

Coastal Adaptation

A Framework for Governance and Funding
to Address Climate Change



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Executive Summary

Over the next 30 years, the number of people living in places at risk of flooding from an extreme storm in the New York-New Jersey-Connecticut region is likely to double from 1 million to 2 million. Sea levels are projected to rise by two feet, putting 10,000 homes permanently under water and greatly expanding the coastal floodplain. With over 3,700 miles of tidal coastline, much of it densely populated with old and decaying infrastructure, the region's states and local communities face the daunting challenge of making the physical and regulatory changes necessary to adapt to this new coastline. Restoring wetlands, building sea walls, raising buildings, retrofitting infrastructure and buying out vulnerable homeowners are among the actions that 167 coastal cities, towns, villages and counties will need to consider and find the resources to implement.

While there has been substantial progress in planning for climate change, adaptation is slow, sporadic, underfunded and uncoordinated. Attention and resources rise in the wake of storms like Superstorm Sandy, but soon dissipate when the immediate crisis has passed. In many ways, the needs are so great and the timeframes for implementation are so long that it is easier to focus on more immediate needs. While Superstorm Sandy provided an infusion of funding for recovery and adaptation, there remains \$28 billion worth of identified needs that has not been funded.¹ To get ahead of the growing crisis, the region will need to overcome several impediments:

- ▶ **Planning and investments are reactive rather than proactive.** There is neither a plan nor a budget for adaptation projects that can prioritize investments and prepare for future contingencies. Instead, current funding sources and policies depend on unreliable federal funding that promotes short-term recovery over long-term investments.
- ▶ **Most of the region's smaller cities, towns and villages have limited capacity.** The vast majority of the region's municipalities are governed by part-time or volunteer mayors and councils, and even the larger municipalities lack the staff capacity and resources to address and plan for long-term climate changes.

¹ Keenan, J.M. (2017). *Regional Resilience Trust Funds: An Exploratory Analysis for the New York Metropolitan Region*. New York, NY: Regional Plan Association. <http://library.rpa.org/pdf/Keenan-Regional-Resilience-Trust-Funds-2017.pdf>

- ▶ **Coastal flooding is a regional problem, but most planning happens locally.** Each state and municipality has different rules, policies and guidelines, and limited incentives to collaborate. Coastlines and infrastructure transverse government boundaries, and since water is fluid, management practices in one state or municipality can have an inadvertent impact on others.
- ▶ **State coastal management programs leave several problems unaddressed.** The coastal management programs of the three states vary widely in approach, and inconsistent policies can prevent important adaptation strategies from being implemented across state lines. At the same time, adaptation is not a singular focus of any program, nor are issues of regional significance, such as infrastructure.

A Coastal Commission for the Tri-State Region

To give climate adaptation the priority it needs and to be able to implement solutions at different geographic scales, New York, New Jersey and Connecticut should create a Regional Coastal Commission (RCC). The commission would be empowered to maintain a dedicated focus on the region's climate adaptation needs, help mobilize the region's resources to address them, coordinate strategies and develop common standards. It would also prioritize funding that can be used for region-wide resilience projects. Based on successes and lessons learned from other coastal commissions, the RCC would have the following responsibilities:

- ▶ **Produce and update a regional coastal adaptation plan** that aligns policies across municipal and state boundaries and sets a vision for short-term resilience and long-term adaptation.
- ▶ **Develop and manage science-informed standards** to guide and prioritize adaptation projects and development in the region's at-risk geographies.



Over the next 30 years, 59% of the region's energy capacity will be in areas prone to flooding, as will all of our shipping ports, four of our major airports, 21% of our public housing units and 12% of our hospital beds.

- ▶ **Coordinate and encourage collaborative adaptation projects** across municipal and state boundaries.
- ▶ **Evaluate and award funding from new adaptation trust funds** that align with standards established by the commission.

State Adaptation Trust Funds

The Regional Coastal Commission needs funding to fulfill its mission. We propose establishing new dedicated resources from adaptation trust funds to be established in each state.² The trust funds would be organized as public benefit corporations and would be initially capitalized from surcharges on property and casualty premiums. The funds would be managed by each state, but oversight and authority to underwrite and allocate the funds as grants and loans would rest with the commission. Each state trust fund would finance a minimum amount of in-state projects, while residual allocations would be prioritized for those projects and programs whose benefits would extend beyond jurisdictional boundaries. The grants and loans could support a range of projects, from short-term community resilience planning to long-term infrastructure finance and could be used to leverage or match other funding

sources. Through the utilization of bond leverage, the funds could operate independently and without subsidy from the insurance surcharges within a 10 year sunset period.

Coastal Commission Governance

Membership and governance of the Regional Coastal Commission could take a number of forms, but should be guided by the best practices of other coastal commissions and regional collaboratives. Members should be designated across jurisdictions (state, county and local) and should be representative of different coast types (urban, suburban and more natural conditions). Elected officials could have a role on the commission to give it legitimacy and visibility, but the governance structure must remain independent from political cycles and direct political interference. Both members and staff should include a variety of disciplines to embed all aspects of resilience planning into decisions. The commission's work should be informed by the latest science and flexible enough to shift as conditions along the dynamic coast change over time. Funding allocations and project selection should be guided by a clear set of standards and evaluation metrics.

² Keenan, J.M. (2017). Regional Resilience Trust Funds: An Exploratory Analysis for Leveraging Insurance Surcharges. *Environment Systems and Decisions*. doi: 10.1007/s10669-017-9656-3

A Growing Crisis

Across the globe, communities are beginning to grapple with the reality that they will need to adapt to the changing climate around them. Even if the goals of the Paris Climate Accord are reached, the climate has already — and will continue — to change in ways that make adaptation necessary. Coastal communities will flood more frequently, some permanently. More intense rainfalls will overwhelm the infrastructure of the built environment. Hotter days will threaten the public health of the most vulnerable populations and test the integrity of our infrastructure, creating higher demand for energy and burning more of the fuels that have caused this problem in the first place.

A Changing Coastline is Dramatically Increasing Risks

Nowhere is this crisis more acute than along our dynamic coastline. The New York-New Jersey-Connecticut metropolitan region, with over 3,700 miles of tidal coastline and 23 million residents settled into highly urbanized places with old and decaying infrastructure, faces an impending crisis. Today, just over one million regional residents live in places at risk of flooding from an *extreme storm*. By 2050 — with approximately 2 feet of sea level rise — that number will nearly double to around 2 million. Similarly, the risk of *permanent flooding* from sea level rise inundation is also significant. As detailed in RPA's report *Under Water* (2016), one foot of sea level rise (possible as soon as the 2030's) could inundate nearly 60 square miles where more than 19,000 residents in 10,000 homes live today, and where approximately 10,000 people work. Three feet of sea level rise (possible by 2080) could inundate over 130 square miles where nearly 114,000 residents in 68,000 homes live today, and where some 62,000 jobs are currently located. Six feet of sea level rise (possible by 2100) could inundate 280 square miles where 619,000 residents in 308,000 homes live today, and where more than 362,000 of today's jobs are located.

At the same time vital pieces of infrastructure that keep our region connected and thriving are located in these same floodplains. Today, 28% of our energy-generating capacity is located in areas that have a 1% chance of flooding in any given year. By 2050, 59% of our energy capacity will be in areas prone to flooding, as will all of the region's shipping ports, four of our major airports, 21% of our public housing units and 12% of our hospital beds.



Road flooded during high tide in Mastic Beach, NY

Vulnerable infrastructure

	In region	In current flood plain	In 2050 flood plain
2015 population	22,850,769	1,106,438	5%
Public housing units	228,317	19,868	9%
Hospital beds	80,426	5,112	7%
Nursing home beds	140,862	6,750	5%
Electric generation capacity (MWh)	32,636	9,127	28%
Train stations	905	62	7%
Train tunnels	12	12	100%
Subway yards	21	4	4%
Major airports	6	4	67%
Shipping ports	6	6	100%

Sources: U.S. Department of Health and Human Services; American Hospital Directory; NJ HSIP Health Facilities; American Hospital Directory; U.S. Department of Housing and Urban Development; Energy Information Administration; Metropolitan Transportation Authority; New Jersey Transit; Port Authority of New York and New Jersey; ESRI; U.S. census; FEMA; The Nature Conservancy

There is Neither a Plan Nor a Budget for Adaptation in the Region

Addressing this crisis will require broad and significant investment to improve protection for many communities, buy-out those most at-risk in lower density neighborhoods, upgrade energy, wastewater and transportation infrastructure, secure contaminated sites and restore and make room for the benefits of nature. Investments in adaptation are likely to be amongst the largest expenditures we make as a region over the next generation, but we have neither a plan nor a budget for them. Instead, we are largely stuck in a vicious and perverse cycle of needing catastrophic storms — and the recovery dollars they bring — to pay for adaptation projects. Most recent recovery and adaptation funding has come from the federal government. But due to shifts in politics and policy, it is very likely that future disasters will come with the requirement that states pay a greater share for recovery.³ What's more, current funding sources and recovery policies continue to incentivize risky development and promote short-term recovery over long-term adaptation.

The Region's Municipalities Have Limited Capacity to Address Coastal Flooding

As the effects of climate change, like flooding, become more severe, more municipalities will have to respond more frequently, issuing warnings ahead of events, providing emergency services during and after, communicating with risk management agencies, assessing damage, managing the

³ A proposed federal rule known as the Public Assistance Deductible would require states to cover a fix dollar amount for any given federal disaster prior to FEMA's provision of public assistance for the repair and replacement of public infrastructure damaged by a disaster event. At the time of publication, this rule was still being evaluated. See FEMA Docket ID FEMA-2016-003.

In the past twenty years,

638 damaging
flooding events*
in our coastal
counties have
accounted for:

73 direct fatalities

112 direct injuries

12 indirect fatalities

14 indirect injuries

*Days on which a flooding event occurred, as tracked and reported by NOAA National Centers for Environmental Information's Storm Events Database. Only those events which caused or threatened acute damage were included by NOAA in the database.



Oakwood Beach, Staten Island

Due to damage from Hurricane Sandy in 2012, properties in some high-risk areas were acquired with buy-out programs to be used as buffers against future flooding.

recovery process, and finally helping to invest in and manage repairs and other recovery and adaptation measures. And they will need to do all of this with limited capacity and tight budgets. Many of the region's municipalities are governed by part-time or volunteer mayors and local councils. Thus, the effects of climate change, such as frequent or extreme flooding, represent a significant and additional obligation that all too many towns are not equipped to manage.

Coastal Flooding Is a Regional Risk that Is Largely Managed Locally

While flooding knows no municipal boundary, our region's edge is governed by multiple stakeholders with different rules, policies, and guidelines, with few incentives to collaborate or coordinate with one another. The lack of guidance in terms of standards, unified science and data across agencies and states makes it difficult to consolidate or share information across jurisdictions or advocate for a unified long-term vision. The result is poor inter- and intra-governmental coordination and conflicting interests, and communities taking actions to protect themselves that can have adverse impacts on surrounding communities. Design teams that participated in the 2014 Rebuild by Design competition found that lack of regional coordination between municipalities can make issues like ecological restora-

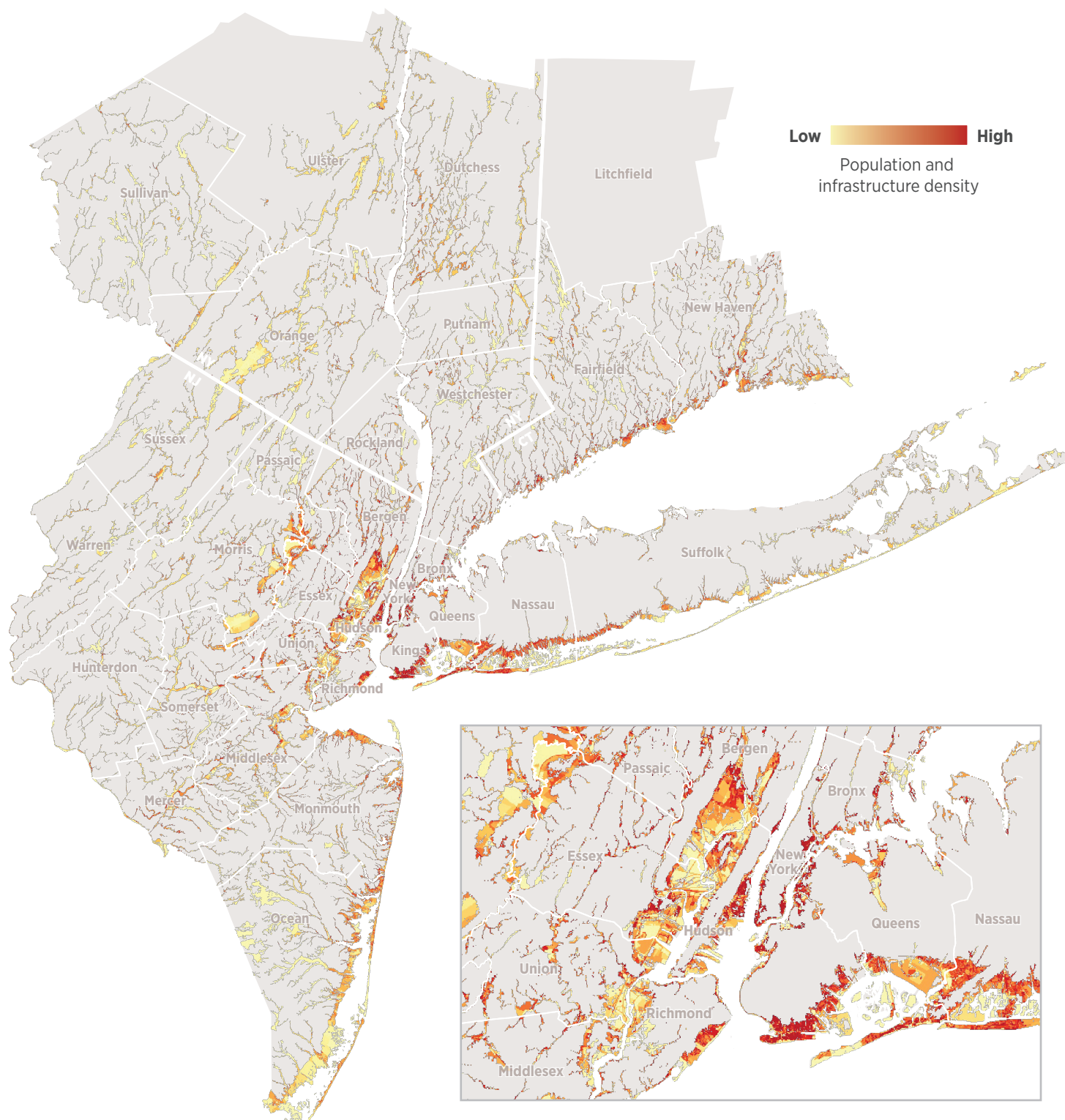
tion and stormwater management challenging to address. This fragmented governance makes it nearly impossible to address the effects of climate change in a comprehensive and effective way. As flooding affects more of the region's infrastructure, regional decisionmaking will become even more important to ensure quality of life in individual municipalities.

Absent regional collaboration and stable funding, disjointed approaches across misaligned timelines will be the norm, with each community or agency competing for the same limited pots of funding. Perhaps no place illustrates the problem more than the New Jersey Meadowlands, a patchwork of road, rail, wastewater and energy infrastructure, interwoven with businesses, communities and natural systems, all at significant risk of flooding from sea level rise and storms. As conditions worsen, a comprehensive adaptation plan for all of these entities, carried out with clear timelines and adequate funding, will be essential to ensure that this critical confluence of infrastructure remains a key part of the region's economy or ecosystem.

The seriousness of the region's exposure to flood risk is underscored not just by its geographic extent, which crosses all political boundaries, but also by the density of people and infrastructure at risk.

Density of People and Infrastructure Exposed to the Projected 2050 Floodplain

Source: Regional Plan Association



Who Governs Our Coastline Today?

Whether at the federal, state or local level of government, managing the process of climate change adaptation is complicated and shared across multiple divisions. Issues around water, air and habitat quality are managed by environmental agencies. Maintaining and upgrading highways and rail lines are managed by transit and transportation agencies and local authorities. Land use and building decisions are made by planning, zoning, housing and development agencies. A host of other decisions, from adaptation in parks to coastal engineering are made within and across relevant agencies. All require input, decision-making and action from local governments. More than 20% of the region's municipalities (167) face a future of coastal flooding (either intermittent from storms or permanent from sea level rise). Adapting these communities and the infrastructure that serves them will require increased collaboration and smoother processes, particularly as capacity at the local level is limited in many municipalities.

Coastal Management Programs

With a few exceptions at the municipal level, coastal adaptation today is largely managed by coastal management programs, federally authorized programs that are managed differently in each state. The following describes the national program and summarizes the ways in which each program is carried out in New York, New Jersey and Connecticut.

The National Coastal Zone Management Program

Authorized by the Coastal Zone Management Act of 1972, the National Coastal Zone Management Program is a voluntary partnership between the federal government and coastal and Great Lakes states and territories focused on protecting, restoring and responsibly developing coastal communities and resources.⁴ Administered by the National Oceanic and Atmospheric Administration (NOAA), the program aims to address pressing coastal issues such as climate change, ocean planning, and planning for energy facilities and development and encourage smart, consistent

management of the nation's coastal resources across state lines. Under the Coastal Zone Management Act (CZMA), eligible states can create their own individual CMPs so they can best address local challenges, working within state and local laws and regulations. At the same time, participating states must abide by the basic federal requirements stipulated in the CZMA.

Once a state's CMP is federally recognized, it can receive administrative and grant funding from NOAA to enhance their programs. To incentivize cooperation with the National Program, the Federal Consistency Provision (16 U.S.C. § 1456. Coordination and cooperation (Section 307), (c)), ensures that federal actions with reasonably foreseeable effects on coastal uses and resources are consistent with the enforceable policies of a state's approved CMP. This provision gives participating states a stronger voice in federal agency decision making than they would not have otherwise for activities that may affect their coastline.

In addition to the National Coastal Management Program, the federal government also helps to manage and regulate coastal development in at-risk areas with flood standards for federally-funded projects as well as by requiring residents in flood zones to participate in FEMA's National Flood Insurance Program, which is federally subsidized insurance for homes in FEMA-designated floodplains. Premiums for insurance are reduced for those homes with more resilient features, though the program does not discourage residents from being in the flood zone.

Coastal Management Programs in the Region

Today, thirty-four of the U.S.'s thirty-five coastal states have federally recognized Coastal Management Programs, including New York, New Jersey and Connecticut. There is minimal interstate coordination between these three programs, despite their shared coastlines.

New York's CMP, the second most robust program after California's, is embedded into the state's governmental structure, which allows regulators to set the tone for rules and regulations relating to the coast and coastal development. In contrast, the New Jersey CMP is seen as a federal program within the state, with most of its funding from federal sources, while Connecticut uses its CMP mostly as a regulatory agency, issuing and approving permits.

⁴ NOAA Office for Coastal Management website, accessed October 2017. <https://coast.noaa.gov/czm/>

The underlying foundation of our region's three active Coastal Management Programs (CMPs) is the same — all three states have limited regulatory power over land use planning in individual communities, and consequently work to guide their communities towards certain practices. However, the varying ways in which each entity views and values its natural resources makes the structure, policies, interpretation, and implementation of the three programs vastly different.

The New York State Department of State (DOS) views itself as the administrator to one of the largest and most important CMPs in the United States, second only to California's program. As the State's chief planning and development agency, DOS makes a conscious effort to both influence policy set by its municipalities and learn from how communities shape policies to reflect their unique priorities. It does this largely through its Local Waterfront Revitalization Program, which offers local governments the opportunity to voluntarily demonstrate consistency with the Coastal Management Program by preparing and adopting a local waterfront revitalization program. For example, New York City's Waterfront Revitalization Program establishes the City's policies for waterfront planning, preservation and development projects, carried out by its planning department.

In contrast with its northern neighbor, New Jersey's program seeks to provide municipalities with the information, tools and technical assistance to make informed decisions. Connecticut, on the other hand, views its program as largely a regulatory agency, that enforces its policy direction through permitting, but with an important secondary planning role. From its initial creation, New York's program was organized to be an inter-agency, publically-vetted, consistent process, with an iterative structure and active feedbacks between different levels of government. This structure seems to create more consistent, effective coastal management policies than its neighboring states.

Regardless, currently each state's program acts independently from its neighbors, coordinating efforts on an ad hoc basis when a project or a specific issue requires it. Inconsistent policies can prevent important adaptation strategies from continuing across state lines, creating piecemeal strategies which can leave vulnerable gaps or hinder the effectiveness and impact of any one project. For example, New York City's Billion Oyster Project, an ecosystem restoration initiative that is harvesting one billion live oysters in the New York Harbor to restore reefs and increase protective habitat, cannot be implemented across the entire Harbor because the practice is illegal in New Jersey.

At the same time, adaptation is just one of multiple charges that coastal management programs have in each state, meaning there are multiple — and sometimes conflicting — issues to manage around coastal land and water uses. Coastal infrastructure that spans state boundaries, weaves

in and out of the coastal management zone and will require continued adaptation, is not the specific charge of coastal management programs. Issues such as these pose a significant challenge for creating a comprehensive, consistent long-term adaptation strategy across the region's coast.

Climate Change and the State Coastal Management Programs

New York State and Connecticut both have specific legislative mandates to consider different aspects of climate change in their Coastal Management Programs. New York State's Community Risk and Resiliency Act (CRRA) — being implemented largely by the Department of Environmental Conservation (DEC) and the Department of State (DOS) — addresses climate change and sea level rise and enables collaboration between individual municipalities and other state agencies to identify and plan for their coastal vulnerabilities.⁵ The law ensures that different aspects of climate change are accounted for in their activities and programs. Under CRRA, NYS DOS and DEC develop model local laws that consider risk from sea level rise, storm surge, and flooding; and DEC and DOS develop guidance for how to use natural resources and processes to enhance resilience. Meanwhile, Connecticut's 2012 Public Act 12-101 incorporated sea level rise into the Connecticut CMP by requiring planners and developers consider the potential impact of sea level rise, coastal flooding, and erosion patterns on coastal development.⁶ For New Jersey, there is no specific regulation within the State's CMP that requires municipalities account for various aspects of climate change. However, NJDEP's Office of Coastal and Land Use Planning has created tools to help coastal municipalities account for climate change in various planning activities.⁷ Furthermore, the State uses its regulatory permitting authority to set strict standards for development in the coastal zone.

Following catastrophic storms, including Superstorm Sandy, New York in 2013 established the Governor's Office of Storm Recovery in order to centralize recovery and rebuilding efforts in the state. Today, the office continues to oversee programs related to housing, small business, community and infrastructure improvements, including buyouts for willing municipalities. The agency is scheduled to sunset in 2022, when funds are fully dispersed and recovery work completed.

New Jersey's Blue Acres program is a state buyout program established to purchase floodprone properties from willing sellers. Originally funded through bonding, the program received an additional boost of funding from Superstorm

⁵ "Community Risk and Resiliency Act (CRRA)". New York State Department of Environmental Conservation website. Accessed October 2017. <http://www.dec.ny.gov/energy/102559.html>

⁶ "Guidance on P.A. 12-101, An Act Concerning the Coastal Management Act and Shoreline Flood and Erosion Control Structures." State of Connecticut Department of Energy and Environmental Protection. November 10, 2016. http://www.ct.gov/deep/cwp/view.asp?a=2705&pm=1&Q=512226&depNAV_GID=1622

⁷ "Coastal Hazards of New Jersey: Now and with a Changing Climate." New Jersey Department of Environmental Protection website. Accessed October 2017. http://www.state.nj.us/dep/cmp/czm_hazards.html

Sandy federal recovery dollars and has since received additional funding through the state's Corporate Business Tax. To date, buyouts have occurred primarily along riverine floodplains. In Connecticut, a limited number of buyouts have taken place through the USDA Watershed Protection and Flood Prevention Program.

Regional Estuary & Estuarine Reserve Programs

In addition to coastal management programs, which focus largely on the built environment in coastal areas, there are a number of estuary and estuarine reserve programs in our region that focus on the quality and protection of estuaries of significant importance. These programs also serve a critical role educating the general public about the importance of estuaries, particularly as climate change alters our coastline and threatens our communities. Just as our communities will need to adapt, so will our natural systems. At the same time, protecting and restoring natural systems will help to shield the built environment from flooding and storm damage. These programs will be important partners in advancing adaptation, and include:

Hudson River Estuary Program

Working within the tidal Hudson and adjacent watershed, from New York City up to Troy, the Hudson River Estuary Program oversees restoration projects, protects land, facilitates educational opportunities, and monitors and maps river conditions⁸.

Long Island Sound Study

Formed by EPA, New York, and Connecticut, the Long Island Sound Study is a partnership between agencies, user groups, and other organizations. Since 1994, they have made strides restoring habitats, monitoring water quality, educating the public, and reducing nutrient loads in the 1,300 square-mile Sound over which they preside⁹.

Peconic Estuary Program

With a study area extending from the headwaters of the Peconic River to Block Island Sound, the Peconic Estuary Program is charged with creating and implementing a comprehensive management plan to protect the estuary, support habitat, educate the public, and improve water quality¹⁰.

Long Island South Shore Estuary Reserve

Administered by New York State Department of State, the South Shore Estuary Reserve extends from the Nassau/Queens line to the Village of Southampton, from the barrier islands' mean high tide line to the inland limits of the drainage area. The Reserve is charged with preparing and advising implementation of a comprehensive management plan aimed at improving and maintaining water quality; supporting living resources; expanding public use; sustaining the estuary economy; and supplementing stewardship and outreach¹¹.

New York-New Jersey Harbor Estuary Program

With a geographic footprint including the Hudson River watershed and the watersheds of the Raritan, Passaic, and Hackensack Rivers, but a core area focus on the Hudson-Raritan Estuary, the Program works to restore and protect healthy waterways, manage sediments, encourage community stewardship, and improve access¹².

Barnegat Bay Partnership

A partnership of federal, state, municipal, academic, business, and private organizations, the Barnegat Bay oversees comprehensive planning for the estuary and watershed that cover most of Ocean County and some of Monmouth County, NJ. The role of the Partnership is to support consensus building and problem solving between agencies charged with restoring, protecting, and enhancing the natural resources of the namesake ecosystem¹³.

Municipal Coastal Governance

The role of a municipality in governing in the coastal zone differs slightly, depending on which state it is located within. In general, our region abides by "home rule," meaning all municipalities are free to pass their own laws and ordinances, provided they comply with federal, state or regional authority laws and regulations. This applies to local land use decisions, including how municipalities choose to develop coastal land. Still, given decades of increased environmental and other regulations along the fragile coast, many municipalities must navigate a tangled network of agencies and regulations when making land use decisions. Following a disaster, the federal funds that largely pay for recovery often have stricter limitations (e.g. rebuild heights) that local municipalities must comply with as a condition of accepting public funds. FEMA's National Flood Insurance Program also offers a voluntary incentive

⁸ "Hudson River Estuary Program." New York State Department of Environmental Conservation. Accessed October 2017. <http://www.dec.ny.gov/lands/4920.html>

⁹ "About the Long Island Sound Study." Long Island Sound Study. Accessed October 2017. <http://longislandsoundstudy.net/about/about-the-study>

¹⁰ "The Peconic Estuary Story." Peconic Estuary Program. Accessed October 2017. <https://www.peconicestuary.org/discover-the-peconic/the-peconic-estuary-story/>

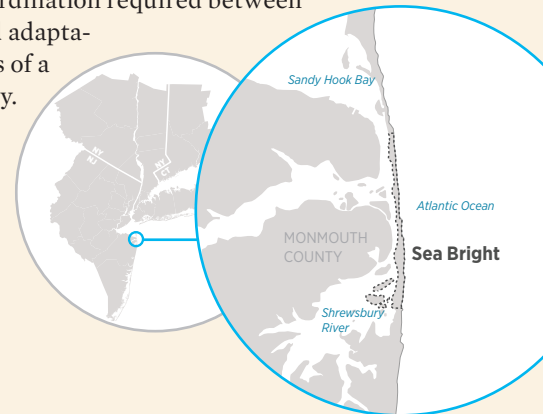
¹¹ "South Shore Estuary Reserve Home." New York State Department of State Office of Planning & Development. Accessed October 2017. <https://www.dos.ny.gov/opd/sser/index.html>

¹² "About the Program." New York/New Jersey Harbor & Estuary Program. Accessed October 2017. <http://www.harborestuary.org/about.htm>

¹³ "Barnegat Bay Partnership Mission." Barnegat Bay Partnership. Accessed October 2017. <https://www.barnegatbaypartnership.org/about-us/bbp-mission/>

Protecting just one parcel of land in Sea Bright, New Jersey

Our coastal areas involve a complex layer of governmental jurisdictions. Take, for example, this parcel of land in the borough of Sea Bright, New Jersey. Just this one strip of land is subject to the management and oversight of a multitude of local, state and federal entities. Following a disaster, the amount of coordination required between them for recovery and adaptation can test the limits of a municipality's capacity.



NJ Division of Fish and Wildlife's Bureau of Land Management
Preserved as a Wildlife Management Area, regulates recreational use

FEMA
Deemed ineligible (Coastal Barrier Resources Act, 1982) for most federal financial assistance and development incentives, including federal flood insurance. Promoted conservation.

NJ DEP Division of Land Use Regulation
Regulates activities (dredging, filling, removing, or otherwise altering or polluting) within coastal wetlands, inventories boundaries.

USFWS
Is involved in permit review programs for regulated activities in wetland

High/Low Marsh Wetlands

US EPA
Requires regular monitoring of water impairment. Administers the National Estuary Program, of which the New York - New Jersey Estuary Program is a part. Regulates point sources that discharge pollutants into waterways.

New York-New Jersey Harbor Estuary Program
Develops and manages a Comprehensive Conservation and Management Plan for the New York - New Jersey Harbor Estuary. Management Conference provides open forum for discussion, planning, and action on issues facing the Estuary.

NJDEP
Require, define, and authorize specific stream cleaning practices. Promotes projects which preserve habitat, limit work adjacent to the channel. Determines compliance with the Flood Hazard Area Control Act rules.

Water (Inland)

NJ DEP Division of Coastal Engineering
Serves as administrator of repair, gap bridging efforts. Funded restoration in part.

USACE
Collaborated with Borough and DEP on seawall design and funding.

FEMA
Funded majority of repair and gap closure of seawall. Obligated the project in November 2015.

Municipality
Orchestrated collaboration between NJ DEP and USACE on seawall repair design and funding.

Sea Wall

US EPA
Sets water quality standards, authorizes grants to state to monitor beaches. Monitors and assists with Clean Water Act compliance.

NOAA
Sets and monitors tide stations, provides data for the defining the shoreline and its tidal datum variations - and the jurisdictional boundaries defined by these variations.

US FWS
Conducts environmental contaminant studies, Natural Resource Damage Assessments

NJ DEP Department of Land Use Management
Plan and provide for existing and emerging ocean uses.

NJ DEP
Monitor to identify and track pollution sources impacting coastal waters.

Water (Atlantic Ocean)

Bulkhead

NJ DEP Division of Land use Regulation
Oversees maintenance and extension of bulkhead along the Shrewsbury River. Bulkhead construction and/or reconstruction within coastal areas generally requires a permit from NJDEP.

Municipality
Sets codes, priorities, ordinances to make changes to - and ultimately streamline - bulkhead height and design on Borough-owned property, encourages private landowners to meet standards through education

Private Property

Property owner, resident
Purchases NFIP insurance

NJ DEP Division of Land Use Regulation
Reviews permitting, sets impervious cover limits and vegetative cover percentages for developments within certain proximity to CAFRA (Coastal Area Facility Review Act) areas. Responsible for implementing USACE's proposed structure raisings.

FEMA
Attaches requirements, i.e. raising house, to recovery funding. Requires purchase of NFIP insurance.

Municipality
Zoning and land-use decision making. Writes building code, informed by all FEMA maps and including freeboard of two feet, one foot higher than the state requirement. Orchestrates allotment of private and Community Development Block Grant funding.

Parking/Sidewalk

Municipality
Trash collection, sidewalk maintenance

Private landowners
Landscaping, general maintenance (owners)

Roads
NJ DOT
Permitting, funding. Designated as coastal evacuation route.

NJ DEP Waterfront Development
Permitting

Municipality
Set forth plan for improved streetscape along Ocean Avenue, incorporating design elements to increase resiliency

Beach (Public Space)

USACE
Ongoing beach replenishment program, builds and maintains sacrificial beach berm abutting seawall.

NJ DEP
Restricts development in special areas such as beaches, riparian zones, flood hazard areas. Manages coastal area shore protection projects, including beach replenishment, participating with US ACE on all Corps-sponsored protection projects. Organizes routine clean-ups and removal of larger debris, authorizes permits to municipalities for beach and dune maintenance and post-storm restoration.

NJ Department of Health
With NJDEP, sets Standard Operating Procedure for all recreational bathing beaches to ensure that the State, local health authorities, municipalities, and beach patrols are making every effort to remove debris and hazards from beaches and bathing areas.

Municipality (DPW, Beach Patrol)
Orchestrates removal of debris, organizes training and stewardship when beach profile undergoes significant change.

Sources: New York-New Jersey Harbor & Estuary Program. National Oceanic and Atmospheric Administration. U.S. Environmental Protection Agency. NJ Future. NJ Department of Environmental Protection. U.S. Army Corps of Engineers. Federal Insurance and Mitigation Administration. U.S. Fish & Wildlife Service.

program to encourage greater flood protection measures (beyond federal standards) through discounts on flood insurance rates for participating municipalities.

The ability for any municipality to be proactive around adaptation, in large part, depends on its size and capacity to operate beyond day-to-day management. As a result, larger cities with full time mayors and multiple staff are better equipped to focus on adaptation and secure funding to carry out projects. For example, New York City has a full-time Resilience Officer, a fully-staffed program focused specifically on resilience and recovery and has resilience experts in other departments throughout the city's agencies. As a result, New York City is a national leader on adaptation, with a long-range plan for resilience and multiple ongoing projects with full or partial funding.

The vast majority of municipalities in our region, however have volunteer or part-time leadership, with full time staff focused largely on the essentials of ensuring a functioning community. Longer-term issues such as adaptation often don't rise to a priority level. Given this limited capacity, local governments could benefit from a regional approach to coastal adaptation.

The Region's Coastal Management Programs: A Patchwork of Coastal Regulation

Connecticut

Enacted in 1980, the State of Connecticut's Coastal Management Program (CCMP) falls under the statutory umbrella of Connecticut's Coastal Management Act (CCMA). The Program is administered and implemented by the Land and Water Resources Division, within the Connecticut Department of Energy and Environmental Protection (DEEP). Connecticut's DEEP has regulatory jurisdiction over activity occurring in tidal wetlands and the area waterward of the Coastal Jurisdiction Line, while an individual municipality holds jurisdiction over all activity that occurs within its municipal borders, landward of the mean high water line of its coast. However, local planning and zoning boards must frame plans under the guidance of the CCMA. DEEP oversees, tracks, and shapes municipal activity in the coastal zone through its ability to issue development permits, review site plans for proposed land developments and zoning changes, and comment on such plans to ensure they are consistent with the state's CMP.¹ In spite of the state's oversight abilities, municipalities are not required to abide by DEEP's comments. In this reality, DEEP works to guide municipalities towards certain best practices. However, if DEEP believes a community's plan contradicts the state's coastal management program and the community refuses to listen to DEEP's recommendations, the state can legally appeal the municipality's decision. This power, however, is not used frequently. Connecticut's program receives half of its funds from NOAA, with the State government providing matching funds. In terms of staff, the Program falls between New Jersey and New York's program in size, with approximately twenty-three people.

¹ "Connecticut Coastal Management Manual." State of Connecticut Department of Environmental Protection. September 2000. http://www.ct.gov/deep/lib/deep/long_island_sound/coastal_management_manual/manual_08.pdf

New Jersey

The New Jersey Coastal Management Program, originally recognized by NOAA in 1978, is managed by the New Jersey Department of Environmental Protection's (NJDEP) Office of Coastal and Land Use Planning in DEP's Land Use Management Division. Statutory authority for the state's CMP comes from three major laws, which divide the waterfront into three boundaries governed under different rules: the Coastal Area Facility Review Act, which defined the CAFRA Zone; the Waterfront Development Law of 1914, which defined the Hackensack Meadowlands District; and the Wetlands Act of 1970. New Jersey SEA (NJSEA) — formerly the Meadowlands Commission — is the designated CMP manager for the Hackensack Meadowlands area.² The Coastal Management Program considers any municipality with tidally flowed waters to be within its planning region. Through NJDEP and NJSEA, the state regulates land and water uses that may have significant impact on coastal resources.

All waterfront development in New Jersey is regulated by the state. While development is subject to the local zoning and building regulations of its respective municipality, public and private development projects are required to obtain NJDEP permits. Furthermore, the state's rules supersede local zoning — meaning developers are obligated to conform to state regulations in addition to local zoning. If a municipality is in a specific coastal zone, it must follow the rules outlined by NJDEP.

The state's Program is headed by the Office of Coastal and Land Use Planning, but it draws information and input from multiple DEP offices, including the Office of Policy Implementation, the Division of Land Use Regulation, and the Office of Dredging and Sediment Technology. Most of the Program's work is done by its leading office, which has four planners and approximately seven additional technical staff. The Office rarely coordinates with their counterparts in New York and Connecticut — though they frequently collaborate with multi-state groups such as the NY/NJ Harbor Estuary Program, the Delaware Estuary, and MARCO, whose planning regions include portions of NJ.

Like Connecticut's program, approximately half of the New Jersey CMP's funds are provided by NOAA, with the State providing matching funds. However, the majority of New Jersey's resiliency work is supplied by NOAA's annual grant to the program.

New York

The New York State Coastal Management Program (NYSCMP) was created in 1982 by the New York Secretary of State, born from the 1981 Waterfront Revitalization of Coastal Areas and Inland Waterways Act (AKA: Executive Law, Article 42) and Chapter 464 of the 1975 Laws of New York State. The New York State Department of State (DOS) administers the State's Coastal Management Program, and coordinates activities related to its implementation.³ The NYS Department of Environmental Conservation (DEC), the agency tasked with protecting the State's natural resources, embeds the CMP's policies into state practices through its administrative authority for protecting coastal erosion hazard areas; permitting authority for wetlands, air quality, and water quality; and providing funding for various activities. Other state agencies, including the Department of Energy, the Public Service Commission, and the Office of Parks, Recreation, and Historic Preservation, hold some responsibility for implementing the CMP's coastal policies, though the majority of Policies are carried out through the DEC's regular programming. New York State is unique in how it enables consistency between the state's coastal communities and the federal government, while structuring it so individual coastal communities can tailor it to fit their individual needs. The DOS encourages individual communities to prepare and implement a Local Waterfront Revitalization Program (LWRP). An LWRP is a locally-prepared, comprehensive land and water use plan that provides a more detailed implementation of the State's CMP. By creating a LWRP, communities refine and tailor the State's CMP policies to match their own unique needs and priorities. This holds a two-fold benefit, as the LWRP's inform the State government what each coastal community values, which then helps shape State policy. Once a community's LWRP is approved by the NYSDOS and NOAA, all State and Federal agencies' actions occurring within the community's coastal area must adhere to and be consistent with the LWRP.⁴

New York also stands out from its neighbors in terms of the sheer size of its Program staff and budgetary sources. The program has up to sixty staffers, and receives the majority of its funding comes from the State, rather than the federal government.

² State of New Jersey Department of Environmental Protection Division of Land Use Regulation website. Accessed August 16, 2017. http://nj.gov/dep/land-use/coastal/cp_main.html

³ "New York State Coastal Management Program and Final Environmental Impact Statement." New York State Department of State. Revised June 2017. https://www.dos.ny.gov/opd/programs/pdfs/NY_CMP.pdf

⁴ "Local Waterfront Revitalization Program." New York State Department of State Office of Planning and Development. Accessed October 2017. <https://www.dos.ny.gov/opd/programs/WFRevitalization/LWRP.html>

A Vision for Regional Governance and Dedicated Adaptation Funding

A Coastal Commission for the Tri-State Region

To fill the void in climate adaptation, New York, New Jersey and Connecticut should create a Regional Coastal Commission modeled after successful coastal commissions in other regions. The region has several examples of commissions and authorities that have coordinated municipal and private actions to preserve and manage environmental assets, such as the Highlands and Meadowlands Commissions in New Jersey and the Pine Barrens Commission on Long Island. Other regions, including the San Francisco Bay Area and the Chesapeake Bay region, have successful region-scale coastal management authorities. A Regional Coastal Commission (RCC) would coordinate adaptation strategies undertaken by coastal communities, develop and manage adaptation standards, and prioritize projects for funding based on the potential for region-wide resilience. Funding would come primarily from adaptation trust funds proposed in this report, but the commission could also prioritize projects funded from other federal and state sources.

The mission of the Regional Coastal Commission will be to advance adaptation planning and implementation across municipal and state boundaries to reduce the risks posed and expenses incurred by coastal flooding from storm surge, sea level rise and heavy precipitation in our region's coastal communities, by:

- ▶ **Producing a regional coastal adaptation plan** that aligns adaptation policies across boundaries and sets a vision for short- and long-term adaptation.
- ▶ **Developing and managing science-informed standards** to guide projects and development/redevelopment in the region's flood-prone places.
- ▶ **Coordinating and encouraging collaborative projects** across municipal and state boundaries.
- ▶ **Evaluating and awarding funding** for projects that align with the standards established by the commission, utilizing funds created by each state's Adaptation Trust Fund.

Commission Guidelines

The final structure and governance of a Regional Coastal Commission could take a number of forms, but should be guided by the best practices of other coastal commissions and regional collaboratives (see more below) for maximum efficacy. The following represents a brief set of essential guidelines for the development of a commission in the Region.

Be Inclusive and Cross-Jurisdictional

Members of the commission should be designated across jurisdictions. Each of the three states should be represented, as should each of the coastal counties. While the sheer number of municipalities within the boundary would prevent complete participation, a representative number of municipal members should be designated. The structure should allow for free-flowing information between and among all levels of government that have an interest and stake in adaptation decisions, even if they are not represented on the commission.

Represent Different Coastal Conditions

The coast is not a monolithic place. Coastal place types range from the highly developed urban shores of cities like New York, Jersey City and Bridgeport to the suburban communities along the backbays and barrier beaches of Long Island and New Jersey to more natural settings like Long Island's east end. The region's estuary programs and reserves could serve as useful frameworks for ensuring representation from each of these different coast types.

Engage and Build Trust with Communities

The commission should ensure that community outreach is an important part of its activities and mission, to ensure that all voices are heard and that trust is established between the commission and communities.

Include Elected Officials

Elected officials should have a role on the commission to give it legitimacy and visibility, but the governance structure must remain independent from political cycles and direct political interference.

Engage Across Disciplines

Incorporating decisions and tools from the commission into other government agencies will be a key component of this collaborative. Both members and staff should include a variety of disciplines (environmental, development, transportation, etc) to embed all aspects of adaptation planning into decisions.

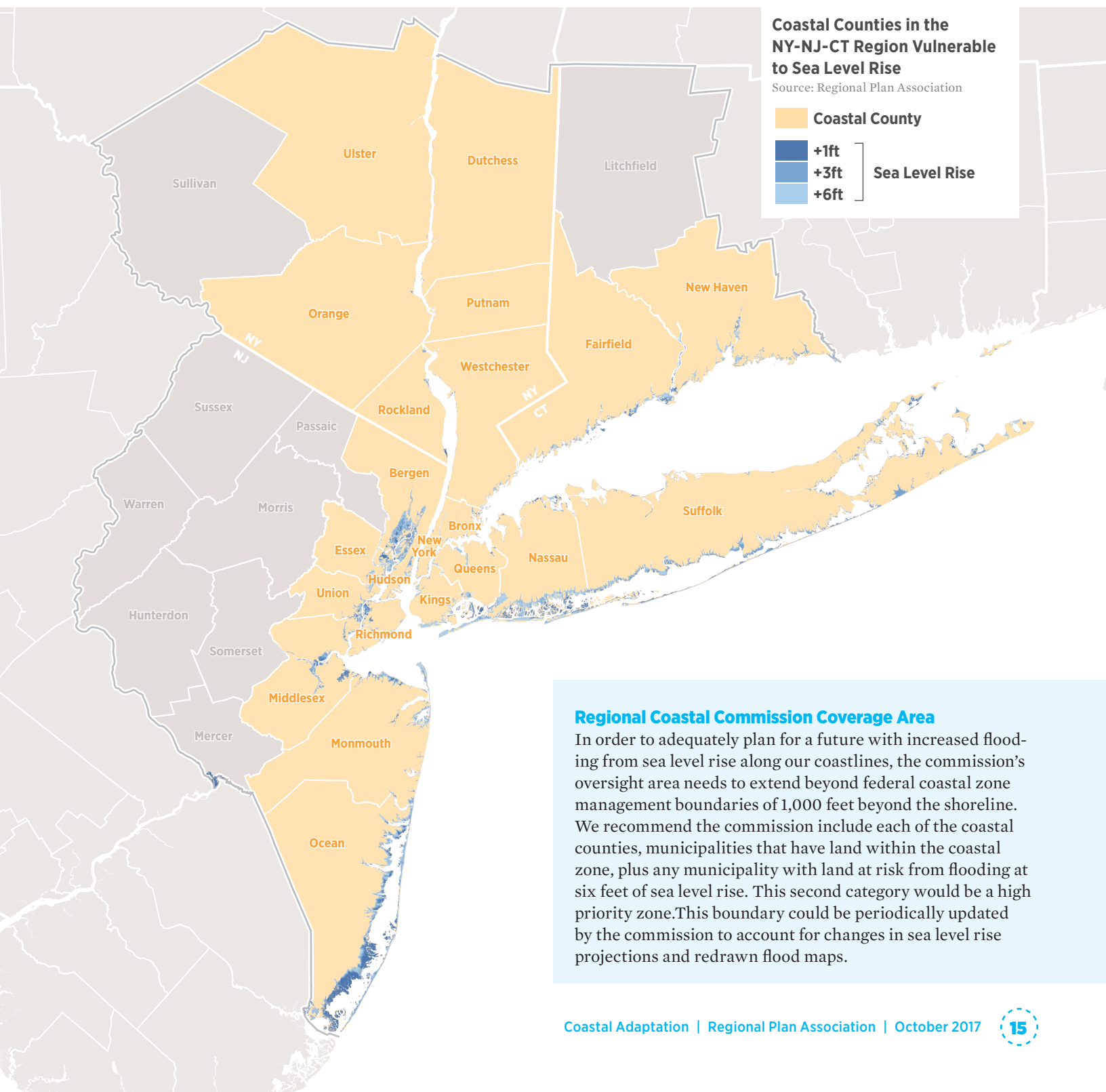
Be Informed by Science and Flexible to Changes

The rising seas and increasing intensity of storms will dramatically alter the region's coastline. It is important that the commission provide guidance based on the latest

science and be flexible enough to change as conditions on the ground change. The commission will also play an important role in communicating scientific information to government and community stakeholders.

Set Clear Criteria for Adaptation Funding

One of the roles of the Coastal Commission would be to oversee and make decisions about how Adaptation Trust Fund dollars are spent. The commission should ensure that funding allocations and project selection is guided by a clear set of standards and evaluation metrics.



Regional Coastal Commission Coverage Area

In order to adequately plan for a future with increased flooding from sea level rise along our coastlines, the commission's oversight area needs to extend beyond federal coastal zone management boundaries of 1,000 feet beyond the shoreline. We recommend the commission include each of the coastal counties, municipalities that have land within the coastal zone, plus any municipality with land at risk from flooding at six feet of sea level rise. This second category would be a high priority zone. This boundary could be periodically updated by the commission to account for changes in sea level rise projections and redrawn flood maps.

Why a Regional Coastal Commission?

The Institute for Sustainable Communities defines four classifications by which governance structures can be characterized.¹ These categories gradually increase in formality and decrease in flexibility.

- ▶ **Informal Network:** The least formal and most flexible of these categories is an Informal Network, a group of regional actors who agree to meet regularly to work together towards a shared goal. The New York Region Climate Adaptation Network, recently launched by RPA in partnership with the Lincoln Institute of Land Policy, can be considered an informal network, as it convenes professionals working on climate adaptation initiatives, uniting them by a shared goal but without an official charter.
- ▶ **Chartered Network:** A chartered network is a group of people with a developed charter or system of agreed-upon rules specifying how members wish to govern their interactions and make decisions. The Southeast Florida Regional Climate Compact is considered a chartered network, as members signed an official Compact agreeing to a specific organization structure and means of engagement in upon its formation.
- ▶ **Legal Entity:** At the more formal end of the spectrum is a Legal Entity, which has the ability to collect and manage funding, hire staff, own assets, and enter into contracts.
- ▶ **Regulatory Body:** The most formal and least flexible of the four entities, a Regulatory Body is granted authority to act as an arm of the government, and consequently can levy taxes and fines, set regulations, or enact policies.

In its most basic definition, a regional collaborative is an entity where stakeholders representing an array of geographies, issues, and populations come together to identify shared issues or goals, and work together to solve them through a regional lens. Regional collaboratives can be informal networks or regulatory agencies.

Flexible by nature, regional collaboratives have a higher capacity to adapt to changing conditions, promote public participation, and enhance policy dialogue. As a result they often emerge as an alternative to centralized institutions that manage natural resources.² Over decades and across the country, regional collaboratives have formed to manage natural resources in large-scale, politically-complex environments.

Successful regional governance structures focused on climate change adaptation can (1) coordinate action across multiple governments and sectors, creating a space to make collective decisions and take action in a timely manner; (2) reduce and resolve conflicts between stakeholders; and (3) facilitate information and knowledge exchanges across jurisdictional boundaries by pooling members' funding, capacity, and communications.³

Climate adaptation initiatives are best implemented when they are embedded into the solutions of other issues, like infrastructure upgrades or affordable housing, presenting an opportunity for climate adaptation solutions to simultaneously address issues like equity, affordability, and inclusivity, while also ensuring residents' long-term well-being in the face of climate change.

Collectives have an advantage when applying for funds. Access to federal funding or other large grants is easier through an umbrella organization that covers multiple political jurisdictions. County staff participating in the Southeast Florida Regional Climate Compact have been able to leverage large pots of state and federal resources because, as a collaborative working on climate change-related issues over a broad geography, the Compact is an attractive destination for funds coming into the region.⁴ It has provided enough structure to help facilitate grants and technical assistance for the participating Counties, as well as widen community access to federal and state support.

¹ Adams S, Crowley M, Forinash C, and McKay H. "Regional Governance for Climate Action." Institute for Sustainable Communities. 2016.

² Tanya Heikkila and Andrea K Gerlak. "The Formation of Large-scale Collaborative Resource Management Institutions." *The Policy Studies Journal*, 2005. Vol. 33, No. 4.

³ Institute for Sustainable Communities 2016.

⁴ Institute for Sustainable Communities 2016.

Adaptation Trust Funds

Investments in adaptation projects for communities, habitats and infrastructure systems often come with a high price tag. Recent research from Zillow estimates that the region's three states stand to lose \$177.3 billion of housing stock (305,310 homes in total) to permanent flooding from six feet of sea level rise.¹⁴ And that's just homes. Successful adaptation investment models require a dedicated source of funding that is stable enough to utilize bond leverage. As federal funding for infrastructure, disasters and adaptation becomes less reliable, states are increasingly tasked with advancing innovative financing models that operate to address both a backlog of infrastructure investments and to prepare for climate change. RPA proposes the creation of three Adaptation Trust Funds for NY, NJ and CT, funded by surcharges on insurance premiums. The funds would be managed by each state as a public benefit corporation, with underwriting and allocation decisions ultimately delegated to the Coastal Commission. However, each state could independently create trust funds under this model with or without the formal establishment of a coastal commission.

The trust fund could be feasibly capitalized by a surcharge on regulated property and casualty insurance premiums statewide, and put into a public benefit corporation authorized by each state.¹⁵ A research team from Harvard University's Graduate School of Design, commissioned by Regional Plan Association, looked at the unmet financial needs identified in each state's Community Development Block Grant — Disaster Recovery amended Action Plans following Superstorm Sandy. They determined the rate of surcharge required to capitalize a trust fund and meet these unmet needs over time. Without even utilizing leverage in the bond market, the following estimated insurance surcharges for the average consumer were found to pay for the identified unmet needs of each state¹⁶:

- ▶ Connecticut: \$1/month
- ▶ New York: \$5/month
- ▶ New Jersey: \$15/month

In general, the range of surcharges necessary to capitalize the trust funds are a small percentage (e.g., 0.5% to 1.5%) of the premiums currently paid. New Jersey's is considerably higher because of the higher levels of identified unmet needs in the state. Once capitalized, the trust funds could support a range of potential project ranging from short-term community resilience planning to long-term infrastructure finance. A primary role of the Coastal Commission would be to establish the criteria by which projects are prioritized and to determine allocations to projects submitted for funding.

¹⁴ NOAA, Zillow (via Zillow), 2017

¹⁵ Keenan, J.M. (2017). *Regional Resilience Trust Funds: An Exploratory Analysis for the New York Metropolitan Region*. New York, NY: Regional Plan Association.

¹⁶ Based on an annual insurance premium of \$1,200.

Coastal resilience features can and should be integrated into park design, so that they are both a community amenity and a safety measure in severe storms.

Lower East Side Coastal Resiliency Proposal

Source: Bjarke Ingels Group



Sample Trust Fund Financed Projects

Funding Mechanism	Borrower	Amount	Project	Project Description
Small grant	State of New York, Department of Environmental Conservation	\$500,000	Planning Study	Study would include: a coastal area typology study; an inventory of potential strategies for existing green infrastructure; adaptive processes for science-informed decision-making in local jurisdictions; case studies of existing adaptation projects; and education and outreach materials. The state agency could leverage the grant with federal funding through the HUD Sustainable Communities Regional Planning Grant.
Large grant	New Jersey Sports and Exposition Authority	\$15,000,000	Brownfield Remediation	Grant would offset eligible project costs for remediating toxic chemicals from land in the Meadowlands that is highly vulnerable to flooding and future inundation. In addition to cleanup, the grant would help support adjacent site assessments, ecological adaptation strategies for local habits, and community planning and training. In partnership with local jurisdictions and property owners, the Authority would leverage funds from the U.S. EPA's Brownfield Grant Program and the NJ Hazardous Discharge Site Remediation Fund.
Large grant	Norwalk Dept of Public Works / Stamford Office of Operations	\$1,000,000	Green Infrastructure Design and Maintenance Training	Project would develop programs to train municipal and county public works personnel to design and maintain green infrastructure that serves a dual hazard mitigation purpose. Project funding could be leveraged from several federal sources, including HUD's Green Infrastructure and the Sustainable Communities Initiative and the US EPA's Clean Water Act Section 319 grant program.
Concession loan	Local Town, New Jersey	\$30,000,000	Managed Housing Relocation Finance Program	Project is based on a program to help finance the relocation of low-to-moderate income households whose properties are in highly vulnerable to the risk of subsidence, storm surge and relative sea level rise. The program would help finance the disposition of existing properties and the acquisition of in-land properties that were previously foreclosed. The net result is that relocated households have a lower barrier to entry to in-land housing markets and neighborhoods with previously foreclosed properties get an injection of social and financial capital.
Concession loan	GRID Alternatives (non-profit)	\$5,000,000	Photovoltaic (PV) Installation in Public and Senior Housing	Project would serve the co-benefits of climate mitigation, as well as the benefits of increasing the passive survivability of facilities supporting highly vulnerable populations. With climate change, extreme heat and power disruptions represent critical hazards for impacting human health. With an aging society, passive survivability is a potentially important part of community resilience. In conjuncture with existing energy efficiency subsidies, this concession loan provides the capital necessary to bring the leveled cost of energy to within the means of financially strapped housing operators.
Prime rate loan	Nassau County Department of Public Works	\$100,000,000	Gap Loan for Bay Park Water Reclamation Facility	Project would provide the gap financing necessary to help the borrower accommodate an \$830 million renovation to the plant designed to mitigate and manage the risks associated with storm surge, increased deluge events, and sea level rise. In particular the loan would support the funding of: the upgrading of power and back-up systems; the elevating of chemical tanks and electrical controls; the installing of new pumping systems; and the development of dual-purpose public spaces that promote the physical resiliency and environmental sustainability of the adjacent neighborhood.
Prime rate loan	Lower Manhattan Property Cooperative (non-profit)	\$350,000,000	Infrastructure Finance for Multi-Purpose Flood Protection	Project would provide supplemental efforts to the ongoing city led effort to fortify Lower Manhattan. The borrower is a non-profit cooperative corporation whose members are property owners, large tenants, Con Edison and the NYC EDC. As aging office buildings are replaced, this source of funding helps finance coordinated lot and block improvements that synchronize with the district level waterfront improvements. Eligible improvements include those interventions in energy distribution, water management and public space that contribute to the resilience of public and private operations in the district.
Prime rate loan	New Jersey Transit	\$100,000,000	NJ TransitGrid	Project would provide additional financing for developing an innovative micro-grid that accommodates a variety of extreme events from heat to flooding. With an increasingly stressed and aging transit system, the project seeks to increase reliability and reduce down time through the intelligent management of distributed and renewable energy sources. Aside from the core infrastructure improvements, the financing could support consumer communications for re-routing when service is altered, as well as contingent operations planning and operations redundancy for extreme events.

Source: Keenan, J.M. (2017). *Regional Resilience Trust Funds: An Exploratory Analysis for the New York Metropolitan Region*. New York, NY.: Regional Plan Association. <http://library.rpa.org/pdf/Keenan-Regional-Resilience-Trust-Funds-2017.pdf>

Implementing a Regional Coastal Commission: Best Practices from Around the Country

Existing climate adaptation collaborative bodies are incredibly diverse in terms of structure, size, jurisdiction, authority, scale, and scope of mission, illustrating that there is no prescribed format for such an entity (See Appendix). However, RPA's review of existing regional collaborative entities indicates there are several important factors vital to their success including: a shared long-term vision for the entity; clear, distinct boundaries of jurisdiction; trust between actors; and consistent information and data among parties prior to the collaboration.¹⁷ To ensure the RCC's success, we identify best practices that inform the structure and authority, collaboration and effectiveness, membership, data and information sharing, and funding of the commission.

1 *Begin with a clear and targeted mission, with the potential to expand its mandate.*

A clear, relatively narrow mission is essential for the success of the commission. This will make it easier for organizers to design its governance structure, identify potential participants, and foster the support to bring it to fruition. As it matures, the mandate can be expanded to tackle more extensive issues as they arise, without losing sight of its original mission.

One example of this is how the Southeast Florida Regional Climate Compact has evolved and expanded its mission. When it was founded in 2010, the Compact the signatories agreed upon was relatively simple, but broadly focused on one particular issue: coordinating climate change adaptation initiatives. The signatory county governments agreed to coordinate their state and federal-level climate change-related advocacy and policy positions, conduct analyti-

cal research on a regional scale, and to meet at an annual summit. Within a few months, these goals led the Compact to develop a regional preliminary inundation map, regionally consistent sea level rise projections, and a regional baseline greenhouse gas emissions level. As the Compact accomplished its goals, it then pivoted its workload towards capacity building in municipalities through resilience and adaptation workshops for local government officials. The way the Compact set clearly defined, achievable, focused goals early in its lifetime gave the collaborative the capacity to quickly unite county officials behind its agenda, and gradually expand and update its responsibilities.

2 *Involve elected officials while staying independent from election cycles.*

Elected officials bring local expertise and the voices of their constituents to the table. They can also help bring public attention to the commission which is important especially as it is starting to help build more political will and legitimacy to the body. Yet there is also need to embed the structure within existing government agencies to ensure that the work continues across administrations and is less influenced by politics. Incorporating decisions and tools from RCC into other government agencies will be a key component of this collaborative.

When the California Coastal Commission was created, the Commission was an administrative body in California's executive branch and the State Legislature had the power to appoint and remove two thirds of the Commission's voting members at will. This made the Commission extremely volatile and politicized until the early 2000s, when the State Legislature amended the Coastal Act to give legislative appointees fixed terms, and expanded all terms from two to four years.¹⁸ To avoid these issues, instituting a steering committee composed of government staff is beneficial.

¹⁷ Bennett, Annie and Jessica Grannis. "Lessons in Regional Resilience: Case Studies on Regional Climate Collaboratives." Georgetown Climate Center. 2017; Booher, David E. and Judith E. Innes. "Governance for Resilience: CAL-FED as a Complex Adaptive Network for Resource Management." *Ecology and Society*, 2010. Vol. 15, Iss. 3.; Bulkeley, Harriet and Kristine Kern. "Local Government and the Governing of Climate Change in Germany and the UK." *Urban Studies*, 2006. Vol. 43, Iss. 12, pp. 2237-2259; National Association of Regional Councils. "A Survey of Regional Planning for Climate Adaptation." November 2012. http://narc.org/wp-content/uploads/NOAA_White_Paper-FINAL2.pdf; Anna Serra-Llobet, Esther Conrad, and Kathleen Schaefer. "Governing for Integrated Water and Flood Risk Management: Comparing Top-Down and Bottom-Up Approaches in Spain and California." *Water*, 2016. Vol. 8, Iss. 10.

¹⁸ Charles Lester. "CZM in California: Successes and Challenges Ahead" *Coastal Management*, 2013. Vol. 41, pp. 219-244.

3 Represent a variety of disciplines.

Regional climate collaboratives should include an “inter-disciplinary membership” to fully integrate adaptation into all aspects of planning and community life. Transportation planners, emergency response planners, and officials from federal, state, local, and regional public bodies like MPOs and watershed authorities are key players in climate collaboratives because they hold authority over policies relevant to climate change and adaptation. These diverse representatives can also bring invaluable regional-scale perspective and resources to the collaborative. A diverse membership creates strong symbiotic relationships between the collaborative and its partners and enables information sharing between them.

The Chesapeake Bay Program is an example of one entity whose partnering organizations benefit substantially from the diverse membership of the programs governing bodies and advisory teams, which include state and local government officials, federal and regional agency representatives, and scientific organizations and academic institutions. The Program provides its state partners with technical support and scientific resources, while providing its scientific constituent partners with an avenue to shape policy. The Program’s existence enables these mutually beneficial relationships where different parties receive information they would not have access to otherwise, which improves everyone’s work while also furthering the restoration and protection of the Chesapeake Bay.

4 Structure the commission according to specialization and subject area.

Uniting a collaborative’s stakeholders to work on a particular issue or subject area through a specialized committee is an efficient way to exchange information and unify representatives behind a particular viewpoint. This strategy is used by organizations like the Chesapeake Bay Commission that need to manage large tracts of land and a large number of agencies. To oversee 64,000 square miles of land spread across six states and Washington DC, the Chesapeake Bay Program divides work into seven goal implementation teams based on subject matter, and then subdivides them into workgroups for more detail. This allows the program to exchange relevant information with experts from 19 federal agencies, nearly 40 state agencies, approximately 1,800

local governments, over 20 academic institutions, and more than 60 non-governmental organizations in an efficient and organized manner.

Because of the diversity of environmental and development conditions along the NY-NJ-CT coastline, the commission could have subcommittees based on geographic specialization. For example, a subcommittee for the NY-NJ Harbor dealing with the dense urban coastline or for the Long Island Sound. This would enable stakeholders to collectively agree on, design, and regulate adaptation projects that will affect them regionally, and could be built from successful existing programs like the NY-NJ Harbor Estuary Program and the Long Island Sound Study.

5 Disseminate information across agencies and stakeholders, and facilitate the adoption of policy changes across agencies at all staff levels.

Collaboration between multiple agencies and government levels is important, but these efforts are only worthwhile if they can infiltrate all aspects of a department or agency’s policies. The presence of agency directors on a commission’s board does not guarantee that information will permeate to official department policies uniformly. For instance, the Louisiana Coastal Protection and Restoration Authority’s Board expects its leaders to coordinate with one another and share information, but it does not have the infrastructure in place to coordinate implementation strategies internally within their own departments, nor externally on an interdepartmental basis. Having a consolidated plan that describes what each agency is doing to further a commission’s common goal can help the commission work towards achieving them. Department leaders, who provide agency “buy-in” and execute broader policy, need to have a mechanism that allows them to coordinate with technical staff so policies can be integrated into all projects and official policy.

The Bay Area Regional Collaborative (BARC) demonstrates one framework for how an entity can successfully work across multiple levels of government and through various regional programs and state agency initiatives. BARC is a consortium of four regional government agencies — the San Francisco Bay Conservation and Development Commission (BCDC), the Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District, and Metropoli-

tan Transportation Commission (MTC) — that collaborate on regional planning issues that involve multiple agencies. Working together to create coordinated policies, leverage resources, and provide better services to local governments struggling with climate-related issues, their collaboration has distinguished each agency's role and responsibility in relation to climate change, and linked regional, state, and federal programs in the creation of uniform policies.

6 Build trust with its constituent communities.

The ultimate purpose of adaptation is to ensure the long-term wellbeing of people and communities vulnerable to climate change. When implemented thoughtfully, this can include addressing equity, affordability, and inclusivity. The commission presents an opportunity to address these issues in the way it undertakes its research and project selection, and in how it maintains accountability and credibility. Engaging with individuals and local community organizations would keep the commission accountable to the needs of its constituents, and build support and “buy-in” for its plans and projects.

Reaching out to individual communities for input during the planning process allows collaborative entities to understand how their climate-focused work can mitigate a community's other needs. In completing its 2012 Master Plan Update, the Louisiana Coastal Protection and Restoration Authority (CPRA) worked with advisory groups and different stakeholders across the state to inform its planning principles and framework. The Authority organized technical committees and focus groups, convened public meetings, conducted community surveys, and targeted local elected officials, groups, and legislatures for input on its decision making process. This outreach work secured legitimate community buy-in, which led to NGOs and organizations rallying around the Master Plan, conforming their work to fit into the Master Plan. The CPRA built on this effort in its most recent Master Plan Update, when it solicited coastal improvement project proposals from local government agencies.¹⁹ This helped ensure the best identified specific projects with local community support, which represented sound, efficient investments for the State's Coastal Area.

¹⁹ Natalie Peyronnin et al. “Louisiana's 2012 Coastal Master Plan: Overview of a Science-Based and Publicly Informed Decision-Making Process.” *Journal of Coastal Research*, 2013, Vol.67(spl), pp.1-15

While reaching out to municipal governments themselves is important, climate collaboratives need to take their outreach a step further and form partnerships with community-based organizations.²⁰ Such organizations are well-rooted in their communities, and can provide insight into how a community wants to mitigate issues in a way municipal government cannot. These organizations can also make collaboratives more effective at implementation. The Chesapeake Bay Program has found that its efforts are most effective in communities that have an organized local government body or organization already working on the ground to mitigate issues. Such organizations, regardless of whether they have an explicit focus on climate change, enable a collaborative to address a variety of community needs while still directly embedding climate adaptation principles into all community practices.

The San Francisco Bay Restoration Authority's (SFBRA) successful passage of the Measure AA initiative is an example of how community support and advocacy are essential in orchestrating a successful campaign. The ballot initiative, passed in 2016, is a special parcel tax measure of \$12 per year on all nine Bay Area counties meant to fund wetland restoration and protection projects in the San Francisco bay. Leading up to its passage, the SFBRA led a multi-year, multi-county public education campaign with support from multiple organizations to raise awareness and support for the Measure. Through this outreach effort, Bay Area residents realized the economic, environmental, and recreational benefits wetlands provide, and in 2016 voted in favor of taxing themselves.²¹ Through this effort, the SFBRA now has the funding and leverage to support shoreline protection and wetland restoration projects throughout the Bay Area.

7 Include a third party mediator to enhance collaboration and coordination between entities.

Having a neutral facilitator is helpful in making a collaborative function successfully. Such an individual or entity can lend their legitimacy and convening power to a collaboration to help bring people to the table. They can also help individuals work through their “competitive resource” instincts that make each representative fight for finite

²⁰ United States Government Accountability Office. “Chesapeake Bay Program: Recent Actions Are Positive Steps Toward More Effectively Guiding the Restoration Effort.” 2008. GAO-08-1033T

²¹ Robin Meadows. “San Francisco Bay Area Makes History With Wetland Restoration Measure” *NewsDeeply*. <https://www.newsdeeply.com/water/articles/2016/10/14/san-francisco-bay-area-makes-history-with-wetland-restoration-measure>

resources solely for their respective community over the collective community. The third party can help maintain a regional perspective during contentious debates and ultimately steer the commission towards negotiations.

The Institute for Sustainable Communities (ISC) serves as the neutral facilitator and coordinator of the Southeast Florida Regional Climate Compact. They support the implementation of the Compact's Regional Climate Action Plan through tailored workshops focused on implementation challenges, such as integrating climate impacts into land use, transportation and water supply planning.²²

8 Consider having an independent science “arm” or committee to add legitimacy.

The Commission should consider establishing an independent, but “in-house” advisory science committee group that oversees data and science-based research and sets metrics and standards for the group. An independent science advisory committee can add legitimacy and transparency. It can also ensure that the science remains objective and not politicized. In some cases, this can also serve as an avenue for public oversight and participation.

A key element of the Chesapeake Bay Program (CBP) is its Science and Technology Advisory Committee (STAC). Administered by the Chesapeake Research Consortium, STAC is an independent body that generates data and conducts independent reviews over CBP's work.²³ Similarly, the San Francisco Bay Restoration Authority relies on independent science institutions for its data and science methods. Like many of California's agencies, businesses, and NGOs, the Authority's most notable resource is the Bay Area Estuary Institute, which provides stakeholders across the State with independent science support and environmental health data.

9 Create a central data repository to help overlapping organizations find and share data across government levels, institutions, and organizations.

Individual agencies in a shared region often work on similar issues without collaborating with one another, and consequently end up analyzing similar data points and sources. In an effort to solve their unique problems, hundreds of manpower hours are spent identifying, downloading, cleaning, and analyzing the same information. A single data repository, where all relevant scientific institutions can store and share their data, would allow for data sharing in a streamlined, transparent process. It could also create an opportunity for greater public participation through the publication of citizen science monitoring schedules and identification of sampling gaps. How broad an inventory would be and ways to verify or peer-review data are issues that would need to be worked out in the process of creating the repository.

The San Francisco Bay Area's science and environmental community has identified the need for such a data center. The area collectively has several agencies — the Bay Area Estuary Institute, the Bay Area Estuary Partnership, and the Bay Conservation and Development Commission, among others — and an assortment of academic institutions generating environmental data for the same region. To better share information, the agencies are trying to make the Bay Area Estuary Institute the “holder of the region's science.” Pooling data between these entities will help the agencies rely on a single data source and conserve their limited resources, as well as build trust between peers.

10 A successful commission should ideally have a diversified funding portfolio, supplemented by a self-sustaining, revenue-generating source of funding independent from government or grants

There are many ways regional commissions can raise revenue to complete their work, whether from grants, government-supplied revenue, or from a dues structure. However, identifying a way to generate its own source of

²² Institute for Sustainable Communities 2016.

²³ GAO-08-1033T 2008.

funding provides the most financial stability, allowing the entity to more freely carry out its mission. The passage of the San Francisco Bay Restoration Authority's (SFBRA) Measure AA parcel tax guarantees the Authority will have an annual budget of \$25 million per year for the next twenty years, provided directly by taxpayers rather than indirectly through budget allocations from the State legislature. This funding guarantees the Authority will be able to support its operation costs and to fund wetland restoration projects across the Bay Area on a long-term basis. It also lets the authority create higher criteria standards for projects applying for grant funds to abide by, and lets the agency choose the projects it believes will provide the most benefits to the Bay Area's wetlands and residents.

In today's political climate, agencies cannot consistently depend upon receiving federal or state government funding to continue their work. The Louisiana Coastal Protection and Restoration Authority, for example, is primarily funded by State mineral revenue, which can fluctuate between \$13 million and \$25 million per year, and an array of federal funds. While the agency also receives some federal funding and revenue from oil and gas production activity, the CPRA is largely dependent on disasters to fund additional coastal restoration projects. Natural disaster-related funding will grow progressively erratic as the effects of climate change exacerbate nationally, and federal disaster funding must support the rebuilding of more disaster sites.

It is very difficult for a commission to remain effective and fulfill its mission when its financial stability relies on government allocations. The Interstate Environmental Commission (IEC) is heavily reliant on state appropriations to meet non-federal matching funds requirements. This was a particular issue in 2009 and 2010, when New York and New Jersey reduced their budgetary contributions to the statutory minimum of \$15,000, down 95% from what they had contributed in the past. Though the agency receives some federal funding through the Clean Water Act, the reduction in state funding was dramatic, especially since the agency relies on state appropriations to meet non-federal funds match requirements.

Next Steps



NYR-CAN Panel Discussion

Establishing a Regional Coastal Commission focused on long-term adaptation and capitalizing state adaptation trust funds are critically important steps our region needs to take if we are to address the intensifying consequences of climate change along our 3,700 mile coastline. Yet neither can realistically be accomplished overnight. In the short-term, informal collaboratives, such as the New York Region Climate Adaptation Network of municipalities initiated by Regional Plan Association, in partnership with the Lincoln Institute of Land Policy, can help to catalyze fruitful discussions, shared best practices and agreements on science and adaptation standards. But more far-reaching and longer term steps are required.

- ▶ RPA recommends New York, New Jersey and Connecticut designate the coastal counties and municipalities plus any municipality with land at risk from flooding at six feet of sea level rise as areas of special interest and concern.
- ▶ RPA recommends the governors of each state direct these agencies to collaborate in forming a tri-state commission that would advance climate adaptation for the region's entire coastal area.
- ▶ RPA recommends the states also pass legislation to create new public interest entities that can receive the resiliency trust fund monies and pass them through to the commission for projects, and that the state insurance boards issue a new surcharge on insurance.

Appendix: Models Around the Country

RPA reviewed nine regional collaboratives that focus on climate adaptation initiatives, looking to learn from best practices the collaboratives employ, issues faced during their tenure, and their vision for future work²⁴. These case studies serve as models of regional climate adaptation collaboration done well; their successes, along with our region's unique needs, inform the blueprint for the tri-state region's own collaborative.

Interstate Environmental Commission

The Interstate Environmental Commission (IEC) is a joint tristate air and water pollution control agency that serves New York, New Jersey, and Connecticut. Established in 1936, the Commission protects the environment and ensures compliance with and enforcement of its Water Quality Regulations.²⁵ The IEC is unique in that it is both an intrastate regulatory and enforcement agency as well as an interstate agency that has the authority to “cross” state lines.

To achieve its goals, the IEC: coordinates interstate and region-wide water quality programs; provides technical assistance and support to its member States on water quality issues; and enhances public and legislative awareness through water quality education and citizen science. The IEC participates in regional planning efforts; conducts ambient and compliance monitoring; engages in public education and outreach programs with citizen groups and government agencies; and runs numerous research projects related to the region's environmental health.

The Commission has jurisdiction over a designated area that crosses state boundaries, known as the Interstate Environmental District (IED). The IEC's operating budget (2015) is approximately \$1.1 million. Approximately 56% of its funding comes from the US Environmental Protection Agency; 44% from member-State appropriations; and 1% from grants. The agency has a small technical staff that manages its environmental research, planning, and outreach programs, and is directed by fifteen Commissioners (five from each state), all of whom are residents of the state

²⁴ Literature reviews were supplemented with formal interviews with Collaborative representatives and related professionals.

²⁵ Interstate Environmental Commission website. Accessed October 2017. <http://www.iec-nynjct.org/>

they represent. The process for nominating or appointing a Commissioner depends upon the terms provided by the law of the state appointing them.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) is a state planning and regulatory agency focused on protecting and enhancing the San Francisco Bay. Established in 1965, it is the oldest coastal zone management agency in the United States. The BCDC only holds jurisdiction over the San Francisco Bay, the Bay's shoreline band, and the Suisun Marsh — in total, this is more than 1,600 sq. mi. of vital ecosystems and wildlife habitat.

As an agency, the BCDC regulates all filling and dredging activity within the San Francisco Bay; authorizes permits for any fill or material extraction within its jurisdiction; regulates development within the first 100 feet inland from the Bay to protect public access to the shoreline; prioritizes shoreline space for water-dependent industries and wildlife habitat protection; manages the Bay Area's Long-Term Adaptation Strategy; and actively studies the San Francisco Bay and amends the Bay Plan as needed.

In 2008, the California Assembly charged the BCDC with leading the Bay Area's climate change preparedness and resilience efforts. Today, the Agency leads the region-wide sea level rise adaptation planning effort through initiatives like the Adapting to Rising Tides (ART) Program, and addresses the impacts of sea level rise on shoreline communities and assets.

Established in 1965 by the McAteer-Petris Act, the BCDC is one of California's three federally recognized coastal management agencies, the other two being the California Coastal Commission and the California Coastal Conservancy. As a federally-recognized coastal management agency, the Commission receives federal funding from NOAA, though the majority of what is allocated to California by NOAA goes to the CCC. The Commission's power is derived from the McAteer-Petris Act, the Suisun Marsh

Preservation Act, the San Francisco Bay Plan, the Federal Coastal Zone Management Act, and other special area plans, laws, and policies.²⁶

The Commission has twenty-seven commissioners — all of whom are appointed by various agencies and officials — as well as a professional staff that provide Commissioners with technical support and legal services. The agency also consists of three advisory boards and committees.

California Coastal Commission

Established in 1972, the California Coastal Commission is an independent, quasi-judicial state agency charged with preventing overdevelopment and environmental degradation along the coastline, as well as safeguarding it for public access. As one of California's three agencies responsible for administering the federal Coastal Management Act, both a planning and regulatory agency, the Commission manages development along the California coast, except for the shoreline surrounding San Francisco Bay.

In cooperation with coastal cities and counties, the CCC regulates land and water use within California's Coastal Zone: its responsibilities include monitoring development activity in the Coastal Zone, protecting the public's access to the shoreline, and regulating offshore oil and gas development and protecting sensitive marine and coastal resources. Furthermore, the CCC administers and implements sustainability requirements established by the Coastal Act.

Created via a voter initiative in 1972 in response to several land development controversies, the California Coastal Commission was made permanent by the California State Legislature in 1976 through the Coastal Act of 1976. Its mandate stretches over 1,100 miles of shoreline. The Commission is composed of twelve voting members (six locally elected officials, six appointed from the public at large) and three non-voting members representing different state agencies, each of whom serve a four-year term. The Commission also has a professional staff that provides the Commission with technical support, and has an annual budget of \$22.4 million.²⁷

Chesapeake Bay Program

Created in 1983, the Chesapeake Bay Program is a regional partnership that leads and directs the restoration and protection of the Chesapeake Bay. To manage the Chesapeake Bay Watershed — approximately 64,000 sq. mi. of land

spread across six states and Washington, D.C. — the Program breaks down into different committees, work groups, and action teams. This allows it to cooperate with 19 federal agencies, nearly 40 state agencies within its participatory states, approximately 1,800 local governments, over 20 academic institutions, and more than 60 non-governmental organizations. In 2000, the Governors of New York and Delaware joined the Bay Program's restoration efforts. The Governor of West Virginia followed suit in 2002.

The Program is led by its Chesapeake Executive Council, which is responsible for establishing the policy direction for the restoration and protection of the Bay and its living resources; leading public support for the Bay effort; and signing directives, agreements, and amendments that set goals and guide policy for Bay restoration. The Council is accountable to the public for progress made under Bay agreements. Members of the Executive Council include the Governors of Maryland, Pennsylvania, and Virginia; the mayor of Washington DC; the administrator of the US Environmental Protection Agency, and the Chair of the Chesapeake Bay Commission (a Tri-state legislative body that serves Maryland, Pennsylvania, and Virginia).²⁸

The Chesapeake Bay Program was created by the Chesapeake Bay Agreement of 1983, and is managed by the US EPA and staffed by employees from several federal and state agencies, nonprofits, and academic institutions. It also collaborates with 35 partner agencies. The CBP receives \$20- \$25 million in annual appropriations from Congress.

Louisiana Coastal Protection and Restoration Authority

The Louisiana Coastal Protection and Restoration Authority (CPRA) is a state entity responsible for planning, designing, and implementing coastal protection and restoration projects. It was established in 2005 during a special session of the Louisiana State Legislature to address recovery issues post- Hurricanes Katrina and Rita. The CPRA emerged as the State's effort to unite piecemeal local and state coastal protection efforts under a central authority that would represent the State's wishes, oversee all activities and funds, and coordinate a plan of action with clear goals and achievable objectives. When the agency formed, it was charged with developing and creating a Comprehensive Coastal Protection Plan that would be updated every five years.

The CPRA is divided into two distinct entities: the CPRA Board and the CPRA Authority. The Board represents the state's policy position relative to the protection, conservation, enhancement, and restoration of the state's coastal region. It oversees the Coastal Protection and Restora-

²⁶ Jonathan Smith and Alan Pendleton, San Francisco Bay Conservation and Development Commission: Challenge and Response After 30 Years, Golden Gate University Law Review, 1998.

²⁷ Dan Weikel. "Coastal Commission is on a shoestring budget, and Trump won't make it better." Los Angeles Times. May 6, 2017. <http://www.latimes.com/local/lanow/la-me-ln-funding-coastal-commission-20170506-story.html>

²⁸ Chesapeake Bay Program website. Accessed October 2017. <https://www.chesapeakebay.net>

tion Trust Fund; updates the State's Coastal Master Plan every five years; creates annual plans for integrated coastal protection projects that focus on protecting, conserving, and enhancing the coastal region. The Authority, in turn, acts as the Board's implementation and enforcement arm. It is responsible for executing the Board's Master Plan and Annual Plans; implementing and inspecting storm damage and flood control measures within the coastal area; administering the Board's programs; and overseeing the administration of all matters related to the study, planning, engineering, design, construction, improvement, repair, and regulation of integrated coastal protection.²⁹

The agency's annual budget can range from \$13-25 million, and is primarily derived from mineral revenue. However, the agency also receives federal funding from FEMA and HUD, state funding, and some funding from Deepwater Horizon. In fact, many of the coastal enhancement projects in the CPRA's 2012 Master Plan update are funded by Deepwater Horizon money. The agency holds jurisdiction over Louisiana's Coastal Zone and contiguous areas that are subject to storm or tidal surge (its "Coastal Area").

San Francisco Bay Restoration Authority

The San Francisco Bay Restoration Authority (SFBRA) is a regional government agency responsible for raising and allocating resources for the restoration, enhancement, and protection of wetlands and wildlife habitat in the San Francisco Bay and along its shoreline, as well as for associated flood management and public access infrastructure (San Francisco Bay Restoration Authority, 2016). The authority was created in 2008 by the California State Legislature to access and raise new local funding sources for the Bay's restoration.

What sets the SFBRA apart from Coastal Management agencies like the California Coastal Commission, the California Coastal Conservancy, and the BCDC is that the SFBRA's focus is specifically on restoration.

The SFBRA has financial authority in its ability to: raise funds and award grants for projects within the Authority's jurisdiction; levy special taxes or property-related fees; issue revenue bonds; incur debt; apply for and receive grants from federal and state agencies; receive and manage a dedicated revenue source; and solicit and accept gifts, fees, grants, and allocations from public and private entities.

The Authority is managed by a seven-member Governing Board composed of local elected officials from each Bay region. Each representative gets one vote and there is no

specific term duration. All are elected to their position by their local constituents and then appointed to the Board by the Association of Bay Area Governments. The agency also has an Advisory Committee and an Independent Citizens Oversight Committee. The agency's authority extends throughout the "San Francisco Bay Area," meaning "within the State Coastal Conservancy's San Francisco Bay Area Conservancy Program." (Authorizing Legislation, Updated as of 2015). Its boundaries include Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

The SFBRA gives priority funding to projects that meet the selection criteria of the State Coastal Conservancy's San Francisco Bay Area Conservancy Program and are consistent with the BCDC's coastal management program for the San Francisco Bay segment of the California coastal zone and the San Francisco Bay Joint Venture implementation strategy updated list of Ongoing and Potential Wetland Habitat Projects.

The Authority uses technical support and temporary staff provided by various state agencies or the Association of Bay Area Governments. It has the power to enter into and perform all necessary contracts, as well as enter into joint powers agreements pursuant to the Joint Exercise of Powers Act.

Southeast Florida Regional Climate Compact

The Southeast Florida Regional Climate Compact is a collaborative effort between four counties in Southeast Florida to develop regionally consistent resilience and adaptation strategies. The Compact was formally adopted in January 2010 by the Commissioners of Broward, Miami-Dade, Monroe, and Palm Beach Counties. In signing the Compact, participants agreed to: dedicate staff time and resources to develop and implement a Regional Climate Action Plan for the Counties; craft joint policy positions on both State and Federal legislature related to energy and climate-mitigation and resilience; develop preliminary inundation mapping and regionally consistent sea level rise projections for the coming decade; and create a uniform technical foundation for regional climate issues.

The Compact's structure and activity methods emphasize collaboration, data sharing, voluntary approaches, and scientific coordination. The Institute for Sustainable Communities, South Florida Water Management District, The Nature Conservancy's Florida Chapter, and Florida Climate Institute work with the Compact as key Partners to help ensure the Compact's commitments are fulfilled. The Compact also has several Committees and Working Groups that work on specific issues as needed. Federal agencies including the US Army Corp of Engineers, NOAA, and the USEPA

²⁹ Louisiana Coastal Protection and Restoration Authority website. <http://coastal.la.gov/>

help advance the Compact's work by providing relevant local and regional organizations with technical support, information-sharing tools, and funding to implement the Compact's goals. The Compact brings different levels of decision makers, both governmental and nongovernmental bodies, together to integrate policies and build supportive coalitions. This helps ensure the Compact's objectives are met and fully integrated.

Its primary decision-making body is the Staff Steering Committee. The Steering Committee includes two high-level staff members from each participating county, four non-voting municipal representatives (one from a city in each county), and one non-voting member from the South Florida Water Management District. All members of the Steering Committee are senior professional staff, who serve across the terms of elected officials. When making decisions, each county has two votes, regardless of its geographic size or population.

Bay Area Regional Collaborative

The Bay Area Regional Collaborative (BARC) is a formal consortium of four Bay Area agencies to address crosscutting, multifaceted regional issues under the lens of climate change. BARC's four member agencies — the Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District, Metropolitan Transportation Commission (MTC), and San Francisco Bay Conservation and Development Commission — work collaboratively to coordinate policies and best practices, leverage resources, and provide better services to the region's local governments and special districts undertaking climate change adaptation efforts.

The Collaborative coordinates agency action on national and state legislation related to climate change, as well as coordinate multi-laterally on the adaptation projects they each undertake. A benefit of the collaborative is that it clearly distinguishes members' roles and responsibilities over climate initiatives, as well as fosters links between regional, state, and federal programs. It also provides the agencies with a coordinated regional voice to support policies benefiting the Bay Area.

BARC is led by an Executive Director, who is responsible for creating an annual work plan that projects two years of the Collaborative's efforts. The collaborative's Governing Board approves the organization's work plan and budget. The Executive Directors Group, composed of the executive director of each member agency and BARC's Executive Director, meet every two months to share information, coordinate and address policy and program issues, and identify issues that would benefit from coordination across the agencies. The organization also has additional staff cross-agency work teams. BARC is supported by annual contributions from its member agencies, which can change

annually. The primary administrative functions of the Collaborative — including web posting, noticing, and support at meetings — is provided by ABAG and MTC.³⁰

Puget Sound Regional Council on Climate Resiliency

The Puget Sound Regional Council on Climate Resiliency (PSRCCR) is an informal regional climate collaborative in the central Puget Sound region of Washington. The Collaborative represents several entities working on climate adaptation efforts in the region, including the Puget Sound Regional Council, the City of Seattle, Snohomish County Department of Emergency Management, University of Washington, Port of Seattle, King County, and Pierce County.

The Collaborative's mandate includes roughly four million residents and two million jobs across two urban centers, several suburban and rural communities, and two ports.

The collaborative's goal is to unite the region's government, academic, and business stakeholders behind resiliency measures, address them more effectively in planning activities, and align planning around common data sets and management strategies. As of 2015, the Collaborative is working with ISC to develop a governance structure and create an agenda for resiliency action.³¹

³⁰ Bay Area Regional Collaborative: Organizational Plan. 2015. http://bayarearegionalcollaborative.org/pdfs/BARC_Org_Plan_Aproved_2015_3_20.pdf

³¹ "Puget Sound Regional Council on Climate Resiliency." Institute for Sustainable Communities, 2017. Web. <http://us.iscvt.org/team/puget-sound-regional-council-on-climate-resiliency/>



Regional Plan Association

Regional Plan Association is an independent, not-for-profit civic organization that develops and promotes ideas to improve the economic health, environmental resiliency and quality of life of the New York metropolitan area. We conduct research on transportation, land use, housing, good governance and the environment. We advise cities, communities and public agencies. And we advocate for change that will contribute to the prosperity of all residents of the region. Since the 1920s, RPA has produced three landmark plans for the region and is working on a fourth plan due out in 2017. For more information, please visit, www.rpa.org.

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