

Federal Funding for the Prevention, Monitoring, and Treatment of Harmful Algal Blooms

Virtual Forum Summary | November 9-10, 2021

Introduction and Purpose of the Workshop

The U.S. Environmental Protection Agency (EPA)'s Water Infrastructure and Resiliency Finance Center (WIRFC) hosted a two-day virtual forum on November 9-10, 2021 to provide state agencies and coastal and inland communities experiencing harmful algal bloom (HABs) related issues with an overview of federal funding programs available to prevent, monitor, and treat HABs and case examples of communities that have utilized those funds. The objectives of the forum were:

- Provide information to participants on federal sources available to fund the prevention, monitoring, and treatment of HABs
- Hear about real-world examples of coastal and inland communities and landowners that have successfully used these funding sources for HABs related projects
- Allow participants to share perspectives with federal agencies on their experiences, challenges, and successes accessing funding for HABs

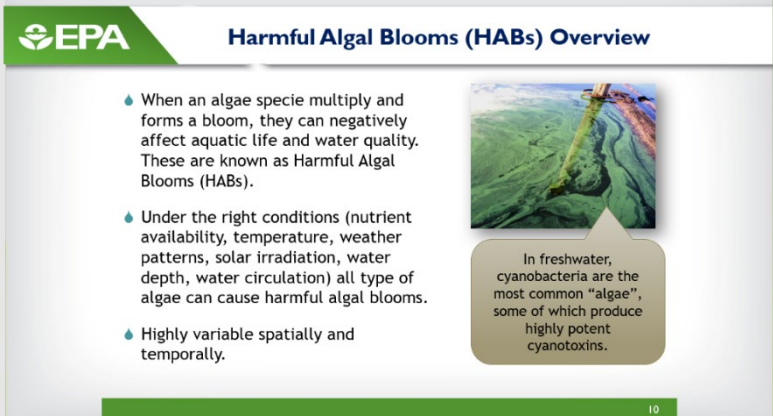
Over 200 people participated in the two-day virtual forum. This summary provides a description of the forum process, procedure, and key discussion themes; please see the Federal Funding Landscape (appendix B) for additional details on available funding. For more information about the forum, please contact waterfinancecenter@epa.gov.

The forum agenda was designed to walk participants through the landscape of federal funding available to address HABs in their communities. See appendix A for the full agenda.

Day 1: The forum began with a welcome and introduction by the EPA Office of water before EPA provided a brief introduction to Harmful Algal Blooms (HABs) and their environmental and economic impacts.

Harmful Algal Blooms (HABs) Overview

HABs are blooms of algae caused by specific conditions (nutrient availability, temperature, weather patterns etc.) that can negatively affect aquatic life and water quality as well as have harmful impacts on human and animal health. HABs can affect drinking water systems, recreational activities as well as fish and shellfish industries, all of which have economic impacts. EPA is one of many entities working to manage HABs and their approach includes outreach, assessments, partnerships, guidance and technical support, as well as research and development.



The slide features the EPA logo in the top left corner. The title 'Harmful Algal Blooms (HABs) Overview' is centered at the top. On the left side, there are three bullet points. On the right side, there is a photograph of a river with a thick green algal bloom, and a callout box with text. A small number '10' is in the bottom right corner of the slide.

- ◆ When an algae specie multiply and forms a bloom, they can negatively affect aquatic life and water quality. These are known as Harmful Algal Blooms (HABs).
- ◆ Under the right conditions (nutrient availability, temperature, weather patterns, solar irradiation, water depth, water circulation) all type of algae can cause harmful algal blooms.
- ◆ Highly variable spatially and temporally.

In freshwater, cyanobacteria are the most common "algae", some of which produce highly potent cyanotoxins.

Presentation slide from USEPA introduction to HABs

Federal Funding Landscape

Representative from multiple agencies presented on available funding streams through their agencies.

Prior to the forum, EPA provided participants with a Federal Funding Landscape document that outlines available funding for stakeholders to address HABs in their communities. Many of the agencies that host these available funding sources presented at the forum. See Appendix B for the funding landscape document.

National Oceanic and Atmospheric Administration (NOAA)

NOAA has funds available for addressing HABs research through the **Competitive Research Program (CRP)**. CRP focuses on national and regional-scale programs and a competitive ecosystem research approach to fund research that will have practical applications. There are four relevant competitive programs that fund HABs research:

- ECOHAB: Develop Forecast Models
- MERHAB: Monitoring for Early Warning
- PCMHAB: Transition to Monitoring System to Operations
- HAB Event Response

Due to NOAA's jurisdiction, their work and funding related to HABs research focuses on coastline related issues as well as The Great Lakes. It was noted that these research projects do not require matching funds. For more information contact felix.martinez@noaa.gov.

Following the presentation, the facilitator led participants in a Q&A followed by a discussion of experiences with NOAA funding. Participants raised questions around grant matching requirements, and Martinez informed the group that these grant opportunities do not require matching funds.

United States Army Corps of Engineers

U.S. Army Corps of Engineers (USACE) funds HABs research in three focus areas: **Prevention, Management, and Monitoring**; however, there is only one stream of USACE funds allocated for this work. The intention behind the research that USACE funds is to create and deliver scalable technologies for HAB detection, prevention, and management. USACE uses contracts, cooperative agreements, and grants to fund and collaborate with external groups. The two mechanisms that USACE has to receive research proposals are:

- Broad Agency Announcement: an interested party submits an idea or proposal directly to USACE to consider for funding
- Cooperative Ecosystem Studies Unit (CESU) Solicitation: CESU has a specific interest area, solicitation is posted online for researchers to respond to

USACE is interested in improving HABs on a national level, proposals need not be limited to a Corps operated waterbody. For more information contact Jeremy.M.Crossland@usace.army.mil.

Following the presentation, the facilitator led participants in a Q&A followed by a discussion of experiences with USACE funding. Participants raised a question regarding the availability of research findings related to the effectiveness of technology that USACE is funding. Crossland shared that researchers are encouraged to publish their work in journals, and USACE also compiles shareable documents derived from research results and maintains that documentation available to the public.

United States Geological Survey

U.S. Geological Survey (USGS) funding is available through two mechanisms: **Water Resource Research Act Grants; and Cooperative Matching Funds**. Water Resource Research Act Grants are funds that are funneled through state land grant universities. There are two types of funds available under this umbrella:


- Annual Base Grants/ Funded Projects: Water Resources Research Institutes at a state land grant university distributes an RFP. A 2:1 match by the Institute is required and projects are focused on state-relevant water resources.
- National Competitive Grants/Funded Projects: The Institute can submit for a national competition for projects addressing regional or interstate water issues. A 1:1 Institute match is required.

Cooperative Matching Funds (CMFs) are cooperative agreements, and a subset of all CMFs are designated by Congress to be for HABs related work. They are awarded annually through an internal RFP. These funds can be used for groundwater related HABs projects as well as lakes, rivers, and estuary environments. For more information contact smeberts@usgs.gov.

**USGS Cooperative Matching Funds (CMF)
[Cooperative Agreements]**

U.S. Geological Survey (USGS) Water Science Centers work with more than 1,600 partners to address local priorities and meet goals of national interest. Much of this work is supported by appropriated funds referred to as Cooperative Matching Funds (CMF). CMF are required by law to have at least a 1:1 match by State, local, or Tribal partners.

USGS Water Science Centers ([contacts](#))



USGS

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Slide from USGS presentation on Cooperative Matching

Following the presentation, the facilitator led participants in a Q&A followed by a discussion of experiences with USGS funding. Participants raised questions regarding the ways in which these funds could support state agencies. Presenters encouraged non-university stakeholders at the forum to inform their local research institute about their individual state-level needs such that the institute could prioritize RFPs that attract projects to address those needs.

Day 2: The forum agenda featured several other federal agency funding streams on Day 2. After a welcome and recap from the facilitator, the agencies gave their presentations.

United States Department of Agriculture

U.S. Department of Agriculture **Natural Resources Conservation Service** (USDA NRCS) has funds available for agricultural stakeholders to implement agricultural conservation practices that, when employed, will have positive outcomes towards HABs reduction across the nation's waterbodies. NRCS works in collaboration with state drinking water agencies, drinking water utilities, Tribes, and local Soil and Water Conservation Districts (SWCDs). Funding, appropriated via the Federal Farm Bill, is available through the following conservation programs:

- Environmental Quality Incentives Program (EQIP): financial and technical assistance to agricultural producers to address natural resource concerns
- Regional Conservation Partnership Program (RCPP): Promotes coordination of NRCS conservation activities with partners that offer value-added contributions to resource concerns
- Agricultural Conservation Easement Program (ACEP): Provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits
- Conservation Stewardship Program (CSP): Helps agricultural producers maintain and improve their existing conservation systems

For more information regarding the USDA NRCS funding programs contact martin.lowenfish@usda.gov.

USDA Rural Development has funding available for local utilities through their **Rural Utilities Service** program. Last year the program delivered over \$2 billion in assistance. The main funding mechanisms are the Water and Waste Disposal Loans and Grants that are available to public bodies, non-profit organizations, and Native American Tribes and organizations. Applications are submitted through an online portal called RD Apply. For more information contact david.flesher@usda.gov.

Following the presentation, the facilitator led participants in a Q&A followed by a discussion of experiences with USDA NRCS funding. Participants raised questions regarding the ways in which these funds could fund Tribes, and Flesher provided details around Colonia and Native American Grants that are set aside not only for federally recognized tribes but for communities that have a majority Native American population.

United States Environmental Protection Agency

United States Environmental Protection Agency (USEPA) funds state and tribal projects that fall under **section 319** of the Clean Water Act; these are non-point source pollution efforts. The 319 program encompasses:

- 319(a): Nonpoint source Assessment Report
- 319 (b): State and Tribal Management Programs (NPS management programs)




- 319 (h): Grant programs (eligibility based on the possession of a current management plan – delineated in 319 (b) and the grant guidelines are available at <https://www.epa.gov/nps/319>) Funded projects must have watershed-based plans. For more information on 319 funding opportunities contact flaherty.ellie@epa.gov.

USEPA also has funds available under **section 106** of the Clean Water Act that are intended to help states and tribes administer Clean Water Act Programs such as the National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Load (TMDL). Base 106 grants for states are allocated on the “basis of the extent of the pollution problem.” Additionally, a supplement that passed in 2005 has enabled USEPA to carry out the National Aquatic Resource Surveys to provide a full picture of the state of the nation’s waters. For more information contact Holdsworth.Susan@epa.gov.

Additional funding is available from USEPA through the **two revolving state funds**:

- Clean Water State Revolving Fund: federal-state partnership that provides communities low-cost financing for a wide range of water quality infrastructure projects
- Drinking Water State Revolving Fund: financial assistance to publicly owned and privately-owned community water systems, as well as non-profit non-community water systems, for drinking water infrastructure projects

How does it work?

 EPA funds state CWSRFs each year, with 20% state match.  + 

All 50 states and Puerto Rico have CWSRFs.

   Apply for financing through state CWSRFs.



Presentation slide from EPA regarding the Clean Water State Revolving Fund.

Funding sources through the Water Infrastructure Finance and Innovation Act (WIFIA), EPA’s Urban Waters Small Grants, and the Great Lakes Restoration Initiative were also discussed. For more information on these funds contact brubaker.sonia@epa.gov.

Following the presentation, the facilitator led participants in a Q&A followed by a discussion of experiences with USEPA funding. Participants were interested in CyAN (see appendix C) for list of resources discussed) and asked about the addition of rivers to the resource. Presenters stated that satellite resolution is the main driver for the extent of waters that can be reliably tracked with CyAN and as a result, while it is something people are interested in doing, it is not on the short-term horizon.

Natural Resources Damage Assessment

Natural Resource Damage Assessment is a legal process under the Oil Pollution Act that generated a fixed fund allocated by consent decree. Funding is specifically for projects in the Gulf of Mexico region. NRDA is not a grant program, project ideas can be submitted through the online portal at www.gulfspillrestoration.noaa.gov. For more information contact grayson.treda@epa.gov.

Case Studies

Presenters shared three real-world case studies, outlining the use of federal funding for inland and coastal HABs projects. Partnership emerged as an important component in all three examples.

USGS: Cooperative Matching Funds in New York State

USGS and NY Department of Environmental Conservation have partnered to carry out an advanced HABs monitoring study leveraging strong partnerships and Cooperative Matching funds.

USDA: RCPP Funding in Indiana

Multiple tri-state cooperative projects in the Lake Erie Basin have been made possible by RCPP funding from the USDA. These projects have emphasized practical interventions with farmers to implement agricultural conservation practices to reduce HABs in the Lake Erie Basin.

Innovative Partnership: Cyanobacteria Monitoring Collaborative

Diverse stakeholders in EPA Region 1 have been partnering for many years to address HABs in their local community. This has included leveraging citizen scientists and community outreach as well as the development of BloomWatch, an app for reporting blooms in local communities.

Appendix A: Forum Agenda

Overview

EPA's Water Infrastructure and Resiliency Finance Center (WIRFC) is hosting a two-day virtual forum to provide state agencies and coastal and inland communities experiencing harmful algal bloom (HABs) related issues with an overview of federal funding programs available to prevent, monitor, and treat HABs and case examples of communities that have utilized those funds.

Forum Objectives

- Provide information to participants on federal sources available to fund the prevention, monitoring, and treatment of HABs
- Hear about real-world examples of coastal and inland communities and landowners that have successfully used these funding sources for HABs related projects
- Allow participants to share perspectives with federal agencies on their experiences, challenges, and successes accessing funding for HABs

All times listed below are in Eastern Time.

Day 1: 1pm - 4pm EST

Virtual Zoom.Gov meeting

10 min	Welcome & Introductions <i>Welcome session to introduce participants to the forum approach and objectives</i> <ul style="list-style-type: none">• EPA Office of Water Welcome• Rob Greenwood, Ross Strategic
10 min	HABs: Overview & Impact <i>Overview of the impact of HABs on ecosystems and the related financial impact</i> <ul style="list-style-type: none">• Lesley D'Anglada, US EPA, and Katherine Foreman, US EPA
10 min	Landscape: Federal & Innovative Funding Related to HABs <ul style="list-style-type: none">• Rob Greenwood, Ross Strategic

1:30 pm Federal Funder Profile 1: National Oceanic and Atmospheric Administration (NOAA)

30 min	Overview of NOAA Funding (20 min) <i>Overview session lead by NOAA to describe funding programs related to HABs at NOAA, funding allocation/application process for those programs and utilization of the program to address HABs challenges</i> <ul style="list-style-type: none">• Felix Martinez, Competitive Research Program Manager (National Ocean Service/National Centers for Coastal Ocean Science), NOAA <i>Presentations followed by approx. 10 mins of Q&A</i>
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Day 1: 1pm - 4pm EST

Virtual Zoom.Gov meeting

20 min

NOAA Funding: Discussion

- What successes have you had in applying for and using NOAA funding?
- What challenges have you encountered in applying for and using NOAA funding?
- How can NOAA engage more effectively with localities in need of funding to respond to HABs?

2:20 pm Federal Funder Profile 2: U.S. Army Corps of Engineers (USACE)

20 min

Overview of U.S. Army Corps of Engineers (USACE) Funding (12 min)

Presentation providing an overview of USACE funding opportunities related to HABs.

- Jeremy Crossland, Program Manager for Land Management, USACE

Presentation followed by approx. 8 mins of Q&A

Break (15 min)

2:55pm Federal Funder Profile 3: United States Geological Survey (USGS)

30 min

Overview of USGS Funding (10 min)

Overview session lead by USGS to describe Cooperative Matching Funds and the Water Resource Research Institute funding opportunities to address HABs challenges.

- Sandra Eberts, Water Resources Mission Area, HQ Office of Planning and Programming, Program Science Coordinator at USGS

Accessing USGS Funding: A Community Example (10 min)

Case study that highlights the use of USGS Cooperative Matching Funds to inform HABs monitoring efforts and science priorities in New York State.

- Jennifer Graham, Research Hydrologist at the USGS New York Water Science Center

Presentations followed by approx. 10 mins of Q&A

20 min

USGS Funding: Discussion

- What successes have you had in applying for and using USGS funding?
- What challenges have you encountered in applying for and using USGS funding?
- How can USGS engage more effectively with localities in need of funding to respond to HABs?

3:45pm Day 1 Wrap Up

Day 1: 1pm - 4pm EST

Virtual Zoom.Gov meeting

10 min	Accessing Funding: A Walkthrough of EPA's Water Finance Clearinghouse <i>Water Finance Center will lead a hands-on demonstration of the Water Finance Clearinghouse to show participants how to find eligible funding sources for HABs projects</i> <ul style="list-style-type: none">Addison Chau, U.S. EPA
5 min	Closing: Day 1 recap, Day 2 lookahead
4:00 pm	Adjourn

Day 2: 1pm - 4pm EST

Virtual Meeting on Zoom.gov

10 min	Welcome & Recap <ul style="list-style-type: none">Rob Greenwood, Ross Strategic
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1:10 pm Federal Funder Profile 4: United States Department of Agriculture (USDA)

40 min	Overview of USDA Funding (20 min) <i>Overview session lead by USDA to describe funding programs related to HABs at USDA, funding allocation/application process for those programs and utilization of the program to address HABs challenges</i> <ul style="list-style-type: none">Martin Lowenfish, Conservation Initiative Team Leader, USDA-NRCSDavid Flesher, Community Programs Specialist for Water and Environmental Programs, USDA Rural Development Accessing USDA Funding: A Community Example (10 min) <i>Case study that highlights the use of USDA specific funding to address HABs</i> <ul style="list-style-type: none">Jennifer Thum, Deputy Director, Division of Soil Conservation, Indiana State Department of Agriculture <i>Presentations followed by approx. 10 mins of Q&A</i>
20 min	USDA Funding: Discussion <ul style="list-style-type: none">What successes have you had in applying for and using USDA funding?What challenges have you encountered in applying for and using USDA funding?How can USDA engage more effectively with localities in need of funding to respond to HABs?

Break (15 min)

Day 2: 1pm - 4pm EST

Virtual Meeting on Zoom.gov

2:25 pm Federal Funder Profile 5: US Environmental Protection Agency (EPA)

40 min

Overview of US EPA Funding (30 min)

Overview session lead by EPA to describe funding programs related to HABs at EPA, funding allocation/application process for those programs and utilization of the program to address HABs challenges

- Ellie Flaherty, Biologist, Office of Wetlands, Oceans and Watersheds
- Susan Holdsworth, Supervisory Ecologist, Office of Wetlands, Oceans and Watersheds
- Sonia Brubaker, Director, Water Infrastructure and Finance Center

Presentations followed by approx. 10 mins of Q&A

20 min

EPA Funding: Discussion

- What successes have you had in applying for and using EPA funding?
- What challenges have you encountered in applying for and using EPA funding?
- How can EPA engage more effectively with localities in need of funding to respond to HABs?

3:25 pm Innovative Federal Funding Sources & Approaches

25 min

Deepwater Horizon National Resource Damage Assessment (NRDA) Program and Nutrient Reduction

Overview of the DWH NRDA program, how nutrient reduction restoration projects help in HABs reduction in the Gulf of Mexico, and the process to submit project ideas

- Treda Grayson, NRDA Program Manager, US EPA

The Cyanobacteria Monitoring Collaborative: An Innovative Partnership to Address Inland HABs

The Cyanobacteria Monitoring Collaborative (CMC) is a partnership of organizations, communities, and individuals that strives to better understand potentially harmful cyanobacteria in inland water bodies. Thanks to intensive collaboration and modest funding support, the CMC develops and freely shares cyanobacteria monitoring approaches and tools for a range of audiences.

- Shane Bradt, Cooperative Extension State Specialist, University of New Hampshire

Presentations followed by approx. 5 mins of Q&A

15 min

Wrap Up

Summary of federal programs, identifying gaps in funding, and how to follow up to learn more about eligible programs

4:00 pm

Adjourn

Appendix B: Federal Funding Landscape Document



Federal Funding Landscape for the Prevention, Monitoring, and Treatment of Harmful Algal Blooms

Funding Source	Eligible Recipients	Funding Type	Description
National Oceanic and Atmospheric Administration (NOAA)			
Ecology and Oceanography of HABs (ECO HAB)	Researchers	Grants	A peer-reviewed, national, competitive program that funds regional-scale and targeted studies. Funds research to understand the causes and impacts of HABs and their toxins.
Monitoring and Event Response (MERHAB)	Researchers	Grants	Funding for science projects to build capacity for HABs monitoring and response.
Prevention, Control, and Mitigation of HABs (PCM HAB)	Researchers	Grants	Funds research to move promising technologies for preventing, controlling, or mitigating HABs and their impacts through development, to demonstration, and, finally application, culminating in widespread use in the field by end-users.
United States Geological Survey (USGS)			
Cooperative Matching Funds	State, local, and tribal partners	Cooperative Agreements	Funds to support joint projects to provide reliable, impartial, and timely information needed to understand and manage the Nation's water resources.
Water Resources Research Act Program	Researchers	Grants	Grants to support water resources research distributed through 54 institutions of higher learning, one in each state, the District of Columbia, Puerto Rico, the US Virgin Islands, and Guam.
United States Department of Agriculture (USDA)			
Rural Development - Water and Environmental Programs (WEP)	Rural communities	Loans, grants, technical assistance	Funding and assistance to support critical rural services including the construction of water and waste facilities in rural communities. Includes the Circuit Rider program, which provides technical assistance to rural water systems that are experiencing day-to-day operational, financial or managerial issues.
Regional Conservation Partnership Program (RCPP)	Local communities	Grants	Funding for restoration efforts in partnership with agricultural producers to foster restoration efforts and the sustainable use of soil, water, flora, and fauna at regional and watershed scales. Recipients partner with agricultural producers to help implement and maintain conservation activities in project areas.
NRCS Innovation Grants	Non-Federal entities and individuals	Grants (grantees must match 1:1)	Grants that can be used for innovative management practices for nutrient reduction.

Funding Source	Eligible Recipients	Funding Type	Description
Environmental Protection Agency (EPA)			
Drinking Water State Revolving Fund (DWSRF)			
Drinking Water State Revolving Fund	Local communities	Loans	Communities may use the DWSRF to reduce HABs and Cyanotoxins in their drinking water systems.
DWSRF Set Asides for Source Water Protection Loans	Local communities	Loans	States may offer loans to community water systems to finance source water protection activities through the Local Assistance and Other State Programs set-aside.
General DWSRF Set Asides for Source Water Protection	States and communities	Loans and grants	Recipients may use DWSRF set-asides to safeguard sources of drinking water.
Using DWSRF Set-Aside Funds to Assist Small Water Systems	Local communities (small systems)	Grants	As a result of the 1996 Amendments, states are required to provide a minimum of 15 percent of the funds available for assistance to small systems to help address infrastructure needs. This could include HABs prevention and treatment.
Explanation of DWSRF set-aside eligibilities	Local communities	Loans	This link provides additional details and DWSRF program guidance documents related to set-aside eligibilities.
Clean Water State Revolving Fund (CWSRF)			
CWSRF Source Water Protection	Public, private, or nonprofit entities	Loans	Funding for many types of source water protection projects, including both green and grey infrastructure water quality solutions for both surface water and groundwater.
Other EPA funding sources			
Source Reduction Assistance Grant Program	States, local governments	Grants	Funds support pollution prevention activities through source reduction and resource conservation.
CWA Section 106 (Water Pollution Control) Monitoring	States, tribes, interstate agencies	Grants	Funds support water pollution prevention and control programs and activities such as monitoring and assessing water quality, developing water quality standards, and identifying impaired waters.
CWA Section 319 (Nonpoint Source)	States, territories, tribes	Grants	States have flexibility to focus these funds with the goal of reducing nonpoint sources of polluted runoff.
Great Lakes Restoration Initiative	States, tribes, local governments	Grants	Funding for projects that aim to accelerate environmental progress in the Great Lakes, including reducing phosphorus loadings that often cause HABs.
Chesapeake Bay Program	States, tribes, local governments	Grants	Funds for restoration projects of all sizes across the Chesapeake watershed.
EPA Gulf of Mexico Division	States, tribes, local governments	Grants	Funds and implements projects to protect, maintain, and restore the health and productivity of the Gulf of Mexico.
EPA Office of Mountains, Deserts, and Plains	States, tribes, local governments	Grants	Addresses federal hard rock mining cleanup sites west of the Mississippi River.

Funding Source	Eligible Recipients	Funding Type	Description
Urban Waters Small Grants	States, tribes, local governments	Grants	Funds to help local residents and their organizations, particularly those in underserved communities, restore their urban waters in ways that also benefit community and economic revitalization.
National Estuary Program	States, regional entities, tribes	Grants	Funds to protect and restore the water quality and ecological integrity of estuaries of national significance.
Other Funding Sources			
Natural Resource Damage Assessment (NRDA)	Trustee Implementation Groups	Other	Funds legally recovered from responsible parties from oil spills or other hazardous leaks for restoring natural resources.
National Institute of Environmental Health Sciences (NIEHS)	Researchers	Grants	Funds for projects to improve the prediction of HABs.
National Science Foundation (NSF)	Researchers	Grants, contracts, cooperative agreements	Funds for research and education in science and engineering
United States Housing and Urban Development Community Development Block Grant (CDBG)	States and local governments	Grants	Funds for a wide range of community development needs, with the mission to encourage urban revitalization and development in underserved communities.

Appendix C: Resources

- **Water Finance Clearinghouse:** easily navigable web-based portal that helps communities locate information to assist in making informed decisions for their drinking water, wastewater, and stormwater infrastructure needs. (<https://www.epa.gov/waterdata/water-finance-clearinghouse>)
- **CyAN:** uses satellite imagery to estimate cyanobacteria levels for over 2000 large lakes from 2000 to 2020 (<https://www.epa.gov/water-research/cyanobacteria-assessment-network-application-cyan-app>)
- **Bloomwatch:** allows users to document blooms and provides data to state contacts (<https://cyanos.org/bloomwatch>)

Appendix D: List of Presenters with Contact Information

- **Shane Bradt**, University of New Hampshire | srbradt@unh.edu
- **Sonia Brubaker**, US EPA | Brubaker.Sonia@epa.gov
- **Addison Chau**, US EPA | chau.addison@epa.gov
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