Advancing Technology, Innovation and Partnerships

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Technology, Innovation and Partnerships (TIP)

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NSF's 3 MAJOR PRIORITIES

STRENGTHENING ESTABLISHED NSF

With **investments that expand the frontiers of knowledge and technology**.

INSPIRING MISSING MILLIONS

Using **interventions and capacity building** that enhance and broaden participation.

ACCELERATING TECHNOLOGY AND INNOVATION

Through innovative, **cross-cutting partnerships** and programs.

CHIPS and Science Act of 2022

- Appropriates $54 billion for semiconductors incentives, R&D, workforce development

- Authorizes NSF, DOE, NIST, NASA
- Authorizes $81B for NSF:
  - +$36B for the agency
  - Of that, +$20B for TIP
- Authorizes a new NSF Directorate for Technology, Innovation and Partnerships

Catalyzing a Paradigm Shift

Today	Tomorrow
• Largely investigator-driven	• Users / beneficiaries engaged in shaping, conducting research
• Primarily academic research teams	• Multi-sector teams – academia, industry, government, civil society, communities of practice
• Stream of discoveries improve prosperity, resilience, quality of life	• Important societal and/or economic problems drive research pursuits
"Technology / supply push"	+ ***"Market / demand pull"***

A New "Horizontal" to Enhance Use-inspired and Translational Research

Realigned investments

New investments

Technology Translation

- I-Corps
- PFI
- SBIR/STTR
- Innovative Pathways

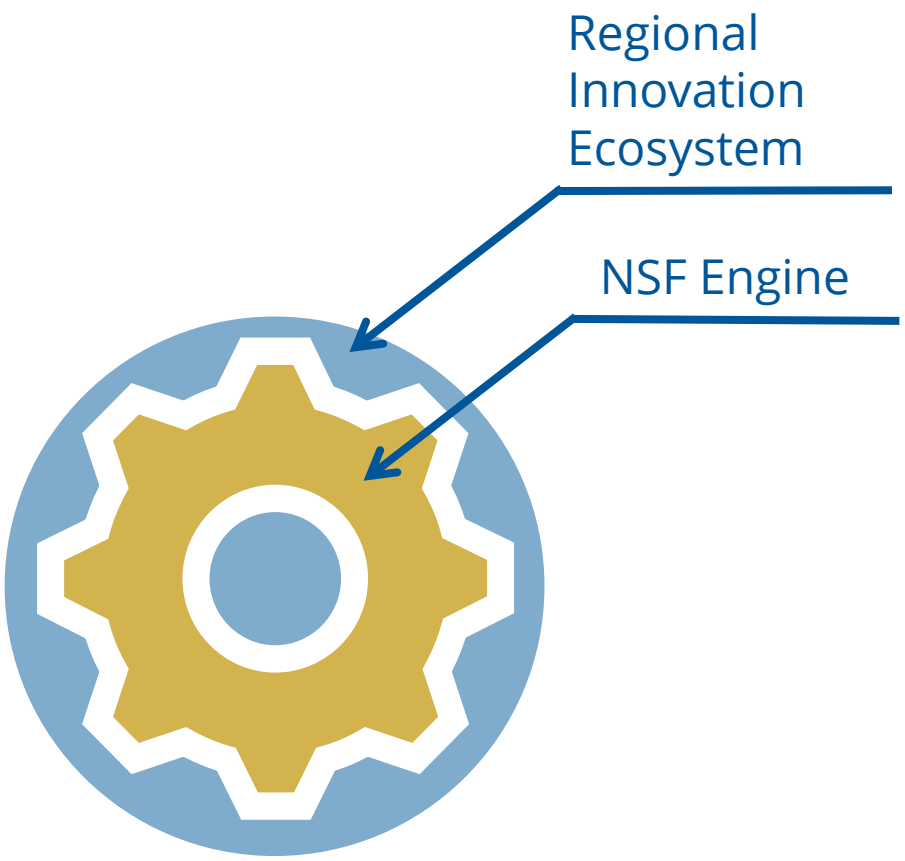
Innovation & Technology Ecosystems

- Convergence Accelerator
- Emerging Technologies
- Regional Innovation
- Experiential & Entrepreneurial Learning

Partnerships as a Foundation

- Accelerate Partnerships

NSF Engines: Intentionally different



A multi-sector **coalition** of regional partners working together to catalyze a **regional innovation ecosystem** in a **topic area** of regional relevance and national and societal significance.

- A different scale
- Iterative co-design/co-creation through intentional engagement of broad, diverse stakeholders (“users”)
- Cohort-based training
- Milestone requirements for continued funding
- Focused success expectations
- Evaluation of the overall approach

National Science Foundation
Regional Innovation Engines Program

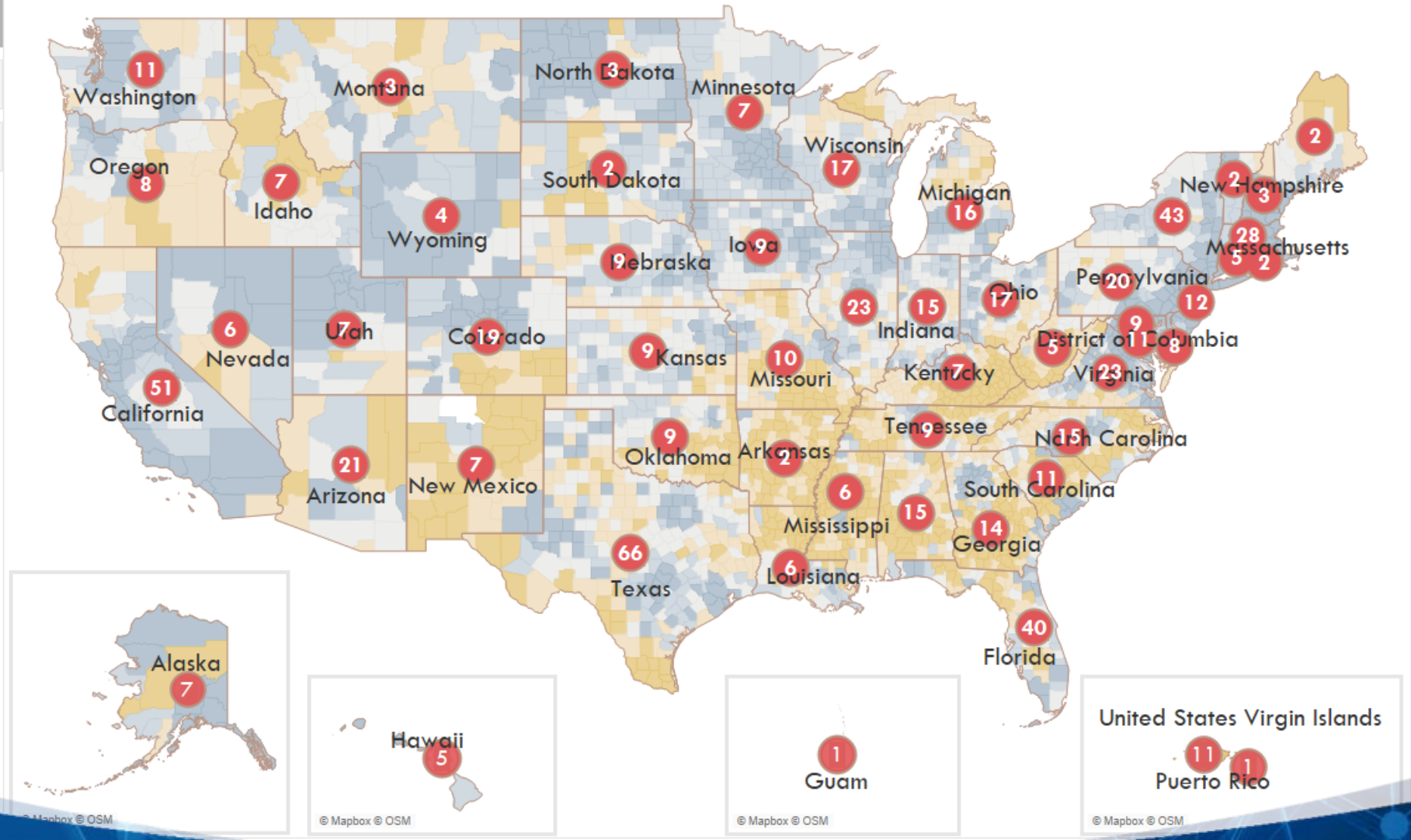
Concept Outlines Explorer

Search by Theme (and more) | Search By State | Overview

Map View of Submissions by Lead Organization State

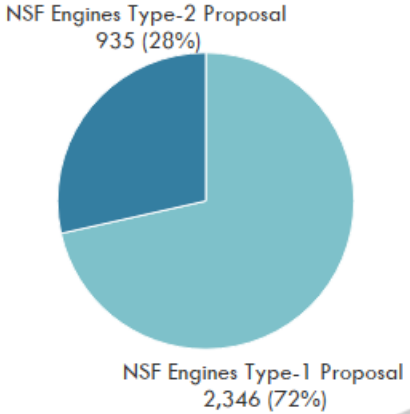
By Organization State
By Lead Organization
By Region of Service

Filter(s):
NSF Engines Type
All



Concept Outline Submission Metrics

Number of Submissions Advancing	679
Number of Distinct Submitting Organizations	518
States and US Territories Submitting	54



To access the full list of all accepted concept outlines, please check https://airtable

National Science Foundation
Regional Innovation Engines Program

Concept Outlines Explorer

Search By Theme (and more) | Search By State | Overview

Search All

NSF Engines Type
All

State Name
All

Submission Organization
All

Submission ID
All

Keywords *(free text)*
All

States Footpring *(using state abbreviation)*
All

Submission Theme

Theme Count Control
10 to 103
and Null values

Number of Submissions: 679

ID	NSF Engines Type	Submission Title	Organization Name	Last Name	Region Of Service	States	Topic Summary	Keywords
INQ-22-00640	Type 1 Proposal	Bridging the Gap in the Digi..	XLerateHealth	Willmot	The region of service..	KY,WV,SC..	The Engine proposes to ca..	virtual care,digital health,access,equity,southeast
INQ-22-00925	Type 1 Proposal	Carbon-negative cementitiou..	Worcester Polytechnic Ins..	Eggleston	New England	MA	The Engine proposes to cr..	carbon negative,construction material,polysiloxanes,additive manufacturing,in..
INQ-22-00907	Type 1 Proposal	NSF Engines: Type-1: A Ga..	Worcester Polytechnic Ins..	Smith	Southern New Engla..	MA,RI,CT	The Engine proposes the i..	Null
INQ-22-00636	Type 1 Proposal	ICoN: Integrative Connectivit..	Worcester Polytechnic Ins..	Wyglinski	New England (CT, M..	CT,MA,ME,..	The Engine proposes to o..	connectivity,integrative,new england,wireless,workforce development
INQ-22-00491	Type 1 Proposal	NSF Engines: Type-1: WPI – ..	Worcester Polytechnic Ins..	Woolridge	Central MA, the sout..	MA	The engine proposes to w..	biotech manufacturing,tech workforce development,biomedical ecosystem,bio..
INQ-22-01119	Type 1 Proposal	A statewide innovation engin..	WiSys	Sanga	WI	WI	The Engine proposes to w..	agriculture,sustainability,technology,commercialization,startup
INQ-22-00444	Type 2 Proposal	NSF Engines: Type-2: Advan..	Wichita State University	Tomblin	Kansas with a focus ..	KS	The Engine proposes to e..	artificial intelligence,machine learning,hypersonics,lightning
INQ-22-00457	Type 1 Proposal	NSF Engines: Type-1: West ..	Western Michigan Univer..	Atilhan	Western Michigan	MI	The Engine proposes to w..	per- and polyfluoroalkyl substances,pfas,wastewater,environment,remediation
INQ-22-00772	Type 1 Proposal	"AI3 West Living Laboratory..	Western Maricopa Coalit..	Hoffman	The Greater Phoenix..	AZ	The Engine proposes to le..	artificial intelligence,robotics,cognitive applications,health technology,fintech
[illegible]	Type 2 Proposal	NSF Engines: Type-2: Using ..	Western Kentucky Univer..	Brown	South, the Midwest, ..	KY	The Engine proposes lever..	aiot,agritech,commercialization,urban economic development
[illegible]	2 Proposal	NSF Engines: Type 2: Resear..	Western Fire Chiefs Asso..	Van Ballego..	Western United Stat..	CA,CO,W..	The Engine proposes to bu..	wildland fire,wildland fire urban interf[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	Brunkal	[illegible]	CO,AZ,UT	[illegible]	rural com[illegible]

Convergence Accelerator

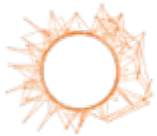
Track A

Open Knowledge Networks

Track B

AI and the Future of Work

2019 COHORT
Phase 2



Track C

Quantum Technology

Track D

AI-Innovation Data Sharing & Modeling

2020 COHORT
Phase 2

Track E

Networked Blue Economy

Track F

Trust & Authenticity in Communication Systems

2021 COHORT
Phase 1

Track G

Securely Operating Through 5G Infrastructure (joint with DOD)

Track H

Enhancing Opportunities for Persons with Disabilities

Track I

Sustainable Materials for Global Challenges

Track J

Food & Nutrition Security

2022 COHORT

Track K

Track Topic: TBD

Track L

Track Topic: TBD

FUTURE COHORT

Backyard Buoys

Locally owned, globally connected, building resilience.

Backyard Buoys process for community-led stewardship of affordable ocean buoys and a web-based application that renders data easy to understand and bridges to Indigenous Knowledge. empowers Indigenous and other coastal communities to collect and use ocean data to support maritime activities, food security, and coastal hazard protection. Innovations include a sustainable

View the team's project video

ReCoast

Recycling to Restore the Coast

ReCoast's vision is to create coastal community recycling programs to keep glass out of landfills and instead use it for glass sand products that support coastal restoration and preservation. Through extensive regional economic, social, cultural, and environmental research, ReCoast is ensuring ecological safety and mitigation of land loss.

View the team's project video

NSF, NobleReach Emerge partner on new effort to speed biotechnology development and translation

Translation Pathways

latest news

More information @ beta.nsf.gov/tip/latest

$5 Million Investment

- Pilot seeks to identify and accelerate the translation of NSF-funded research into biotechnologies and bio-inspired designs with commercial and societal impacts.
- NobleReach Emerge will help selected research teams address critical areas including product development, go-to-market strategy, pitch deck creation and techno-economic analyses.

NSF launches entrepreneurial fellowship program for engineers and scientists

Fellowship

latest news

Activate

- Supports researchers from a variety of backgrounds and geographies to move technologies from lab to society.
- Provides Activate Fellows supported by NSF with two-years of training and at least $350,000 in direct support, plus access to specialized research facilities and equipment.
- Run by Activate.org, a nonprofit

More information @ beta.nsf.gov/tip/latest

NSF workforce program opens new doors in emerging technology fields

Workforce

latest news

- Expands practical learning opportunities for individuals interested in entering or gaining more experience in emerging and novel technology.
- Awards of up to $1 million over three years.
- The ExLENT program promotes partnerships between organizations in emerging technology fields and those with expertise in workforce development.

More information @ beta.nsf.gov/tip/latest

Ramping up TIP

Jan. 21: NSF + Intel announce $100M semi. workforce partnership

JAN 2022

FEB 2022

Feb. 15: Pathways to enable Open-Source Ecosystems launches

March 16: TIP is established

MAR 2022

MAY 2022

May 3: NSF Engines program launches

July 20: NSF, NIST, OSTP, UK announce privacy prize challenges

Privacy-Enhancing Technologies PRIZE CHALLENGES

July 28: NSF Engines Concept Outlines published

JUL 2022

SEP 2022

Sept. 7: NSF, DOD partner to advance 5G security

Sept. 8: NSF awards five new I-Corps™ Hubs

Sept. 19: New Fellows program launches

Activate

Oct. 19: NSF launches ExLENT program

Oct. 27: NSF + Micron announces $10M semi. workforce partnership

Micron

OCT 2022

Privacy-Enhancing Technologies PRIZE CHALLENGES

Nov. 10: NSF announces winners in first phase of NSF, NIST, OSTP, UK privacy prize challenges

NOV 2022

DEC 2022

Dec 8: NSF launches EPIIC

Dec 12: NSF announces Builder Platform for NSF Engines

Dec 19: NSF invests $12M to advance circular economy

Jan. 10: NSF, NobleReach Emerge announce biotechnology investment

Jan. 26: NSF announces cross-sector partnership with Ericsson, Intel, IBM, and Samsung as part of its FuSe initiative

JAN 2023

Dec 9: NSF invests $12M on solutions for persons with disabilities

Dec 13: NSF invests $11M to address food/nutrition security

FEB 2023

Feb 8: NSF launches ART

NSF Programs Power Breakthroughs

Public Funds

TIP bridges the gap

RAMP OF OPPORTUNITY

Valley of Death

Private Funds

LAB ⟷ **SOCIETY**

Foundational Research	Use-Inspired Research	Proofs-of-Concept	Prototype Development	Product/Solution Development	National and Societal Impact, Commercialization

TIP Technology, Innovation and Partnerships

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Backup

FY 2023 Appropriations

In late December:

- $9.9 B for NSF, or +$1.1 B from FY 2022
- President's Request: $10.4 B
- CHIPS and Science: $11.9 B

Roll Call

CONGRESS

Both parties claim wins in massive omnibus spending bill

House and Senate now race to finish before the end of the week

National Science Foundation (NSF): The NSF is funded at $9.9 billion ($9.54 billion in the CJS Appropriations bill and $335 million in supplemental funding), a historic $1.036 billion, or 12 percent, increase above the fiscal year 2022 enacted level. This is largest dollar increase for NSF of all time and the largest percentage increase for the Foundation in more than two decades. This funding includes $7.8 billion for NSF's research and related activities, an increase of $680 million, or 9.5 percent, above the fiscal year 2022 enacted level, to implement the CHIPS and Science Act, including significant support for the new Directorate for Technology, Innovation, and Partnerships. NSF's education and training programs to build tomorrow's innovation workforce are funded at $1.37 billion, an increase of $365 million, or 36 percent, above the fiscal year 2022 enacted level. NSF's funding level will support approximately 2,300 additional research and education grants and 35,000 more scientists, technicians, teachers, and students, compared to fiscal year 2022.

New $60 million NSF program aims to increase the speed and scale of research solutions

Build Capacity

latest news

More information @ beta.nsf.gov/tip/latest

$60 Million Investment

- The **Accelerating Research Translation,** or ART program, will support institutions of higher education to build capacity and infrastructure to strengthen and scale the translation of basic research outcomes into impactful solutions.
- Up to $6 million per award over four years to academic institutions that are eager to grow their translational research activities and develop the necessary infrastructure.

NSF, Intel partners to fund the development of a high-quality manufacturing workforce

Partnerships

latest news

More information @ beta.nsf.gov/tip/latest

$10 Million Investment

- To advance education and training for semiconductor manufacturing and design.
- To improve equitable STEM education at:
  - Two-year colleges;
  - Four-year universities, including minority-serving institutions.

2022 Cohort, Track E: Networked Blue Economy – Phase 2 Teams

BACKYARD BUOYS

Led by the University of Washington

BlueGAP

Led by the University of South Florida

DigitalReefs
AT YOUR FINGERTIPS

Led by the Woods Hole Oceanographic Institute

Nereid Biomaterials

Led by the the University of California, Santa Barbara

OCEAN VISION AI

Led by the Monterey Bay Aquarium Research Institute

ReCoast

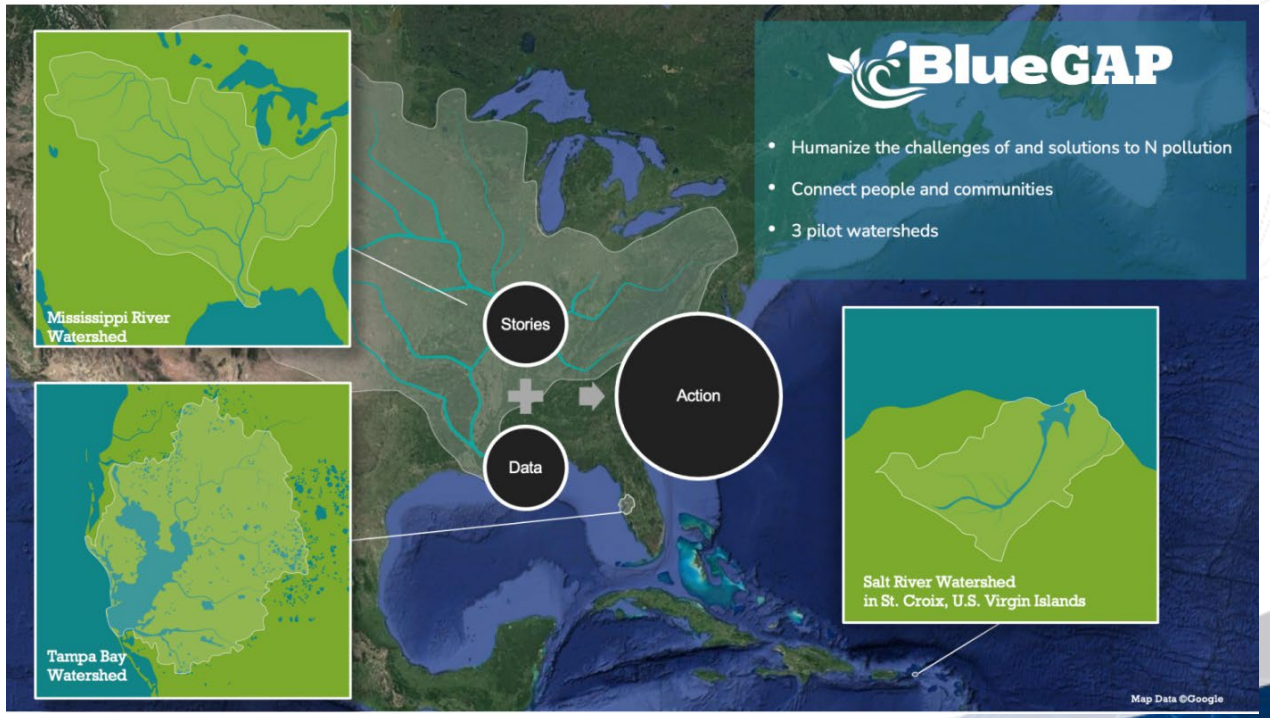
Led by the Tulane University

NSF

BlueGAP

Bridging Communities Upstream and Downstream

BlueGAP connects community organizations across watersheds to address economic and health challenges caused by nitrogen pollution. Co-designed by scientists, engineers, and community organizers, BlueGAP empowers people to reach well-informed decisions for better living through storytelling, reliable water quality information, and tailored decision trees that link to next steps for action.



View the team's project video

Digital Reefs

[Digital Reefs] at your fingertips

Coral reefs provide livelihoods for one billion people globally but are under increasing threat from human activities. Digital Reefs—developed by scientists, engineers, conservation practitioners and stakeholders—delivers interactive 4-D visualizations of reef environments into the hands of local communities, helping to ensure a sustainable future for all coral reefs.

View the team's project video

Nereid Biomaterials

Biodegradable plastics for tomorrow's ocean

Nereid Biomaterials is enabling a healthier ocean through safe and rapid ocean degradation. By merging marine microbiology, synthetic biology, material science, and robotics, the team is developing "ocean degradable" polymers with embedded additives to accelerate and control degradation. The project's initial focus is the ocean instrument industry, a rapidly-growing, and paradoxically plastic waste generating sector.

View the team's project video

Ocean Vision AI

Accelerating ocean discovery

Ocean Vision AI accelerates the processing of underwater visual data with a globally integrated network of services, tools, and a diverse community of users. Composed of data scientists, oceanographers, game developers, and human-computer interaction experts, Ocean VisionAI streamlines access and analysis of ocean visual data to enable effective marine stewardship.

View the team's project video