

# Building Gulf Coast Resilience

## Lessons from the Hurricane Sandy Recovery



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# Building Gulf Coast Resilience: Lessons from the Hurricane Sandy Recovery

## Executive Summary

### Background

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Hurricane Sandy caused \$71.5 billion in losses along the U.S. East Coast and now stands as one of the costliest disasters in U.S. history after Hurricane Katrina and the 2017 hurricanes. In the wake of the storm, the Obama administration engaged in an unprecedented effort to improve agency coordination to ensure that affected states and communities could rebuild to be more resilient to future disasters.

This case study details the Federal Coordinating Team approach used to facilitate Hurricane Sandy recovery, which could prove a useful model for federal agencies in the Gulf Coast region. Specifically, this case study explores the work of the U.S. Department of Housing and Urban Development (HUD) and the Federal Emergency Management Agency (FEMA) to set up interagency “coordinating teams” to improve coordination across agencies and with grantees, reduce potential permitting or administrative barriers, and generate high-level awareness and support for the Sandy recovery projects. It describes lessons about how the coordinating teams were used to improve early planning, design, and permitting phases of recovery projects, and provides recommendations that can be applied more broadly to other large-scale ecosystem-based restoration projects. Overall, the “coordinating team” model applied during the Sandy recovery provided a useful framework for coordinating

across federal leadership and agencies, improving project outcomes, and speeding project delivery. It was such a success that the federal agencies in the New York-New Jersey region have expressed the desire to continue meeting through coordinating teams, even after Sandy recovery efforts are completed.

One of the projects that has benefited from the coordinating teams, which is explored in this case study, is the Living Breakwaters project in Staten Island, New York, where the teams were used to coordinate federal agency input at early stages to improve project design and proactively reduce regulatory concerns about potential project impacts to navigation and fish habitats. With the improved input and regular interaction facilitated by the coordinating teams, the Living Breakwaters project progressed from conceptual stages to final Environmental Impact Statement within three years, much faster than expected for a large-scale complex project in a sensitive ecosystem.

### Lessons and Recommendations

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The coordinating team approach provides a useful model that Gulf Coast states and federal agencies could explore to coordinate similarly complicated processes for funding and permitting coastal restoration projects after the Deepwater Horizon oil spill. The following is a summary of the key lessons that can be learned from the Sandy technical coordinating team approach:

**Organize venues for supporting interagency coordination.**

The success of the Hurricane Sandy coordinating teams came from having the “right” agency officials at the table at appropriate stages in the project development process, high-level champions and support from agency leadership, and administrative support and funding to staff the coordinating teams. Coordinating teams helped reduce the timelines for completing environmental review and permitting for more complex Sandy recovery projects. The teams helped the federal agencies coordinate and stage reviews among agencies with jurisdiction over the project. Sandy grantees also found that pre-consultation with federal agency regulators at early stages of project design was critical to reducing late stage objections to environmental analyses and permit documentation. Federal agencies administering Deepwater Horizon funding and permitting projects in the Gulf Coast states could similarly benefit from setting up coordinating teams to both help align funding across programs for complementary projects in priority watersheds and to coordinate permitting and environmental review, particularly for more complex projects requiring review by multiple agencies.

**Coordinate workplans and timelines.**

With the Sandy recovery, state and local grantees benefitted from early meetings with federal agencies, which helped to build relationships and familiarity with recovery projects. This early consultation with agencies was critical to help the grantees identify data, sampling, and other monitoring that would be needed at later stages of environmental review and permitting. The Gulf Coast states could work with key federal agencies to set clear workplans with timelines and milestones for moving a project or suite of projects through the environmental review and permitting process. These early meetings can also be used to set clear expectations about the roles and responsibilities of all the agencies that will be needed to approve the project.

**Use environmental review to improve project design and outcomes.**

The Sandy recovery project proponents used the framework provided by the National Environmental Policy Act as an opportunity for iterating on project design to both improve project outcomes and reduce impacts. They also found that the environmental review process was helpful for increasing transparency about project trade-offs with the public, addressing community concerns, and building community support for projects.

## Introduction

On October 29, 2012, Hurricane Sandy made landfall in the New York-New Jersey region affecting millions of people and causing billions of dollars in damages. Fourteen feet of storm surge caused dramatic flooding in New York and New Jersey. The storm caused \$50 billion in property damage with major impacts to transportation infrastructure throughout the region and an estimated 8.5 million people lost power.<sup>1</sup>

In the storm’s aftermath, the federal government mobilized one of the nation’s largest disaster recovery efforts, appropriating approximately \$50 billion dollars in disaster aid to states and local governments.<sup>2</sup> Funds were used to rebuild critical infrastructure, along with homes and businesses, and to build large-scale projects to enhance the resilience of the region to future disaster and climate-related impacts. The magnitude of the recovery effort required unprecedented coordination across federal agencies, the region, and among all three levels of government — lessons which could prove useful for efforts to coordinate implementation of Deepwater Horizon (DWH) restoration efforts in the Gulf Coast region.

Coordination is critical for federal disaster aid because funding is allocated through a variety of federal programs administered by different

federal agencies according to their own rules and timelines.<sup>3</sup> This money flows to state and local government grantees in disaster-affected areas to help them with response and long-term recovery efforts. Because many disaster-aid programs were designed to simply put back in place what was damaged by the storm, grantees must often navigate the requirements of complicated federal funding programs in order to patch together the needed funds to implement more comprehensive and resilient approaches to rebuilding. This process can be particularly challenging for rebuilding infrastructure throughout a disaster-affected region because of the need to coordinate project design, funding, permitting, and environmental review across multiple funding agencies.

After Sandy, to facilitate the coordination needed, the U.S. Department of Housing and Urban Development (HUD) and the Federal Emergency Management Agency (FEMA) set up three “coordinating teams” to bring together the regional administrators and staff from federal agencies administering disaster recovery funds and reviewing and permitting recovery projects.

These coordinating teams included:

- **The Sandy Regional Resilience Collaborative**, which included senior leadership (e.g., regional administrators, Army Corps of Engineers Division Commander) from HUD, FEMA, the Army Corps of Engineers (Corps), the Environmental Protection Agency (EPA), the U.S. Department of Transportation (USDOT), and Department of the Interior (DOI);
- **Technical Coordinating Teams**, which were also set up with regional and district federal agency staff (including planners, designers, and engineers) to help coordinate across funding streams and to provide early guidance and technical support to grantees; and
- **Federal Review and Permitting Team**, which was composed of technical experts from federal

agencies with regulatory, permitting, and environmental review authority over projects, including the Corps, EPA, the National Oceanic and Atmospheric Administration (NOAA), and U.S. Fish and Wildlife Service (FWS).

The purpose of these coordinating teams was to facilitate early consultation on the design of recovery projects, to avoid duplication of effort among agencies, to coordinate project design across regions and agencies, to align funding streams administered by different agencies, and to help grantees navigate and overcome potential permitting hurdles.

The coordinating teams focused mainly on large-scale projects to rebuild infrastructure damaged or destroyed during Hurricane Sandy, including efforts to rebuild the Metropolitan Transportation Authority, energy systems, transit, ferry terminals, wastewater treatment facilities, and other critical assets that were damaged in the storm. In addition, the coordinating teams were asked to facilitate design and implementation of ambitious and innovative resilience projects that were conceptualized through the Rebuild by Design (RBD) competition also led by HUD in the aftermath of Sandy.<sup>4</sup> Several of the RBD projects involved nature-based restoration efforts to enhance flood resilience in Sandy-affected communities, including the Living Breakwaters project in Staten Island, New York.

To demonstrate how the Sandy coordinating teams were used to improve project outcomes and speed project delivery, this case study uses the RBD Living Breakwaters project as an example. The Living Breakwaters project involves restoration approaches similar to those being pursued in the Gulf Coast region, so it provides a useful analog for comparison.

## Timeline of Events

### Hurricane Sandy Background

2012 – 2013

**March 22, 2012:** President Obama signs Executive Order 13604 calling on federal agencies to improve federal permitting and review of infrastructure projects.

**October 29, 2012:** Hurricane Sandy makes landfall in the New York-New Jersey region.

**January 29, 2013:** Congress appropriates disaster recovery aid by enacting the Hurricane Sandy Supplemental Appropriation Act.

### Sandy Recovery and Resilience Planning

2013 – 2014

**June 2013:** HUD launches the Rebuild by Design competition encouraging private engineering and design firms to develop innovative approaches for rebuilding Sandy-affected communities with resilience.

**August 2013:** The Hurricane Sandy Task Force releases the Hurricane Sandy Rebuilding Strategy calling on federal agencies to improve coordination and expedite recovery efforts.

**Early 2014:** HUD and FEMA establish the federal coordinating teams.

**October 2014:** The six winning Rebuild by Design projects are announced and funds are awarded to New York State, New Jersey, Connecticut, and New York City to implement winning projects, including the Living Breakwaters project in Staten Island.

### Living Breakwaters Project

2014 – present

**March 24, 2017:** Draft Environmental Impact Statement for the Living Breakwaters project was released for public comment.

**2020 to 2022:** Sandy recovery funding must be spent or extended. Recovery projects, like the Living Breakwaters project, must be completed.



## Legal Context

### Funding

Similar to Gulf Coast restoration efforts, disaster recovery projects are also funded through a variety of federal programs administered according to unique rules and regulations that make it challenging to coordinate funds to implement more holistic projects. With the Sandy recovery, Congress appropriated funds to 23 different funding programs administered by more than 18 different federal agencies. The main sources of funding supporting reconstruction of infrastructure and housing include:

- **The Public Assistance (PA) program and Hazard Mitigation Grant Program (HMGP)** administered by FEMA pursuant to the Robert T. Stafford Act. At the time of Sandy, Public Assistance funds were limited mainly to rebuilding public infrastructure to its pre-disaster condition;<sup>5</sup> and HMGP funds can be used to support “cost effective” measures to reduce losses from future storms.
- **Community Development Block Grant disaster relief funding** administered by HUD provides disaster recovery aid in the most “impacted and distressed areas” and 70 percent of funds must benefit low- and moderate- income communities affected by the disaster.
- Congress also appropriates funds to rebuild specific types of damaged infrastructure, such as transportation infrastructure through the **Emergency Relief Program** administered by the Federal Highway Administration (FHWA),<sup>6</sup> transit through the **Public Transportation Emergency Relief Program** administered by the Federal Transit Administration (FTA),<sup>7</sup> water infrastructure through **State Revolving Funds** administered by EPA,<sup>8</sup> and flood control infrastructure through a variety of programs administered by the Army Corps, among others.

### Environmental Review and Permitting

Disaster recovery projects are also subject to environmental review and permitting requirements. Because of the variety of disaster recovery projects, it is difficult to list all of the federal statutes that must be complied with, but include many of the same federal laws that will be implicated by the DWH restoration projects, such as:

- **National Environmental Policy Act (NEPA)** requires the review of potential environmental and other impacts of federally funded projects;
- **The National Historic Preservation Act (NHPA)** requires grantees to assess and minimize impacts to historic structures; and
- Army Corps permits are required for “in-water” activities under **Section 10 of the Rivers and Harbors Act (RHA)** and **Section 404 of the Clean Water Act (CWA)** to reduce impacts to navigability and coastal resources and ecosystems.

### Agency Roles

- **Funding** — More than 18 different agencies received funding under the Hurricane Sandy Supplemental Appropriation. The primary agencies with funding to support large-scale infrastructure projects included HUD, FEMA, FTA, FHWA, the Army Corps, and DOI.
- **Regulatory** — The agencies with regulatory authority over projects included the Corps (RHA Section 10 and CWA Section 404), EPA (CWA Section 404), and NOAA’s National Marine Fisheries Service (NMFS) (Marine Mammal Protection Act and Endangered Species Act (ESA)) and FWS.

## Lessons Learned

The approach taken for large-scale disaster recovery projects in the Sandy-affected region, as illustrated by the federal coordinating teams involved in advancing the Living Breakwaters project, provides a range of lessons in the need for leadership and the value of coordination for improving the effectiveness of environmental review and permitting processes, and overall project delivery.

### The Need for Leadership

The coordinating teams benefited from support at the highest levels of the Obama administration. In the aftermath of Hurricane Sandy, President Obama signed an executive order to establish the Hurricane Sandy Rebuilding Task Force.<sup>9</sup> The Task Force, chaired by HUD Secretary Shaun Donovan, included cabinet-level leadership and heads of 23 federal agencies and executive offices within the White House. An advisory group of state, local, and tribal leaders was also convened to ensure that recommendations reflected the needs of affected communities. The Task Force was charged with developing recommendations to improve coordination, expedite recovery in the Sandy-affected region, and ensure that rebuilding efforts considered future risks posed by climate change. Members met throughout 2012 and a Hurricane Sandy Rebuilding Strategy was released in August 2013 providing 69 recommendations for improving disaster recovery efforts and enhancing the long-term resilience of the region.<sup>10</sup> Several of the recommendations in the Strategy called for improved coordination among federal agencies and with state and local partners, which drove the formation of technical coordinating teams.<sup>11</sup> These recommendations from leadership provided the necessary directives to regional staff to dedicate the staff and resources needed to set up and facilitate the Sandy Recovery coordinating teams.

Acting on these Task Force recommendations, regional leadership at HUD and FEMA developed an interagency agreement to establish and staff the three coordinating teams of agency staff: the Sandy Regional Resilience Collaborative, the Technical Coordinating Teams, and the Federal Review and Permitting Teams. The teams convened federal decisionmakers and created open channels of communication with state and local grantees. These teams were designed to improve coordination, reduce duplication of effort and administrative costs, and expedite delivery of infrastructure recovery projects in the Sandy-affected region.

The Sandy Recovery Task Force provided a top-down mandate directly from the Obama administration, individual governors, and agency heads to set up these coordinating bodies. Carrying this mandate, HUD regional leadership served as an early champion to build support for these coordinating teams among other agency officials and to encourage their true participation in ongoing meetings. Generating buy-in from leadership required substantial time and cultivation of agency officials. The facilitators also had to dedicate significant time to prepare for the first series of meetings and demonstrate the success of the model to ensure future participation. After several months, the participants ultimately saw the value of the approach and the tangible benefits it brought to their work, which included the development of interagency relationships and improved coordination. The approach was so successful that the regional administrators plan to continue this model of collaboration even after the Sandy recovery is completed, perhaps in a more limited scope. Leadership is also needed to give staff assurances that they can informally provide advice without violating agency rules (e.g., avoid being “pre-decisional”). These assurances helped to give staff license to step outside of their traditional jurisdictional roles and give them the space to work more collaboratively with state and local partners in these pre-consultation settings.

The success of the Sandy recovery coordinating teams was due in large part to the buy-in that HUD staff were able to generate with agency leadership in the affected states. Although HUD and FEMA had funding to pay for the staff time needed to facilitate the teams, the agencies participating in the meetings by-and-large were not getting additional funds to support the time for staff to participate. And money for staff time to participate in pre-consultation meetings with state and local grantees around environmental review and permitting was also not available. Thus, buy-in from leadership was critical to ensuring sustained and robust participation from the relevant agencies. By demonstrating the value of the coordination, regional administrators were willing to commit the staff resources that were needed to make the process work. However, this suggests that leadership from agency headquarters and senior administration officials may be needed to ensure the commitment of staff to allocate the time and resources needed to participate.

### The Value of Interagency Coordination

The three coordinating teams were established to perform distinct roles and to address specific coordination challenges:

- **The Sandy Regional Resilience Collaborative** primarily involved senior leadership from federal agencies. Agency heads met monthly to address any conflicts and to empower agency staff to work together and to work with grantees to deliver better project outcomes. Early meetings of the collaborative focused on information-sharing among members regarding each agency's distinct missions, mandates, and regulatory limitations. Although participating officials had long careers in their respective federal agencies, they did not have a good understanding of the roles and constraints of their partner agencies. This initial learning phase proved extremely useful in helping the
- agencies begin to reconcile conflicting regulations and mandates early in the process. In addition, members of the collaborative developed long-standing professional relationships that helped these agencies improve efficiencies and governance in other areas beyond Sandy recovery projects.
- **The Technical Coordinating Teams (TCTs)** included federal agency officials from funding agencies with expertise to contribute on particular projects. Participants on TCTs included planners, designers, and engineers from federal agencies with expertise on how to develop smart projects and coordinate projects that could complement other projects in a region. TCTs were restructured over the course of the recovery and originally included sector-specific teams (e.g., energy and transportation); the structure was later shifted to state-specific teams focusing on large clusters of recovery projects in specific regions based upon feedback from and the needs of participants. The purpose of these teams was to tap federal agency expertise to improve the design of projects; to encourage greater regional coordination and connections between projects; to identify potential conflicts, redundancies, or opportunities to better align projects; and to coordinate funding streams and avoid duplication of effort and waste.
- **The Federal Review and Permitting Team (FRPT)** was a single team whose purpose was to improve efficiencies in the regulatory process; to give agencies notice of forthcoming projects; to provide a venue for the grantees to have early consultations with regulators and environmental review agencies; to identify potential regulatory roadblocks early in the design process; and to facilitate the staging of required actions among the different agencies. For each project, grantees were asked to provide standard information about the project (e.g., budgets, timelines, and needed permits). This provided grantees with an opportunity to get

feedback on the project design at an early stage so that it could be altered, as needed, in order to minimize or avoid anticipated conflicts later. For federal agencies to effectively participate in the FRPT, participants acknowledged that the purpose of the team was to facilitate informal consultation and that information shared during the meetings was only “pre-decisional” (i.e., not indicative of whether the project would or would not be issued a permit).

### **Relationship Building**

The personal relationships developed across agencies was one of the biggest successes that participants report will have the most long-term benefit to government operations in this region. Before the storm, agencies had to go through headquarters to connect with their counterparts at other agencies in the region; after the development of the coordinating teams, these officials all now have personal relationships and they know who to call when issues arise. This helped agencies resolve impasses more quickly, and it is expected that this coordination will carry on even after recovery efforts are over. These relationships were built through the regular, in-person meetings facilitated by the coordinating teams.

The success of the coordinating team model depended upon the fact that HUD and FEMA were able to build a network of relationships within all of the relevant agencies. Those administering the coordinating teams needed and relied on a central point of contact within each agency with knowledge of the “right” staff people that should be tapped for particular decisions. These points of contact not only guaranteed participation from the appropriate agency experts, but also helped ensure that the meetings were efficiently tapping agency expertise and respecting staff time. Then, once the “right” participants were identified, the administrators provided them with the resources they needed to get up to speed on the projects and meeting agendas so that they could meaningfully

participate in the conversation. Getting the right expertise to the table required building the lines of communications both inside an agency and across agencies. And it was necessary to have senior leadership from each agency on board to support the process and dedicate the staff time needed to make it successful.

### **Flexibility**

All of the teams were also intentionally set up to be flexible so that they could best achieve their specifically assigned roles. Different federal agency staff participated in meetings depending on the agenda, the projects up for discussion, and expertise needed at the table. This format also helped to ensure an efficient use of staff time. HUD created a spreadsheet of all the potential projects to be funded and tracked what agencies were funding each project. These databases helped HUD identify clusters of projects that it used to build the expertise needed on each team and to develop meeting agendas.

The coordinating team leads were also willing to disband teams when they were no longer needed or adjust the structure of teams to better meet grantee needs. For example, at the outset of the process, TCTs were set up to review projects relevant to specific sectors, such as energy or transportation projects. However, the grantees only wanted to focus on projects specific to their state, so the team administrators shifted the organization of the coordinating teams to focus on clusters of related projects in specific regions within each of the affected states. This streamlined the process for state grantees who could focus specifically on their jurisdictions, and it also streamlined the process for federal agencies who could participate in only those meetings focused on projects within their regions and portfolios.

Because of the success of the federal teams, state-local TCTs were also set up to facilitate more frequent coordination among the state agencies administering disaster recovery dollars and local

agencies implementing projects. These TCTs were able to facilitate the deployment of federal funding and involved less frequent meetings with federal agencies and on an as-needed basis.

### Administrative Support

Through funds appropriated from the Sandy recovery and an interagency agreement, HUD and FEMA provided the staff necessary to administer and facilitate the coordinating teams. Each TCT, for example, had a facilitator and an administrator. The administrator took on logistical tasks like booking conference rooms and setting up computers and projectors. The facilitator drafted meeting agendas and managed correspondence with grantees and participating agencies. This administrative support was critical at the outset for helping to set the vision and purpose for each of the coordinating teams, for building trust and support from the federal agencies with roles to play, for facilitating the convenings, and for ensuring meaningful participation from agency staff. The facilitators were also critical in preparing the state grantees for their briefings with the federal agencies to make sure they had the right materials and actionable questions. This was essential to ensure that the meetings were effectively and efficiently serving the needs of all the parties involved. The state project proponents also reported that HUD and FEMA served as important “tour guides” helping them navigate the federal agencies with a role in project funding, review, and permitting.

To provide some structure to the conversation and to ensure that meetings were useful, HUD developed an Integrated Project Platform database that compiled information on each project (e.g., budgets, timelines, anticipated permits, etc.). As a result of this database, HUD staff could appropriately determine when to bring projects before the different coordinating teams and when to include projects on meeting agendas based upon key project milestones (e.g., at the scoping phase, project alternatives selection phase). This also helped HUD determine what expertise was

needed at different meetings and who to include as participants. This approach contributed to the success of individual meetings and the efficient use of staff time.

The challenge now is that with the change of administrations, federal support for the coordinating teams is waning right at the time when coordination at the federal level is critically needed to move projects through environmental review and permitting stages to construction.

### Environmental Review and Permitting

The federal coordinating teams also helped to speed environmental review and permitting of the Sandy disaster recovery projects and improve project outcomes.

The Technical Coordinating Teams helped to get federal agency input at early stages of project design to reduce duplication of effort across agencies, to identify data collection and monitoring needs, and to provide early feedback on environmental analyses. The TCTs would hold meetings on particular suites of projects and the state and local grantees would present the current status of their project designs. At early meetings, grantees presented an overview of each project and received feedback on early actions, like their methodology for data collection, their approach for conducting environmental review, and what permits may be triggered by the project. Later meetings on each project focused on the preferred alternative identified through the environmental review process and offered agencies the opportunity to provide early feedback on a draft Environmental Impact Statement. These meetings were used to avoid duplication and conflicts between different recovery projects. For example, in Hoboken, New Jersey, a TCT was used to discuss potential redundancies and staging conflicts between the design of a levee system and siting of ventilation shafts for FTA’s Gateway project to repair tunnels under the Hud-

son River. The TCTs were also used to coordinate the sharing of data at the feasibility and research phases of project design. By sharing data collection efforts, the grantees were able to identify studies that had already been completed by a different agency or for another project in the region. These data could then be used in the feasibility studies for other projects, helping agencies avoid duplication in data collection efforts and saving the agencies time and money.

The Federal Review and Permitting Team also facilitated early consultations among project proponents and federal regulators to identify and avoid permitting and environmental review hurdles at later stages. The FRPT allowed grantees to obtain early input and iterate on project design to avoid potential regulatory pitfalls and simultaneously achieve project goals and objectives. It also helped to familiarize federal agencies with projects and forestall serial reviews of submitted documents (e.g., permit applications) that could result in delays.

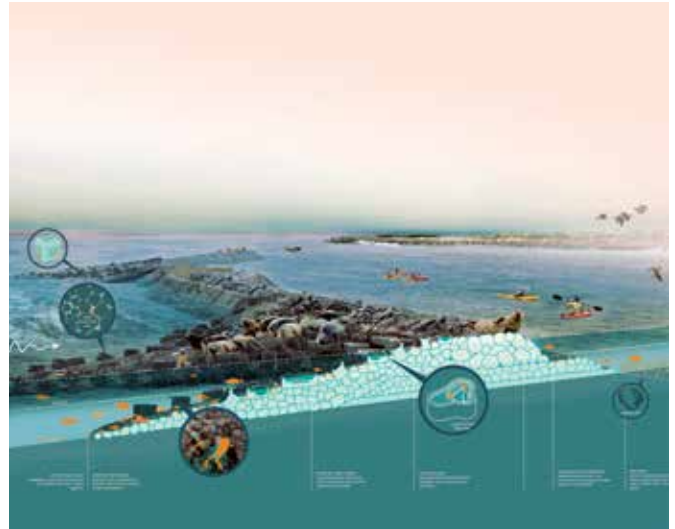
The coordinating teams also helped to not only increase the efficiency of the environmental review process but also to improve the design and outcomes delivered by the projects. Rather than viewing the environmental review process as an exercise in “checking-the-boxes” on a project that was already fully conceptualized, the state and federal agencies viewed the environmental review process as a framework for collectively iterating on the project design. NEPA provided a framework for maximizing the benefits of the project while minimizing impacts to natural, historical, and cultural resources. NEPA was also used as a tool for engaging the public in the evaluation of tradeoffs among project alternatives, transparently addressing community concerns, and building community support for projects.

## **Spotlight on the Living Breakwaters Project<sup>12</sup>**

New York State was awarded \$60 million in Community Development Block Grant (CDBG) disaster recovery funding from HUD through the Hurricane Sandy Rebuild by Design competition to implement the Living Breakwaters project. The project calls for construction of “living breakwaters” along the South Shore of Staten Island in Tottenville, New York fronting the Raritan Bay. Natural and nature-based features will be used to reduce flood and erosion risks to communities along the Southern tip of Staten Island, which experienced the brunt of impacts during Hurricane Sandy. Breakwaters will be constructed in the Bay and seeded with oysters to create “living breakwaters” to both dampen storm surges and reduce erosion risks in the region, while also providing important environmental benefits — such as restoring and creating habitats. Shoreline measures will also be constructed to build a layered resilience approach.<sup>13</sup> A hardened dune system, earthen berms, wetland enhancements, and revetments with a trail system will be installed at the water’s edge to complement the breakwaters. Once constructed, the project will enhance coastal resilience by reducing impacts from wave action, reducing coastal erosion, enhancing coastal and marine ecosystems, and providing other economic and social resilience benefits.<sup>14</sup> The project also calls for the construction of “Resiliency Hubs” to provide an important site for facilitating oyster restoration, promoting recreational uses of the shoreline, and facilitating emergency response efforts in the event of another disaster.

### **Interagency Coordination**

In the specific context of the Living Breakwaters project, the coordinating teams helped New York State navigate and address the design, permitting, and environmental review challenges raised as the state worked to implement this innovative resilience project. For example, the Governor’s Office of Storm Recovery (GOSR) briefed the TCT on the Living Breakwaters project during several critical phases of project development. In early meetings, the purpose was to get the federal agencies familiar with the project and its goals. The state also used these meetings to keep the federal agencies up-to-date on the project status, coordinate timelines, and get feedback at early stages of project design (e.g., 30 percent designed) to allow time for design changes based on feedback. The state found these meetings helpful for keeping the project “on the radar” of the federal agencies and building up their comfort and familiarity with the project. This engagement through iterative stages of project development and changes helped to smooth the review process.



### Environmental Review and Permitting

With permitting, the FRPT provided a venue for GOSR to coordinate early stages of project design with regulatory agencies. For example, the Corps provided early input on the siting of breakwaters to ensure that the proposed in-water structures would not raise navigation concerns. Additionally, the National Marine Fisheries Service provided input about potential impacts to fish habitats and species. This collaboration helped the state consider and minimize or avoid potential impacts that can sometimes act as barriers to obtaining required permits, at later stages of review and approvals, because of conflicts with the Clean Water Act, Rivers and Harbors Act, or Magnuson-Stevens Act. In addition, the FRPT provided a venue for the state to work with federal agencies to determine what baseline data was needed to assess environmental impacts and comply with different regulatory requirements. In all, the FRPT allowed the state to balance all agency concerns and design a project that minimized impacts across interests early in the process. This also helped the state avoid the time and cost of evaluating project alternatives that were infeasible from a permitting standpoint.

While it is difficult to compare the timeline for the Living Breakwaters project with other similar projects, the coordinating team models helped to expedite environmental review of the project. With the Living Breakwaters project, environmental review and permitting has been particularly challenging because GOSR had to develop final designs for the project (as it started with a project that was merely conceptual) while simultaneously conducting environmental review of the project. However, GOSR was successfully able to publish a Final Environmental Impact Statement within three years, which is notable for a large-scale project (11 acres) in a sensitive coastal ecosystem.

### Adaptive Management

The Living Breakwaters project also demonstrates how adaptive management approaches can be developed in a cost-effective way and leverage partnerships with the private sector. Part of the Living Breakwaters project calls on active monitoring and management of the breakwaters to ensure that these engineered structures successfully establish oyster reefs and create habitats. Although plans for an adaptive management program are still being developed, through partnerships with the New York Harbor Foundation's Billion Oyster project, among others, the state will monitor the habitat, water quality, and other ecosystem-service benefits delivered by the project.

Aerial of the Living Breakwaters Project and Living Breakwaters Transect.

Credit: SCAPETeam

## Recommendations

This section provides recommendations for applying the lessons learned from the Hurricane Sandy coordinating team model for states and federal agencies pursuing restoration efforts in the Gulf Coast region.

### Interagency Coordination

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#### Secure leadership and champions to promote coordination.

The Sandy coordinating teams benefitted from leadership and direction from the highest levels of the Obama administration. HUD was able to use this mandate to generate buy-in from regional leadership, which was critical to ensuring sustained and committed participation of agency staff in the process. The support of leadership was especially important for giving staff cover to provide early informal consultation on projects, a role not traditionally undertaken, particularly for regulatory agencies. Participating agencies noted that the time spent in coordinating team meetings increased their efficiency and that such models should be seen as a marker of “good government.” DWH projects similarly can benefit from agencies working together to align funding for projects and to complete environmental review and permitting. The Sandy model presents an example of how to successfully bring federal agencies to the table at early stages of project design to build familiarity with complex projects, to develop a common understanding of potential regulatory constraints, and to avoid hitting roadblocks during late stages of review and permitting. The Corps or NOAA could be important allies in championing such an approach among the agencies that will be critical to moving Gulf Coast restoration projects forward.

#### Create venues for interagency coordination.

The Sandy coordinating teams had the benefit of both a top-down mandate to coordinate and administrative support from HUD and FEMA to facilitate coordination among federal agencies and with state and local grantees in the region. Those participating in the process derived benefits in terms of the relationships built with agency partners as well as efficiencies created. The Gulf Coast states may similarly benefit from facilitating regular, in-person meetings between state and federal agency staff that will have roles to play in approving restoration projects. The teams would benefit from having one agency support and administer the process, such as the Corps or NOAA. These administrators could then design agendas around suites of projects in each priority watershed and find the “right” agency staff that will have a role in funding or approving projects to participate in meetings at different stages of project design. Meetings can help agencies get familiar with the project, identify data and studies that will be needed to evaluate the project, and identify potential regulatory barriers early in the process, so that design changes can be made to avoid late-term objections.

#### Start with individual agency check-ins to set work-plans and timelines.

For large-scale complex restoration projects, early stage meetings could also be used to establish written work plans, layout timelines, and describe the monitoring, modeling, and data collection that will be needed to review the project and assess compliance with environmental rules. This can help avoid confusion and delays at later stages of review and permitting. For example, with the Living Breakwaters project, the agencies did not agree at the outset on the sampling and monitoring that would be required; then, when additional sampling



was required at later stages, the project was delayed and additional costs were incurred. Workplans and timelines can be used to clearly establish data collection needs and timelines and the roles and responsibilities of state and federal agencies throughout development, helping to avoid confusion and delay at later stages of review and permitting.

## Environmental Review and Permitting

**Seek pre-consultation with federal agencies to avoid regulatory barriers in later stages.**

The FRPT also demonstrated the value of pre-consultation with federal agency regulators. It helped federal agencies become familiar with the projects and identify potential regulatory barriers early, when projects could be altered to avoid potential conflicts with federal law. For example, with the Living Breakwaters project, the FRPT helped the grantees ensure that the alignment of the breakwaters would not raise concerns for navigation or harm fish habitats to avoid conflicts with the Rivers and Harbors Act and Magnuson-Stevens Act. The FRPT also helped the agencies set up a timeline for environmental review and the submission of permit applications to avoid serial reviews of documents and delays because of late-term objections. The more complex Gulf Coast restoration projects could similarly benefit from opportunities to engage early with regulatory agencies to identify potential problem areas and coordinate project reviews across agencies.

**Use environmental review as a framework to improve project design and outcomes.**

The Living Breakwaters project also highlights how the environmental review process can be used to improve project outcomes and build community support for a project. Some of the more complex Gulf Coast restoration projects will

have environmental, economic, and social trade-offs that will need to be navigated and addressed. For example, while the sediment diversion projects are designed to build land to buffer against storm surges and provide important flood-risk-reduction benefits for inland communities, the project may also have negative consequences for fisheries and the fishermen that economically rely on these resources. NEPA can provide a framework for helping Louisiana evaluate the benefits and impacts of the project and possible alternatives for minimizing economic and environmental impacts. By transparently weighing trade-offs and addressing concerns, project proponents can build public support for the projects and minimize the potential for legal challenges, which can delay project implementation.

## Conclusion

The coordinating teams established by federal agencies to facilitate Hurricane Sandy recovery projects could be a useful model to replicate in the Gulf Coast region. The coordinating teams were successful at addressing two of the main challenges facing DWH restoration: (1) aligning different streams of funding to implement more holistic projects; and (2) improving interagency coordination on environmental review and permitting of complex infrastructure projects. The success of this model is demonstrated by the desire of federal agencies to continue this approach to interagency coordination even after disaster recovery efforts are completed.

## Endnotes

- 1 FED. EMERGENCY MGMT. AGENCY, HURRICANE SANDY AFTER-ACTION REPORT (July 1, 2013), *available at* [https://www.fema.gov/media-library-data/20130726-1923-25045-7442/sandy\\_fema\\_aar.pdf](https://www.fema.gov/media-library-data/20130726-1923-25045-7442/sandy_fema_aar.pdf).
- 2 The Disaster Relief Appropriations Act of 2013, Pub. L. No. 113-2, 127 Stat. 4 (H.R. 152, 113th Cong., Jan. 29, 2013).
- 3 A summary of some of the federal programs supporting recovery efforts is listed below. For a more detailed summary of the funding allocated for Sandy recovery and reforms made to disaster-aid programs through the Sandy supplemental appropriation see NICOLE SMITH & JESSICA GRANNIS, GEORGETOWN CLIMATE CTR., UNDERSTANDING THE ADAPTATION PROVISIONS OF THE SANDY DISASTER RELIEF APPROPRIATIONS ACT (H.R. 152) (Discussion Draft, May 2013) [hereinafter SMITH & GRANNIS], *available at* <http://www.georgetownclimate.org/reports/understanding-the-adaptation-provisions-of-the-sandy-disaster-relief-appropriations-act-h-r-152.html>.
- 4 In an effort to catalyze innovative disaster recovery projects, the U.S. Department of Housing and Urban Development allocated \$920 million in Community Development Block Grant (CDBG) disaster recovery funding through the Rebuild by Design competition. Interdisciplinary design teams developed large-scale projects for enhancing the long-term resilience of Sandy-affected communities. Six winning projects were selected and funding was allocated to the states of New York and New Jersey and to New York City to implement a component of the larger winning designs. One of the winning projects, highlighted in this case study, was the Living Breakwaters project, which is being implemented in Staten Island by the New York Governor's Office of Storm Recovery. For more information about the Rebuild by Design competition and the winning projects, see JESSICA GRANNIS ET AL., GEORGETOWN CLIMATE CTR., REBUILDING WITH RESILIENCE: LESSONS FROM THE REBUILD BY DESIGN COMPETITION AFTER HURRICANE SANDY (Nov. 2016) [hereinafter REBUILDING WITH RESILIENCE], *available at* <http://www.georgetownclimate.org/reports/rebuilding-with-resilience-lessons-from-the-rebuild-by-design-competition-after-hurricane-sandy.html>.
- 5 The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act, 42 U.S.C. §§ 5121 *et seq.* (1974)) authorizes the President to declare a major disaster and make funds available to state and local governments to help them respond to and recover from the disaster. Funds are administered through several Stafford Act programs including (1) the Public Assistance program (Section 406), which reimburses state and local governments for the long-term rebuilding of public facilities; and (2) the Hazard Mitigation Grant Program (Section 404), which provides funding to help state and local governments mitigate future damage. Historically, the Public Assistance program limited reimbursement to the pre-disaster design of an asset or to rebuild to codes in place at the time of a disaster, and other funding sources had to be used to enhance the resilience of an asset to future hazards. *See* discussion at SMITH & GRANNIS, *supra* n.3. Recent amendments to the Stafford Act included in the Bipartisan Budget Act of 2018 allow FEMA to provide assistance to "replace or restore the function of a facility or a system to industry standards without regard to the pre-disaster condition" of the asset. Other amendments allow FEMA to provide a 10% increase in federal cost share of Public Assistance funding for states that "invest in measures to increase readiness for, and resilience from, a major disaster." Pub. L. 115-123, Title VI, §§ 20601 & 20606 (2018).
- 6 23 U.S.C. § 125; *see also* SMITH & GRANNIS, *supra* n.3.
- 7 49 U.S.C. § 5302; *see also* SMITH & GRANNIS, *supra* n.3.
- 8 42 U.S.C. § 300j-l; *see also* SMITH & GRANNIS, *supra* n.3.
- 9 Exec. Order No. 13632, Establishing the Hurricane Sandy Task Force (Dec. 7, 2012), 77 Fed. Reg. 74,341 (Dec. 14, 2012).

- 10 HURRICANE SANDY REBUILDING TASK FORCE, HURRICANE SANDY REBUILDING STRATEGY: STRONGER COMMUNITIES, A RESILIENT REGION (Aug. 2013), *available at* <https://www.hud.gov/sites/documents/HSREBUILDINGSTRATEGY.PDF>.
- 11 Recommendations encouraging greater coordination included:
  6. “Federal, State, and local agencies should continue to coordinate Sandy recovery infrastructure resilience projects.” *Id.* at 55.
  8. “Establish a Sandy Regional Infrastructure Permitting and Review Team.” *Id.* at 58.
  9. “[I]dentify opportunities to expedite and improve other types of review processes through programmatic agreement or consultation where appropriate.” *Id.* at 59.
  10. “Disaster recovery efforts should account for the temporary staffing needs of Federal agencies and State and local government who conduct reviews and permitting of Federal disaster recovery projects.” *Id.* at 61.
- 12 *Learn More About the Living Breakwaters Project*, N.Y. STATE GOVERNORS OFFICE OF STORM RECOVERY, <https://stormrecovery.ny.gov/learn-more-about-living-breakwaters-project>.
- 13 New York State (the grant recipient) is combining the Living Breakwater project with the Tottenville Shoreline Protection project in the same geographic region to provide risk reduction measures through both in-water components and shoreline components.
- 14 For more information about the Living Breakwaters project, see *REBUILDING WITH RESILIENCE*, *supra* n.4, at 41-48.

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