BRIDGING CONSERVATION & HAZARD MITIGATION PLANNING: A WORKSHOP FOR NATURAL RESOURCE PROFESSIONALS

August 3, 2025

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WELCOME & INTRODUCTIONS

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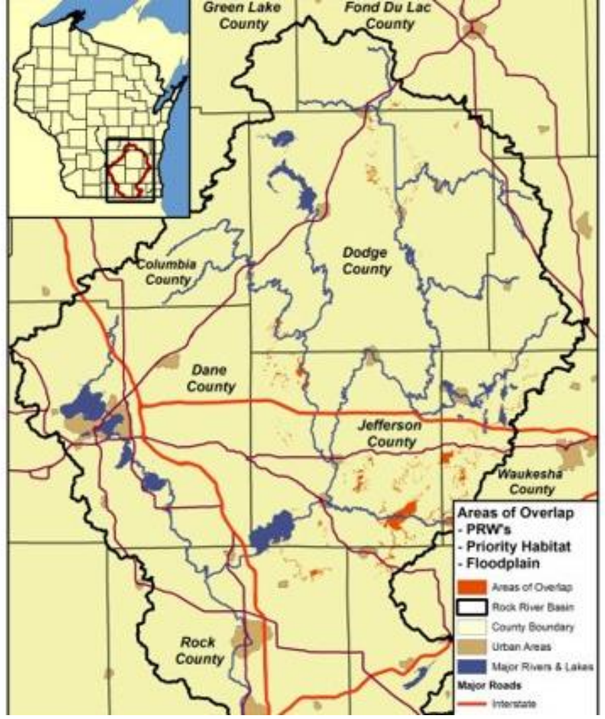
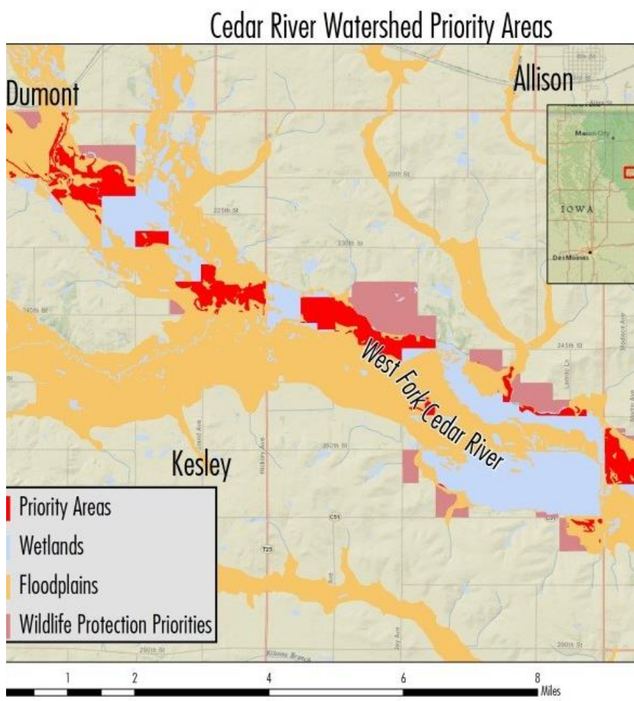
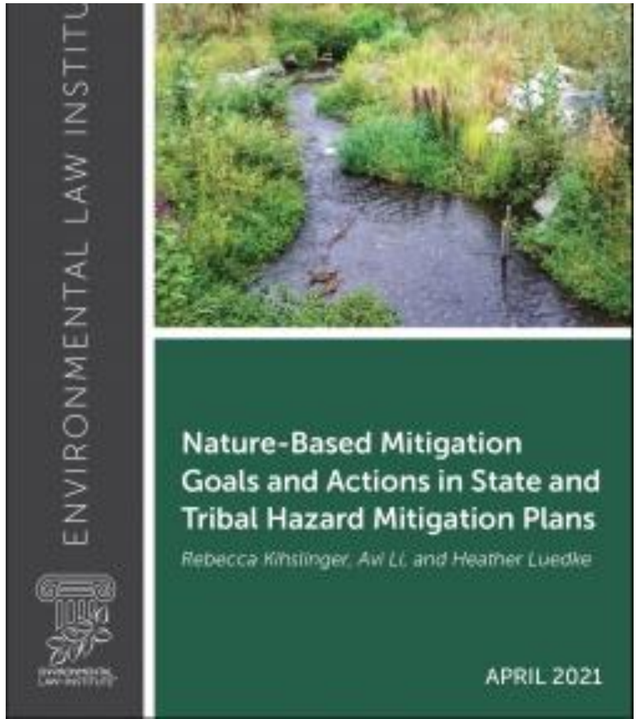
Nature-Based Solutions



Wetlands, Wildlife Habitat, and Flood Hazards in the Cedar River Basin, Iowa

February 2008





Building Partnerships

WORKSHOP OBJECTIVES

- Understand how special districts can participate in hazard planning processes and the benefits to doing so;
- Learn from examples of districts that have leveraged funding and/or collaborated with local hazard planners on nature-based mitigation projects;
- Brainstorm ideas for your district/county;
- Ask technical questions of hazard planning staff;
- Understand the fundamentals of mitigation planning and its connections to your work.

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PARTICIPANT INTRODUCTIONS

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WORKSHOP OVERVIEW (MORNING)

9 am-9:30 am	*Welcome and Participant Introductions*
9:30 am-10:45 am	*Panel 1: Overview of Hazard Mitigation Planning and Nature-Based Solutions*
10:45 am-11:00 am	*Coffee Break*
11:00 am-12:30 pm	*Breakout 1: Opportunities for Alignment*
12:30 pm-1:30 pm	*Networking Lunch*

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WORKSHOP OVERVIEW (AFTERNOON)

1:30 pm-3:00 pm	*Panel 2: Partnerships*
3:00 pm-3:15 pm	*Coffee Break*
3:15 pm-4:30 pm	*Breakout 2: Partnerships*
4:30 pm- 5:00 pm	*Closing Remarks & Next Steps*
6:00 pm-7:00 pm	*Optional Happy Hour at Garf's Sports Lounge (a 2-minute walk from the Hilton)*

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PANEL 1: OVERVIEW OF HAZARD MITIGATION PLANNING AND NATURE-BASED SOLUTIONS

Objectives

- Understand the basics of a hazard mitigation plan
- Learn about nature-based solutions
- Understand the intersections between conservation priorities and hazard mitigation planning priorities
- Explore overlaps between conservation and hazard mitigation priorities
- Identify benefits of district involvement in hazard mitigation planning
- Learn how one RCD shapes local hazard mitigation efforts

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PANEL 1: OVERVIEW OF HAZARD MITIGATION PLANNING AND NATURE-BASED SOLUTIONS

Matthew West, *Mitigation Planning Supervisor, Colorado Division of Homeland Security and Emergency Management*, Local Hazard Mitigation Planning and Integrating Special Districts

Ellie Flaherty, *Biologist, U.S. EPA*, Enhancing Natural Hazard Mitigation and Resilience through EPA's Nonpoint Source Management Program

Kellyx Nelson, *Director, San Mateo Resource Conservation District*, The role of conservation districts in multi-benefit watershed projects

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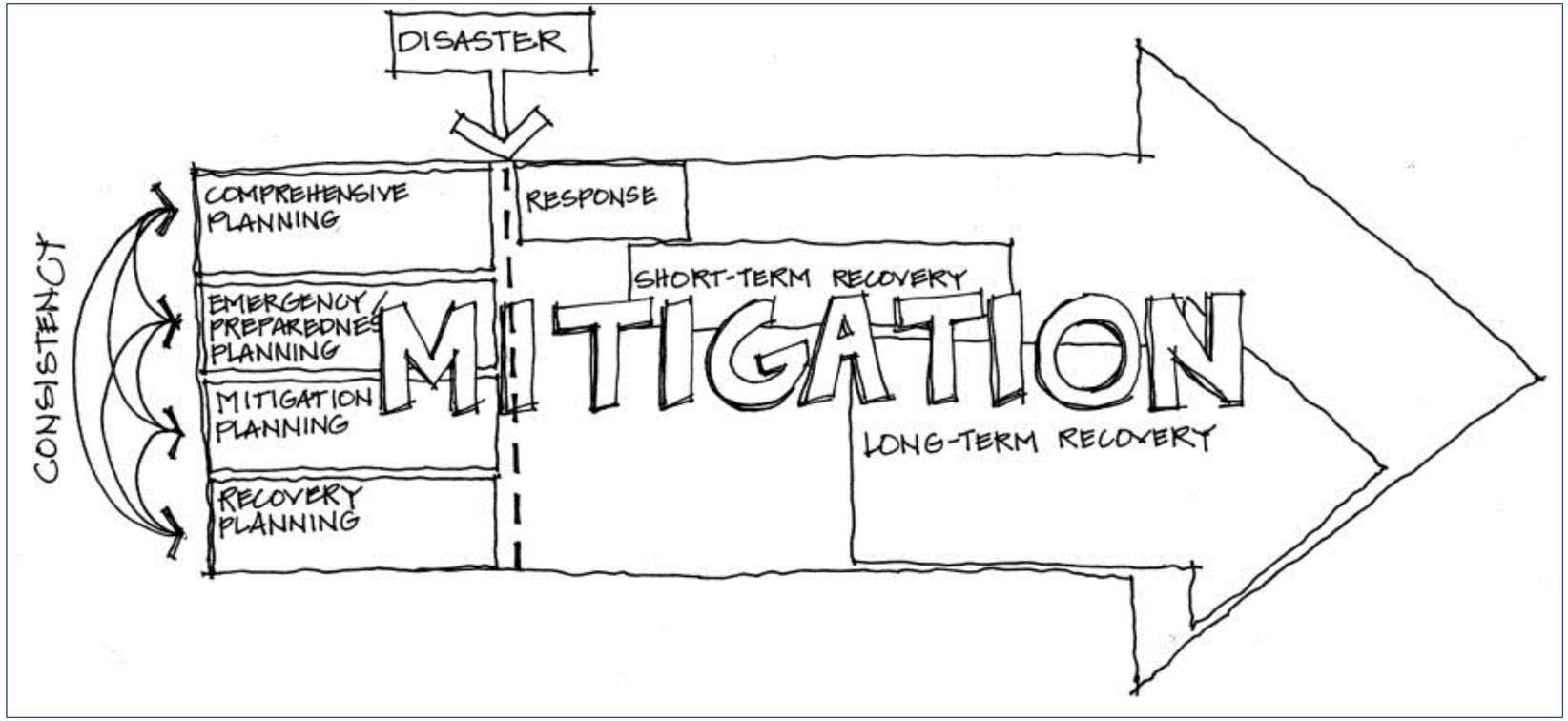
Local Hazard Mitigation Planning & Integrating Special Districts

COLORADO
Division of Homeland Security & Emergency Management
Department of Public Safety

Hazard Mitigation

- What is the ultimate purpose of hazard mitigation?
- What consequences are we trying to prevent?



Source: Masterson et al, 2014; Modified from Schwab, 1998; Lindell, Prater, and Perry, 2007

Natural Hazard Mitigation

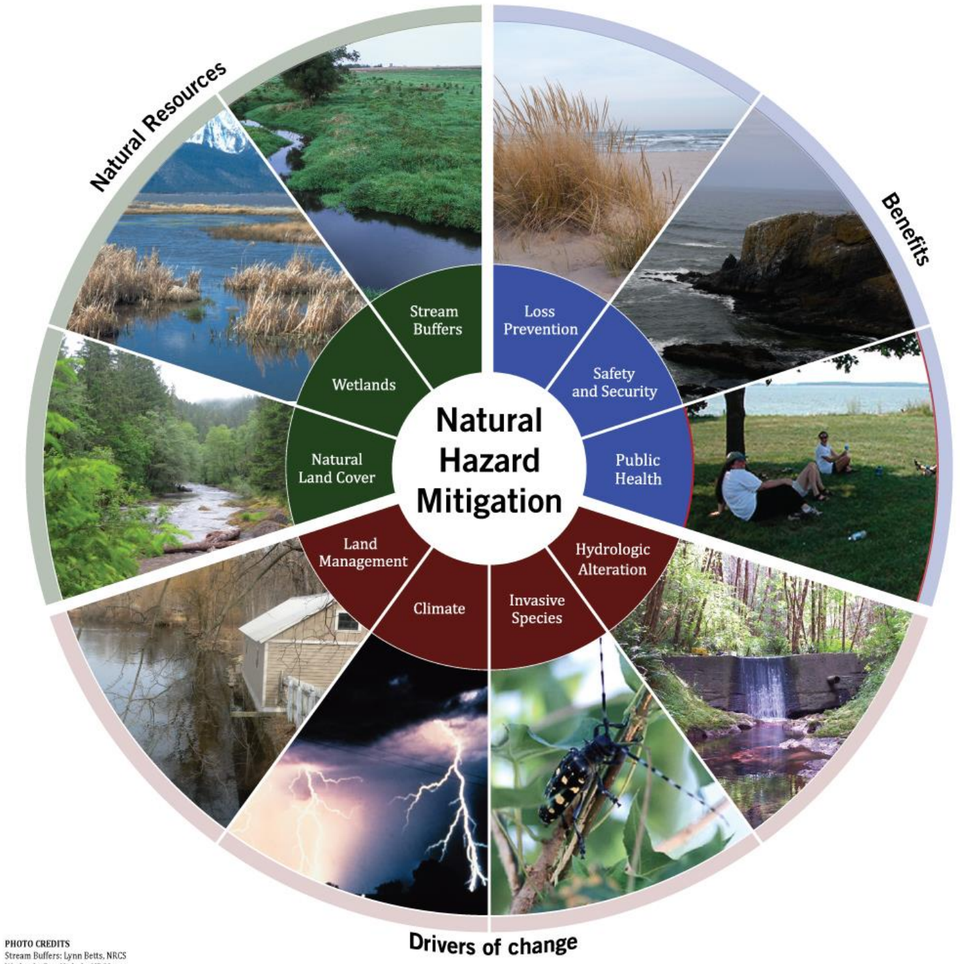


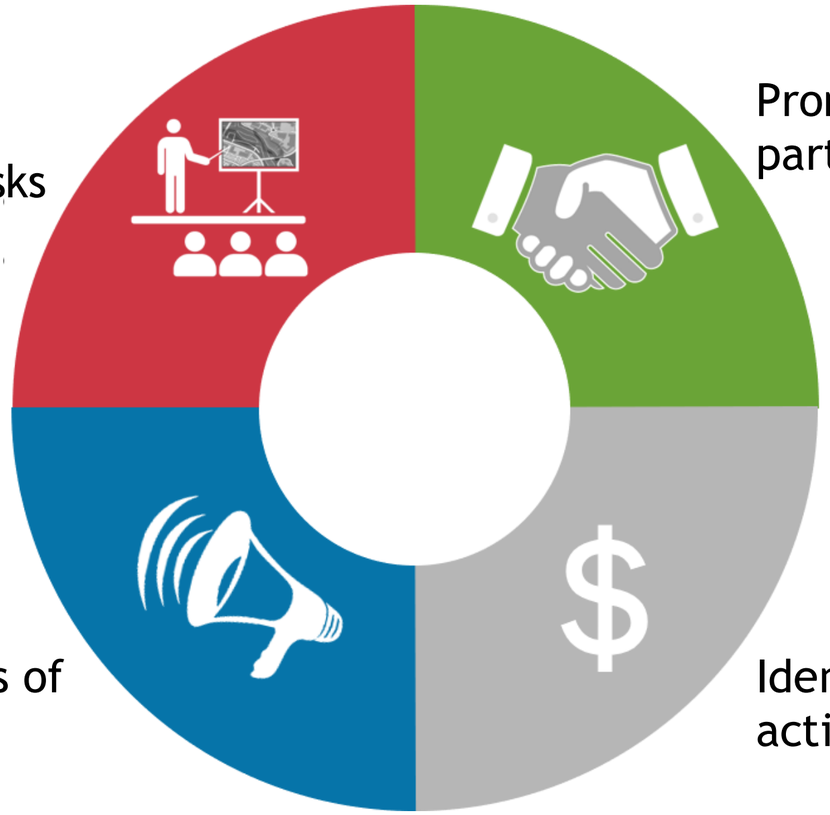
PHOTO CREDITS
Stream Buffers: Lynn Betts, NRCS
Wetlands: Ron Nichols, NRCS
Natural Land Cover: Jessica Jahre, EPA contractor
Land Management: Jessica Jahre, EPA contractor
Climate: NOAA Photo Library, NOAA Central Library, OAR/ERL/NSSL
Invasive Species: Michael Smith, USDA
Hydrologic Alteration: Laurie Bernstein, U.S. Forest Service
Public Health: NOAA, NMFS
Safety and Security: Jessica Jahre, EPA contractor
Loss Prevention: Royalbroil, Wikamedia

This EnviroAtlas eco-wheel was created by Jessica Jahre, EPA contractor

- Sustained action taken to reduce or eliminate long-term risk from hazards.
- Reduce the future demand for, and rising costs of, disaster response and recovery.

Benefits of Hazard Mitigation

Aligns risk reduction priorities and focuses resources on greatest risks



Promotes building partnerships

Increases awareness of hazards and risk

Identifies cost-effective actions for risk reduction

Benefits of Hazard Mitigation

(continued)

More Mitigation Measures, More Savings

One dollar invested in mitigation =
13 dollars U.S. saves in future costs

Hazard Mitigation Planning

&

&

Identify risks and vulnerabilities

+

Develop long-term strategies to reduce or eliminate impacts

- Reduce loss of life and property
- Break the disaster cycle
- Develop sustainable and resilient solutions
- Prioritize funding

Integrating Special Districts

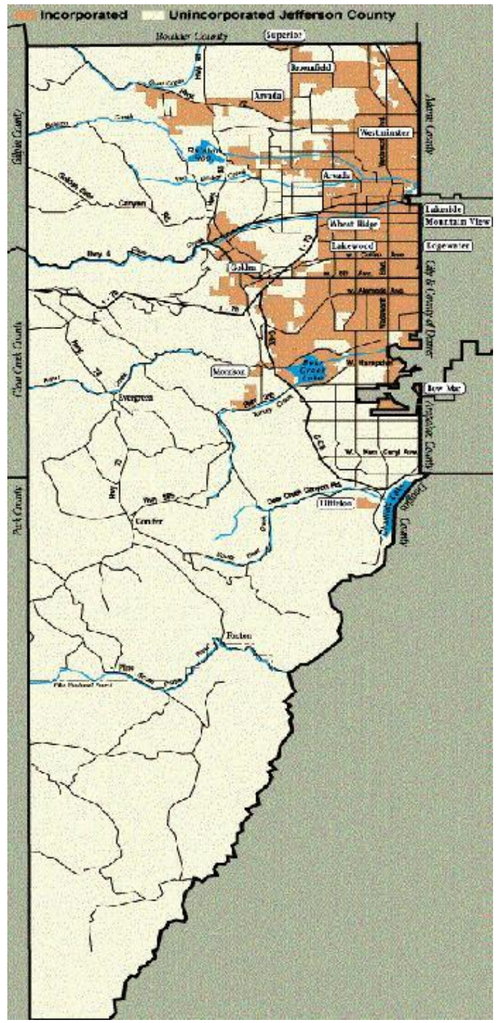
JEFFERSON CONSERVATION DISTRICT

MHFD
MILE HIGH FLOOD DISTRICT

ARKANSAS BASIN ROUNDTABLE

Jefferson Conservation District

"Conservation districts have the duty to plan, advise, implement projects, and educate people on issues surrounding natural resources." - https://jcd.colorado.gov/about-us/our-story



Jefferson County Hazard Mitigation Plan Participant

Project: Wildfire Mitigation

Phase 1: $230,977.78

Total Project: $7,542,633.00

Federal Share: $5,962,393.96

State Match: up to $825,601.34

Local Share: $754,637.70 (10%)

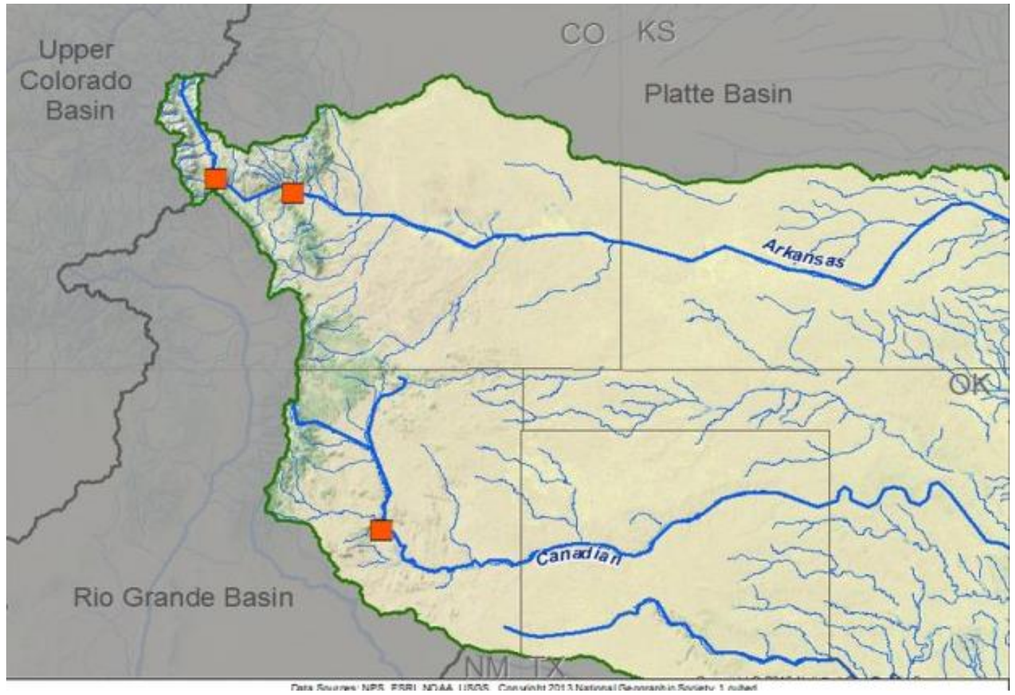
Mile High Flood District

“Together, we protect people, property, and our environment through preservation, mitigation, and education.” - https://www.mhfd.org/about

Jefferson County Hazard Mitigation Plan Participant

Upper Arkansas River Basin

Problem: Deposition of sand in the Upper Arkansas River Basin from non-natural water bodies requires annual dredging at a cost of ~$1 million. The deposition and continuous dredging is a burden for agricultural producers and is leading to problems in the river and surrounding ecosystem.



Upper Arkansas River Basin

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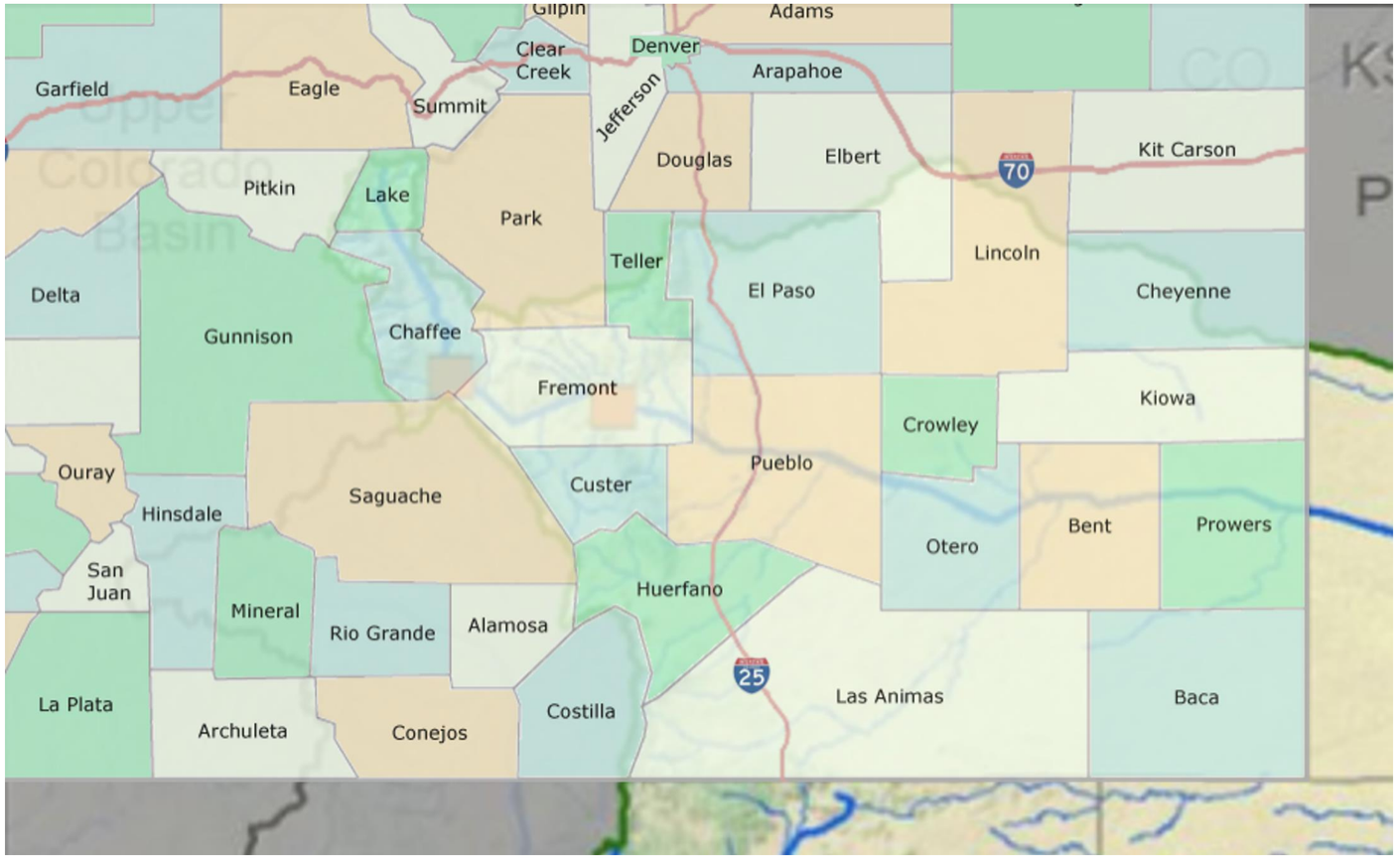

Bringing It All Together

Hazard mitigation planning

- Community-wide effort
- Tangible results
- Benefits everybody

How can you get involved?

- ❑ Contact the city or county Emergency Manager
- ❑ Contact the state's Hazard Mitigation Officer
- ❑ Find more at: fema.gov/emergency-managers/risk-management/hazard-mitigation-planning

Discussion

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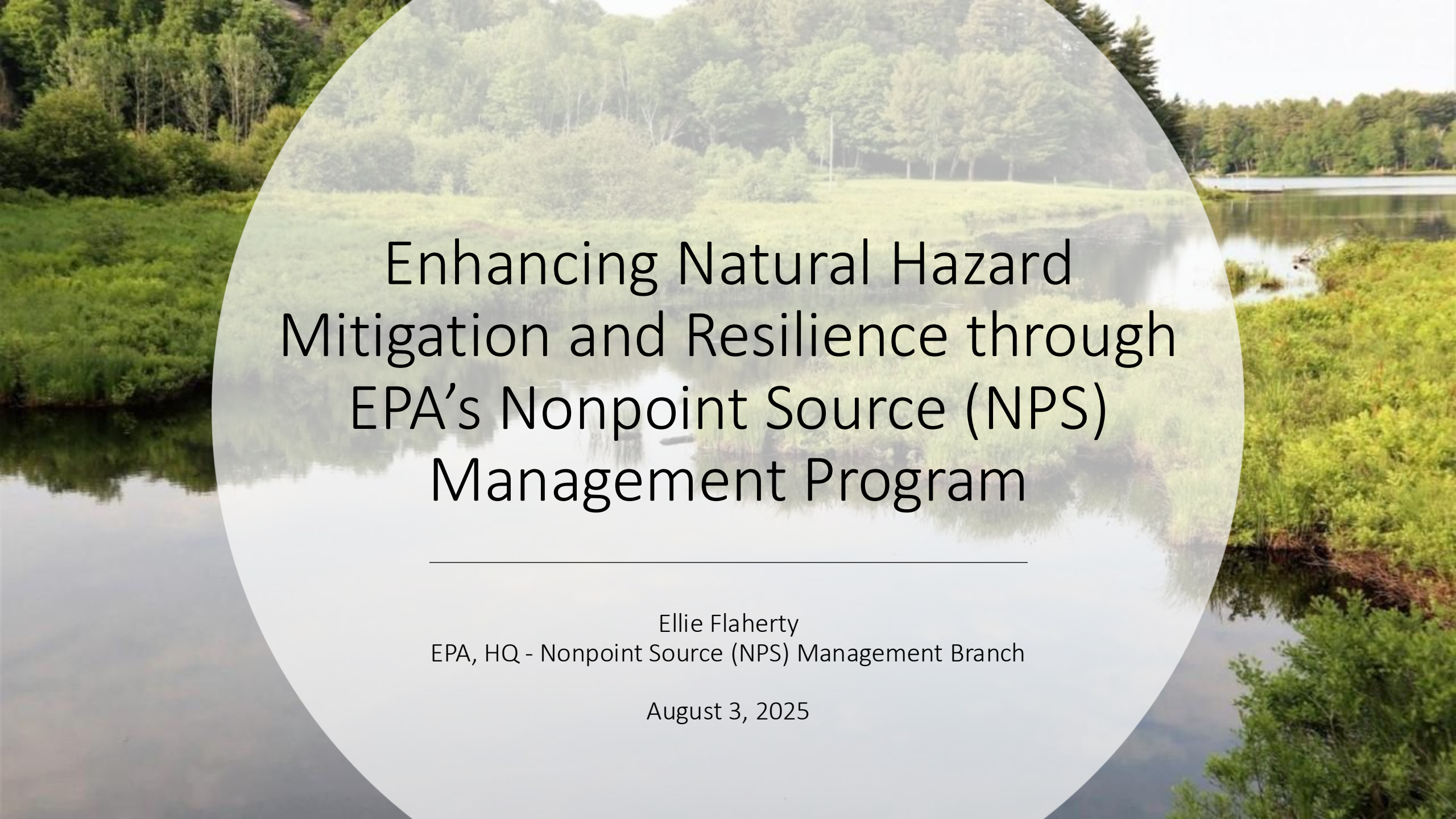


Enhancing Natural Hazard Mitigation and Resilience through EPA's Nonpoint Source (NPS) Management Program

Ellie Flaherty
EPA, HQ - Nonpoint Source (NPS) Management Branch

August 3, 2025

Sources of Pollution Under Clean Water Act

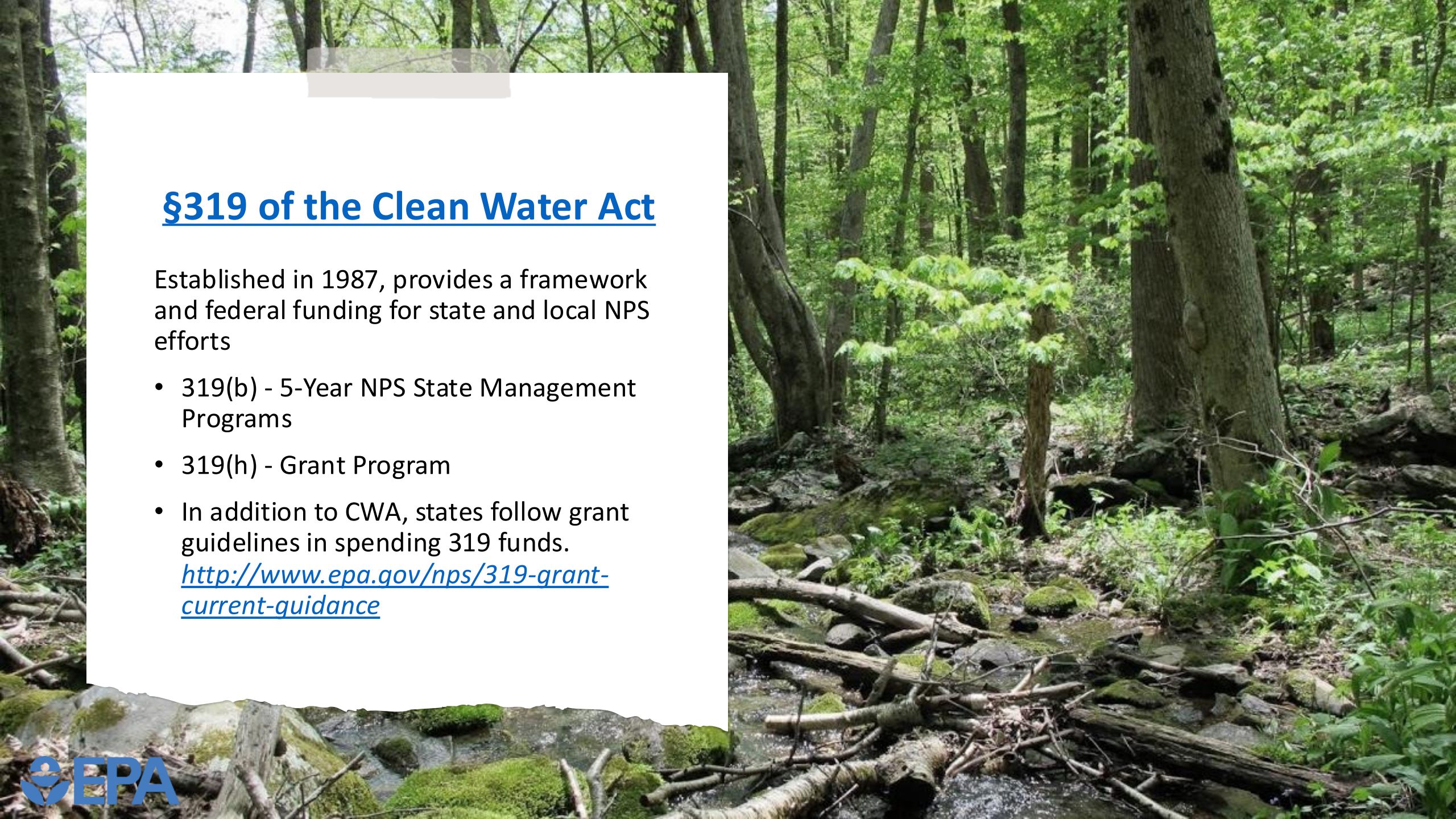
- **'Point sources' regulated under CWA**
  - Any "discernable, confined and discrete conveyance including…any pipe, ditch, channel…[etc] from which pollutants are or may be discharged"
  - Discharges must be regulated in a manner consistent with state/tribal WQS, e.g., NPDES permits

- **'Nonpoint sources' not regulated or specifically defined**
  - Any source of water pollution that doesn't meet point source definition
  - Polluted runoff from rain or snowmelt carrying natural and anthropogenic pollutants to waters

EPA

NPS Pollution Comes From Diverse Sources

- **Agriculture**
  - Nutrients, sediment, pathogens, pesticides, metals
  - Row crop runoff, irrigation water, animal facilities
- **Onsite septic systems**
  - Nutrients, pathogens
- **Acid mine drainage**
  - Abandoned mines, metals
- **Unregulated urban runoff**
  - Pathogens, fertilizer, pet waste, oil & grease, construction sediment
- **Forestry**
  - Sediment (slides, road construction, fire), temperature
- **Hydromodification**
  - Dams, channel straightening – sediment, temperature, habitat destruction



§319 of the Clean Water Act

Established in 1987, provides a framework and federal funding for state and local NPS efforts

- 319(b) - 5-Year NPS State Management Programs
- 319(h) - Grant Program
- In addition to CWA, states follow grant guidelines in spending 319 funds. *http://www.epa.gov/nps/319-grant-current-guidance*

§319 is a National Program, Influences State Programs, and Powers Local Watershed Projects

Funds distributed to states annually based on formula

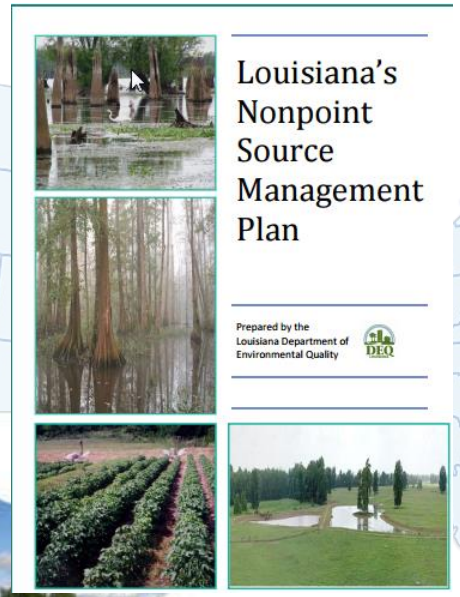
- In FY24, $174M allocated to states (Tribes $13M); ~ $1M to ~ $8.3M per state
- 40% non-federal match required

Use of funds requires:

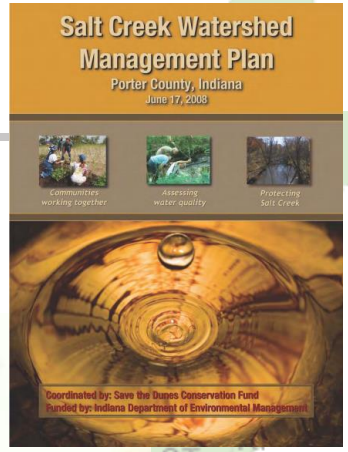
- **Watershed projects –** minimum 50% of funds allocated to support on-the-ground projects
- **NPS program work/staff**

EPA

Points of Engagement in the NPS Management Process



Update of nonpoint source management plans



Watershed plans and project selection

Sharing results and success

Defining NBS and Environmental Benefits

Nature-based solutions (NBS) are actions that protect, conserve, restore and sustainably manage natural or modified ecosystems. They use natural features or processes to address public health and environmental challenges while providing multiple benefits to people and nature.

Environmental benefits/co-benefits occur when NBS design achieves benefits beyond the intended primary function* of restoring or protecting water quality.

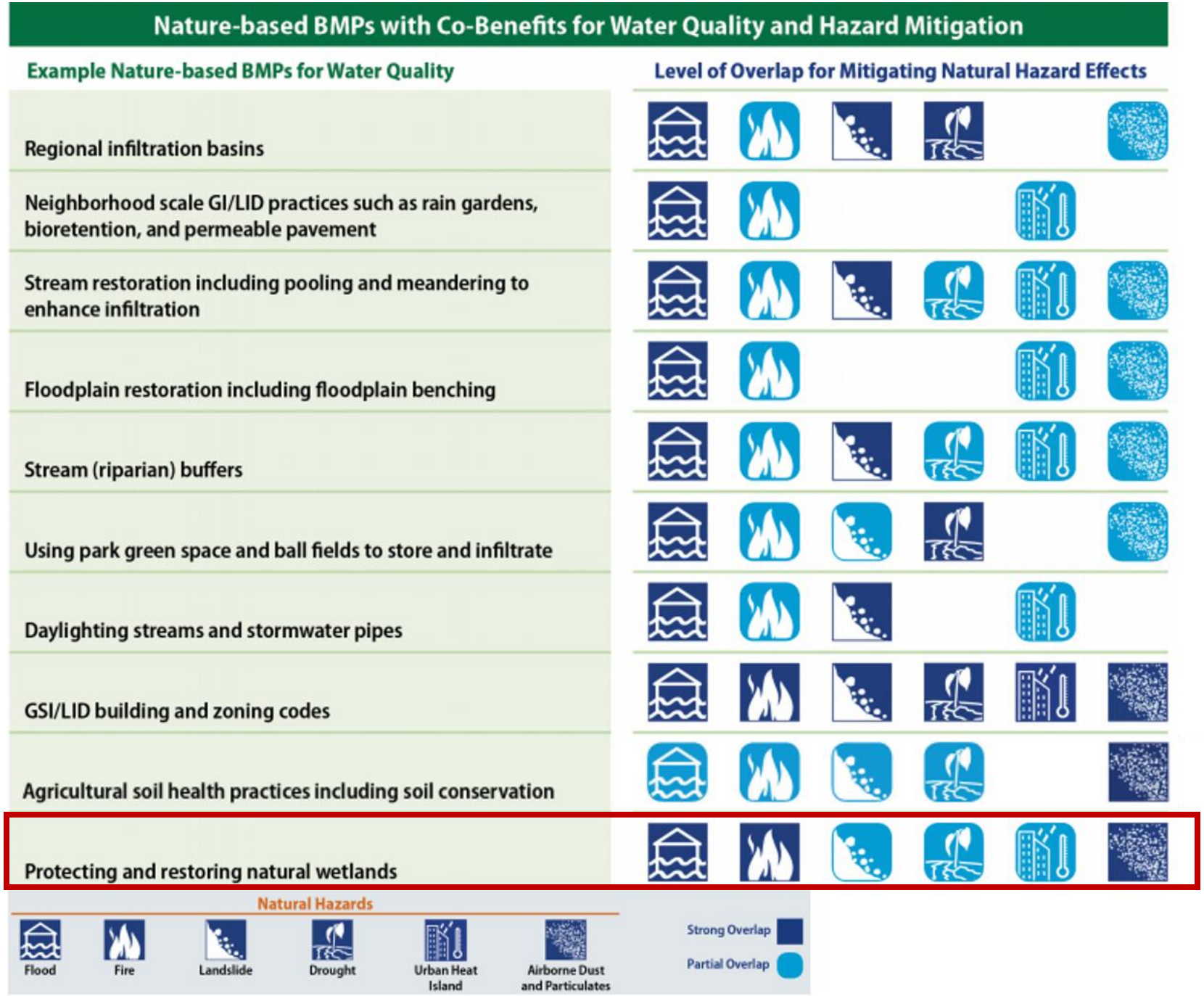
*for NPS management, the primary function = **water quality**

EPA

Nature-based Practices with Hazard Mitigation Co-Benefits

Nature-based solutions meet multiple goals by aiming to increase resilience to impacts from natural hazards while protecting, managing, and restoring natural or modified ecosystems.

The examples are not intended to be a complete list of nature-based solutions, or a complete list of mitigation practices.
Link to full document



Hazard Mitigation Benefits of §319 Practices

- Primary goal: Restore and protect water quality impacted by NPS.
- Range of BMP types: ag conservation, green stormwater infrastructure, wetland construction/restoration, etc.
- Many BMPs implemented through §319 have been identified as having potential hazard mitigation and resilience co-benefits.
- In 2024 ~300 §319 projects will implement practices with potential hazard mitigation/resilience co-benefits.

Hazard Mitigation in the NPS Program

- Section 319 grantees have expressed that natural hazards will prolong NPS management work.
  - Flood/high flow events are of particular concern.
- NPS program priorities vary by state:
  - Infiltration, stormwater capture, flood risk reduction
  - Wildfire response and recovery
- NPS programs are encouraged to consider natural hazard risk in NPS project design and implementation.
- Watershed planning flexibilities for emergency response and public health needs.
- Integrating hazard mitigation plans in watershed planning.

EPA

Benefits of Collaborating Across Hazard Mitigation and Water Quality Programs

Integrated planning processes can increase planning efficiency – take advantage of existing efforts, data, etc.

Leveraging of hazard mitigation and water quality funds

Water quality programs offer access to technical expertise on nature-based solutions to hazards

Adopted broadly, water quality practices can help reduce risk from hazards

EPA

Proactive Approach Improves St. Marys River and Promotes Green Infrastructure in Tidal Estuary

- The City of St. Marys installed green infrastructure (GI) to infiltrate and treat polluted stormwater runoff from a highly impervious urban coastal riverfront landscape.
- This project demonstrated GI effectiveness to mitigate nuisance flooding and low dissolved oxygen (DO) in the coastal environment.
- A comparison of pre- and post-installation storm sampling showed reduction in sediment, total nitrogen, and total phosphorus loads and higher monthly DO averages.
- 2.34 million gallons (66% of 3.55 million gallons) of runoff infiltrated.

Bioretention near City Hall

Bioretention system at “Market on Square” reaches capacity & overflows onto permeable pavement

Restoring Hydrologic Function to the Rito de los Indios

- 2011 Las Conchas fire resulted in sediment and ash deposit to Rito de los Indios stream.
- Post-fire surveys documented turbidity levels exceeding the state water quality standards.
- Partners: Los Amigos de Valles Caldera (nonprofit organization), Valles Caldera National Preserve, and New Mexico Environment Department (NMED).
- BMPs: Preservation and restoration of wet meadows (“plug and pond”), erosion and sediment control structures.
- Turbidity sufficiently to remove stream from state 303(d) list in 2024.

Post-fire flooding following the Las Conchas fire.

"Plug and Pond" constructed to capture sediment and increase wetland area.

Who is it for?

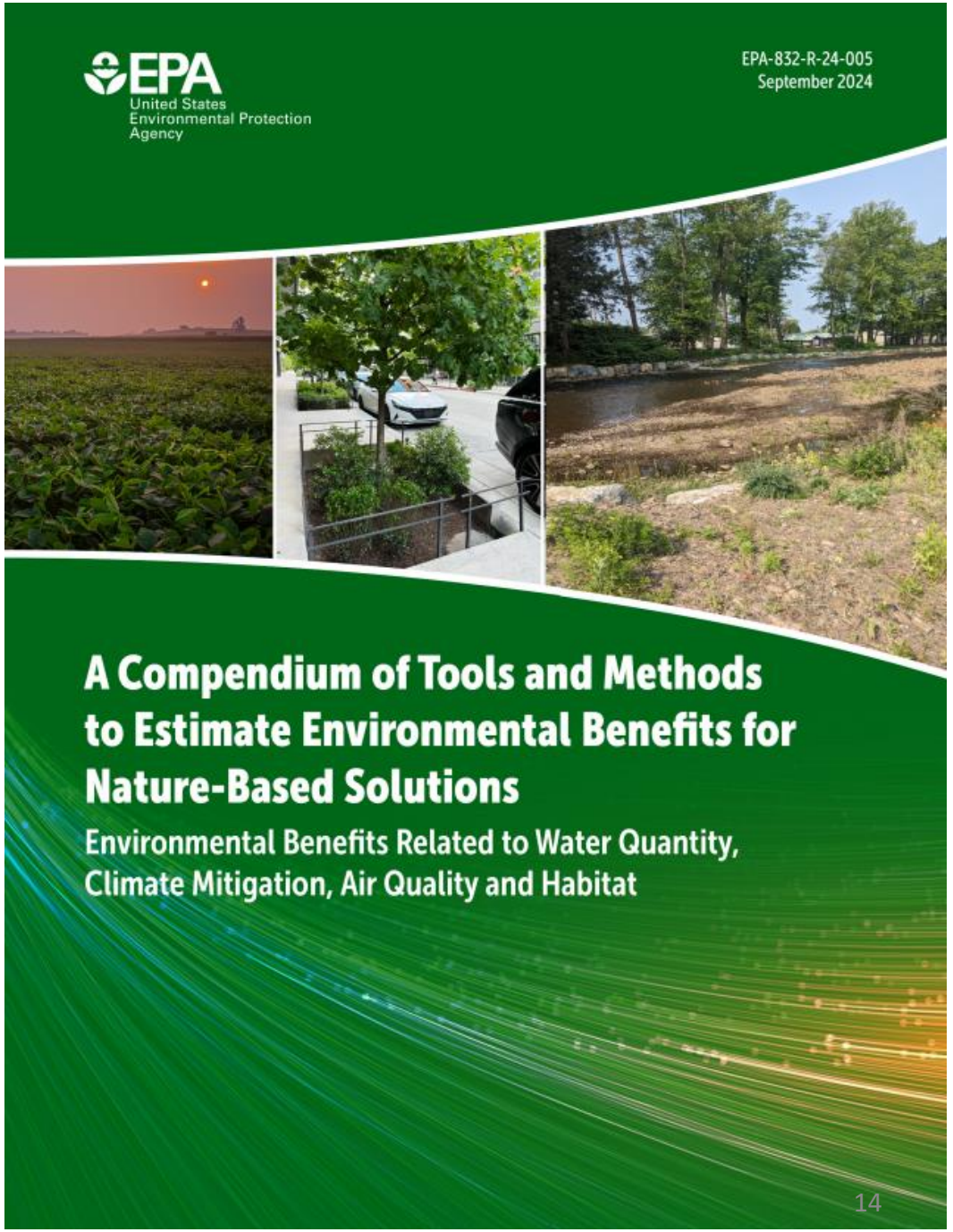
Intended for grantees and subgrantees of EPA's CWA Section 319 Grant Program and Gulf Hypoxia Program and others

What is the scope?

Serves as a guide to tools that may be used at the **planning level** to quantify and communicate environmental benefits

What activities apply?

- Preparing watershed-based plans;
- Writing grant proposals;
- Screening NBS;
- Communicating the benefits of NBS; and
- Evaluating or informing management actions or decisions.



Compendium Organization

Benefit Category	Specific Environmental Benefits
Water quantity	• Runoff reduction • Runoff prevention • Groundwater recharge potential • Rainfall interception
Air	• Air quality improvement • Ambient air temperature reduction
Habitat	• Improved habitat scores or indices • Aquatic connectivity • Habitat creation

EPA

Water Quantity

Runoff volume prevented

Runoff volume reduction

Groundwater recharge potential

Rainfall interception

Intervention Type	Method/Tool	Lead Agency	Applicable NBS	Benefit	Units	Scale
Protection	CN Method	N/A	Easement/land conservation		ac-ft/yr	Varies (site to watershed)
	i-Tree Canopy	USFS and cooperating partners[a]	Existing tree canopy		Mgal/mi^2/yr	Varies (parcel to watershed)
Restoration	PLET – Volume Reduction Method	EPA	GSI and LID		gal/yr	Varies (site to watershed)
	EPA National Stormwater Calculator	EPA	GSI and LID		in. (reported on a long-term annual basis)	Site (12 acres maximum)
	InVEST - Urban Stormwater Retention	Natural Capitals Project, 2024	Urban green spaces		m^3/yr	Watershed
	i-Tree Planting Calculator	USFS and cooperating partners[a]	Urban tree planting		gal/project lifetime	County, project level
	Green Roof Energy Calculator	Portland State University, University of Toronto, Green	Green roof		in.	Building

Note: full table not shown

NAWM/ASFPM Cooperative Agreement

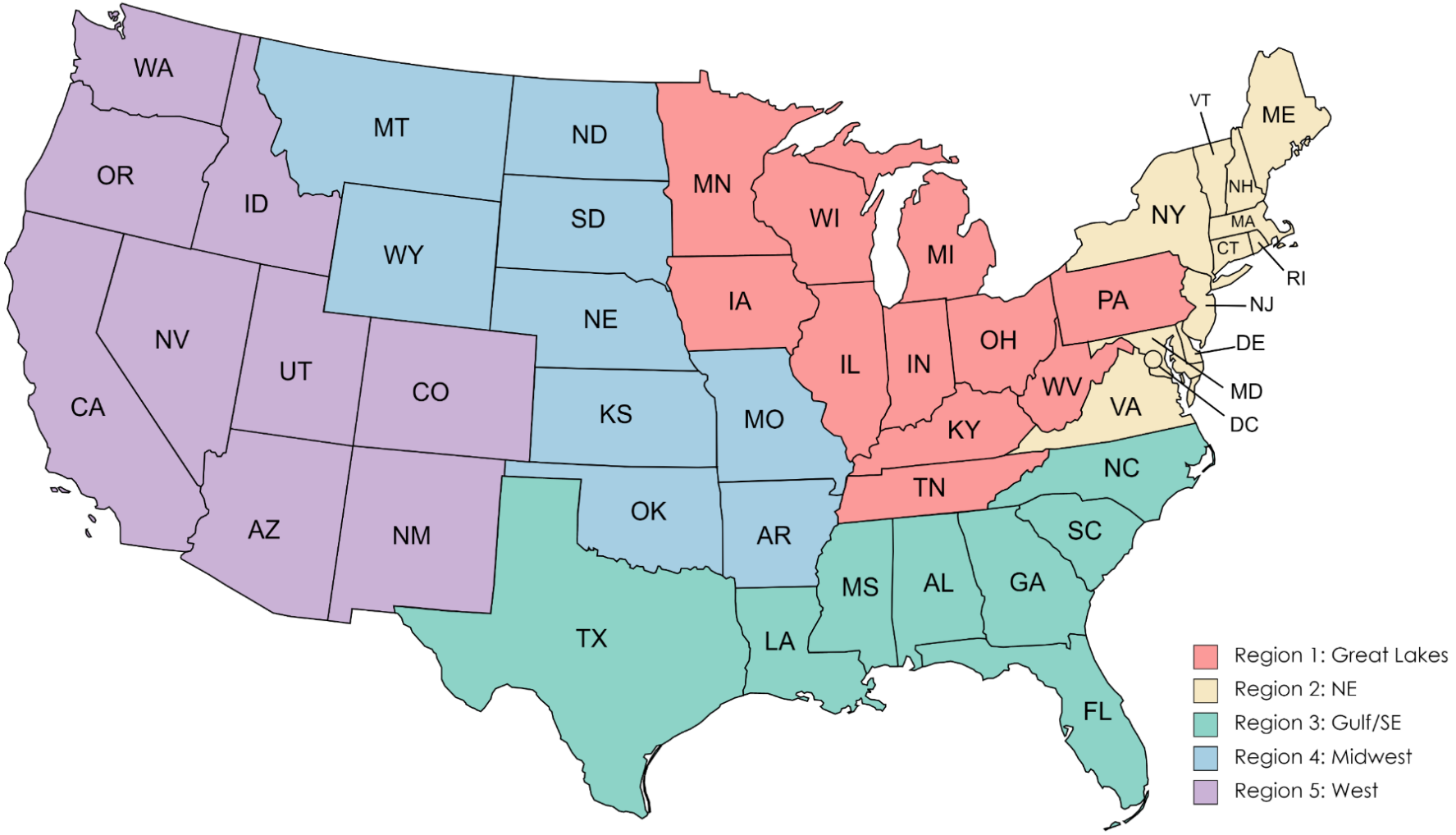
GOAL: Build relationships and expand collaboration between hazard mitigation and water quality staff at state and community level. Explore potential for nature-based solutions to support water quality and hazard mitigation goals.

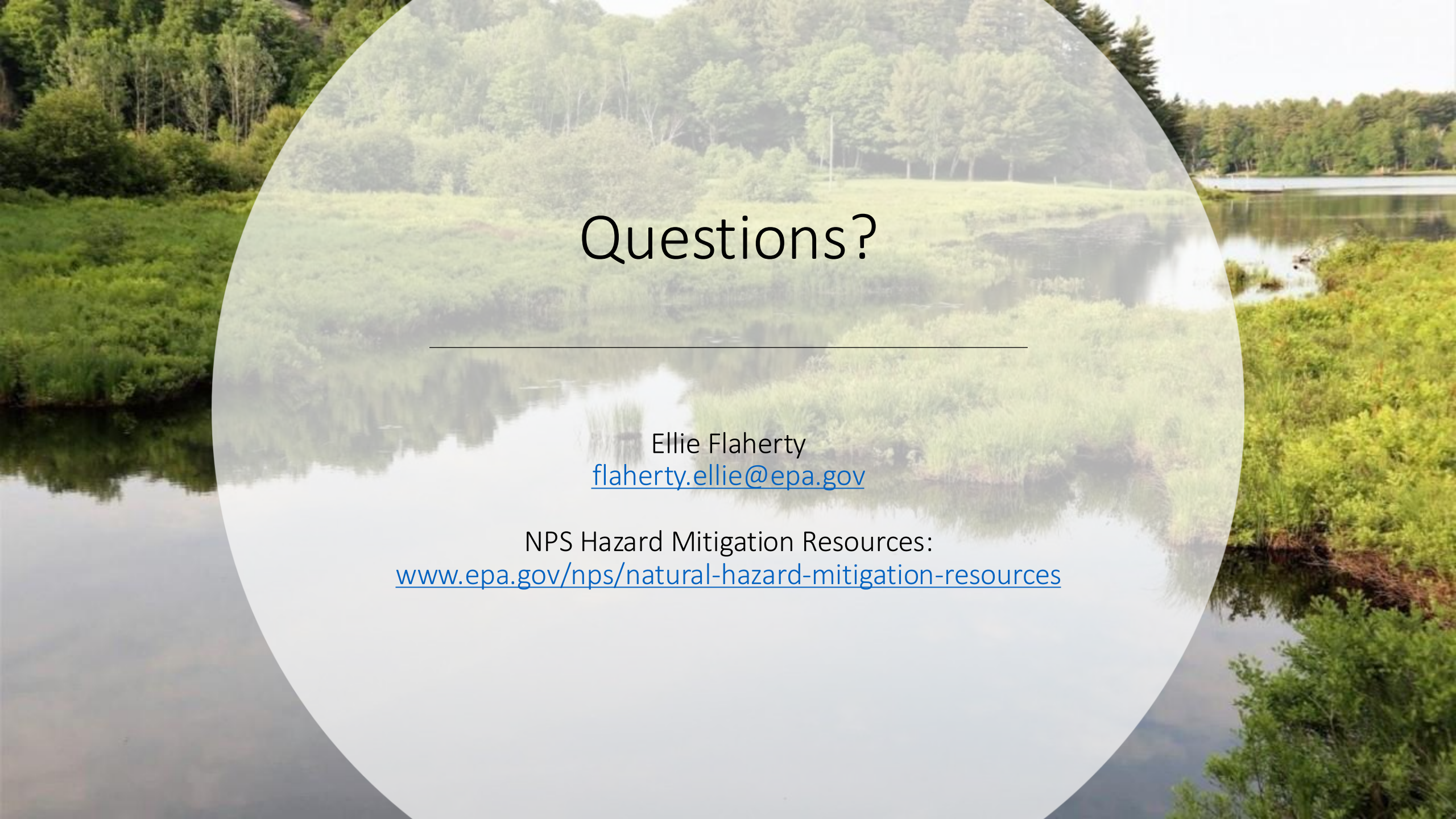
DELIVERABLE: Regional, cohort-based training workshops (water quality and hazard mitigation/emergency management professionals from state and local agencies) that result in cohort members working well together and continuing their relationship over time.

Training Topics

Policy & Regulatory	Science	Management
Stafford & Clean Water Acts	Floodplains, wetlands, and green infrastructure	Floodplain management
Permitting for nature-based practices	Hydrologic & hydraulic studies	Hazard mitigation
Water quality policy and regs	Geomorphology	Ecosystem services
Local stormwater regulations	Modeling for future conditions	Land use planning
Agencies to know		Cost benefit analysis
Levels of government		Education and outreach
		Integration and partnering

Next Workshop: September 16-18, Denver CO





Questions?

Ellie Flaherty
flaherty.ellie@epa.gov

NPS Hazard Mitigation Resources:
www.epa.gov/nps/natural-hazard-mitigation-resources

SAN MATEO RESOURCE CONSERVATION DISTRICT

The Role of Conservation Districts in Multi-Benefit Watershed Projects

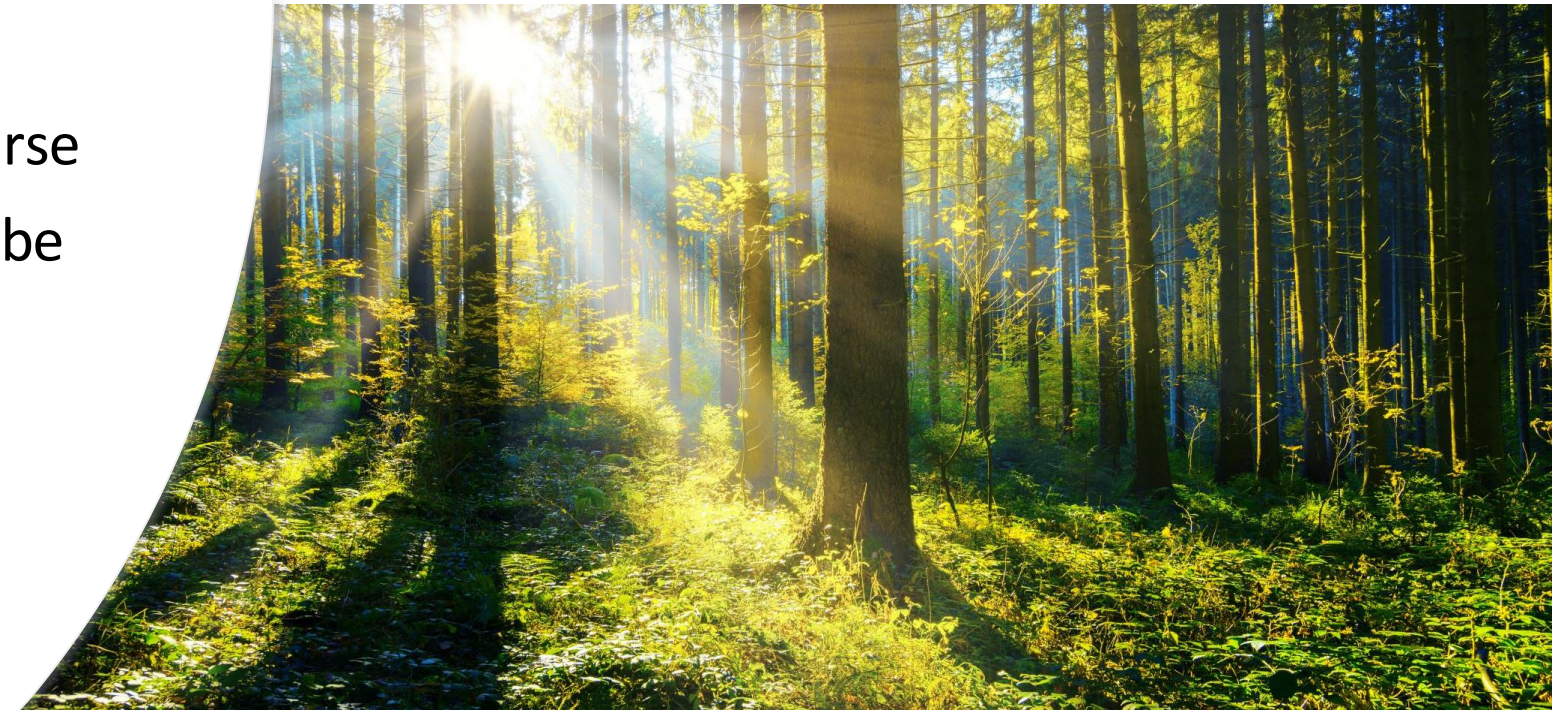
"Bridging Conservation and Hazard Mitigation Planning"

Soil and Water Conservation Society Annual Meeting

August 3, 2025

Why Nature-Based Solutions

- Healthy ecosystems provide complex services that mitigate drought, flooding, erosion, and fire and protect water resources
- Impaired ecosystems do the inverse
- The cause of a problem may not be where we see the problem



Why Conservation Districts?

- Created to protect our community by protecting its natural resources
- Work across jurisdictions, boundaries, land ownership
- Integrated, holistic approaches for conservation, property, safety
- Diverse tools
- Trusted brokers for agencies* and private landowners alike
  - Locally led
  - Non-regulatory, confidential
  - Bring incentives
- Solutions at the right scale
- Boots on the ground

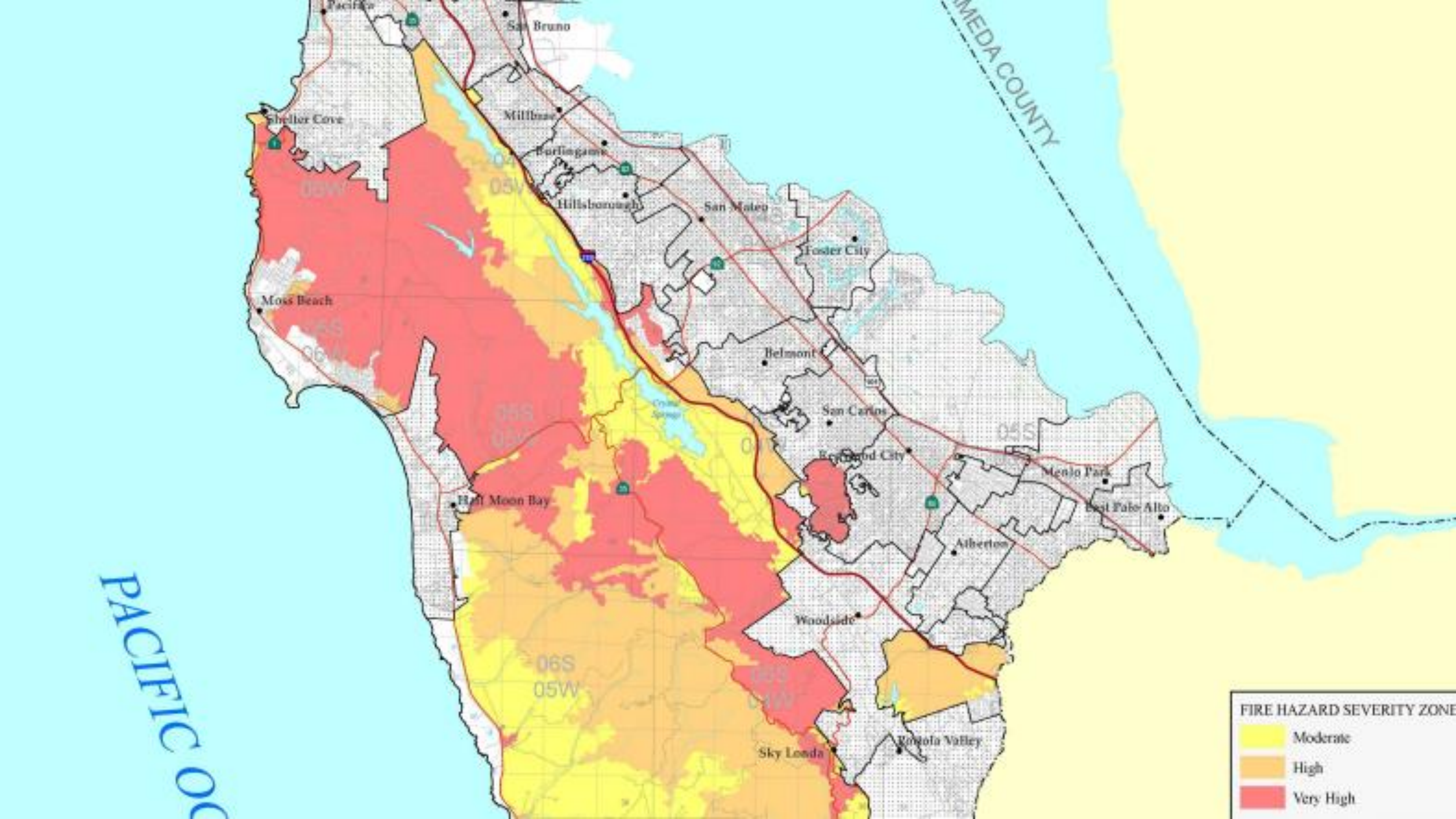
	Environment	Water Security	Profit
Private conservation e.g. land trusts	**Yes**	Maybe	No
Public conservation e.g. parks, open space	**Yes**	Maybe	No
Agricultural producers	Maybe	**Yes**	**Yes**
Private domestic e.g. mutual water company	Maybe	**Yes**	No

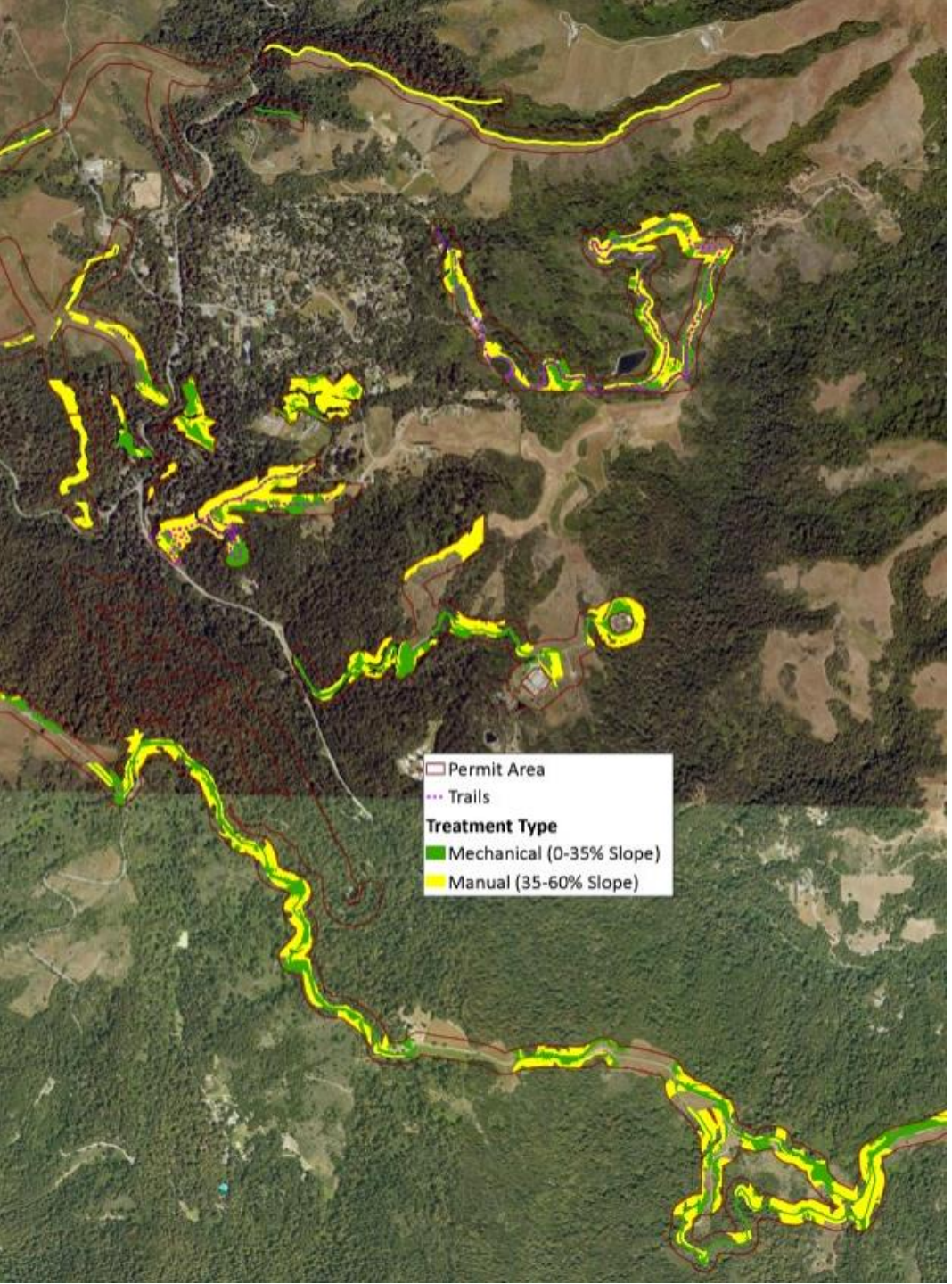
	Incentives	Barriers
Regulatory	Streamlining Exemptions Certainty	Complexity Costs Uncertainty Delays
Financial	Grant funds Cost share programs Reduced operating costs	Complexity and costs of grant programs Delayed payments
Risk	Getting ahead of anticipated new regulations Water security	Exposure with agencies and public New restrictions

County Plans

- Community Climate Action Plan
- Local Hazard Mitigation Plan
- Grading Ordinance
- Local Coastal Plan
- Energy and Water Strategy 2025


Wildlife
We improve the chances of survival for species of plants and animals at risk of extinction by restoring their habitats.
Water
We help ensure clean and reliable water for the farms, fish, and people who share this precious resource.
Climate
We work to reduce emissions and remove greenhouse gases from the atmosphere as well as help people prepare for extreme weather.
Agriculture
We serve farmers and ranchers to help ensure viable, environmentally friendly local agriculture.
Forest Health and Fire Resiliency
We work with communities to reduce the risk of catastrophic fire, improve forest health, and heal the land after fires occur.


San Bruno
Shelter Cove
Millbrae
Burlingame
Hillsborough
San Mateo
Foster City
Moss Beach
Belmont
San Carlos
Menlo Park
East Palo Alto
Atherton
Half Moon Bay
Woodside
Sky Londa
Portola Valley
PACIFIC OC
MEDA COUNTY
FIRE HAZARD SEVERITY ZONE
Moderate
High
Very High


Permit Area
Trails
Treatment Type
Mechanical (0-35% Slope)
Manual (35-60% Slope)


RCD

Cover crops

Rotational grazing

Reduced tillage

Compost

Windbreaks

Mulch

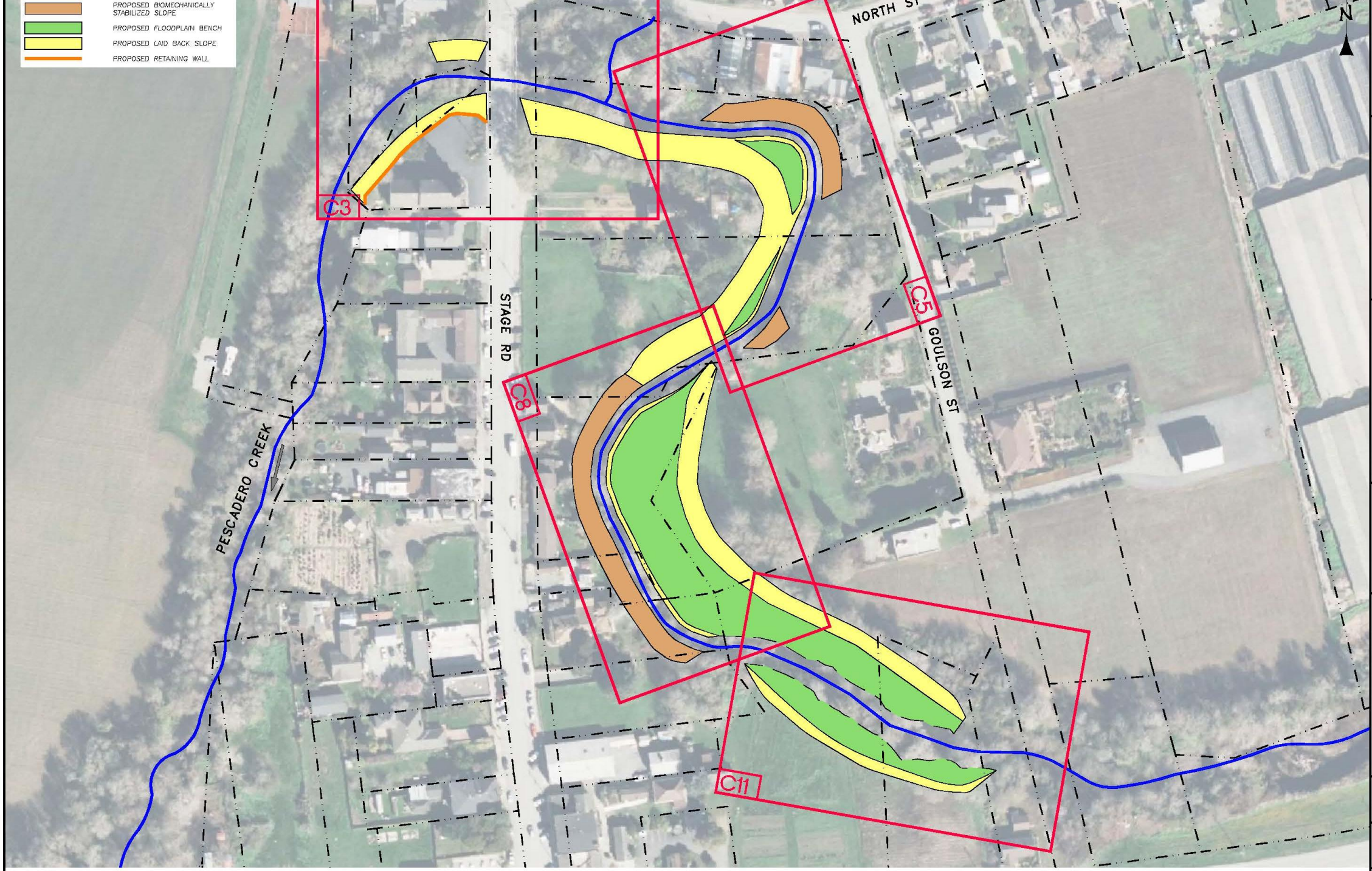
Rangeland planting

Hedgerows


DUARTE'S
TAVERN
LIQUOR


STAGE RD
PESCADERO
STOP
CASH
UNLEADED
279 9/10
UNLEADED PLUS
289 9/10
299 9/10
PREMIUM
299 9/10
309 9/10


PARAMEDIC



WATERWAYS CONSULTING
1020 SW TAYLOR STREET, STE
PORTLAND, OR 97205
PH:(503)227-5979 // FAX:(888)81
WWW.WATWAYS.COM

DRAFT
FOR LAND OWNER REVIEW

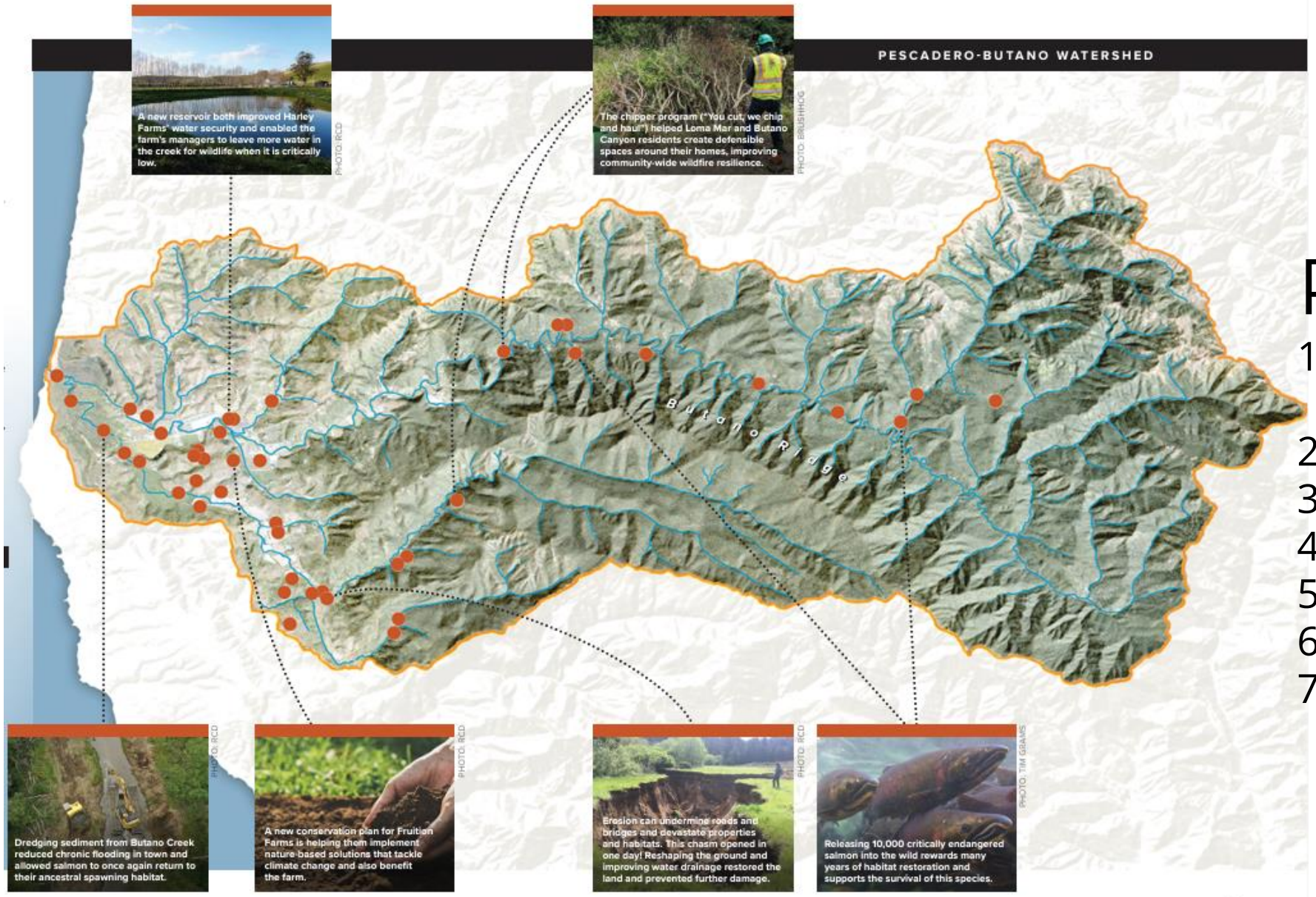
PREPARED AT THE REQUEST OF:
SAN MATEO RESOURCE CONSERVATION DISTRICT

OVERVIEW

PESCADERO CREEK UPPER TOWN REACH PROJECT

DESIGNED BY:	M.W.W.
DRAWN BY:	K.P.B.
CHECKED BY:	M.W.W.
DATE:	07/20/23
JOB NO.:	18-057

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"



Resilience

1. Thriving wildlife and ecosystems
2. Mitigate natural disasters
3. Protect water supply
4. Protect properties
5. Protect agriculture
6. Protect infrastructure
7. Mitigate climate change

Thank you!

Kellyx Nelson

Executive Director

kellyx@sanmateoRCD.org

Website| sanmateoRCD.org

YouTube | San Mateo RCD

Facebook | facebook.com/sanmateoRCD

Instagram | instagram.com/sanmateoRCD

COFFEE BREAK

10:45 AM-11:00 AM

ENVIRONMENTAL LAW • INSTITUTE®

BREAKOUT 1: OPPORTUNITIES FOR ALIGNMENT

OBJECTIVES:

- IDENTIFY WHERE CONSERVATION AND DISTRICT PRIORITIES CURRENTLY ALIGN WITH HAZARD MITIGATION PLANNING
- EXPLORE OPPORTUNITIES TO STRENGTHEN THAT ALIGNMENT
- DISCUSS BARRIERS TO EXPANDING ALIGNMENT

What are the major hazards in your area/what are the top priorities for mitigation hazards in your area?

1. **Individual reflection (2-3 min)**
   - Independently brainstorm and write top hazard mitigation priorities on **one color** sticky note.
2. **Group discussion (5-7 min)**
   - Group the sticky notes on the left side of the flip chart.
   - Identify shared and unique priorities and discuss how you engage with hazard mitigation planning in your work.
     - Guiding questions:
       1. *What is your experience with hazard mitigation planning?*
       2. *For special districts: has your district participated in adopting or updating a hazard plan? If so, are your district's priorities reflected in the plan?*

What are the top conservation priorities in your area (or for your district/organization)?

1. **Individual reflection (2-3 min)**
   - Write your top conservation priorities on **different colored sticky notes.**
2. **Group discussion (5-7 min)**
   - Collect the sticky notes and group them on the right side of the flip chart.
   - Discuss common themes.

Identifying Overlapping Priorities and Challenges to Alignment (45 min)

1. As a group, look at the flip chart and **brainstorm projects that could address mitigation and conservation priorities**. List these in the center of the flip chart.
2. Consider how the projects you have listed could **address one or more priorities from either side (hazard mitigation and conservation).** Draw arrows where you identify ties.
3. **Discuss the following questions,** listing key themes on the flip chart:
    - *Where do you see alignment between hazard mitigation and conservation priorities?*
    - *What challenges prevent further alignment? What kind of resources do you need to promote alignment?*

Report-back (15 min)