sieler

National Engagement Coordinator

RESOURCE 06: TU Training

Sean Sieler

National Engagement Coordinator

RESOURCE 07: Trout Unlimited Headwaters Youth Programs

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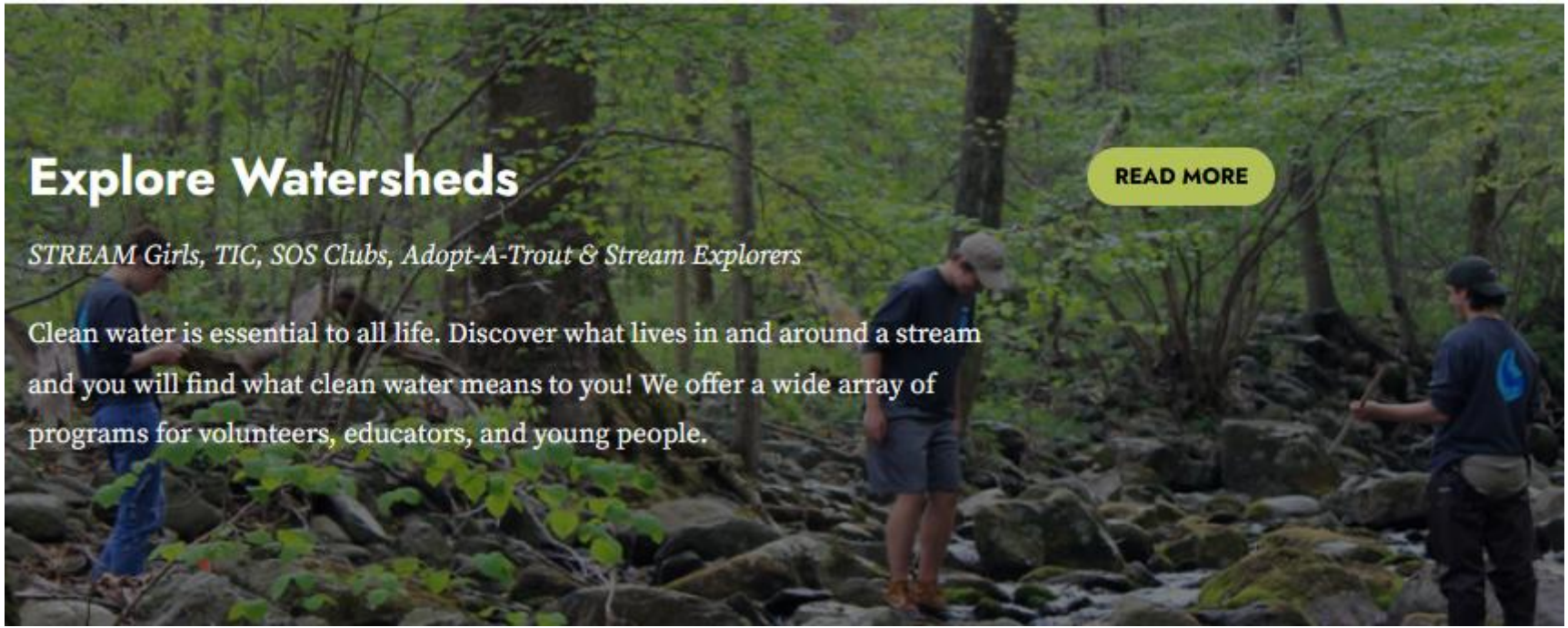


Headwater Youth Education

Cecily Nordstrom, Stream Education Manager, STEM/STREAM K-12 education initiatives

Headwater Youth Education

Cliff Watson, Youth Fly Fishing Programs Manager

5 Rivers College Clubs

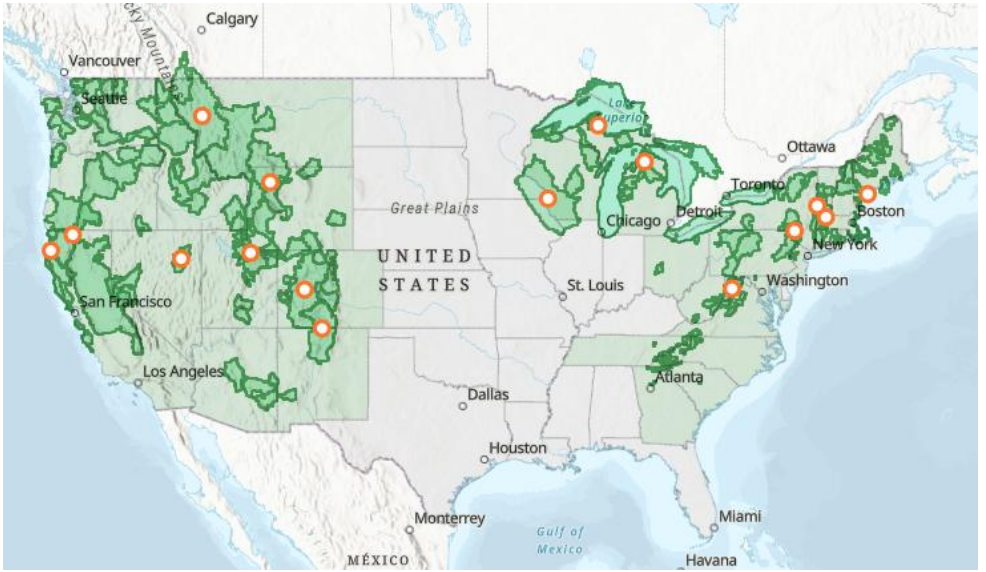
TU High School Student Clubs

Headwater Youth Education

Zoe Mihalas – Trout Unlimited chapter and council sponsored camps and academies

https://www.tu.org/conservation/outreach-education/headwaters-youth-program/explore-fishing/tu-summer-camps-and-academies/

RESOURCE 08 Priority Waters



RESOURCE 08 Priority Waters: Restoration

The promise of Priority Waters is the marriage of our network of professional field staff with ***the army of grassroots supporters and volunteers*** who care deeply about these waters.

RESOURCE 08: Priority Waters: Restoration

WATCH

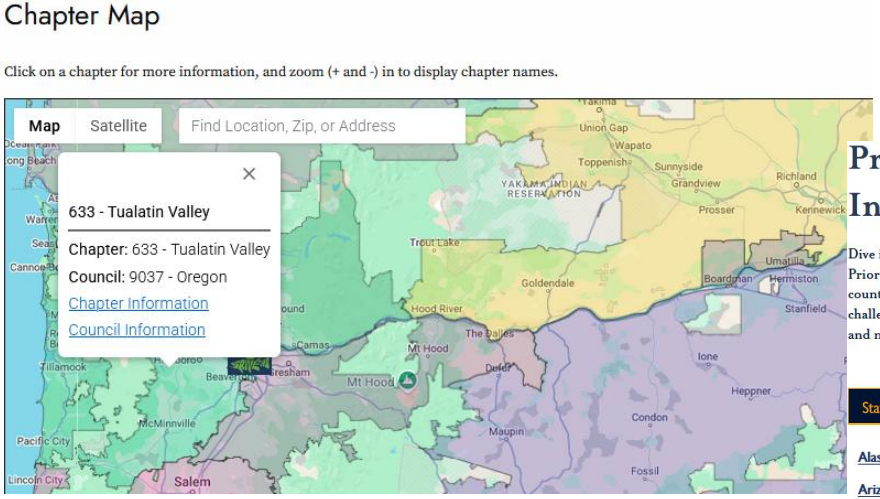
We Are Trout Unlimited

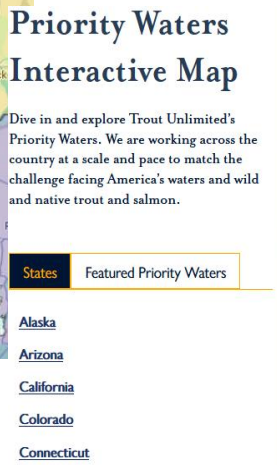
RESOURCE 08: Priority Waters: Restoration

READ

RESOURCE 08: Priority Waters: Restoration

CONNECT: With your local TU chapter or state-specific staff to participate in or help design a restoration effort on your local priority water.





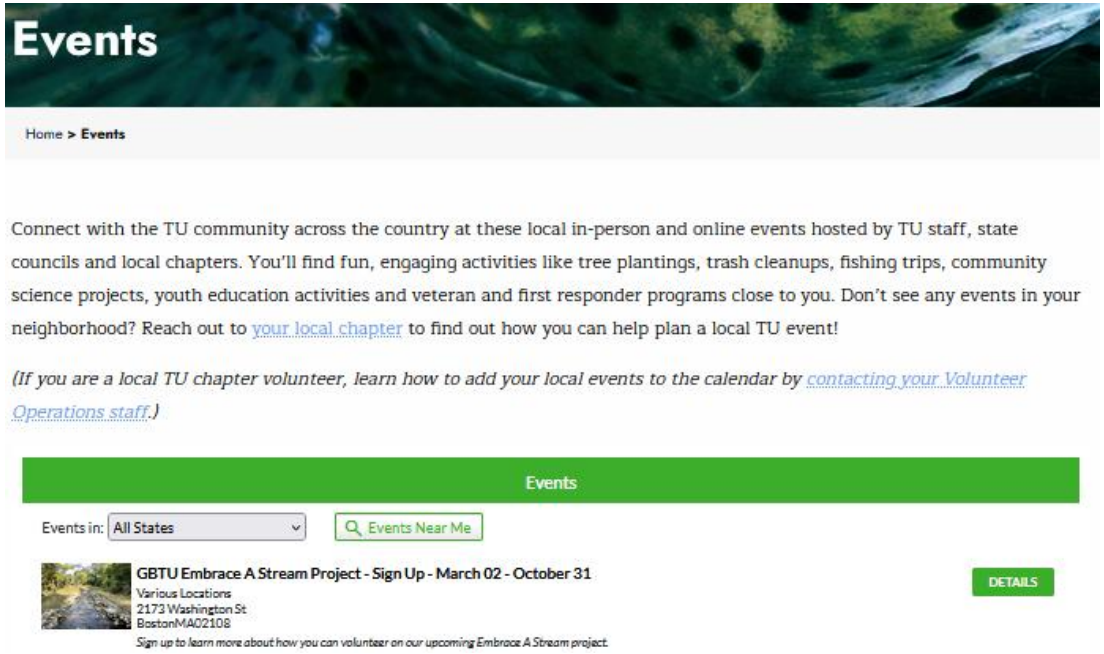
RESOURCE 08: Priority Waters: Restoration

SIGN UP: Help Priority Waters Thrive

Take our volunteer survey and let us know how and where you'd like to help.

RESOURCE 08 Priority Waters: Restoration

BROWSE: The TU Events Page to find hands-on restoration opportunities near you.



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RESOURCE 09: When I talk about Climate Change, I don't talk about science

RESOURCE 10: Tips on How to Conduct Effective Public Engagement

CCWG Module Resources

Our most effective messaging is PERSON TO PERSON!

RESOURCE 12: When I talk about Climate Change, I Don't Talk about Science

- I talk about Fishing.
- I talk about Flooding.
- I talk about Farming.
- I talk about Faith.
- I talk about the Future.

By Andrew Thaler
Southern Fried Science

What's the #1 reason people care about climate change?

Science says it's LOVE—especially for the next generation.

Katharine Hayhoe

@science_moms
potentialenergycoalition

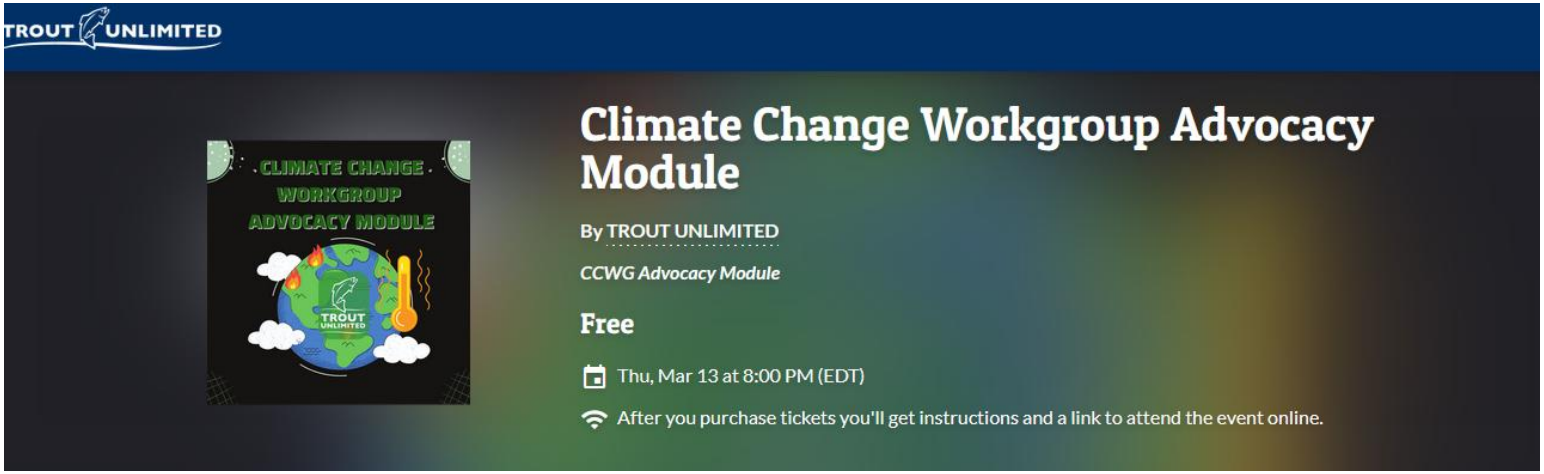
RESOURCE 13: Tips on How to Conduct Effective Public Engagement

The six principles of effective public engagement

- Be a confident communicator.
- Talk about the real world, not abstract ideas.
- Connect with what matters most to your audience.
- Tell a human story.
- Lead with what you know.
- Use effective visuals in your communication.

American Fisheries Society

Climate Change Coordinator Training Plan



January 16 – Science Workshop

February 13 – Adaptation Workshop

March 13 – Advocacy Workshop

April 10 – Education Workshop

NLC Climate Change Work Group Website

Climate Change Coordinator Training - Trout Unlimited recordings of the introductory Climate Change Coordinator and the recent workshops.

And a PDF with the Climate Change Resource modules on Science, Adaptation, Advocacy and Education.

URL for CCC Resources and Recordings
https://www.tu.org/ClimateChangeCoordinator

NLC Climate Change Work Group

Please join us!

CCWG Module Development Team

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Co-chair, Peter Gray - bccpjgray@yahoo.com

Neal Anderson, Debbie McKay, Paul Mckay, Mark van Roojen, Peter Tovar