EPA Section 319 Nonpoint Source Management Program and the Hypoxia Task Force (HTF)

2020 Leadership for Midwestern Watersheds Conference

November 18th, 2020

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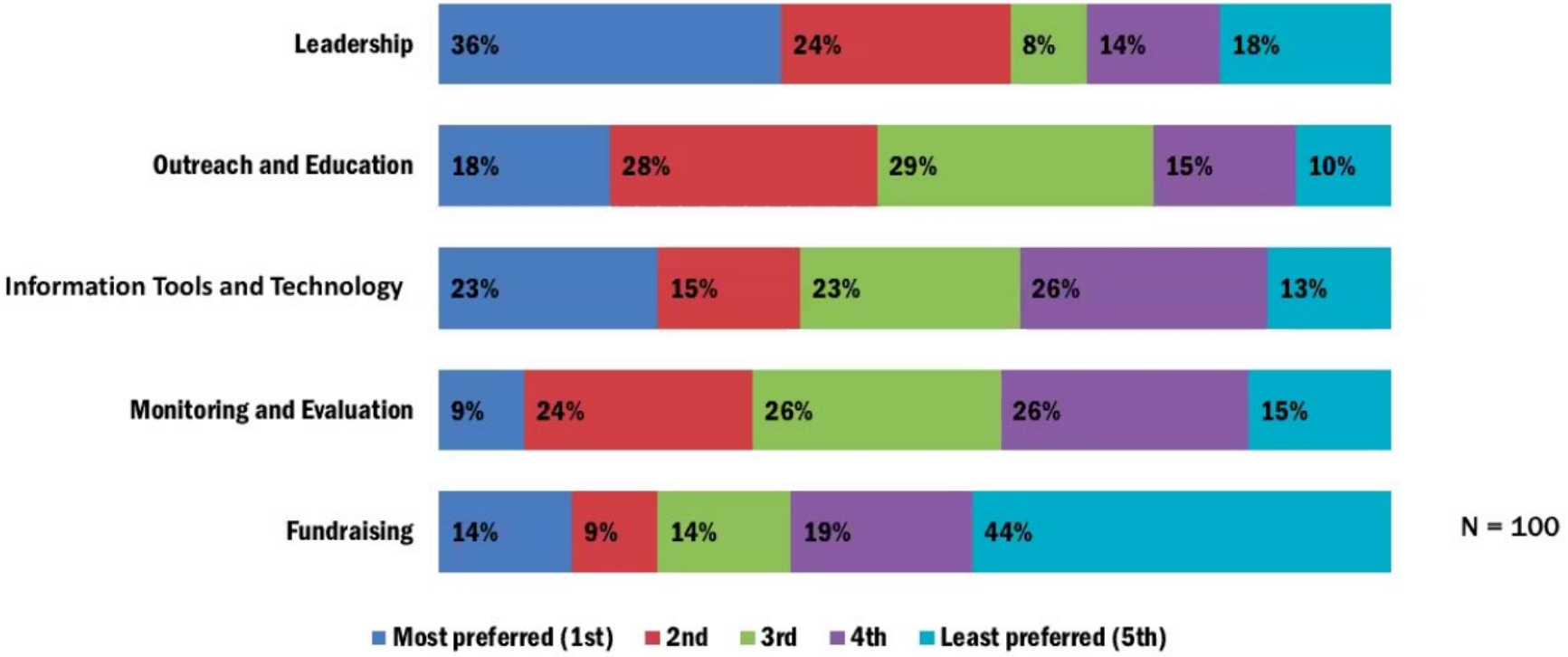
13. Which of the following skills do you wish to develop in your professional capacity? Please rank your choice by dragging your most preferred to the top.

Needs Assess



N = 100

Ranked on a scale of 1st to 5th, where 1st = Most preferred, 5th = Least preferred

Leadership and Training Opportunities

- Indiana: https://engineering.purdue.edu/watersheds/academy.html
- Minnesota: https://wst.umn.edu/
- Iowa: https://iowalearningfarms.wordpress.com/2019/06/10/the-iowa-watershed-academy/
- Wisconsin – Yahara: https://www.cleanlakesalliance.org/yahara-watershed-academy/

- Join SWCS and become a chapter leader!

- Get to know your funding opportunities – be creative, and do not hesitate to ask your state staff, NRCS staff, EPA Regional or HQ staff the questions you have about any program!
  - If you can't find an answer, feel free to contact me: Flahive.Katie@epa.gov, 202-566-1206

Outreach and Education

- Nonpoint Source Outreach Toolbox – this is SO much cooler than this boring slide!
  - https://cfpub.epa.gov/npstbx/index.html

- Watershed Academy Resources
  - https://www.epa.gov/watershedacademy
  - Illinois: https://www2.illinois.gov/epa/topics/water-quality/watershed-management/watershed-based-planning/Pages/default.aspx

Information Tools and Technology

- Nonpoint Source Technical Guidance and Tools
  - https://www.epa.gov/nps/nonpoint-source-pollution-technical-guidance-and-tools
  - https://www.epa.gov/ms-htf/compendium-tools-track-conservation

Monitoring and Evaluation

- Assessment
  - https://www.epa.gov/waterdata/assessing-and-reporting-water-quality-questions-and-answers
- Monitoring Support and Data
  - https://www.epa.gov/waterdata/water-quality-data-wqx
  - https://acwi.gov/monitoring/waterqualitydata.html

What Else We'll Cover Today

- CWA §319 Nat'l Nonpoint Source Program
- Financing to deploy NPS practices
- Hazard Mitigation
- Hypoxia Task Force

CWA §319 Nat'l Nonpoint Source Program

https://www.epa.gov/nps

NPS Pollution is Diverse and Dominates the Nation's Impaired Waters

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

Hydro-modification – dams, channel straightening – sediment, temperature, habitat destruction

NPS Pollution Dominates Impaired Waters Rivers and Streams

Of waters that have been assessed and a possible source identified, 85% of rivers and streams are impaired by nonpoint sources

Probable Source Group	Miles Threatened or Impaired
Unknown	144,971
Agriculture	135,855
Hydromodification	88,634
Atmospheric Deposition	85,922
Habitat Alterations (Not Directly Related To Hydromodification)	65,633
Unspecified Nonpoint Source	60,807
Municipal Discharges/Sewage	57,237
Natural/Wildlife	50,702
Urban-Related Runoff/Stormwater	49,330
Silviculture (Forestry)	40,942

NPS Pollution Dominates Impaired Waters Lakes, Ponds and Reservoirs

Of waters that have been assessed and a possible source identified, 80% of lakes and reservoirs are impaired by nonpoint sources

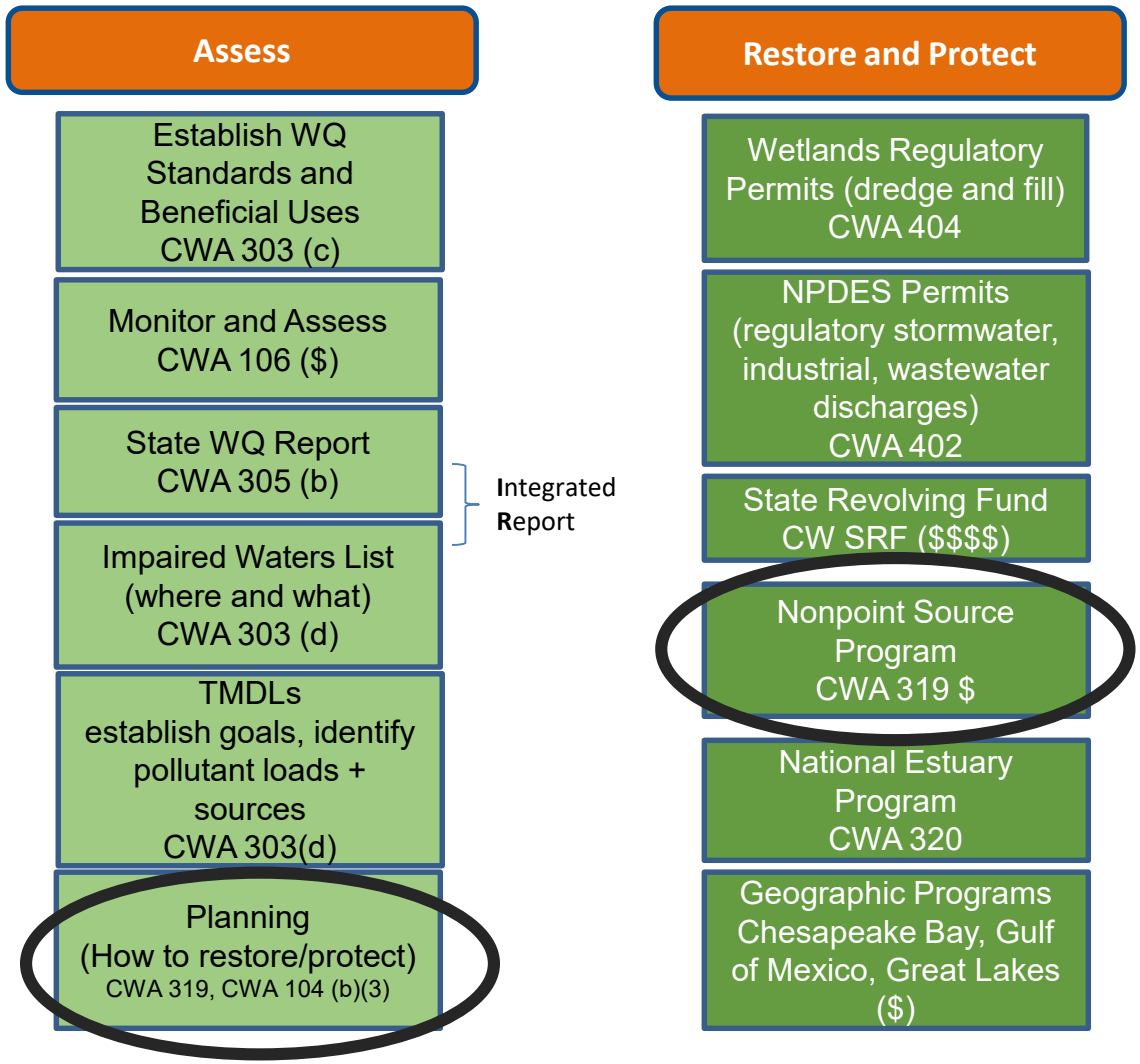
Probable Source Group	Acres Threatened or Impaired
Atmospheric Deposition	4,215,980
Unknown	3,849,855
Agriculture	1,112,048
Natural/Wildlife	1,083,193
Unspecified Nonpoint Source	1,070,339
Other	834,283
Urban-Related Runoff/Stormwater	759,483
Legacy/Historical Pollutants	749,611
Municipal Discharges/Sewage	686,322
Hydromodification	569,138

*NPS shaded in blue

Source: Draft CWA 305(b) National Water Quality Inventory

Disclaimer: Impairment information as of October, 2017. Because data are being migrated to the new ATTAINS system, these numbers may not reflect most current information.

Clean Water Act Tools for Watershed Protection and Restoration



§319 of the Clean Water Act

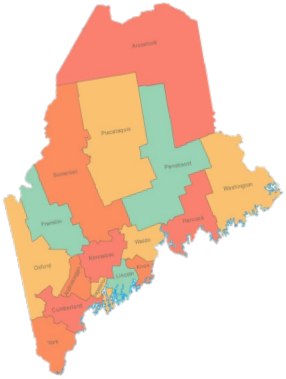
Established in 1987, provides a framework and federal funding for state and local NPS efforts

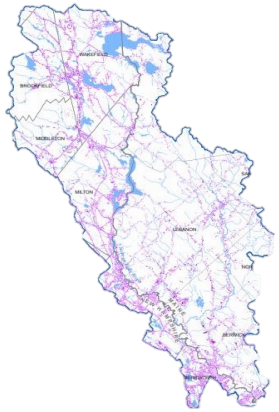
- 319(b) - State Management Programs (NPS Management Programs)
- 319(h) - Grant Program
- In addition to CWA, states follow grant guidelines in spending 319 funds. http://www.epa.gov/nps/319-grant-current-guidance

§319 role in NPS and nutrient reduction

- States set priorities and strategies for addressing nonpoint source (NPS) pollution concerns in 5-year NPS Management Plans.
- Nutrient reduction strategies are a common NPS priority
  - 70% of §319 projects directly address nutrient parameters.
  - An additional 10% address sediments or pathogens and these projects often co-control nutrients.
- States have flexibility to tailor NPS work to their water quality concerns and program structure, including innovative financing or market approaches to achieve results.

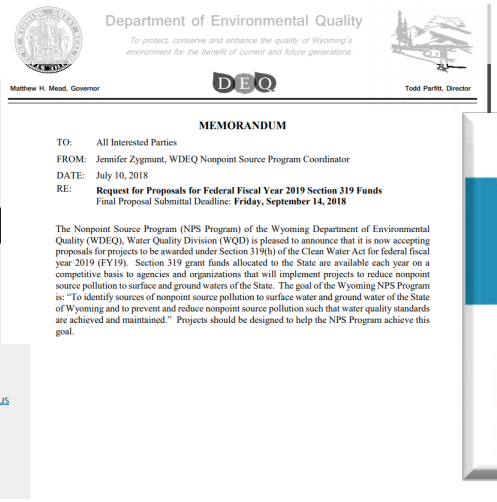
EPA Regional NPS staff have a critical role in working with each state's program

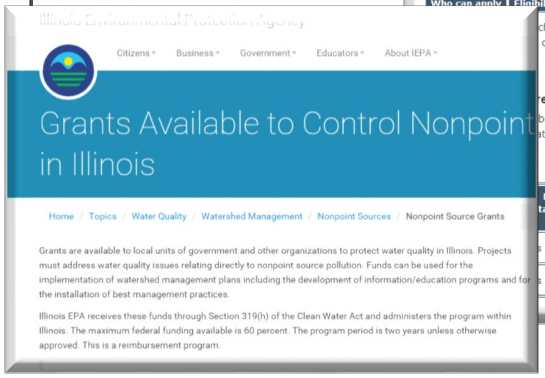


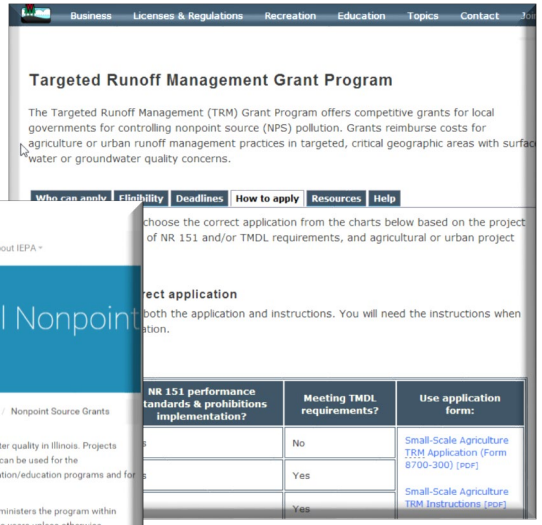


- Review NPS management plan/5 year
- Evaluate progress on goal/yr
- Review technical soundness and reasonability of work plan
- Average number of active projects in each region: 188
- Liaison between States and EPA HQ

Most states run RFP or other competitive processes and award subgrants for watershed projects



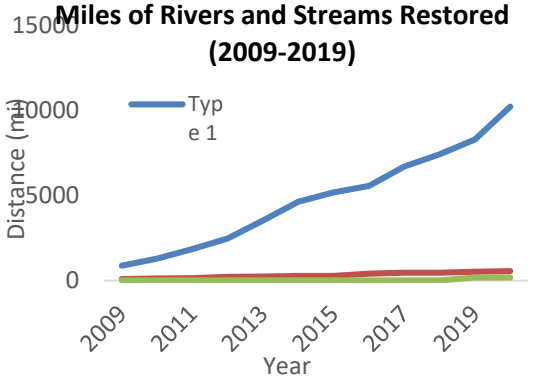


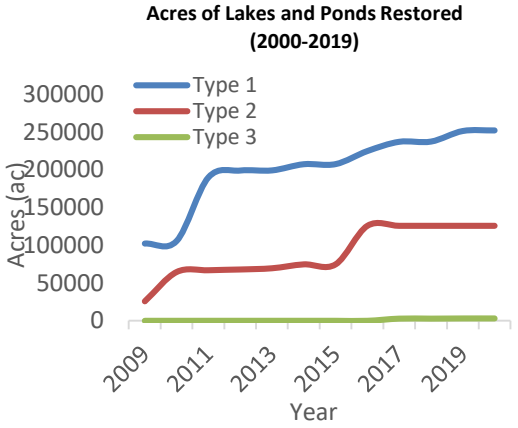


Section 319
Nonpoint Source Success Stories

Results:

- ~ 10,500 miles of streams and rivers, and 250,000 acres of lakes and ponds restored for one or more impairments
- More than 832 water bodies covered in over 600 stories
- Most frequent pollutants: Sediment, Pathogens, Nutrients, Acid/Metals
- Most frequent types: Agricultural, closely followed by Urban

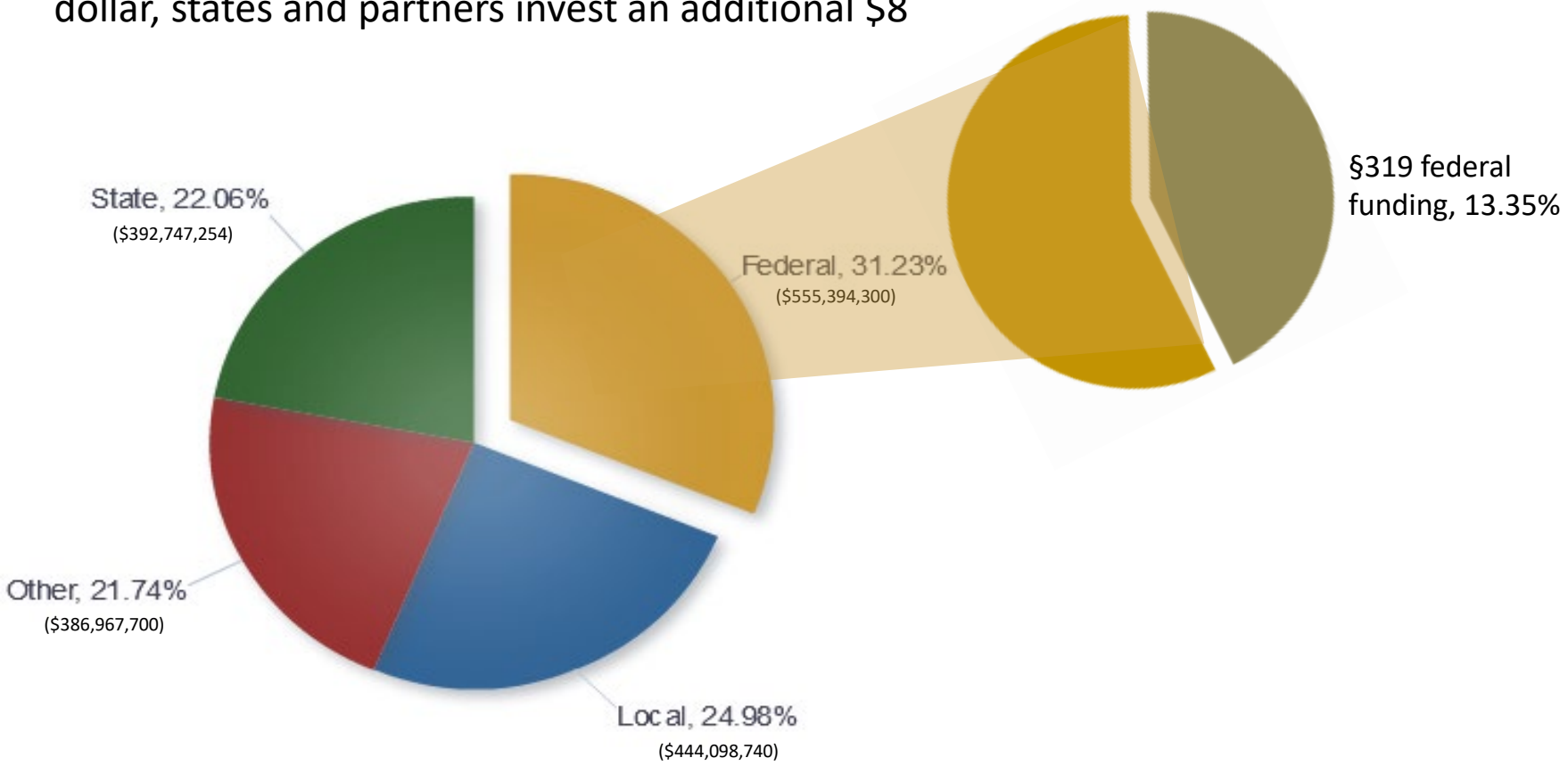




https://www.epa.gov/nps/success-stories-about-restoring-water-bodies-impaired-nonpoint-source-pollution

§319 Grants: Catalyst for Funds Leveraging and Coordination

Analysis of projects shows that for each §319 dollar, states and partners invest an additional $8



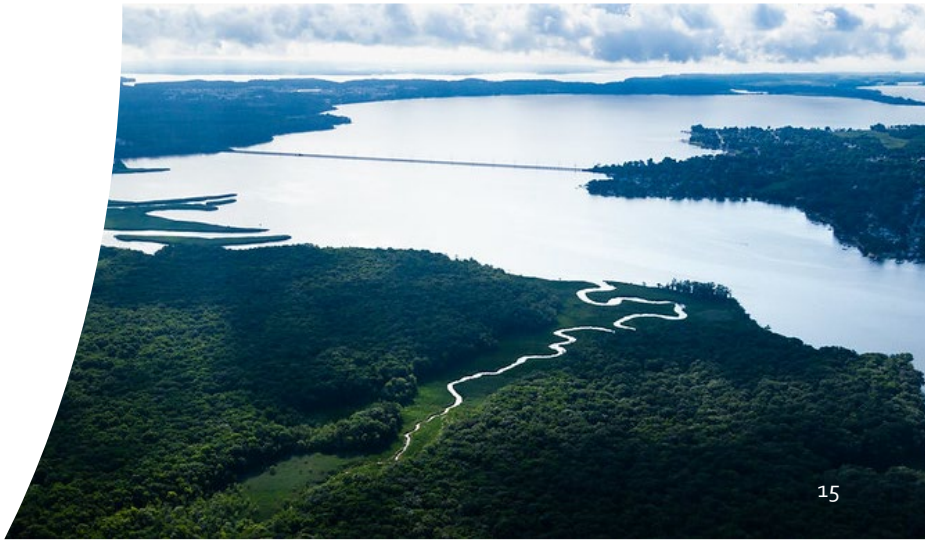
Clean Water State Revolving Fund role in NPS and nutrient reduction

CWSRF funds cannot be used to purchase credits directly.

However, they can be used to facilitate, support and gain access to watershed-based markets:

- **Development of watershed-based plans that can include water quality trading**
- **Finance capital projects that generate credits**
- **Loan to a utility to fund nonpoint source projects in its watershed**

…And WIFIA can as well!



https://www.epa.gov/cwsrf https://www.epa.gov/wifia https://www.epa.gov/waterfinancecenter

Financing to deploy NPS practices

https://www.epa.gov/nutrient-policy-data/collaborative-approaches-reducing-excess-nutrients

Importance of Funds Leveraging and Coordination

- Given magnitude of NPS problems and limited resources, NPS programs build connections and leverage funding
- **USDA -** especially NRCS conservation programs, National Water Quality Initiative
- **FEMA –** hazard mitigation planning and grants; nexus of water quality projects and reduced risk from natural hazards (drought, floods)
- **CWSRF -** has authorities for SRF-funded NPS projects and receptive to innovative NPS approaches

https://www.epa.gov/waterfinancecenter/effective-funding-frameworks-water-infrastructure

§319 funds have been used to support nutrient market activity

About a dozen states have utilized §319 funds to evaluate or implement market-based activities. Examples include:

- Evaluating trading as an option
- Supporting staff to develop state-wide trading strategy or policy
- Supporting staff to develop watershed trading/market plan, engage landowners
- Developing a catalog of acceptable BMPs for a trading market
- Providing monitoring to establish baseline for nutrient, temperature trading

§319 funds can be used to purchase or to generate water quality credits

- A state may choose to purchase water quality credits with §319 funds from a third-party aggregator or other source
- Credits purchased with §319 funds should be verified to result in environmental outcomes, consistent with §319 program requirements
- A state may retire purchased credits for NPS water quality benefit or to make progress toward a state nutrient reduction goal
- Using program or support an existing trading program
- States may use §319 funds to pay for NPS conservation practices that *generate* water quality credits for use in a NPS trading framework
- §319 funds to purchase water quality credits may jumpstart a new trading program or support an existing trading program

Eligible Borrowers

Clean Water
State Revolving Fund

- Communities (public wastewater treatment facilities, municipalities, conservation districts, etc.)
- Private Entities
- Nonprofit Organizations
- Citizen Groups

*varies by state and project type

WIFIA
PROGRAM

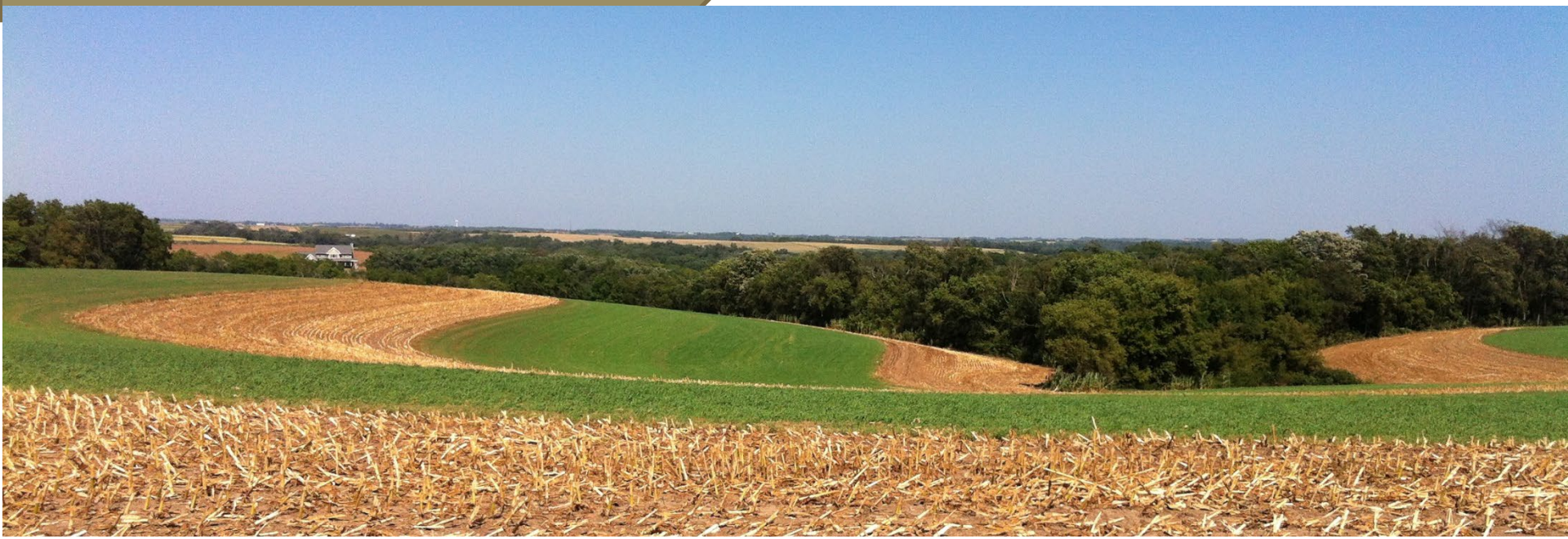
- Local, state, tribal and federal government entities
- Partnerships and joint ventures
- Corporations and trusts
- Clean Water and Drinking Water State Revolving Fund (SRF) programs

CWSRF Nutrient Reduction

- The CWSRF can finance a variety of projects that reduce excess nutrients in rivers, lakes, and streams.
- Eligible projects include:
  - New nutrient removal processes at POTWs
  - Stormwater conveyance and treatment systems
  - Green infrastructure (e.g., bioswales, infiltration basins, wetland restoration)
  - Development of watershed-based plans
  - Agricultural best management practices (both livestock and field)
  - And more…

Reminder: All of these CWSRF project types are eligible for WIFIA as well! WIFIA PROGRAM

Hazard Mitigation



Defining Terms

Natural and Nature-Based:

- Landscape features or management practices used to provide hazard mitigation while producing environmental, economic, and social co-benefits.
- *Nature-based*: Engineered (compared to naturally-occuring) such as green stormwater infrastructure, constructed wetlands, living shorelines, ecosystem restoration, agricultural conservation practices.
- *Natural*: Naturally occuring such as forests and floodplains.
- FEMA encourages incorporating these non-traditional mitigation strategies in 2015 updates to program guidelines

Non-Structural Hazard Mitigation:

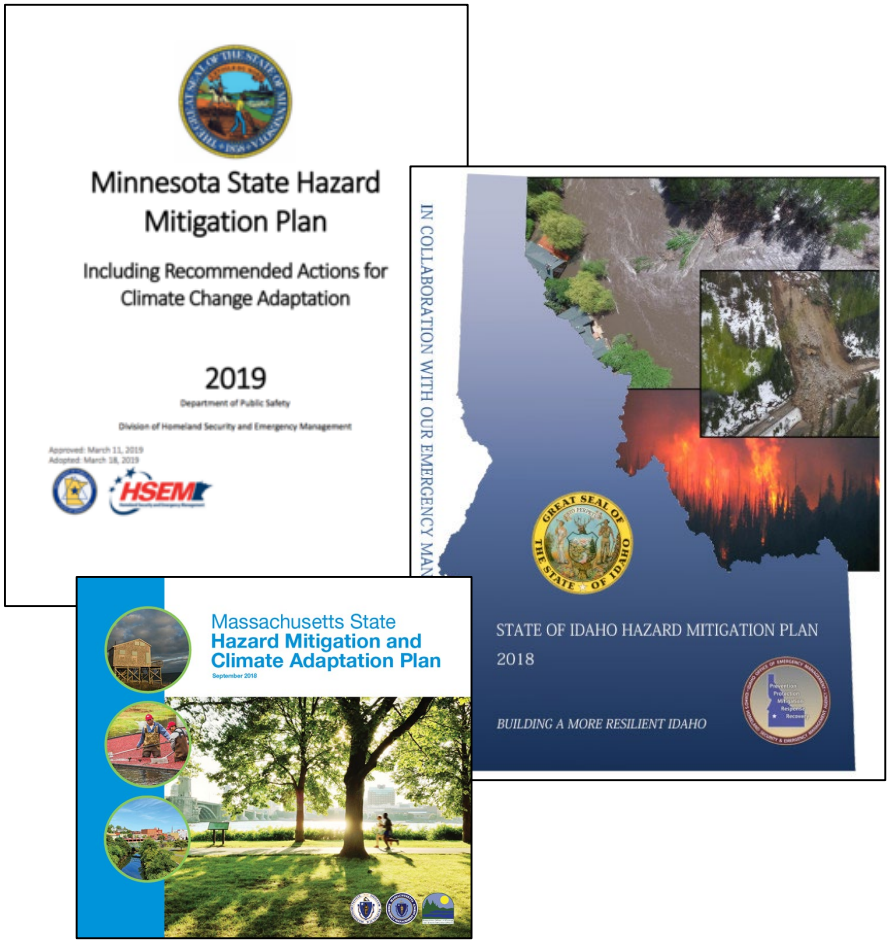
- Generally refers to practices other than dams and levees such as raising buildings to above base flood elevation, but it can also refer to building codes and natural and nature-based solutions.

Natural Hazards:

- An official FEMA term, differentiating between natural disasters and others (terrorism etc).

Natural Hazard Mitigation Plans: Overview

- The Stafford Act (1988) directs that each state have a HMP to be eligible for certain types of FEMA funding
- These plans address all natural hazards, as selected by the state or jurisdiction
- The State Hazard Mitigation Office is the HMP custodian
- Each jurisdiction in the state also has a HMP
- Projects must be consistent with the state HMP to receive funding



Conservation Farming and Solutions to Water Quality and Natural Hazards

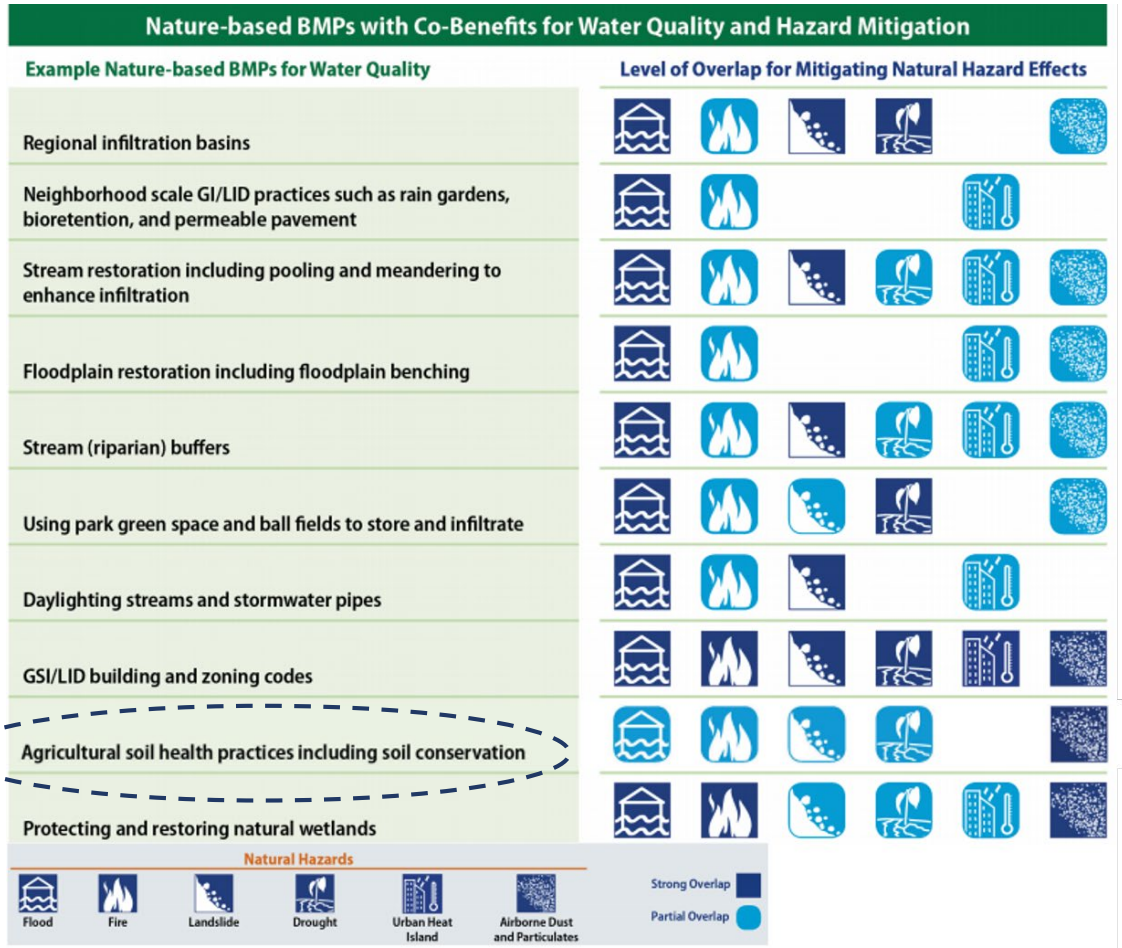
NPS pollution is exacerbated by many natural hazards

- Agriculture conservation practices can reduce the risk of multiple natural hazards (e.g. flood, dust, drought) and improve water quality.
- Integrating ag conservation projects and nature-based solutions into state HMPs can open the door for funds leveraging and achieve both water quality and hazard mitigation goals.
- While ag benefits may not meet FEMA grant criteria, including in HMP creates opportunities for other funds.
- Water quality programs can play an important role in shaping these projects.

Example Water Quality BMPs with Hazard Mitigation Co-Benefits

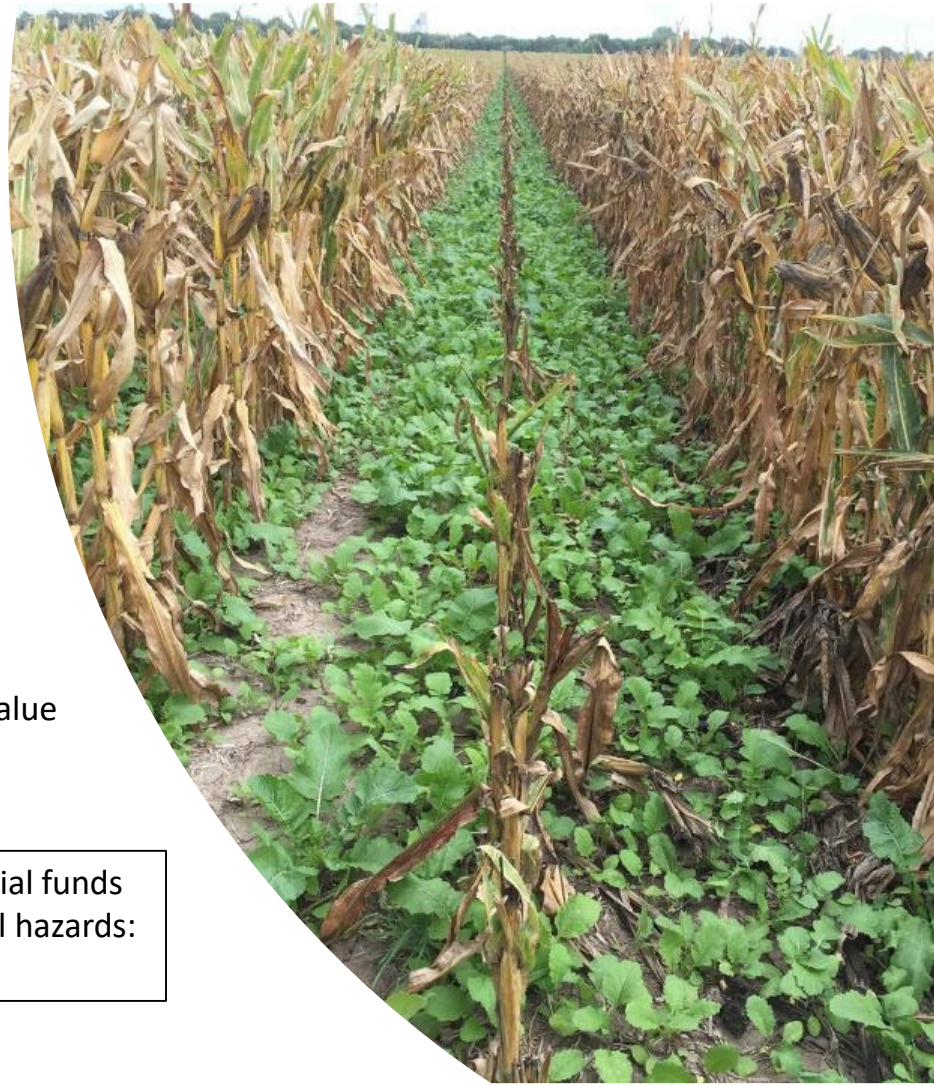
Opportunity for conservation systems in the urban and rural landscapes to help support Hazard Mitigation Plans creating co-benefits.

Significant co-benefits can make a Hazard Mitigation project application more competitive.



Why Engage Now? FEMA Policy Changes Support Nature-Based Solutions

- Building Resilient Infrastructure and Communities:
  - Pre-disaster mitigation grant - 6% set aside from disaster funds
  - Emphasizes pre-disaster mitigation and resilience
  - Support for integrated planning
- FEMA promotes nature-based approaches and assigns value to ecosystem services for project benefit/cost analysis



These changes offer partnership, coordination, and potential funds leveraging to improve water quality while mitigating natural hazards: e.g., harmful algal blooms, flooding, drought

Hypoxia Task Force

Mississippi River
Gulf of Mexico
Watershed Nutrient
Task Force

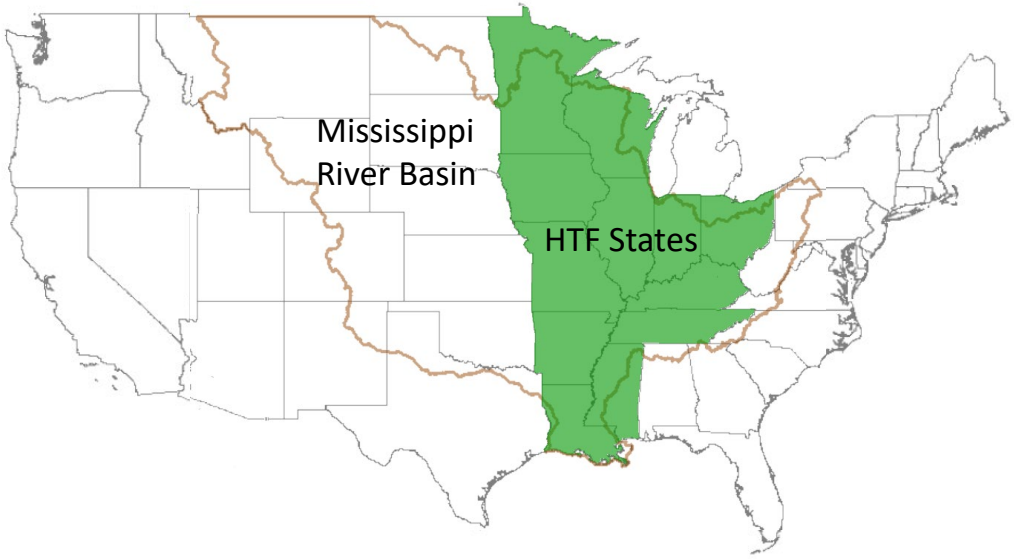
https://www.epa.gov/ms-htf

Mississippi River Gulf of Mexico Watershed Nutrient Task Force

HTF Members

5 Federal Agencies and Tribes

US Army Corps of Engineers
US Environmental Protection Agency
US Department of Agriculture
US Geological Survey
National Oceanic and Atmospheric Administration
National Tribal Water Council



12 State Agencies

Arkansas	Ohio
Missouri	Louisiana
Iowa	Illinois
Tennessee	Mississippi
Minnesota	Kentucky
Indiana	Wisconsin

Each state is represented by one of the following, with multiple agencies engaged

Agriculture, Environmental Quality, and/or Natural Resources agencies

Mississippi River Gulf of Mexico Watershed Nutrient Task Force

Background

Late 1990s

Late 1990s: Formed based on the White House Committee on Environment and Natural Resources' "Integrated Assessment"

- Scientific basis for 2001 Action Plan with goal to reduce the size of the Hypoxic Zone
- Led to focus on reducing nitrogen loads to the gulf via the Mississippi River

2001

2001 Action Plan called for Reassessment

- 2004 → Is phosphorus a co-driver of the hypoxic zone?
- Convened four science symposia
- EPA Science Advisory Board formed a panel, took symposia outcomes, recommended dual nitrogen and phosphorus reduction strategy

2008

2008 Action Plan

- Calls for each state to implement their strategy through a dual N and P nutrient reduction effort

2013

2015 reiterated the goal, adopted an interim target

Current status: all states implementing Nutrient Reduction Strategies

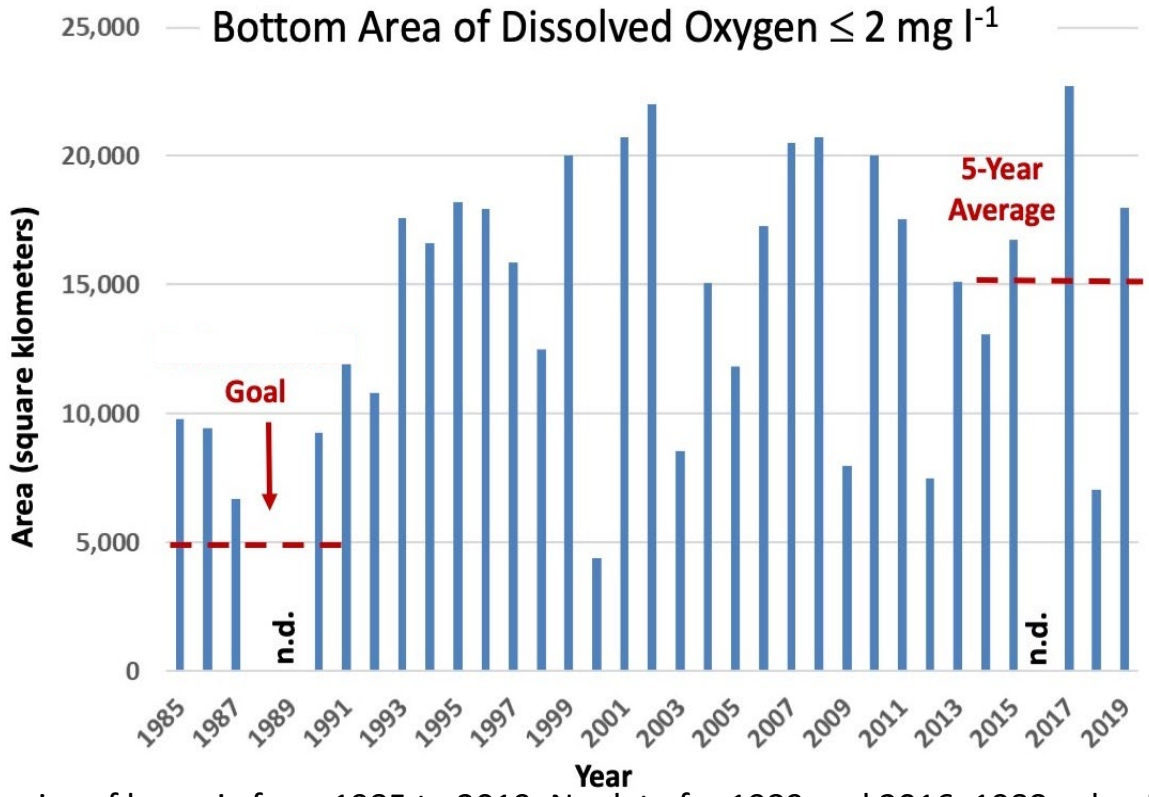
Mississippi River Gulf of Mexico Watershed Nutrient Task Force

Coastal Goal

By 2035, reduce 5-year running average size of the Gulf hypoxic zone to 5,000 km^2

Interim Target

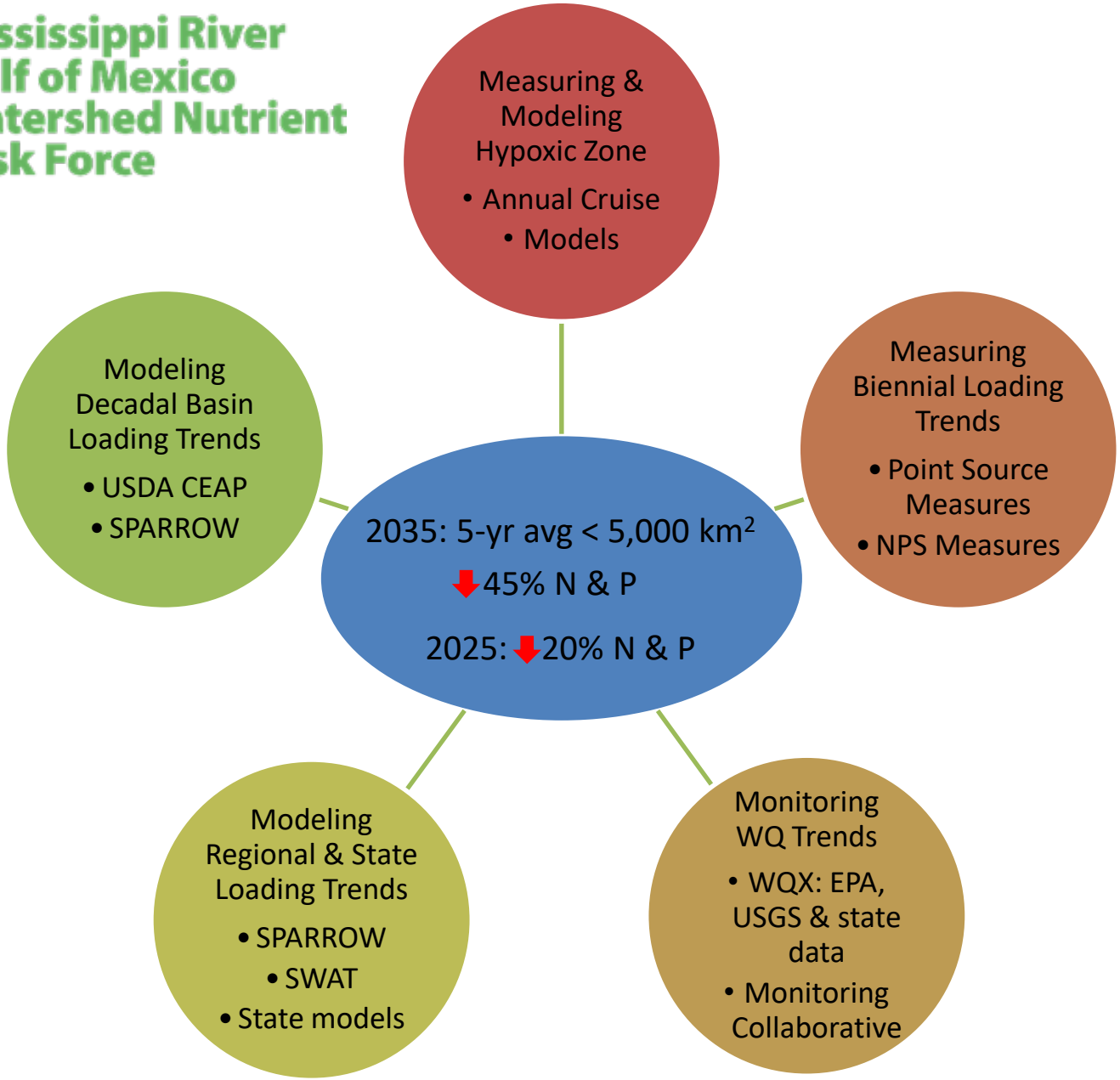
20% reduction of N & P loading from the MARB by 2025



Historic size of hypoxia from 1985 to 2019. No data for 1989 and 2016. 1988 value is 15 sq. mi.

(N. Rabalais, LSU/LUMCON & R. Turner, LSU)

Mississippi River Gulf of Mexico Watershed Nutrient Task Force



Hypoxia Task Force Workgroups

- Research Needs
- Water Quality Trends*
- Water Quality Monitoring*
- Funding
- Ecosystem/Social Metrics*
- Adoption of Innovative BMPs
- Communications
- Environmental Mitigation for Restoration
- Nonpoint Source Metrics*
- Point Source Metrics*

THANK YOU!

For more information visit:

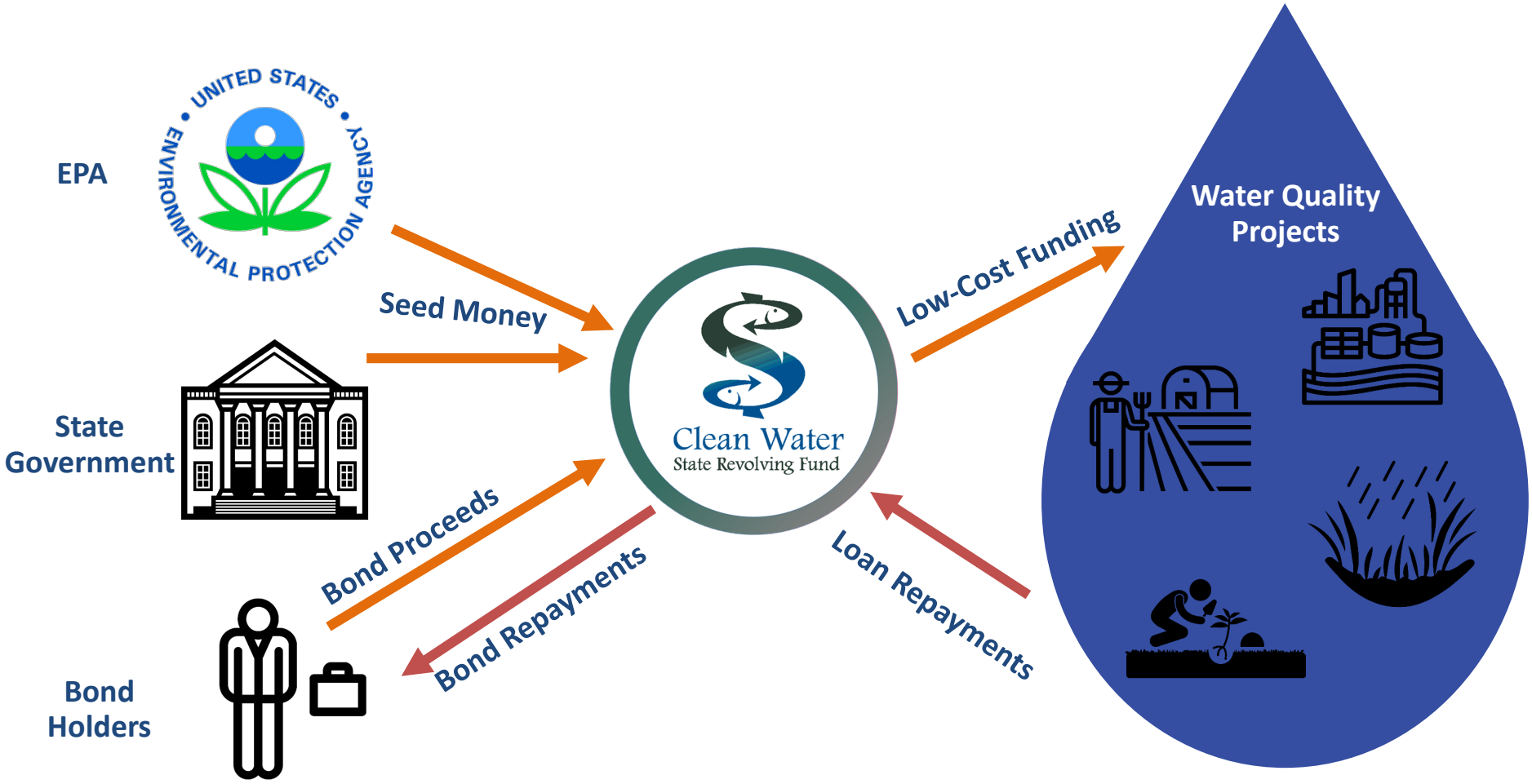
www.epa.gov/ms-htf

Appendix: Additional Slides

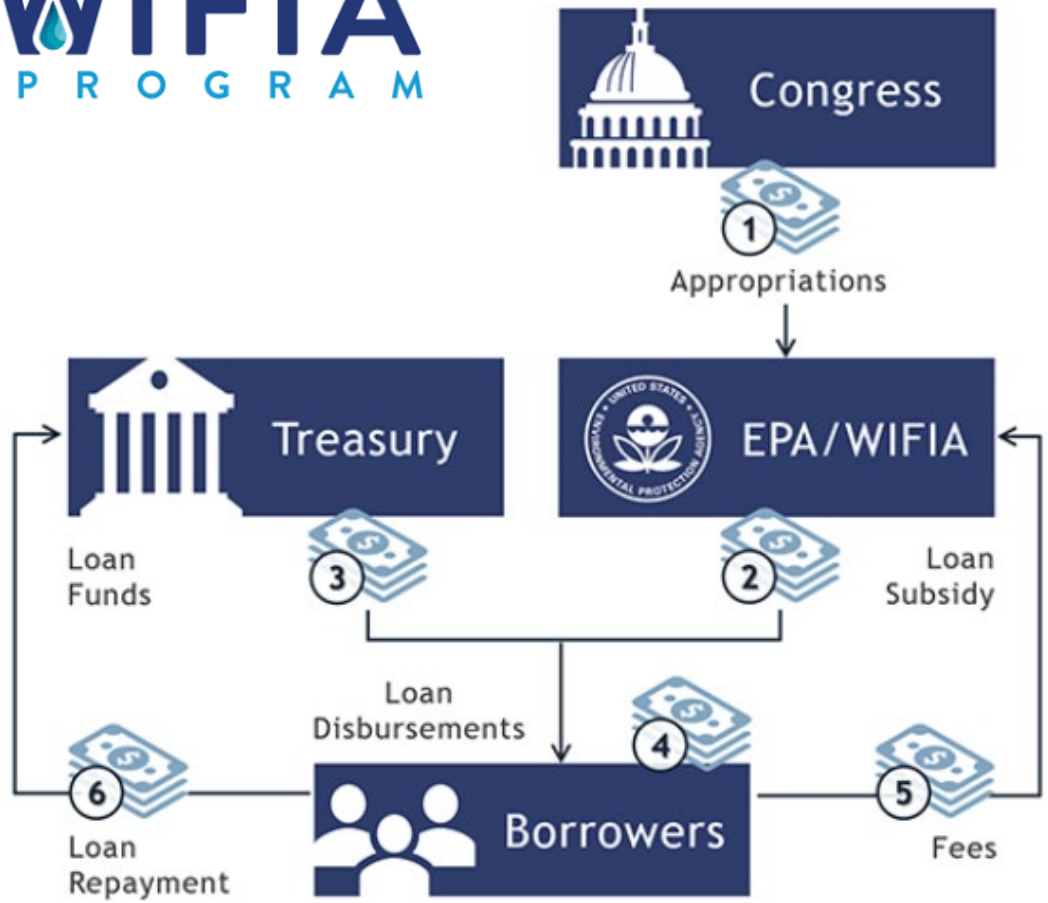
CWA §319 Statutory and Grant Considerations

- CWA §319(h) funds are "for the purpose of assisting the state in implementing its NPS Management program."
- *Entities eligible for funding*: Catalog of Federal Domestic Assistance identifies eligible entities for federal grants and subgrants: generally government, research, or nonprofit organizations.
  - Farmers and others that implement NPS conservation practices can be compensated with §319 funds as "program participants"
- *Environmental Outcomes*: EPA grant rules require that funds deliver environmental results; for §319 these are the outcomes in the state NPS management plan.
- §319 program experience and the scenarios described in this presentation illustrate that states can purchase water quality credits with §319 funds and incorporate other innovative market-based approaches into NPS programs and watershed plans.
- All uses of §319 funds must adhere to statutory and federal grant regulation sideboards, but there is flexibility to use §319 funds to support an array of market-based approaches.

Clean Water State Revolving Fund



WIFIA PROGRAM



Important Features

- $20 million: Minimum project size for large communities.
- $5 million: Minimum project size for small communities (population of 25,000 or less).
- 49 percent: Maximum portion of eligible project costs that WIFIA can fund.
- 80 percent: maximum total federal assistance of a project's eligible costs.
- 35 years: Maximum final maturity date from substantial completion.
- 5 years: Maximum time that repayment may be deferred after substantial completion of the project.
- Interest rate will be equal to or greater than the U.S. Treasury rate of a similar maturity at the date of closing.
- Projects must be creditworthy and have a dedicated source of revenue.

The “Agriculture to Natural Hazards” Link

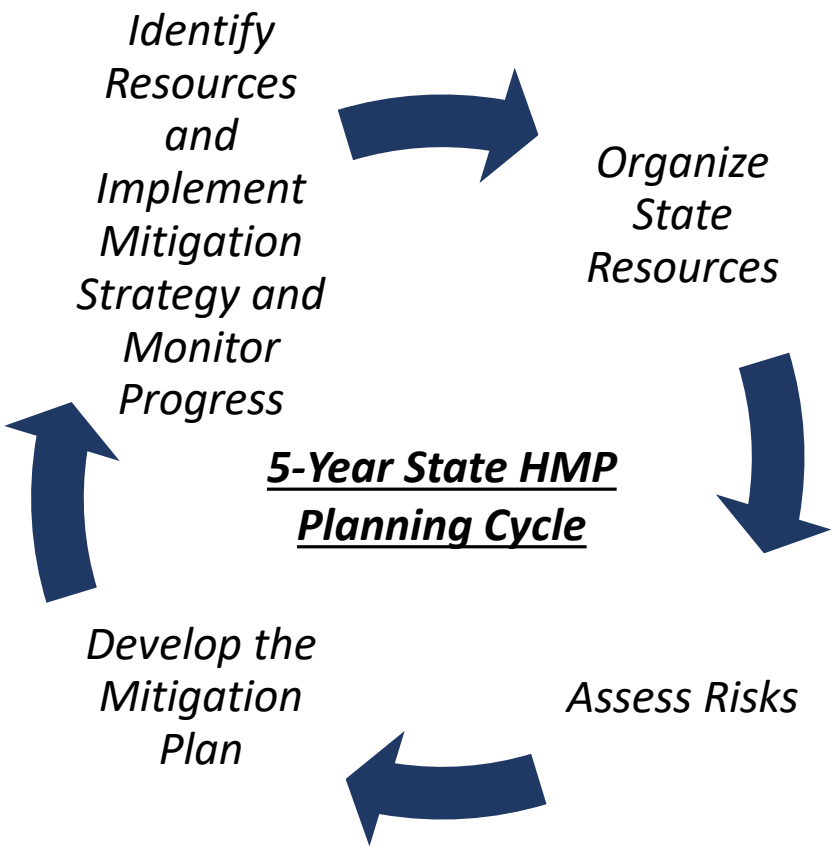
The importance of agricultural conservation and soil health practices in hazard mitigation is understood across agencies and organizations:

- **USDA NRCS** “Healthy Soil is Water in the Bank” speaks to how soil organic matter improves water retention, mitigates drought.
- **2018 Farm Bill** 10% set aside for Source Water Protection through agricultural conservation practices – reducing drinking water threats

State HMP Elements and Process

All State HMPs include:

- Goal setting and 5 year planning process
- Natural hazard identification and risk assessment
- Mitigation Strategy to address identified risks
- Consideration of existing state resources and capabilities to address natural hazards
- Identification of action items

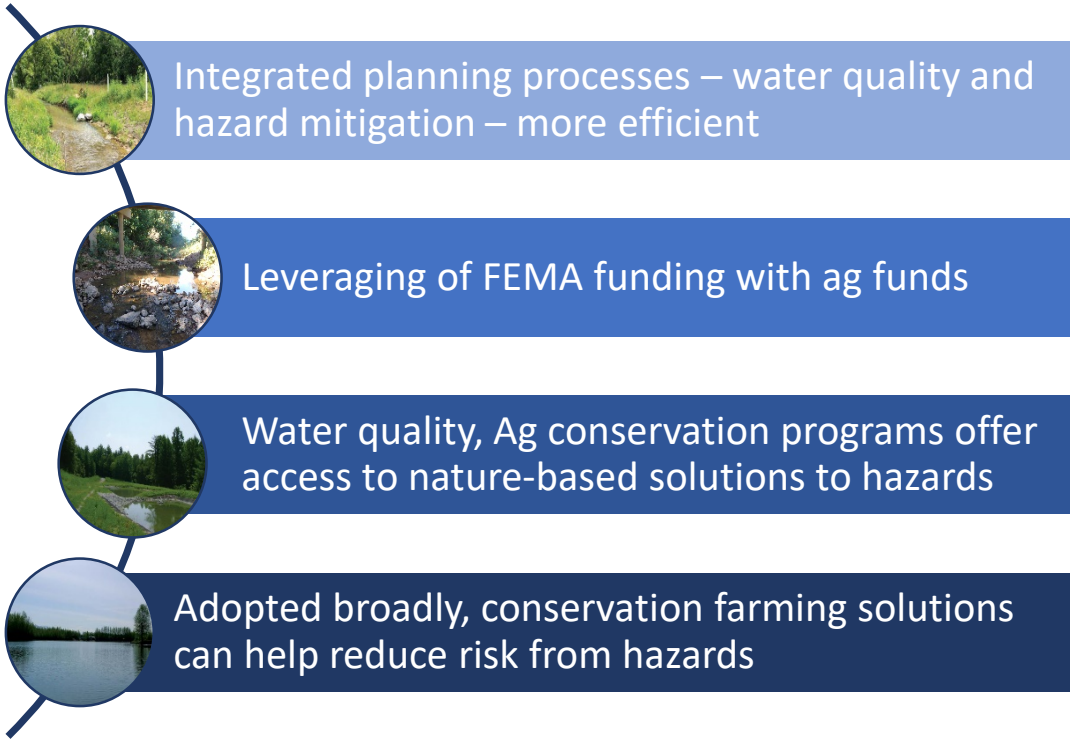


Connecting with your State Hazard Mitigation Program

Reach out to your State Hazard Mitigation Officer (SHMO)

Connecting with your State Hazard Mitigation Program

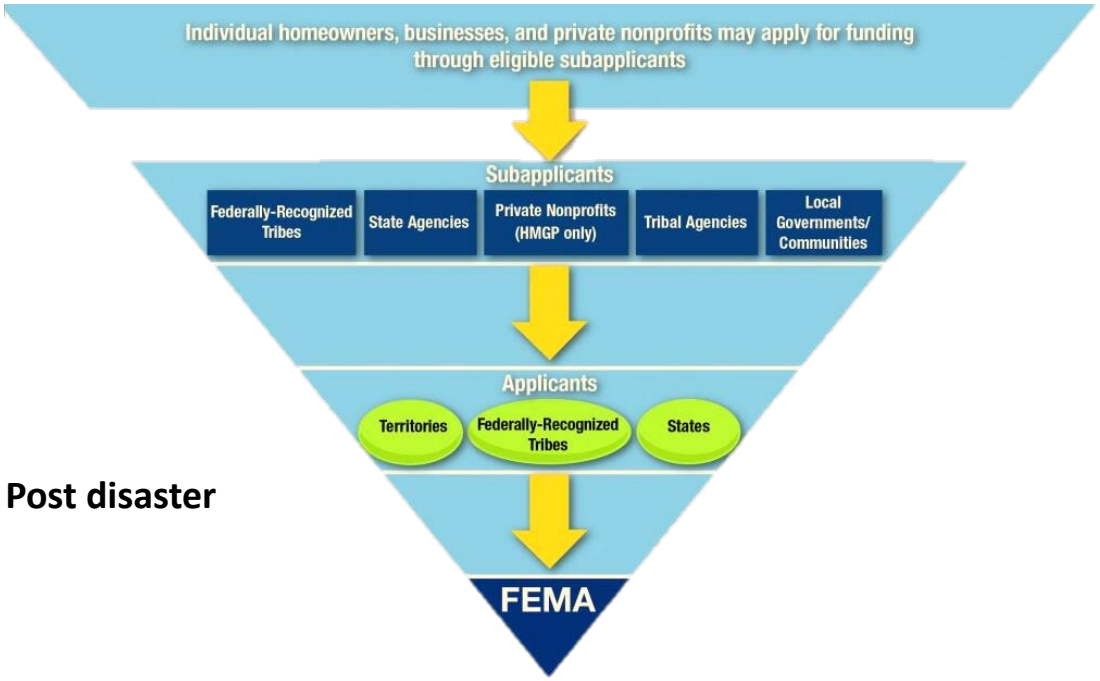
Points of Interest for your SHMO



Hazard Mitigation Assistance

Three FEMA Hazard Mitigation Assistance (HMA) Funding Programs

- **Pre-Disaster (PDM):** Annual, competitive. Opportunity to apply through "sub-applicants" via State.
  - For planning and projects
  - Pre-Disaster Mitigation ~ $235M
    - **To be replaced with "Building Resilient Infrastructure and Communities"(BRIC)** – 6% set aside from disaster grants
- **Hazard Mitigation Grant Program (HMGP) - Post disaster**
  - After Presidential Declaration ~ $600M +
- **Flood Mitigation Assistance (FMA)**
  - For planning and Projects ~ $160M



State of Gulf Science, July 2020

Model results offer guidance on watershed nutrient reduction levels to reduce the size of the zone and significantly advance our understanding:

- Single (N) and dual (N and P) load reductions needed to meet the Goal
- Expected effects of reaching the Interim Target on the zone

Coastal Goal

- To achieve the goal, more effective to reduce both N and P simultaneously than to decrease either nutrient type alone
- The present findings do not suggest a need to change targets, but emphasize the criticality of reducing both nutrients by 45% (Fennel and Laurent 2018)

Interim Target

- When the interim goal for load reduction is reached, though a large hypoxic zone is likely to persist, reaching the interim goal brings the system closer to an inflection point where measurable decreases in the hypoxic zone size can be expected with future load reductions