

# Integration and Application Network

**2025–2030  
Strategic Plan**



# Backward glance, forward focus

In 2022, the Integration and Application Network (IAN) completed a five-year comprehensive review that included extensive feedback from faculty and staff at the University of Maryland Center for Environmental Science (UMCES). The results were encouraging: the unique value that IAN brings to UMCES was clearly recognized and reinforced by the review. But the results also identified several important challenges for our continued growth and increased interaction with the other UMCES units. This strategic plan is designed to respond to those challenges and inspire continued growth in IAN's and UMCES's capability and capacity.

The five-year review provided a great starting point for this new strategic plan. With results from the review in mind, we embarked on a new strategic planning process in our own special way; this plan was co-developed with our employees and informed by input from IAN partners. Together, we created a path forward that expands engagement at UMCES, identifies barriers to achieving goals, and suggests ways to overcome them.

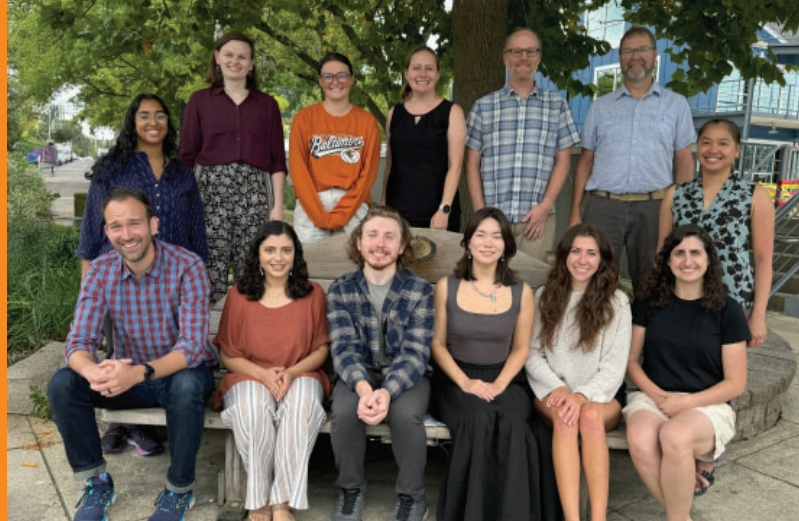
As a unit, IAN has been very successful at increasing external funding, from near zero at our inception in 2002 to nearly \$4M annually 20 years later. This growth is the result of our amazing and talented staff, our ability to produce high-quality science communication products, and our reputation for successful and enjoyable collaboration. Our partners want to work with us again and again because of our flexibility and our ability to do high-quality work with great value. But IAN's continued growth is limited by our reliance on grants and contracts for nearly 100% of costs. Continued growth will require additional investment beyond grants and contracts. We must seek out new investments that can allow continued growth, while at the same time integrating more into the UMCES community. This is the challenge posed by this strategic plan: we need to keep being who we are, while adapting to changing expectations and roles within UMCES. The Chesapeake Global Collaboratory (CGC) will change the way UMCES functions and presents a huge opportunity for UMCES to alter the trajectory of scientific progress. The CGC also represents an important opportunity for IAN to expand its role within the university.

Reflecting on the five-year review, the changes in UMCES leadership, and the direction that UMCES is taking, makes me more excited than ever to be doing what we do. Not only do we have the potential to change lives through our practical, community-engaged science, we have the chance to help UMCES advance to a new level of scholarship and impact.

## **Heath Kelsey, PhD**

Director of the Integration and Application Network





## The IAN Team

IAN is a dedicated group of scientists focused on solving environmental problems through engagement, synthesis, novel research, and communication. IAN scientists have been at the forefront of science application and integration since 2002, pioneering new techniques of science communication, synthesis, and community-engaged scholarship with a diverse range of communities and partners. IAN personnel have varied skill sets that, together, create a strong and diverse team to advance IAN's goals:

- **Science Communicators** have training in environmental science and skills in graphic arts and design.
- **Science Integrators and Project Managers** are skilled in managing budgets, time, and tasks. They help facilitate applied science for solutions, conduct data synthesis, and engage communities and stakeholders.
- **Graduate students** help advance the scholarly development of IAN expertise in engagement, environmental justice, citizen science, and transdisciplinary science.
- **Science Communication Scholars** are recent graduates who spend 6–12 months working with IAN and expanding their science communication skills.
- **State and federal agency staff** make up half of IAN's employees. They are at the Chesapeake Bay Program and state and county organizations. They are executives, web developers, analysts, modelers, statisticians, and outreach and communications specialists.

- **The IAN Business Office** provides the foundation for IAN's work, with financial accounting, institutional management, and grants management expertise that enables IAN to achieve its goals.

The IAN team maintains long-term collaborations with amazing partners all over the world. IAN staff work on applied science projects with communities on six continents, distilling information from different data sources, and communicating scientific information to non-science audiences. Projects are funded by diverse sources, including state, federal, and international government agencies, private foundations, and large and small Non-Governmental Organizations (NGOs).

## IAN's mission and vision

**IAN's Mission is to accomplish positive environmental change through scientific synthesis, engagement, and communication.**

**IAN's Vision is a world where communities create sustainable futures through decision-making informed by science.**



# IAN's current direction reflects its values

## Diversity, Equity, Inclusion, and Justice (DEIJ)

IAN is committed to advancing ideals of diversity, equity, inclusion, and justice (DEIJ). The 2021 Darwin Harbour Report Card, for example, engaged traditional communities throughout the project and beyond. Community workshops aimed to frame the project, design research, and co-develop indicators. The ongoing Chesapeake Bay and Watershed Report Card project is reaching out to Native American tribes to actively seek insight into priorities related to the health of the Chesapeake Bay and their communities. Another project, "Improving community-based climate resiliency," is training climate advocates in underrepresented communities in Maryland so that they can engage under-served communities in the climate change discussion. These are only examples of the work that IAN does to promote DEIJ issues through community engagement projects. IAN strives to advance these ideals in every project by meeting with under-served communities to discuss their environmental priorities.

IAN is also committed to increasing diversity within its staff, recognizing that having diverse viewpoints and perspectives represented by its personnel has inherent benefit. IAN goes beyond building visible diversity, working to ensure partners, collaborators, and stakeholders engaged include people with a range of socioeconomic situations, industry expertise, education, and abilities. All voices need to be included in conversations about how to improve social and environmental conditions.

## Sustainability assessment and socio-environmental systems

Increasingly, IAN's work focuses on the sustainability of socio-environmental systems. Sustainability has two relevant contexts for IAN's projects:

1. Does the system allow for equitable current and future economic, social, and ecosystem services? Given the current trajectory of this system, does it serve essential functions for all parts of the community now and will it continue to do so in the future?
2. Will efforts undertaken to improve, conserve, or restore an equitable system be self-sustaining? Will the processes, institutions, and people needed to maintain a functioning socio-environmental system be supported in the long term?

What these two contexts mean for each community varies based on community priorities, values, history, and culture. Working on these types of projects requires sensitivity, active listening, and deep engagement from diverse stakeholders. IAN is on the cutting edge of community and stakeholder engagement for these types of research and applied science projects. IAN works with socio-environmental systems that range in size, complexity, and condition, relying on close collaboration with partners that are already trusted in the community. IAN works with those partners to help their communities achieve sustainable futures.

Much of IAN's work in this space is communicated through socio-environmental report cards. The report card framework is a systematic, purpose-driven process that engages stakeholders from conceptualization, through the co-creation of communication products and implementation of solutions. IAN has pioneered this work and continues to be at the forefront of co-creation of knowledge through the socio-environmental report card process. There is much more to learn in this space, and IAN continues to advance the science of community-based sustainability applications.

## Climate change resilience and adaptation

There is a growing need for assessment and recommendations to support communities as they prepare for the effects of climate change. IAN's publication of the Maryland Coastal Adaptation Report Card offers a template for ways in which states and counties can prepare for more localized impacts of climate change. To effectively build resilience to climate change, it is important to understand which threats are most urgent and the full suite of adaptation tools available. Vulnerabilities vary from community to community and landscape to landscape, and it is community members—the people on the ground facing these threats daily—who hold the key to understanding which threats are most important.

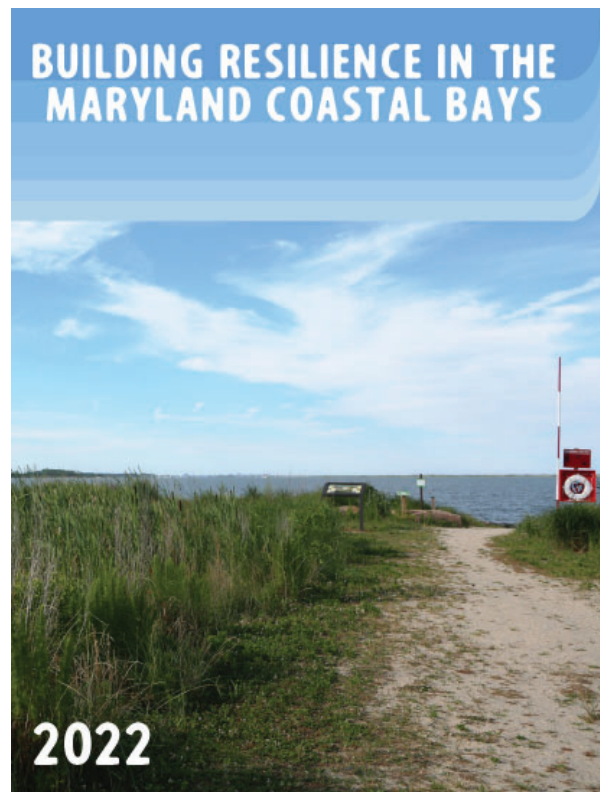
IAN uses a community-driven approach to identify key threats and assess community ability to withstand those threats at various scales. IAN envisions this work contributing to a world in which the threats that climate change poses to communities and ecosystems are well understood, communities have the resources they need to adapt to these threats, and human societies and natural systems are able to withstand these threats and thrive.



## Natural resource management research

Our mission is to help natural resource managers protect, conserve, and restore the lands and waters they are stewarding by providing clear and actionable information. We envision a world where natural resources managers have the information they need to make the best possible decisions about the natural resources they manage.

We use a highly collaborative approach to help managers understand the current conditions of natural resources, identify and assess key drivers and stressors affecting these conditions, and prioritize management actions. This information is communicated in a clear and concise way that can be understood by technical and non-technical audiences. Assessments are based on the best available science and data, providing timely snapshots of current conditions that can be used to inform management decisions. The methods used in these assessments are transparent and repeatable, providing a baseline for future assessments that can be used for adaptive management.



## Training and capacity building

The expertise that IAN has amassed by leading countless projects like those described above represents an impressive resource for training others in sustainability, climate resilience and adaptation, socio-environmental assessments, report card development, community engagement in applied research, knowledge co-production, and science communication.

Courses on these subjects have been delivered through various methods and platforms, including graduate-level semester-long courses, informal and flexible in-person short courses or workshops, synchronous online training, asynchronous training through online course platforms like EdX, and badge programs. IAN currently offers foundational courses in science communication and report card creation. The science communication course teaches the skills necessary for scientists to clearly distill the messages from a body of data or research findings and present them in a way that scientists and non-scientists can easily understand. The report card creation course outlines the process of helping a group of stakeholders clearly define their priorities, vision for the future, values, and threats. It also helps them assess their system using indicators, thresholds, scoring, and communication techniques. These skills help individual researchers communicate better, thereby making them better scientists.

IAN emphasizes community engagement training for scientists. As the benefits of transdisciplinary research and applied science are increasingly recognized, the skills needed to plan, manage, and implement these types of projects are also in demand. However, academia does not adequately train scientists in these skills. IAN's experience in these areas presents practical opportunities for students to get hands-on experience in engaging with stakeholders on co-designed projects. As one European PhD student said at an IAN-led sustainability assessment workshop, "I've been studying transdisciplinary science for six years, but this is the first time I've actually seen it done!"

IAN is proud to provide science communication courses for UMCES students, faculty, and visiting researchers, so scientists can learn to share their research clearly and effectively with the general public, managers, and policymakers. Between 2019 and 2023, IAN provided science communication courses to 280 people, many of whom were a part of the UMCES community. These courses are a critical component of UMCES' mission to use research to keep the public informed and engaged with environmental issues.

IAN staff teach Marine Estuarine Environmental Sciences (MEES) Program courses, including a course on Science Visualization. Providing these traditional academic courses and supporting graduate students are important aspects of IAN's work and goals for the future.



## IAN keeps UMCES on the local, national, and global stages

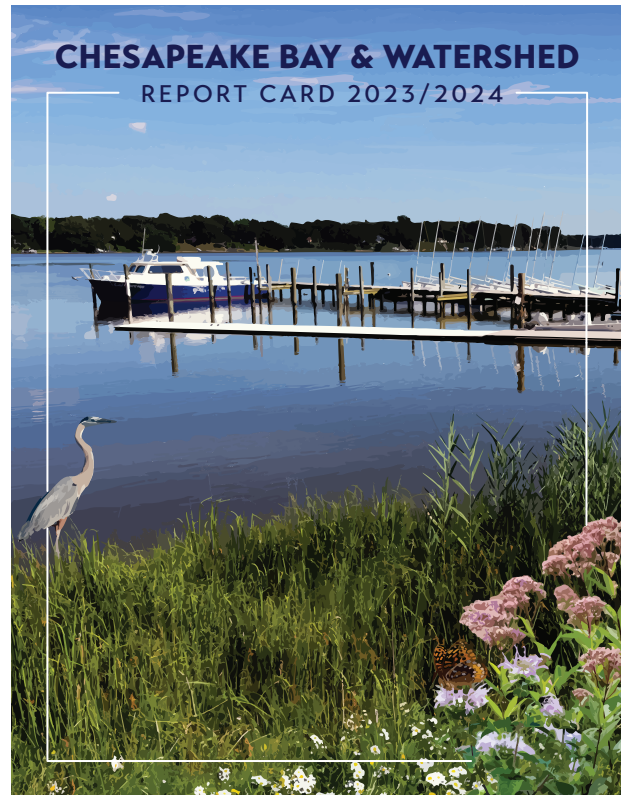
Since publishing the first Chesapeake Bay Report Card in 2007, IAN staff have taken pride in the ability to inform Marylanders about the condition of the Chesapeake Bay. As IAN has expanded report card projects elsewhere, the audiences that these projects reach has dramatically increased. For example, the 2023/2024 Chesapeake Bay and Watershed Report Card release event garnered 888 million media impressions within one week of the event. The press conference to announce the report card included the Governor of Pennsylvania and six cabinet secretaries from two states. Similarly, a coral reef assessment with the National Oceanographic and Atmospheric Administration garnered 520 million media impressions at an online press conference in 2021 (during Covid) and was attended by a US Senator from Hawaii, the NOAA Administrator, and global coral reef experts. These types of events create excellent exposure for UMCES.

IAN is deeply engaged with partners on six continents, working closely with stakeholders including academics, government agencies, elected officials, NGOs, and Indigenous groups. In addition to academic papers, each project leads to the creation of publicly accessible communication materials. This ensures that messages developed during these projects not only reach scientific audiences, but also local community audiences. IAN's past partners share that these projects have had lasting positive impacts. These projects, products, and events often introduce UMCES to local, national, and international audiences for the first time.

IAN has been extremely active and productive in the areas of community and stakeholder engagement, involving social science in environmental assessment and visioning, and establishing transdisciplinary science processes, even before these approaches were recognized. By engaging in these activities so prolifically on a global scale, IAN has helped maintain the relevance of UMCES to global research partners, so UMCES is well-positioned to expand in these strategic areas. IAN's global footprint allows it to showcase UMCES research and transdisciplinary capabilities to a wide audience.

Because of the pioneering status that IAN has cultivated in science communication, transdisciplinary applications, knowledge co-production, and stakeholder engagement, IAN staff can share their expertise with partners worldwide. Because of the variety of geographies, systems, and stakeholders that IAN works with, IAN staff gain experience with new and unique approaches, develop new skills, and learn helpful perspectives from diverse people all over the world. The lessons learned through these experiences are then applied to local projects, improving lives in Maryland, and shared with UMCES faculty and students.

Through this constant cycle of learning, application, and training, IAN stays at the forefront of transdisciplinary research on sustainability, climate change, and socio-environmental systems. IAN sees an expanded role in sharing this knowledge with UMCES faculty and students, allowing UMCES to increase its stature as a cutting-edge research university.



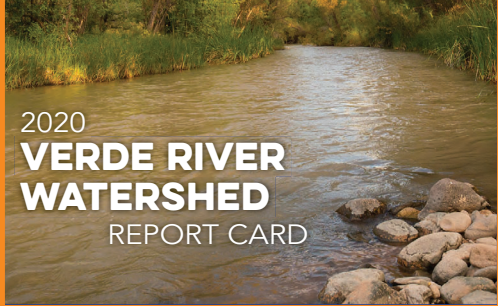




**2019**  
A TRINATIONAL INITIATIVE  
Led by Harte Research Institute and UNAM-Sisal



**Coastal Georgia**  
Ecosystem Report Card 2020



2020  
**VERDE RIVER**  
**WATERSHED**  
REPORT CARD



BOLETA DE CALIFICACIONES  
DE LA CUENCA DEL  
**Río Clinton**



**Maryland Coastal Bays**  
2022 Report Card



**Climate Change and Fiji Coasts**  
A socio-environmental Report Card



**PACPATH**  
PACific ocean PATHways



A report card for the  
**Upper Rio Grande Basin**



بطاقة تقرير مستجمعات  
مياه نهر هورون



**CUANDO RIVER BASIN**  
2021 REPORT CARD  
ANGOLA, BOTSWANA, NAMIBIA, ZAMBIA



**Patapsco River**  
2023 Report Card

Patapsco Heritage Greenway (PHG) is a non-profit organization dedicated to preserving, protecting, interpreting, and restoring the environment, history, and culture of the Patapsco River Valley. The Patapsco Valley Heritage Area is one of one of thirteen state-certified Maryland Heritage Areas, a designation by the Maryland Historical Trust that supports collaboration between individuals, nonprofits, businesses, and governments to protect the region's environmental and historical value.

In 2021, PHG started a volunteer-assisted water quality monitoring program on the Patapsco River in partnership with the Chesapeake Monitoring Cooperative (CMC). PHG adopted the methodologies and quality assurance procedures of the CMC, thereby joining a large regional network of programs collecting similar data of known quality. Since that time, the program has grown in number of volunteers engaged, parameters measured, sites assessed, types of monitoring performed, and users of data.

Currently, PHG monitors conditions monthly at 11 stations from Woodbine to Elkridge. We measure a variety of chemical and physical factors including temperature, dissolved oxygen, pH, conductivity, nitrite, phosphorus, clarity, and E. coli bacteria. Twice a year, we supplement our water quality information with biological assessment of the benthic macroinvertebrate community in accordance with the procedures of the Izaak Walton League.



# IAN's Strategic Planning Process

In true IAN fashion, the strategic planning process began with a meeting of stakeholders—the IAN employees. Through these initial stakeholder workshops, the group identified key factors that led to IAN's current success, things that should be kept, and things that should change. This led to a future vision of IAN: an idealized IAN with a sustainable future. Key values for this future vision include:

- Continued independence of research and applied science direction
- Balance of applied science and research projects
- Increased focus on sustainability, resilience adaptation, socio-environmental systems, and equity
- Increased impact and awareness of research accomplishments



## IAN's five-year review helped shaped goals for this Strategic Plan

In 2022, IAN completed a five-year comprehensive review with input from UMCES leadership, faculty, and staff, including town hall-style virtual meetings for each of the UMCES units. High-level messages from the review reflect both a sense of the value that IAN can provide to UMCES and a recognition that there are important limitations to what IAN can do given its self-funded financial model. Takeaways from the review include:

- UMCES values IAN's capabilities in science communication and synthesis, but many faculty and staff are unaware of IAN's experience in other areas, like stakeholder engagement and co-designed research.
- IAN plays an important role in helping UMCES achieve its mission of applying science for solutions, but many are unclear about how IAN's work accomplishes this within the institution.
- IAN provides unique and extensive local, regional, and international exposure for UMCES. Many other UMCES researchers work with communities, but the exposure that IAN provides for UMCES in a variety of settings is important.
- IAN's funding record is strong, demonstrated by the steady increase in annual awards, but being completely funded through grants and contracts limits further growth.
- UMCES faculty, staff, and students want more connection with IAN, but recognize the current limitations of this structure.

## IAN is expanding its research focus

IAN has fostered a strong reputation for creating great communication products and practical application of stakeholder engagement methods. This has served IAN well, but the research aspects of these topics have not been addressed as thoroughly as they could be. There is much to learn about not just what is effective, but why it is effective, and how could these methods be improved.

In the coming years, IAN will expand its focus to include more emphasis on research with particular focus on:

- Transdisciplinary processes
- Community engagement processes and methods
- Socio-environmental assessment
- Climate resilience planning
- Natural resource management

When IAN was established in 2002, its focus was to produce timely synthesis and science communication products, best exemplified by the development of the Chesapeake Bay and Watershed Report Card. Through the years, IAN has evolved to include a strong research focus on how to effectively co-create these syntheses with stakeholders using a transdisciplinary framework. This research focus is reflected in the 68 peer-reviewed publications from 2018-2023 that IAN scientists have co-authored, 15 of which are directly related to transdisciplinary science, community engagement, and socio-environmental assessment. IAN will continue to expand publishing to share what it has learned with the broader scientific community.

IAN has fostered a strong reputation for creating great communication products and practical science application with a commitment to stakeholder engagement. This has served IAN well, creating a reputation with our partners as a practical, flexible, and “can-do” team that can apply science for positive impact.

But IAN could do more to share the results of our experiences, and knowledge gained, with the academic community. IAN Science Communicators and Science Integrators have facilitated hundreds of stakeholder engagement meetings, workshops, and listening sessions, building practical expertise in engaged co-creation of knowledge processes. These experiences provide the opportunity for strong contributions to the research community in incorporating methods for knowledge co-creation through engaging stakeholders in transdisciplinary processes.



# 2025–2030: IAN’s critical next five years

## IAN’s 5-year goals

IAN will continue to advance its strengths in Science Communication, Synthesis, Training, and Engagement. IAN’s early experience in science communication meant that IAN Science Communicators were pioneers, representing the gold standard in visual science communication. Currently, visual science communication is more widely used. IAN will need to continue to improve science communication capabilities to retain this pioneering status. IAN will continue to advance the science of science communication, add to already strong capacity, and continue exploring the linkages between art, narrative structure, and technology.

Synthesis is also an area where IAN continues to pioneer new methods, beginning with representing the results of data synthesis through graphic design and socio-environmental report cards. There is much to do in this field, including advancing the application and synthesis methods, and exploring linkages between social, economic, and environmental indicators.

IAN has excelled in training since the unit was created, and continues to provide world-class science communication, synthesis, and community engagement training opportunities. IAN will continue to expand training capabilities through re-designing science communication and data visualization training methods, increasing access to online resources, and creating new materials for community engagement in science.

Engagement is a new focus area for IAN in relation to the other core work areas. IAN has been developing engagement methods and including them in project design, but for many years did not recognize the power and value of engaged science specifically as transdisciplinary science. IAN’s practical experience in this area presents very strong opportunities for advancing the practice of transdisciplinary science for solutions.



# IAN's Objectives for 2025–2030

1

Celebrate and improve IAN's workplace culture by prioritizing diversity, equity, and inclusion

2

Increase impact by training, capacity building, and publishing to advance research and applied science

3

Collaborate more with UMCES units, including creating opportunities for students in transdisciplinary science

4

Revise IAN's funding model to advance IAN's strengths in data visualization and graphic design training

5

Support the Chesapeake Global Collaboratory by providing science communication, stakeholder engagement, and training

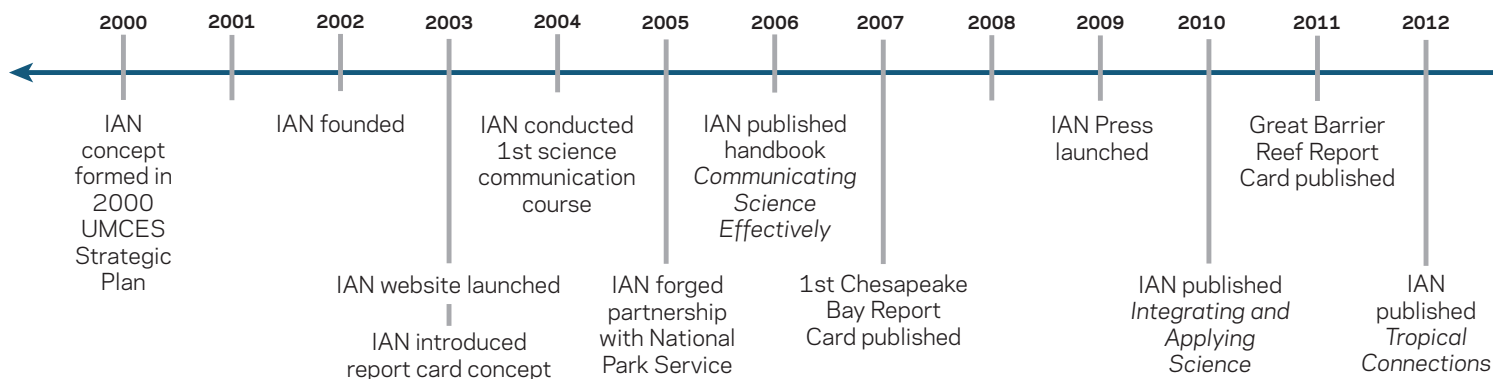
# Objective 1: Celebrate and improve IAN's workplace culture by prioritizing diversity, equity, and inclusion

## Cultivating a positive work culture

IAN is dedicated to fostering a collaborative, welcoming workplace culture grounded in respect, integrity, and a diversity of perspectives. IAN's culture supports a balanced work-life dynamic, with a generous paid time off policy, robust benefits, and a flexible hybrid work schedule. Employees also enjoy opportunities for domestic and international travel to attend conferences and workshops, along with annual retreats, holiday celebrations, and friendly competitions that build camaraderie. IAN staff are committed to using graphic design, data visualization, and engagement tools to effectively communicate scientific knowledge. IAN looks forward to continuing and enhancing these valued workplace traditions, making IAN an even more supportive environment and attracting talented individuals to the team.

### Metrics to achieve success:

- 1.1 Review and update IAN Team Agreement annually
- 1.2 Update IAN Employee Handbook (ensure culture and expectations are included)
- 1.3 Annual review of IAN Employee Handbook as a group
- 1.4 Annual team retreat
- 1.5 Streamline on-boarding process
- 1.6 Integrate team agreements within each project
- 1.7 Develop annual training goals for each employee



## Centering Diversity, Equity, Inclusion, and Justice (DEIJ)

IAN's work depends on the active engagement of diverse stakeholder groups. We are committed to promoting the values of diversity, equity, inclusion, and justice (DEIJ) in our work to assess and protect natural systems and people who depend on them. As an organization, IAN looks to improve and expand DEIJ initiatives.

Working with a vast array of stakeholders has been a pillar of IAN's process of developing socially relevant and scientifically valid communication products. IAN will continue to build relationships with leaders and community members outside of scientific disciplines. IAN will continue working with stakeholders who have historically not been included in academic circles.

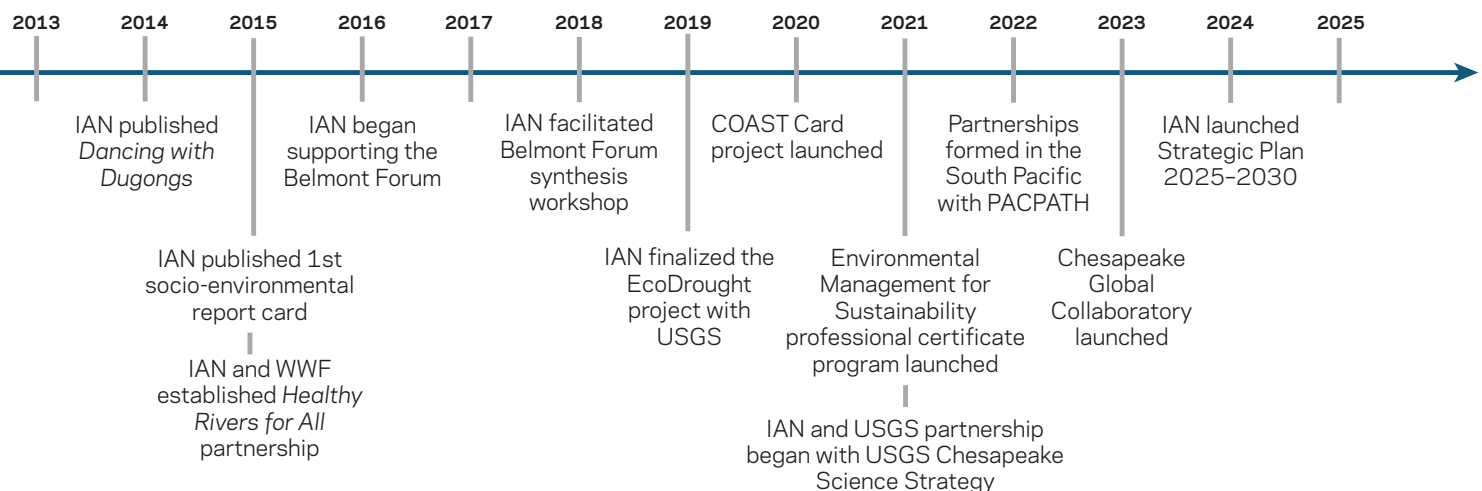
Internally, IAN should strive to promote more DEIJ principles throughout day-to-day activities and interactions. One goal is to increase and also establish the targets for DEIJ at IAN. Rejuvenating the DEIJ committee and DEIJ plan will be the first steps toward this goal. IAN should promote DEIJ practices in advertising for jobs and hiring new positions. Additionally, the IAN Handbook should be kept up to date to include guidance on best practices for DEIJ and promotion of inclusivity.

### Metrics to achieve success:

**1.8** Weekly DEIJ committee

**1.9** Review and update the DEIJ plan

**1.10** Empower IAN staff diversity



# Objective 2: Increase impact by training, capacity building, and publishing to advance research and applied science

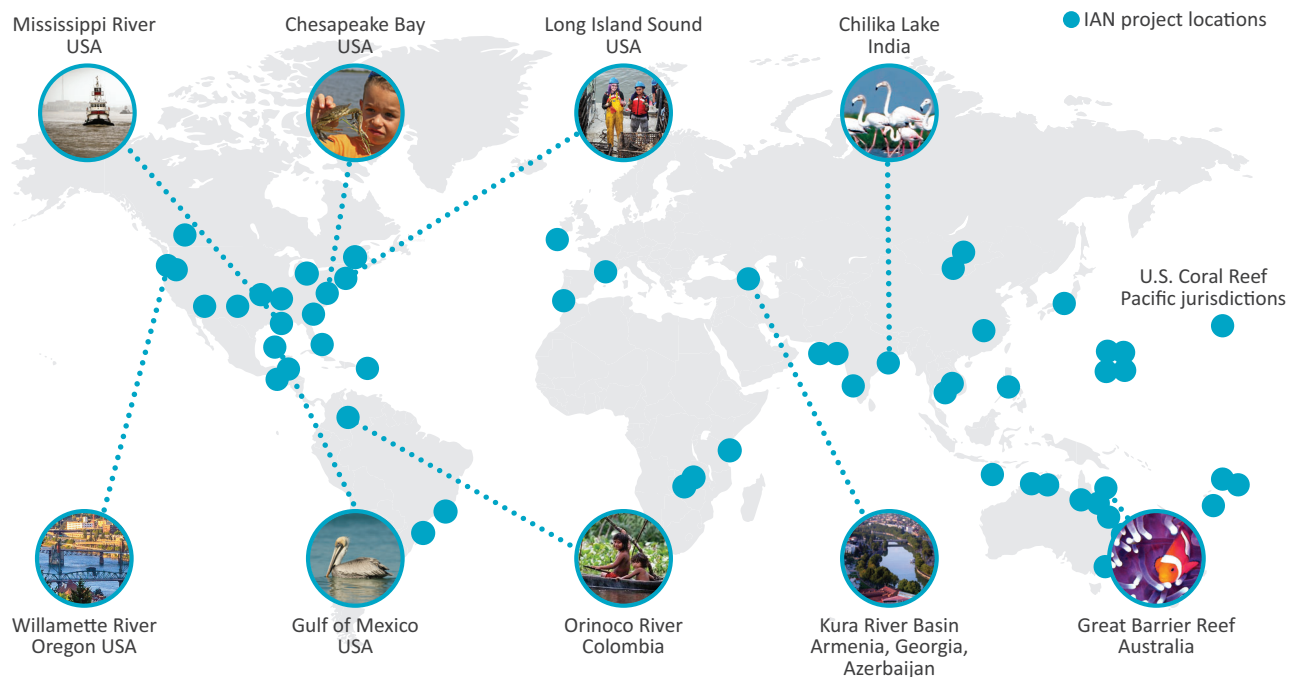
## IAN has widespread positive impact

IAN staff are proud of the impact that they have generated for partners, collaborators, and communities. IAN has worked on every continent except Antarctica (so far), in almost every type of biome and habitat, and in socio-environmental systems ranging from headwater streams to heavily urbanized coastal cities. After working with IAN, previous project partners reported increased environmental awareness, more community engagement, improvements in ecosystem condition, and behavior change. IAN's work has clearly had a positive impact.

The scientific community urgently needs to increase its positive impacts because of rapidly changing societal and environmental challenges like sea level rise, increased drought and flood frequency and severity, conflict, and global water and food security concerns. IAN must participate in global societies, networks, and research groups to influence the way science is conducted to include more engagement and transdisciplinary processes, so that science-oriented solutions are actually implemented. IAN has practical experience in these areas and that experience needs to be shared. By working with, and training, partners everywhere, IAN can create a ripple effect that can influence the impact throughout academia and the science community.

### Metrics to achieve success:

- 2.1 Move to open data model (develop transition plan for this by 2030)
- 2.2 Increase blog posts; average 10 blogs per year
- 2.3 Maintain media reach
- 2.4 Increase people reached by posting more on Facebook, Instagram, and Vimeo
- 2.5 Participate in global societies, networks, and research groups (including conference workshops and hosting sessions; one per project manager per year)
- 2.6 Socio-environmental products; average 12 per year
- 2.7 Achieve searchability and citability for each IAN publication





## Publishing and sharing results with the scientific community

Since its inception, IAN has intentionally focused on the practice of science application and engagement. This often involved the creation of synthesis and science communication products that create value for the mission of partners and funders. The funders who supported IAN's projects were more interested in producing science communication products than in publishing in scientific journals.

Over the last decade, however, IAN has recognized the value of addressing research questions about scientific synthesis and engagement methods and approaches, as well as questions related to the socio-environmental systems, climate change resilience and adaptation, and natural resource management research that IAN does. The science community increasingly recognizes that transdisciplinary principles are important for creating science-based solutions that have impact. They have high impact because they are relevant to people impacted, are seen as legitimate because of who was involved, and credible because of the involvement of academic scientists.<sup>1</sup> The results of this work provide vital information for prioritization and planning of adaptation actions to build overall resilience to climate change.

IAN will increase its focus on publishing in scientific journals and intends to continue to expand publishing in these research areas to share knowledge with the science community.

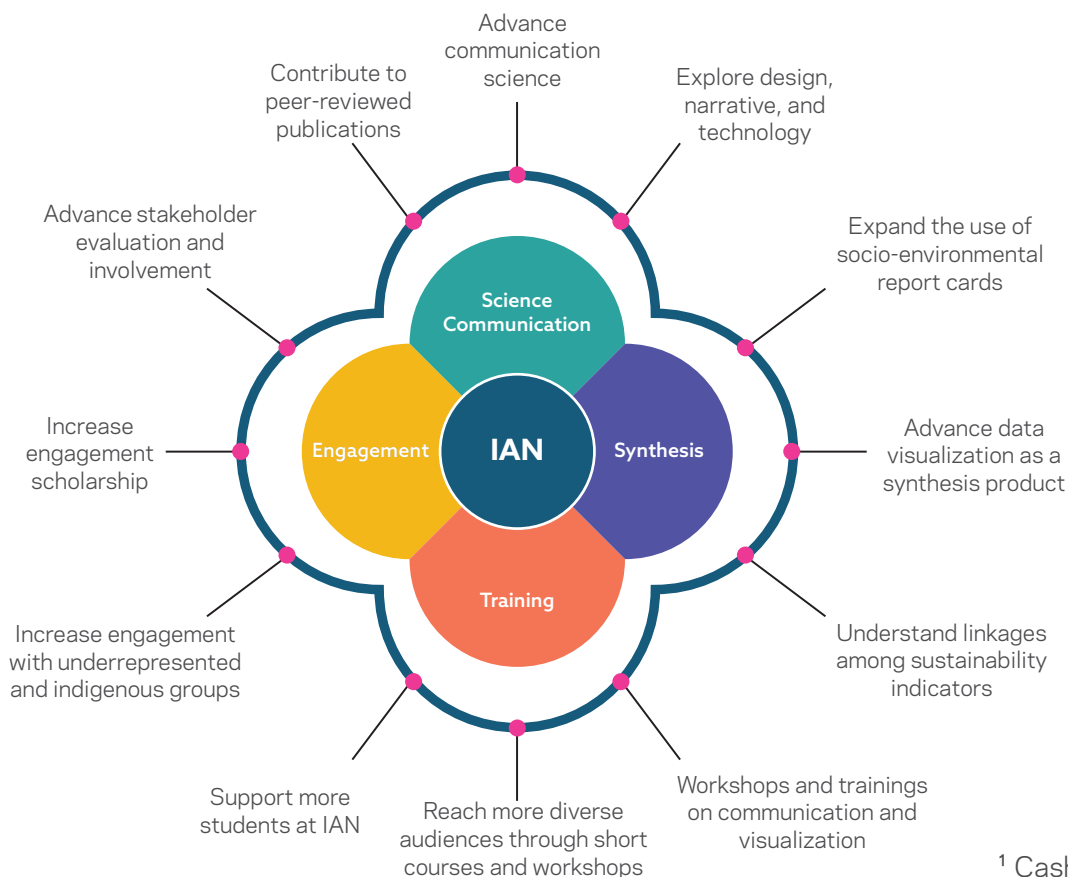
### Metrics to achieve success:

**2.8** Identify specific research questions to address in each funded project

**2.9** Publish one journal article for each funded project

**2.10** Each graduate student has at least one first author publication accepted by their graduation

**2.11** Each Science Communicator contributes to one paper per year



<sup>1</sup> Cash et al., 2003

## Objective 3: Collaborate more with UMCES units, including more opportunities for students in transdisciplinary science

### IAN is working towards the goal of one UMCES

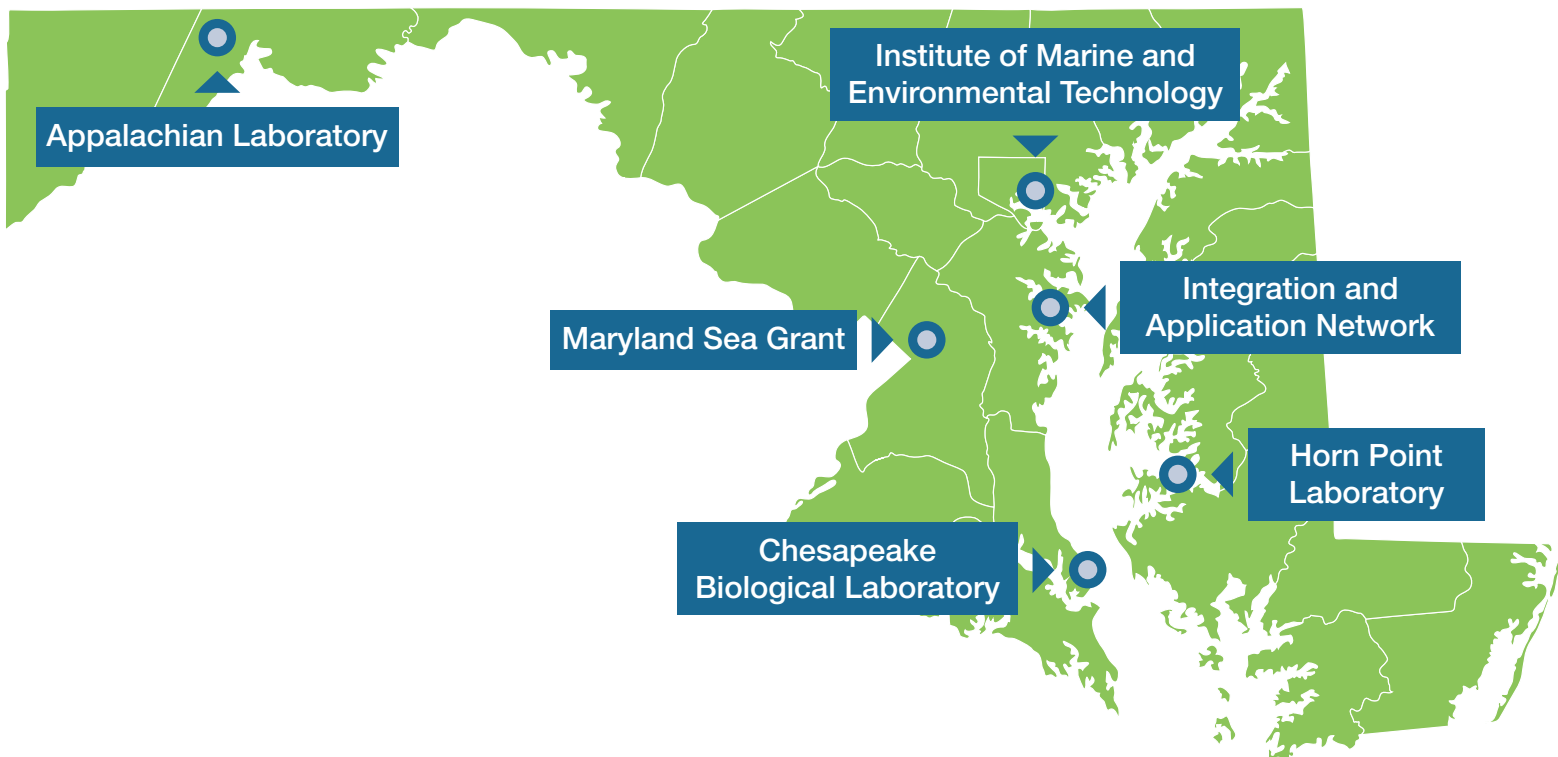
IAN scientists and staff have long desired greater opportunities to collaborate with UMCES faculty and graduate students across all of the units. IAN has a history of interactions through practical training for students and faculty in visual science communication methods, but there are many more opportunities that would enrich both IAN and the rest of UMCES. Many of IAN's researchers are excited to teach more classes, advise students, and provide opportunities for student experience in stakeholder engagement. IAN can leverage extensive experience in applying science for solutions through its strengths in sustainability assessment, climate resilience and adaptation, and training.

IAN continues to participate in other units open house events, creating connections and providing activities for surrounding communities. IAN will continue this practice and increase opportunities for collaboration.

Additionally, the launch of the Chesapeake Global Collaboratory offers more opportunities to help facilitate collaboration with other UMCES units.

#### Metrics to achieve success:

- 3.1** Funded projects with other units (two per year on average)
- 3.2** Shared students with UMCES Faculty outside of IAN, co-advised or committee (one per year)
- 3.3** Remain active on ADR committee to identify collaborative grant opportunities
- 3.4** Give lightning talks and/or guest talks at other units (one per unit per year)
- 3.5** Include non-IAN UMCES faculty in IAN seminar series events (two per year)
- 3.6** Participate in other units' open houses



## IAN can play a critical role in expanding student engagement at UMCES

IAN has the capacity to teach theory and practice of all aspects of transdisciplinary, community-engaged science. IAN's leadership in community-engaged science creates world-class experiential learning opportunities in transdisciplinary applications. These types of opportunities are rare, even at institutions that focus on transdisciplinary science. The skills needed are essential for scientists that will be operating in these fields globally, and UMCES's ability to provide that type of training will set it apart from other research institutions.

However, there are several barriers to increasing IAN's ability to teach classes or take on students and fund their research. These include IAN's funding model and the types of positions IAN is able to offer to its PhDs. The 100% grant-funded financial model ensures that much of the project budget must support the Principal Investigator and Science Communicators salaries. Tight budgets and short timelines mean that committing to student support is difficult. Moreover, this financial model means that IAN is unable to offer the tenure track Professor or non-tenure track Research Professor positions, which are necessary to independently supervise students. The Research Scientist positions that IAN does offer are able to co-supervise students and teach classes, but the ability to independently generate a research program is important for student recruitment.

To fully realize the potential to increase its support for graduate students, IAN's financial model must change to one that includes some level of permanent support for the PhDs at the unit.

### Metrics to achieve success:

**3.7** Co-supervise one UMCES student per year

**3.8** Co-supervise or serve on committees for one-two students outside of UMCES

**3.9** Teach one MEES course per year

**3.10** Host a one or two-day short course for UMCES employees once per year

**3.11** IAN Report Card Metric: Number of students taught through short courses and/or workshops. Target: begin tracking in 2024. Tentative goal: 100 individuals



# Objective 4: Revise IAN's funding model to advance IAN's strengths in data visualization and graphic design training

## Strengthening IAN's financial model for sustainable growth

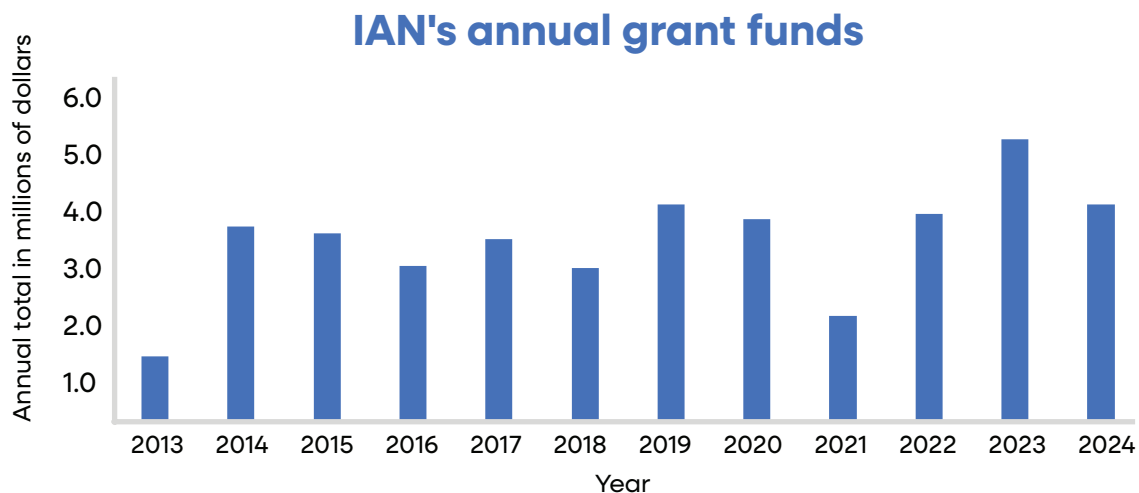
IAN has been successful in steadily increasing research awards from diverse funding sources. Funding has increased dramatically over time, even as research staff salaries have remained supported solely by grants and contracts. This is a remarkable achievement, only made possible because of the dedicated and flexible group of scientists at IAN with unique skills that are in high demand. IAN's process is proven to generate engagement, collaboration, and a consensus-based vision for a sustainable future, and groups from all over the world seek IAN's collaboration and expertise.

But the financial model that IAN has been operating under is limiting. As of July 2024, 30 of IAN's 32 employees were 100% funded solely with support from about 25 projects. While this is an impressive achievement, new sources of funding and a different financial model will be needed, particularly as IAN continues to grow, and as the need for IAN's collaboration with the other UMCES units and the CGC increases.

These realities suggest that IAN should be better supported, financially, as an UMCES unit. This includes increased salary support for IAN's Science Integrators, and increased philanthropic support through a purposeful development program. IAN will work closely with UMCES leadership to identify opportunities to advance these goals.

### Metrics to achieve success:

- 4.1 Draft a case for support (pitch) for each research focus area
- 4.2 Spotlight one staff member or project with information on how to contribute to our work (12 annually)
- 4.3 Redesign giving page to include designations
- 4.4 Plan for annual giving campaign in 2025
- 4.5 Scope social media Giving Tuesday campaign for every year
- 4.6 Include Foundation Grants in funding prospect research
- 4.7 Regular catch-up meetings with the UMCES VP of Advancement
- 4.8 Include a donation QR code on talks when appropriate
- 4.9 Increase state support for Science Integrators and Project Managers



## Advancing IAN's strengths

IAN is at the forefront of synthesis, stakeholder engagement, science communication, resilience and adaptation science, training, environmental justice, and engagement. To maintain its leadership role in these areas, IAN will continue to explore new and innovative approaches to improve social, economic, and environmental sustainability. There is much to do in this field, including advancing the application of report card-style communication products, novel science communication products, data visualization, and exploring the linkages between socio-environmental indicators.

IAN's science communication products have become more sophisticated as the project scopes have expanded. Looking ahead, IAN will continue improving its product quality to remain leaders in the science communication field. IAN's goal is to advance the science of science communication, add to IAN's already strong capacity, and keep exploring the linkages between art, narrative structure, and technology.

IAN plans to expand climate resilience and adaptation research that leads to positive change through investment in effective adaptation-building efforts. These efforts can be applied at scale to create a rapid, positive impact on climate resilience in Maryland, the Chesapeake Bay watershed, and beyond.

IAN will continue to expand its capabilities through re-designing science communication and data visualization training methods, advancing the commitment to providing online resources, and creating new materials for community engagement in science.

### Metrics to achieve success:

- 4.10** One science communication/engagement course taken by a Science Communicator annually, with the attendee sharing what they learn with the rest of the team
- 4.11** One Science Integrator or Project Manager take a course each year and share what they learn with the rest of the team
- 4.12** 20 new symbols per year
- 4.13** 30 symbols updated per year
- 4.14** Tips and Tricks
- 4.15** Journal article discussion during IAN meetings, six per year
- 4.16** Fully adopt IAN's new data management plan



## Objective 5: Support the CGC by providing science communication, stakeholder engagement, and training

### IAN's expertise in stakeholder engagement and capacity building can be instrumental in the success of the Chesapeake Global Collaboratory

The core functions of the Chesapeake Global Collaboratory (CGC) show a clear role for IAN. Key activities and approaches that define the CGC as transformational include the ability to engage stakeholders in the co-development of research programs, facilitation of stakeholder engagement activities, synthesis of results, and communicating outcomes, all of which are areas in which IAN excels and has extensive practical experience. The CGC design process has been facilitated with extensive involvement from IAN in the design of engagement activities and creation of synthesis documents that communicate the outcomes. IAN is excited to continue in this role in support of the Chesapeake Global Collaboratory.

#### Metrics to achieve success:

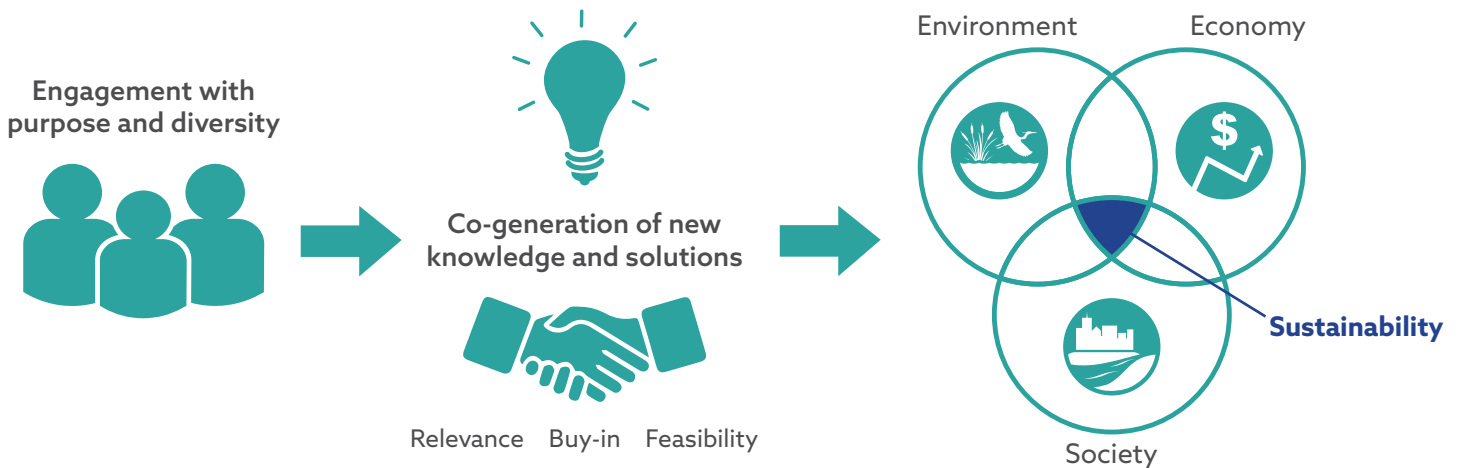
- 5.1 Continue serving on CGC steering committee
- 5.2 Establish vision for how IAN Science Communicators and integrators will interact with the CGC
- 5.3 25% each of two Science Communicators and 25% each of two project managers salaries supported by CGC per year dependent on Collaboratory funding and structure



# Navigating the future

## IAN is dedicated to collaborative problem-solving for sustainable change

IAN's staff believe that positive environmental and social change can be accomplished through application of engaged science. The problems facing society are complex and require thoughtful solutions that are relevant to all parts of society. Problems like climate change, environmental justice, and sustainability are intricately linked by social, economic, and environmental components. To solve these issues, IAN engages diverse groups of scientists, communities, agencies, and others to develop a common understanding of issues and a vision for the future. This unique way of conducting science, combined with effective communication, can lead to real, positive change for everyone.



A healthy environment is dependent on a healthy society and vice versa. Without a healthy economy and society, we will be unable to dedicate resources to the restoration and preservation of the environment that we envision. Achieving sustainable communities can best be accomplished through deep and purposeful engagement of stakeholders to create an ambitious, equitable, and achievable vision for long-term environmental, economic, and social well-being. IAN's transdisciplinary process of stakeholder engagement in co-generation of knowledge and solutions leads to relevant outcomes, has broad acceptance, and is feasible. Generating this knowledge collaboratively can create an achievable pathway for sustainable communities.



# Come work with IAN!

IAN has been helping partners achieve their objectives since 2002, through science communication, training, community and stakeholder engagement, synthesis, and socio-environmental research applications. IAN is eager to help solve your problem and achieve your vision.



**Contact us today to get started.**  
**Email [IAN@UMCES.edu](mailto:IAN@UMCES.edu) or visit [IAN.UMCES.edu](http://IAN.UMCES.edu)**

## Scan the QR Code to support IAN

Nearly all of IAN's work is currently funded by grants and contracts. Those funds support projects that look for collaborative solutions to complex, multi-faceted environmental issues both here in Maryland and around the world. By scanning the QR code, you can join a team whose work has a global impact.

Your donation today increases our capacity to address challenges in sustainability, train the next generation of scientists, create science communication products, and engage with communities in environmental decision-making.

*Cover photo courtesy of the Chesapeake Bay Program.*



[ian.umces.edu](http://ian.umces.edu)

