



Coastal No Adverse Impact: Promoting Higher Standards to Enhance Community Resilience



Lake Superior's Shoreline along Minnesota Point in Duluth, Minnesota. Photo taken by Eleanor Rappolee.

A Proposal to the: NOAA OCM 2024 Digital Coast Fellowship Program

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1. Background and Introduction

Flooding continues to be the most common and costly natural disaster in the country, with flood-related disasters causing more than \$85 billion in damage and economic losses in 2021 alone.¹ In our country's coastal areas, this threat is exacerbated by a "triple-whammy" of more intense rainfall events from ordinary storms; higher storm surges and rainfall from "juiced" tropical systems due to both warming oceans and weaker steering currents; and sea level rise driving cyclical inundation and erosion. Over the next several decades, this triple-whammy of factors will create a profound shift in coastal flooding, forcing many coastal communities to face irreparable disruption to their coastal ecosystems and economies.² These pressures impact more acutely disadvantaged communities, who are in turn systematically marginalized and underserved by existing resilience programs and resources.³

States and the federal government set minimum floodplain management standards to guide communities to mitigate these hazards. However, national minimum standards under the National Flood Insurance Program (NFIP) are based on historical flood rates and are inadequate to prepare communities for future climate and development pressures. Higher floodplain management standards have been proven to help coastal communities adapt and evolve. Communities like Tulsa, Oklahoma and Charlotte, North Carolina have achieved national success in implementing higher floodplain management standards and have significantly reduced flood impacts in doing so.⁴

Implementation of higher standards varies across state and county lines and can be expensive, technically challenging, and politically fraught. Targeted, accessible, responsive technical guidance and resources are needed to assist practitioners and elected officials in navigating through this complex process, and boundary organizations like the Association of State Floodplain Managers (ASFPM) and the Coastal States Organization (CSO) are well positioned to connect communities with resources to meet these needs.

ASFPM and CSO propose a fellowship project that leverages the expertise of a two-year Digital Coast Fellow to update and expand on portions of the Coastal No Adverse Impact Handbook to incentivize and build capacity for implementing higher standards in local floodplain and coastal management.

The Fellow will play a critical role in the development of an innovative training resource for ASFPM and CSO that integrates high quality [Digital Coast](#) tools, data, and training while also being part of a larger team of No Adverse Impact (NAI) and flood risk management experts that are developing comprehensive guidance and content for communities across the nation.

The [Coastal No Adverse Impact Handbook](#) (CNAI), published in 2007 by ASFPM in partnership with NOAA's Office for Coastal Management, articulates an approach to floodplain management that addresses the triple-whammy in coastal areas by: 1) providing technical guidance for communities to implement higher floodplain management standards for their citizens and to plan for and mitigate against increasing flood risk now and in the future; and 2) promoting the *good neighbor policy* of managing land use to avoid harm to watershed neighbors upstream and downstream. The CNAI

¹ Tompkins, F. and Watts, B. (2022). Flooding Is Nearly a Daily Occurrence Throughout the U.S. *The Pew Charitable Trusts*.

² IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115.

³ Elliott, J. R., Brown, P. L., & Loughran, K. (2020). Racial inequities in the federal buyout of flood-prone homes: A nationwide assessment of environmental adaptation. *Socius*, 6, 2378023120905439.

⁴FEMA. (2022). Teamwork Approach to Outreach and Engagement Reduces Flood Risk.

Handbook extends ASFPM's No Adverse Impact (NAI) floodplain management philosophy to mitigate current and future losses, costs and human suffering caused by flooding, and protect the natural and beneficial functions of floodplains – all without causing adverse impacts.

The *CNAI Handbook* presents a basic set of seven **building blocks** to implement NAI principles: 1) Hazard Identification and Mapping; 2) Education and Outreach; 3) Planning; 4) Regulations and Development Standards; 5) Mitigation; 6) Infrastructure; and 7) Emergency Services. Each building block is further broken down by a level of effort: *Basic*, *Better*, and *NAI*, where the *basic* level summarizes minimum standards under the NFIP; the *better* level lists more effective floodplain management activities such as those found in FEMA's *Community Rating System* program; and the *NAI* level that promotes the highest possible standards.

Over the past 25 years, ASFPM has made significant investment in its suite of [No Adverse Impact Approach to Floodplain Management](#) technical assistance resources, including a series of *How-To Guides* for each of the seven building blocks (2014-2019), and most recently, the [NAI Legal Guide for Flood Risk Management](#) (2023), which lays out the legal foundation for the NAI approach

Currently, these resources exist as large PDF files that can be difficult for practitioners to use effectively and for authors to keep current and responsive to community needs. ASFPM and CSO seek a Fellow that will lead the process of updating and reimagining one or more of these resources into a new, *Foundational Modular* training.

- *Foundational* - covering basic materials that ASFPM and CSO regularly provide to stakeholders at different levels of experience.
- *Modular* - composed of discrete components that can be 1) chosen by end-users to increase accessibility, 2) reconfigured with local examples, data, and needs, and 3) delivered by local subject matter experts.

This new training will be targeted to local government end-users, providing step-by-step guidance on how to effectively implement one (or more) of the seven building blocks in the CNAI handbook, with the intent that in year two of the fellowship the Fellow would work with at least one coastal community to pilot the training.

The process of selecting a building block to update and translate into a modular training will be based on the Fellow's interests and feedback from communities and subject matter experts. The Fellow will implement a phased curriculum development process for the chosen building block, to include: 1) Scoping, 2) Content development, 3) Product development, and 4) Evaluation and revision. Throughout this process, the Fellow will work with instructional designers at ASFPM and NOAA OCM to develop the training and make it publicly available on [ASFPM's Education Center](#) and the [Digital Coast](#).

2. Goals and Objectives

The overarching goal of this project is to provide the tools necessary for practitioners to implement higher floodplain management standards and thereby reduce flood risk and enhance community resilience to flood hazards.

ASFPM and CSO, as members of the Digital Coast partnership, play the role of connecting local, county, and state managers to the technical guidance and support that is offered on the Digital Coast. This project directly contributes to that effort, while also meeting the goal of ASFPM and CSO to offer more interactive training to make recent research and written resources more accessible to a broader audience of stakeholders. In addition to *project goals*, a major *fellowship goal* is to provide the Fellow

with experience planning, coordinating, and implementing technical assistance with and for stakeholders. The Fellow will also have the opportunity to support and potentially lead components of other ASFPM and CSO initiatives, with national and local stakeholders.

Goal 1: Increase local end-user awareness and utilization of NAI resources and practices.

Objective 1.1: ASFPM NAI training resources are refreshed to 1) be presented in more accessible formats and channels, 2) efficiently and legibly connect end-users with relevant tools and resources, 3) meet the needs of underserved communities, focused on overcoming barriers, and present viable strategies that capitalize on federal (e.g., Justice40) and state policy priorities and opportunities.

Objective 1.2: More local communities, floodplain and coastal management practitioners, and boundary organizations providing technical assistance are aware of and use ASFPM NAI resources.

Goal 2: Improve integration of ASFPM's NAI training resources into ASFPM's latest technical assistance offerings and into the Digital Coast platform.

Objective 2.1: Develop materials which provide a model for ASFPM's foundational, modular approach to training resource development and delivery.

Objective 2.2: NAI training materials are better integrated with the Digital Coast platform.

3 & 4. Project Descriptions, Milestones, and Outcomes

The Fellow will lead ASFPM's and CSO's collaborative effort to update, build upon, and implement training around one or more building blocks from the *CNAI Handbook*, including piloting an updated training curriculum in at least one coastal community.

Based upon a critical review of existing NAI resources and engagement with ASFPM's NAI and Coastal Policy Committees, CSO's Coastal Hazards Planning and Adaptation Work Group, and NOAA, the Fellow will develop a training curriculum that synthesizes existing datasets, tools, case studies, and guidance documents to provide actionable steps for implementing higher standards and other NAI best practices. The Fellow will be supported by a professional instructional designer throughout the process.

The training curriculum will be applicable to communities currently confronting challenges related to implementing higher standards, with a particular focus on rural, small, isolated, racially minoritized, and low-income communities confronting parallel and cumulative environmental justice challenges.

Throughout the fellowship, CSO and ASFPM will encourage and support the Fellow to present at relevant professional conferences, such as Coastal GeoTools and APA's National Planning Conference, to contribute to the climate adaptation academic discourse and cultivate practitioner feedback.

Task 1 - Orientation and Work Plan

Timeline: August - December 2024

The Fellow will start by working with ASFPM and CSO mentors to build expertise in the specializations of both host offices and develop their professional network among floodplain and coastal management practitioners. The Fellow will be introduced to key partners and personnel; sit on ASFPM and CSO subcommittees, including but not limited to the ASFPM *No Adverse Impact* and *Coastal Issues Policy Committees*, as well as national partnerships; assemble a project Advisory Committee; and investigate opportunities for collaborative projects with other Digital Coast fellows.

Based on these efforts, the Fellow will design an adaptive two-year work plan, refining the goals of this proposal into a specific timeline with planned deliverables based on the Fellow's particular interests, expertise, and career goals. It is worth noting that the work plan must include two components that the Fellow should consider throughout the project: 1) Identifying and developing a relationship with a coastal community to collaborate with during all phases of the project, especially the *Product Development* and *Piloting and Revision* phases. This will ensure the final technical assistance product is relevant, accessible, and meets the needs of the target audience. 2) Consideration of how this project will live on beyond the fellowship through a well-thought-out long-term maintenance plan. This will ensure that all members of the project team are strongly involved and each phase of the project is well documented so that this important work can seamlessly continue on after the fellowship. Lastly, the work plan will clarify the Fellow's role in CSO and ASFPM work streams and identify priorities for professional networking and skill development.

Outcomes/Milestones:

- Develop an adaptive and comprehensive two-year work plan that considers engaging with a coastal community and requirements for a long-term maintenance plan.
- Build a network of floodplain and coastal management practitioners by attending relevant subcommittees, professional meetings and workshops.
- Use networking opportunities and subject matter expert knowledge to help identify a coastal community that is interested in being involved in the project.

Task 2 - Scoping

Timeline: September 2024 to January 2025

Under the **Scoping** phase the Fellow will characterize the target audience, identify and select teaching methods (e.g., hands-on, lecture or reading) and training formats (e.g., in-person or virtual, asynchronous/on-demand or live). To become familiar with the CNAI Handbook and related resources, as well as with the Digital Coast, the Fellow will conduct a comparative analysis of the seven NAI building blocks and the catalog of tools, data, and training available on the [Digital Coast](#). This analysis will highlight relevant resources and identify gaps.

Working with the Advisory Committee, the Fellow will conduct a survey of ASFPM members to gauge national awareness and application of NAI management techniques and use of NAI training resources. The Fellow will use the survey, and follow up engagement, to begin engaging with practitioners of a coastal community that is interested in partnering on this project.

Using results from the comparative analysis and survey, the Fellow will prioritize one or more NAI building blocks as focus for the training curriculum.

Outcomes/Milestones:

- Draft a written summary of the process and findings from the comparative analysis.
- Synthesize existing materials and resources around implementing higher standards.
- Identify one of the NAI building blocks to be the foundation for content development.
- Begin engaging with an identified coastal community.

Task 3 - Content Development

Timeline: January 2025 to May 2025

For the **Content Development** phase, the Fellow will work with an instructional designer to develop a training outline that considers an integrated approach of methods (e.g., *NAI How-To's*), process (e.g.,

Roadmap for Adapting to Coastal Risk) and resources (e.g., *Sea Level Rise Viewer*) that are best suited to the focus building block. The training outline will be reviewed, assessed and revised through engagement with practitioners of the partnered coastal community and the Advisory Committee with the goal of generating a final draft that can be developed and implemented. During this phase, the Fellow will locate where obstacles (e.g. funding or staff capacity) exist in the process of implementing higher standards and will either create new content or highlight existing resources to help the audience overcome those obstacles. It is also important that during this phase, the Fellow identifies potential instructors and organizations that could conduct the training as a part of a long-term maintenance plan.

Outcomes/Milestones:

- Complete a final draft of the training outline that includes training objectives, target audience, delivery formats, relevant resources and step-by-step instructions.
- Present at the Coastal GeoTools conference, CSO D.C. Meeting, and/or the ASFPM Annual Conference.
- Identify potential instructors and organizations to be a part of a long-term maintenance plan for the final product.

Task 4 - Product Development

Timeline: June 2025 to December 2025

Under the **Product Development** phase, the Fellow will continue working with an instructional designer through an iterative approach to develop training content, which may include an online component (e.g. using Articulate 360 Rise). In addition, the Fellow will use the training outline to create an adaptable process agenda that describes course timeline, instructor roles, equipment required and where the online component fits in. During this phase, the Fellow will develop any necessary supportive materials for the training such as, sample slides, guidance documents, and templates. All training content will be accessible via a new comprehensive NAI website, similar to the [CRS Green Guide](#), that the Fellow will play a role in designing. A drafted version of the online training component, process agenda, supportive materials, and the updated NAI website layout will be reviewed by internal and external stakeholders, including the Advisory Committee and the coastal community practitioner partners, checking mainly for language accuracy and readability. Having the practitioners from the coastal community involved in this phase will not only help the Fellow gain community engagement experience and develop a more effective product, but also facilitate implementation of higher standards for the practitioners.

Outcomes/Milestones:

- Develop training content and a layout of a new NAI website with close collaboration from the partnered coastal community and Advisory Committee.
- Present on project at relevant professional meetings and workshops, like the annual CSO Members Meeting.

Task 5 – Product Pilot & Revision

Timeline: January 2026 to August 2026

For the **Product Pilot and Revision** phase, the Fellow will revise the training curriculum and supportive materials based on review feedback from internal project team members, the partnered coastal community, and the Advisory Committee. It is envisioned that the Fellow will travel to the partnered coastal community for a site visit and to pilot the training curriculum, specifically testing the overall flow, interactions and functionality of the product. Throughout the pilot process, the Fellow will continuously adjust and improve the training curriculum based on the coastal community's evaluation.

Outcomes/Milestones:

- Make two trips to the coastal community for a site visit and to pilot the training curriculum.
- Modify and revise the training curriculum and supportive materials based on interactions and feedback from the coastal community and other external and internal reviewers.

Task 6 – Long-term Maintenance Plan & Outreach

Timeline: January 2026 to August 2026

In this phase, the Fellow will develop a finalized version of a long-term maintenance plan, which has been considered throughout the project, to ensure the successful sharing and use of the training curriculum. A maintenance plan will identify roles and responsibilities for updating and revising content, requirements for instructors and participants, and more. The plan will also identify a cadre of instructors and/or organizations that can support, host and conduct the training, including internally at ASFPM and CSO and externally through partner networks like the Digital Coast partners and NOAA, the NERR Coastal Training Program Coordinators, Sea Grant or University Extension programs. In addition, the Fellow will engage in public scholarship and outreach by writing newsletter articles for ASFPM, CSO, announcing the new training curriculum. Presenting at professional conferences on this project could also be another form of outreach that the Fellow engages in.

Outcomes/Milestones:

- Develop a long-term maintenance plan to ensure the project lives beyond the fellowship.
- Lead public outreach by writing newsletter articles and presenting at professional conferences.

5. Diversity, Equity, Inclusion, and Justice

Extensive research on hazard mitigation has demonstrated that disadvantaged communities are more vulnerable to, and less able to prepare for, recover from, and mitigate risk exposure to flooding and other coastal hazards.⁵ This reality holds true for both communities in the sense of individuals sharing a common identity as well as in the sense of neighborhoods developed in high-risk areas.⁶ Likewise, these same disadvantaged communities historically have been marginalized from and underserved by hazard mitigation programs and resources.⁷ ASFPM and CSO seek to integrate Diversity, Equity, Inclusion, and Justice (DEIJ) principles into every aspect of this project, including the 1) Scoping, 2) Content development, 3) Product development, and 4) Evaluation and revision phases. CSO and ASFPM will provide guidance and support to the Fellow to ensure that the scoping and outreach aspects of the project prioritize engagement with historic, poor, and/or politically disenfranchised coastal communities that have less access to state and federal adaptation resources, including back bay communities, risk-exposed communities that face redevelopment pressure, and communities that rely on working coastlines to sustain local economies. Throughout the project development and piloting phases, engagements will be designed to ensure that they are inclusive and accessible by offering varying delivery methods of the training curriculum, and by catering higher standard implementation steps to the needs of underserved coastal communities.

⁵ Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2012). Social vulnerability to environmental hazards. Routledge.

⁶ Bolin, B., & Kurtz, L. (2018). Race, Class, Ethnicity, and Disaster Vulnerability. In Handbook of Disaster Research.

⁷ Hendricks, M. D., & Van Zandt, S. (2021). Unequal protection revisited: Planning for environmental justice, hazard vulnerability, and critical infrastructure in communities of color. Environmental Justice, 14(2), 87–97.

6. Fellow Mentoring

ASFPM and CSO are committed to providing the Fellow with independent responsibility, professional development support, and access to national professional networks to advance their career goals through their fellowship work and learning experiences. The Fellow will be based out of ASFPM's Madison, Wisconsin headquarters office as an integral member of ASFPM's [Flood Science Center \(FSC\)](#). Their primary mentor and project supervisor will be ASFPM GIS Research Analyst and former Digital Coast fellow Eleanor Rappolee; they will also receive mentorship from the Flood Science Center Director and Research Manager Jeff Stone and work closely with FSC's staff. Senior Policy Analyst John Ryan-Henry will be the Fellow's primary mentor and point of contact at CSO. The Fellow will have lead responsibility for this major joint ASFPM and CSO project, and will therefore work closely with CSO staff based out of Washington, D.C., remotely and at in-person meetings. The Fellow's mentors will support the Fellow to achieve these responsibilities through on-the-job experience and guidance, regular fellowship and project check-ins, and access to training and professional development opportunities.

7. Office Environment

ASFPM follows federal and Wisconsin COVID-19 guidelines regarding health precautions and expects all staff to be fully vaccinated for in-person work. The Fellow will have a choice of working in the office full-time, remotely, or a hybrid option. Regardless, the Fellow will be encouraged to come to the office semi-regularly to interact with their colleagues at ASFPM. If/when working remotely, ASFPM staff, including the Fellow and mentor, will remain in contact through staff-wide and project-specific team meetings, typically over Google Meet, Gmail, or Google Chat. The Fellow will have a desk at the ASFPM staff office in Madison and receive necessary equipment including desk phone, computer, peripherals, software, and office supplies, including for remote work.

8. Project Partners

ASFPM and CSO will work closely with Digital Coast Partners, ASFPM-member state and local floodplain managers, and CSO-member coastal programs to connect with local communities and expert practitioners. This project will build on past and ongoing efforts, including the ASFPM No Adverse Impact Legal Guide for Flood Risk Management, the ASFPM/CSO [Community Resilience Guide for Repetitive Flood Loss](#) project led by mentor Eleanor Rappolee, and the ASFPM/American Planning Institute Planning Information Exchange.

The Fellow will collaborate with national non-profit and academic partners and subject matter experts to build on and extend existing technical assistance products. Through existing ASFPM and CSO coordination efforts, the Fellow will also work with key contacts in federal agencies including NOAA, FEMA, and USACE to provide specific, actionable details on using federal funding programs, data, and technical resources to meet local needs as well as to integrate new resources developed through the project into existing training and assistance efforts.

9. Cost-Share Description

ASFPM will provide the \$15,000 match required for the Digital Coast Fellowship (\$7,500 for each year). At a minimum, ASFPM will cover all travel and associated expenses for the Fellow to attend two ASFPM annual conferences and two trips to Washington, D.C. to work with CSO and conduct other project work.

10. Strategic Focus Area

In alignment with the strategic focus areas of the Digital Coast Fellowship Program, the following areas will be addressed through the fellowship project:

- **Resilient Coastal Communities:** The project will build community capacity through updated and integrated NAI floodplain management training, guidance, tools, data, and technical assistance for communities, packaged in an accessible, responsive format. “The more NAI steps a community takes, the better prepared it is for the next flood.”
- **Healthy Coastal Ecosystems:** One goal of NAI floodplain management is to preserve and protect natural floodplain functions associated with the healthy floodplain and coastal ecosystems that moderate flooding, maintain water quality, recharge groundwater, reduce erosion, redistribute sand and sediment, and provide fish and wildlife habitat. The project will support communities to integrate ecosystem management into floodplain management planning and operations.
- **Vibrant and Sustainable Coastal Economies:** The project will promote and inform investment in floodplain management strategies that reduce vulnerability and preserve community and culture in the most highly exposed and systemically underserved coastal communities.