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# IMPLEMENTING RESILIENCE:
## THE BARRIERS AND OPPORTUNITIES IN INVENTORYING NATURAL RESILIENCY PROJECT PROPOSALS

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WETLANDS WATCH

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Sea Level Rise

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Virginia Coastal Zone
MANAGEMENT PROGRAM

Thank you to the list of interviewed stakeholders included on page 22. Special thanks to Shep Moon, Laura McKay, and Wetlands Watch staff Skip Stiles, Mary-Carson Stiff, and Mennen Middlebrooks.

## ABOUT WETLANDS WATCH

Wetlands Watch, an environmental non-profit located in Norfolk, Virginia, operates statewide to conserve and protect wetlands through education and advocacy. Sea level rise is the biggest threat to our tidal wetlands; we work with local governments to encourage nature based adaptation solutions to sea level rise adaptation.

Wetlands Watch, Inc. 2019

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www.wetlandswatch.org

**COVER PHOTO** NOAA Restoration Center, Erik Zobrist

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Sea Level Rise

*In an effort to broaden public engagement in sea level rise adaptation, Wetlands Watch developed an app to track flooding. The logo above is from the "Sea Level Rise" app, downloadable on all app stores.*

# WETLANDS WATCH

*Protecting and Conserving Wetlands*

## EXECUTIVE SUMMARY

Wetlands Watch was tasked by the Virginia CZM program to engage a diverse set of stakeholders to solicit feedback on the development of a natural resiliency project proposal database. This report summarizes that feedback, and provides a primer on the structure, organization, and maintenance of this Database.

Lessons learned from our outreach activities indicate that, without a direct funding opportunity available, the Project Database may benefit stakeholders at the state level more so than potential applicants at the local level. **To encourage localities to participate in this process, there needs to be a way to show return on investment, or there is no incentive to populate the Database.**

Asking localities to dedicate staff time to develop full project proposals without providing funding is a hard sell. While a highly polished proposal may attract the attention of a grant-maker, the Database does not act as a "gatekeeper" to specific funding opportunities.

To address this challenge, Wetlands Watch has developed an inventory of grants to incorporate within the Database. There is value in matching projects to eligible grant opportunities, but it is also rare to find a full project proposal (with preliminary design work and cost estimates) that doesn't have an existing funding source.

To further incentivize usage, Wetlands Watch has explored a suite of emerging tools and programs that can provide added value by working in tandem with the Database. It is critical to promote the development of "shovel ready" projects at the local level not only for new funding opportunities, but to prepare communities in advance of a natural disaster.

**If we aren't planning and prepared before a disaster, recovery funding will be directed to states who have a plan in place.**

Virginia's Coastal Resilience Master Plan has the potential to act as a catalyst for this work. With the prospect of new state funding on the table, localities can be incentivized to develop more detailed resilience-building proposals in innovative new ways.

If Virginia's Plan follows the model of the Texas Coastal Resiliency Master Plan, proposals will be scored within three tiers based on feasibility and benefits. The Database can add value to these proposals. It provides an avenue to identify potential partners to enhance future submissions. It can be used in tandem with resources available on AdaptVA.org, as well as new tools like ConserveVA, which identifies areas with the greatest ecological value that score higher in funding streams like the Virginia Land Conservation Fund.

Wetlands Watch is currently working with VIMS on a Natural and Nature-Based Feature prioritization tool, which uses inundation pathways (IPs) to identify targeted areas for restoration or project implementation, analyzing the number of buildings a specific NNBF can protect. These metrics could improve a proposal's rating for state prioritization, with the added benefit that it prepares a locality for future funding opportunities, whether through a new grant opportunity, or in response to a natural disaster.

Beyond the Master Plan, Wetlands Watch can leverage our existing outreach activities to move beyond soliciting for project proposals, and start informing project proposals. An upcoming workshop in the Middle Peninsula will provide a testbed for the idea that localities and local partners will commit the time and effort to develop "shovel ready" project proposals when given a financial incentive to do so, and Wetlands Watch's work as a boundary organization can help inform and enhance those plans to maximize benefits.

# TABLE OF CONTENTS

1. INTRODUCTION....1

2. DATABASE NEEDS ASSESSMENT: BENEFITS & BARRIERS....3

A. Benefits of the Database....3

B. Feedback from Non-local Stakeholders....5

C. Structure/Hosting Considerations....7

D. Limitations/Barriers....8

3. DATABASE COMPONENTS....9

A. Project Types....9

B. General Metrics....10

C. Accessing the Database....11

4. INFORMING SITE SELECTION....14

5. OPPORTUNITIES FOR THE BENEFICIAL USE OF DREDGED MATERIAL....17

6. STATE COASTAL MASTER PLANNING....18

A. Texas....18

B. Louisiana....19

C. Virginia....20

7. CONCLUSION....21

8. APPENDIX....22

A. Interview and Workshop Participants....22

B. Database Workshop Agenda....24

C. Project Inputs: Available Resources....25

D. Narrative Example: Texas Master Plan Cut Sheet....28

# INTRODUCTION: THE NEED FOR A PROJECT PROPOSAL DATABASE

Natural and nature-based features (NNBFs) can mitigate the impacts of flooding and storm surge on coastal communities, while providing critical habitat and improving water quality. Over time, sea level rise can diminish these resources and the benefits they provide. As rising seas and increased precipitation events increasingly impact the built environment, it is critical to restore and protect natural floodplain functions to enhance community resilience.

One of the actions recommended in the Virginia CZM Program's 2016-2020 Section 309 Coastal Hazards Strategy is to develop a coastal resiliency database to identify proposed natural resilience-building projects. The goal of this inventory is to provide a tool that helps position Virginia to obtain grants from various funding sources, and to develop an understanding of where resilience-building projects are being planned to inform a more strategic approach to coastal resilience. This need has been underscored recently by several grant opportunities that have been challenging for Virginia applicants, given short application timeframes, limited information, and exacting eligibility requirements.

To move this action forward, Wetlands Watch has facilitated a collaborative effort among a wide range of stakeholders, including member agencies of the Virginia Coastal Policy Team, the Office of the Secretary of Natural Resources, the community of funders, localities, non-profits, and planning district commissions (PDCs). The goal of the project has been to design a database with the flexibility to connect projects with applicable funding streams, identify potential collaboration between stakeholders, and identify priority areas based on a range of initiatives, including the recently announced ConserveVA, the beneficial use of dredged materials, and NNBF analysis.

We presented these initial ideas at the January 2019 CZM Coastal Policy Team Meeting. Feedback shifted the scope and delivery of the database. Initially, we considered a coastal-zone wide survey focused solely on natural infrastructure, but stakeholder response was strongly in favor of broadening the scope of the database. Many of the benefits of this inventory to state agencies consists of quantifying the need for additional funding. Limiting the database to natural infrastructure ignores our most expensive infrastructure needs. Additionally, the challenges facing coastal communities don't stop at the shoreline. Aging infrastructure and increased rainfall limit the efficacy of overwhelmed stormwater systems, making stormwater management an important consideration to achieving resiliency goals. As such, the scope of the database is purposely broad. A full breakdown of project types to be incorporated is listed on pg. 9.

The comprehensive scope of this project has added a layer of complexity to the challenge of identifying matches between grants and project proposals. Metrics for a living shoreline project vary considerably when compared to a wetlands restoration, and vary greater still when compared to a traditional structural intervention. Another challenge consisted of identifying useful metrics that, more often than not, are unavailable for proposed project sites. At the local level, administrative time is often quite limited, and if a project has advanced far enough to have detailed cost estimates, engineering plans, or quantifiable metrics, it likely has a funding source.

The Database alone doesn't address many of the barriers potential grant applicants face.

Localities will continue to experience challenges in obtaining matching funds and producing successful applications in short turnaround times when RFPs are released. However, with more funding available, there will be a direct incentive to conduct this time-intensive planning work. An upcoming NOAA Nearshore Habitat Restoration Workshop planned for the Middle Peninsula in September will be an excellent model to test this idea, and may be a precursor to similar efforts to develop proposals for Virginia's Coastal Master Plan. As localities submit projects for state funding, they will be creating the "shovel-ready" projects that are necessary for many grant programs, especially FEMA funding following a natural disaster.

In short, the resiliency proposal database can have significant value to a range of stakeholders. However, it's efficacy will depend on a variety of factors, one of the largest being the availability of state funding. A number of challenges have arisen throughout the development of this product, but we feel confident they can be addressed. By incorporating funding resources for potential applicants, working with our partners to develop priority proposals rather than request them, and leveraging new funding streams as the basis for project development, we can compile this information while benefiting a diverse range of stakeholders and helping localities, whether in the wake of an emergency or in advance of new sources of money, to be prepared.

# DATABASE NEEDS ASSESSMENT: BENEFITS & BARRIERS

Feedback on the database was received through a variety of avenues, including phone interviews, face to face meetings, webinars, presentations, and workshops. A wide range of stakeholders were engaged, from localities, regional, state, and federal agencies, non-profit organizations, and the community of funders. The section below summarizes information from this outreach work, including a December 2018 webinar with the Northern Virginia Regional Commission, the January 2019 Coastal Policy Team meeting, the 2019 Marsh Resilience Summit, and the May 2019 Database Workshop held at the Virginia Institute of Marine Sciences. A full list of participants is available on Page 22.

## *Benefits of the Database*

### Enhanced Coordination

There is a benefit to identifying opportunities to combine projects and increase collaboration, which is often done as an ad-hoc process. The James River Association and the City of Hampton were able to partner on a FY18 NFWF Coastal Resilience Fund Grant, and if the database can increase those opportunities, it will have value. Wetlands Watch's role as a boundary organization will be valuable to engage with NGOs and NPOs, helping identify projects that may go under the radar at the PDC level.

Provides an opportunity to see what work other localities are doing, and what grants are being applied to. Could help to reduce silo'ing and communication breakdowns between local planning departments and implementable departments like public works.

Identifying opportunities to use dredged materials for natural infrastructure projects is difficult due to the need to align project implementation schedules, so holding that information in one resource would be could be helpful.

One of the barriers noted during the FY18 NFWF Coastal Resilience Fund grant was a lack of engagement from the state during the RFP period. The database, combined with a targeted outreach campaign, can help address this for future grant opportunities.

### Prioritization

The database may help localities "check the box" for grants requiring prioritization. Namely, if a locality inputs the project into the database, it could be shown to be prioritized. While this isn't a requirement in every grant opportunity, the funders that do require this metric typically accept a wide range of planning documents and outcomes to consider a project prioritized.

### Quantifying the Cost of Resiliency

Quantification helps present the case for need. One interviewee gave an example: When developing incentives for agricultural BMPs, it was a challenge to quantify the need until decision-makers knew how many farmers were willing to fence their streams in. As Virginia develops its Coastal Master Plan, we need to give Ann Phillips

a tool that says, "We need X million dollars for projects that have been prioritized, and here's how it would be spent". A recent study by the Center for Climate Integrity, "High Tide Tax", estimated that the cost of constructing sea walls to protect Virginia's public infrastructure from sea level rise would be over $31 billion by 2040[1]. These numbers are difficult to comprehend, and identifying specific actions within the state may help to illustrate the severity of the issues at hand.

## Engaging Rural Localities

This inventory may be especially beneficial to the rural localities, as cities in Hampton Roads have more capacity to plan proactively. Feedback from the Database Workshop indicated that an annual gathering for rural localities may help with project solicitation. Amber Ellis from the James River Association noted that they are forming a Living Shoreline Collaborative, which includes bridging the rural and urban localities in Hampton Roads, particularly utilizing Hampton staff to come to rural counties to visit sites, share lessons, and see what issues local staff are facing in those very different environments.

## Grant Inventory/Calendar

The addition of a grant inventory was met with enthusiasm. This helps to meet one of the original goals of the database by identifying projects that are eligible for various funding streams. At the Coastal Partners meeting, one PDC director noted this was the most valuable component of the project for localities, and the inclusion of a calendar view is helpful to remember upcoming grant deadlines.

## Identifying Beneficial Uses of Dredged Material

There is strong support for identifying sites for the beneficial use of dredged material through many localities, PDCs, and state agencies. However, this support is not unanimous. Several stakeholders within regional NPOs, as well as within the Office of the Secretary of Natural Resources, have expressed concern that new dredging activities should not use the potential benefits of spoils for building natural resiliency as a justification for permitting and approval. The general worry can be summarized as wanting to ensure that dredging isn't a "trojan horse", considering its environmental implications. While there are a number of obvious areas for continued dredging activities, care should be taken to ensure that a beneficial use tool not be used to justify bad decisions. While not all stakeholders support dredge as fill, there was common support for using dredged materials to build marsh.

1 Sverre, LeRoy, and Richard Wiles. "High Tide Tax: The Price to Protect Coastal Communities from Rising Seas." The Center for Climate Integrity, 2019, www.climatecosts2040.org/files/ClimateCosts2040_Report-v4.pdf.

## *Feedback From Non-local Stakeholders*

### Non-Profit Organizations

General agreement that the highest value of this project is to the state, but that it can also help NPOs characterize the demand and need for additional funding. As a large portion of the community of funders is prioritizing implementable projects, it can be challenging to obtain philanthropic support for organizations without construction or conservation arms.

Christy Everett of the Chesapeake Bay Foundation noted that grant support is among the most helpful resources for NPOs. Anything that makes potential applicants nimble as grants come out will have value. The grant inventory's calendar view could be especially useful to help applicants who have to align funding sources to find matching funds. Stakeholders from the Alliance for the Chesapeake Bay echoed this sentiment, noting that the funding component could be quite useful not just to localities, but to non-profit organizations as well.

### Community of Funders

Feedback indicted the merit in seeing a list of local priorities to identify projects that are cost-efficient, or especially significant within the coastal zone. Much of the value of the Database lies in identifying gaps and needs funders may be missing. Response was mixed as to whether a comprehensive database would inform funding priorities. Some interviewees found more value for state agencies that have a direct role in project selection, as opposed to a funder that solicits proposals. However, other grant-makers noted that a database consisting of localities top priorities could in fact help shape future funding opportunities, and could potentially lead to the organization reaching out directly to encourage an application. NFWF was enthusiastic about the database, noting that they have recommended states undertake a similar process in the past.

As expected, most funders are interested primarily in implementable projects over initial planning processes. In regards to research needs, the funders we spoke with were more interested in practical projects researching specific policies or regulations, as opposed to research solely for the sake of knowledge.

Funders indicated a desire to incorporate baseline data and socioeconomic factors to judge project successes. This will be a priority moving forward, and will require early data collection and monitoring to create proof of concepts.

Expected outcomes should be included within project narratives. It can be difficult to indicate how worthwhile a project can be if the only metrics included are things like linear ft. of shoreline restoration. It is important to consider new indicators to determine what outcomes are critical, beneficial, or complimentary. Timelines are another important element to grant-making organizations, who think about how their money is being spent in the near-term.

## State Agencies

The broad scope of the database is helpful to agencies like DCR and VDEM. DCR has had a desire to work on a state-wide database, potentially through their annual risk reduction meetings. DCR also noted the need to utilize VFRIS (which is already located in AdaptVA), as projects in the floodplain can receive CRS credit or be eligible for certain funding. VMRC has also expressed interest in this project's development, particularly as it pertains to finding sites for dredged material use.

Many state-level stakeholders recommended connecting this initiative with ConserveVA. We have had initial conversations about incorporating ConserveVA into the AdaptVA viewer, which could provide another resource for grant applicants.

Increasing collaboration is a big priority in the development of the Coastal Master Plan. OSNR is considering ways to incentivize projects that partner multiple localities or non-profit organizations. When inventorying the status of resiliency projects, OSNR has prioritized identifying large infrastructure projects being implemented, with green infrastructure/NNBFs coming in as complementary projects. This is not to undervalue the need for natural infrastructure, but rather to look at the big picture and then identify targeted areas for restoration/enhancement. There have been difficulties in getting a comprehensive inventory of USACE projects, a problem compounded by the large backlog of USACE priority projects that remain unfunded.

## Federal Agencies

Primary value is to the Commonwealth, but there is a benefit to NOAA if this process facilitates collaboration, by serving as an example for other coastal states. Virginia's resiliency needs are especially diverse in comparison to Louisiana, which has more commonalities between geographies and types of projects. There is an inherent level of competition between agencies and universities competing for research money, and the same issues apply between localities. Identifying areas of collaboration instead of competition is something to get excited about, as there are projects available that can create synergies across boundary lines.

## *Database Structure/Hosting Considerations*

### Hosting

There was a consensus that AdaptVA is the best location for the Database, as stakeholders largely agreed there isn't an ideal fit at a state-level agency. AdaptVA, a resource developed by the Virginia Institute of Marine Science, the Virginia Coastal Policy Center, and Wetlands Watch, acts as a Virginia-specific information portal to inform coastal resiliency implementation, adding additional value through its existing resources. We have not yet listed the inventory on AdaptVA as we are still actively inputting data, but the database can be embedded directly, and all information can be downloaded into an excel file from the existing viewer. The keys are maintaining flexibility and ensuring data remains exportable.

Opportunity to crosswalk GIS data from proposals into the AdaptVA comprehensive viewer, which has information on things like social vulnerability, critical facilities, Special Flood Hazard Area (SFHA), future inundation areas, etc. As a related benefit, participants believed the grant database can help drive traffic towards the AdaptVA, increasing its utility.

Stakeholders liked Airtable, the software used to construct the Database. One of the larger benefits to choosing a spreadsheet/database hybrid to hold project information is the ability to upload documents into individual records. As such, we can begin to incorporate additional data over time without creating unwieldy table views. The flexibility of adding multiple project types to single records, expanding record views, and the ability to submit projects online was also appreciated.

### Database Scope and Project Fields

"We don't always think blue/green/grey… but we should". Projects need to include hard armoring, structural, and hybrid solutions. Anything less paints an incomplete picture, and fails to accurately quantify resiliency needs. If we willingly leave out these expensive proposals, we are underselling both the severity of the issue, and the need. There is value in using this tool to drive the discussion on policy change at the state and federal level, where agencies have even greater struggles with communication and siloing.

Important to include time frames, whenever possible, which is especially important when considering the beneficial use of dredged materials as timing needs to align between a dredging project and a natural infrastructure project.

Identifying local and regional priorities is a very valuable component to include. If a given locality has 12 projects listed within the database, decision-makers want to know how they are prioritized.

### Project Input and Solicitation

Near consensus that the PDCs will be key points of contact. There is already a great deal of information available in some regions. For example. the HRPDC has recently released a dashboard tool to track resiliency projects. This information will be shared as data layer on hrgeo.org. The Northern Virginia Regional Commission has also begun working with the Metropolitan Washington Council of Governments to

inventory resiliency programs and plans, which is currently in a draft form.

### Maintenance

Maintaining the database is critical to its functionality. Previous experiences with state databases (nationally) highlight the challenges in keeping an inventory updated. Note: Wetlands Watch is continuing this effort by reviewing publicly available planning and programmatic reports to identify potential projects and priority areas. Upcoming meetings with several of the coastal Planning District Commissions will allow for further solicitation of project proposals, and Wetlands Watch has applied for a grant to continue this outreach/solicitation work into the future.

## *Database Limitations/Barriers*

### Competition for Funds

The diversity of interests within the state creates an obstacle for cooperation, with NPO's, localities, and regions all in competition for the same pots of finite resources. Stakeholders may be hesitant to "show their cards", acting as a disincentive to publicize priority projects seeking grant funding.

### "Getting the Right People in the Room"

Especially with FEMA funding, it is challenging getting the necessary stakeholders together to collaborate. "Local emergency managers aren't out looking for grants, they're putting out fires". Local departments responsible for implementation focus more on day to day operations, rather than planning for and seeking funding. This disconnect was noted by multiple stakeholders.

### How do we Incentivize Local Participation?

Preparing and submitting projects within the database will take a considerable amount of local staff time, especially to fully flesh out proposals. One of the larger challenges is the inventory's focus on unfunded projects. Typically, if a locality has taken the steps to prioritize a project and develop preliminary design work and cost-estimates, there is already a funding stream in place.

One of the motivating factors to begin this inventory arose from the FY18 NFWF Coastal Resilience Fund seeking proposals with full environmental and design work. While NFWF's FY19 RFP was amended to provide more money for planning activities, this issue may arise in future opportunities. While this roadblock is not addressed by the Database, recent legislation creating a fast-track permitting program for the disposal of dredge may improve response time for potential applicants who can use this material for natural infrastructure projects.

Wetlands Watch is addressing these limitations in several ways. Projects can be submitted by any user through an online form quickly and easily as they become available. The incorporation of a grants inventory/calendar also incentivizes users to view the database, as does the opportunity to generate potential partnerships. Funding metrics increasingly value collaboration with multiple organizations, and the inclusion of NPO proposals may help identify sites where projects can be mutually beneficial and combined into a single proposal. Our outreach activities

provide an opportunity to review and use new prioritization tools to help inform project proposals, rather than request them. Perhaps most importantly, we continue to collaborate with the Special Assistant to the Governor, Ann Phillips, as she spearheads the state's Coastal Master Plan, which creates an opportunity to disseminate local knowledge.

# DATABASE COMPONENTS

## *Project Types*

As previously noted, the database seeks to be as comprehensive as possible. We initially focused on NNBFs, which are natural features or those engineered to mimic natural functions like a living shoreline, but have expanded the project types to include hybrid structures (combining green infrastructure with traditional armored solutions), as well as stormwater management improvements, critical facilities repair, and nonstructural risk reduction, among others. Many proposals incorporate multiple projects, and as such, multiple project types can be inputted into project records.

**Natural and Nature Based Features (NNBF)**

- Habitat Creation/Restoration/Enhancement
- Wetlands/Marsh Creation
- Oyster Reef Creation
- Living Shorelines

**Nonstructural Risk Reduction**

- Floodproofing
- Infrastructure Elevation
- Acquisition/Buy-Outs
- Small-scale berms/floodwalls

**Structural Risk Reduction**

- Large-scale floodwalls
- Floodgates/Tidegates
- Pump Stations

**Shoreline Protection**

- Breakwaters, Jettys, Groins
- Living Shorelines and Green/Grey Hybrids
- Beach Nourishment
- Dune Restoration
- Bank Stabilization

**Stormwater Management**

- Green Infrastructure
- Drainage Improvements

- Stormwater Improvements

**Critical Facilities**

- Dam Repair/Maintenance
- Critical Facilities Upgrades/Floodproofing

## *General Metrics*

These fields apply to all proposals, regardless of project type.

1) ID #: Generated by Wetlands Watch to organize accompanying files and lat/long data.

2) Project Name

3) Project Type

4) Locality (or Localities): Where projects will be sited

5) Priority: Many of the projects currently available on the database have specific priorities listed, through the hazard mitigation planning process or otherwise. It may be beneficial to increase the metrics available for this field to include three ranges. Local Priority (Low, Moderate, High). Regional Priority (Low, Moderate, High), State Priority (Low, Moderate, High).

6) Estimated Total Cost: As this database is comprised of projects with varied stages of planning/design work, many proposals will not have detailed cost estimates. Projects with detailed data should include them within the project narrative. This may include; 1) detailed matching fund availability, 2) estimated planning engineering and design costs, and 3) estimated operations and maintenance cost.

7) Project Lead

8) General Location

9) Latitude/Longitude

10) Project Phase: Planning, Preliminary Design & Site Assessment, Final Design & Permitting, Project Implementation

11) Project Narrative:

At this point, the majority of Narratives consist of existing planning and design documents. When available, these are valuable additions to the records, and may include; 1) required permits & status, 2) existing design reports, 3) existing survey information, 4) existing geotechnical information, 5) estimated P/E&D duration, and 6) estimated construction duration. The “cut sheet” provided in the Appendix, from the Texas Coastal Resiliency Plan, provides a useful template for future narratives. The exact form desired will be impacted by forthcoming workshops and the first submittal of the Virginia Coastal Master Plan (expected in September 2019). As we move towards more detailed proposals, this provides a space to incorporate specific metrics often requested by grantors.

## *Project-Specific Metrics*

These metrics are informed by several national grant opportunities, as well as the criteria identified by the Coastal Master Plans in Texas and Louisiana.

**Habitat Restoration**

- Marsh/Wetland Restoration: Created/Enhanced Acres
- Oyster Reef Restoration: Created/Enhanced Acres
- In-Stream Restoration: Miles Restored
- Reforestation: Acres Restored

**Environmental Benefits**

- Ecological Services Provided
- Nutrient Uptake
- Erosion Control (lbs of sediment prevented from entering system)
- Number of Trees Planted
- Acres of invasive plants restored

**Risk/Community Benefits**

- Number of Critical Facilities or Infrastructure Within Radius of Enhanced Protection
- Number of Properties with Enhanced Protection
- Number of People Protected

**Community Engagement**

- Environmental Justice
- Capacity Building
- Number of Organizations Engaged
- Number of Individuals Reached by Outreach, Training, or Technical Assistance Activities
- Number of Volunteers Participating

## *Accessing the Database Online*

### Project Database/Grant Inventory & Calendar

**Link: http://bit.ly/VAdatabase**

**Link: https://airtable.com/shrr07kyyIwdaNK2H**

### Project Submittal Form

**Link: http://bit.ly/SubmitVAdatabase**

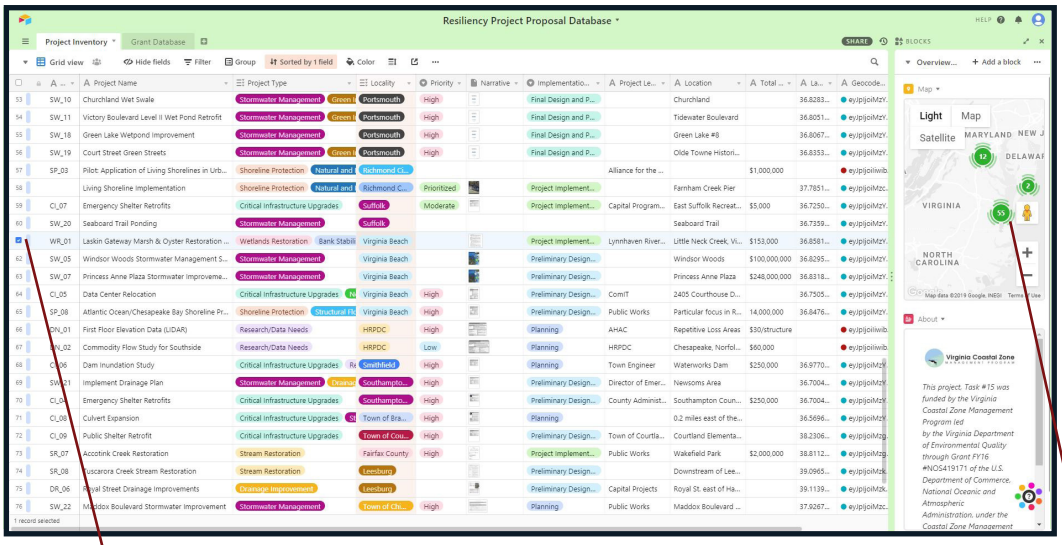
**Link: https://airtable.com/shrHQbWWnPhZAqaqa**

### Grant Submittal Form

**Link: http://bit.ly/SubmitGrant**

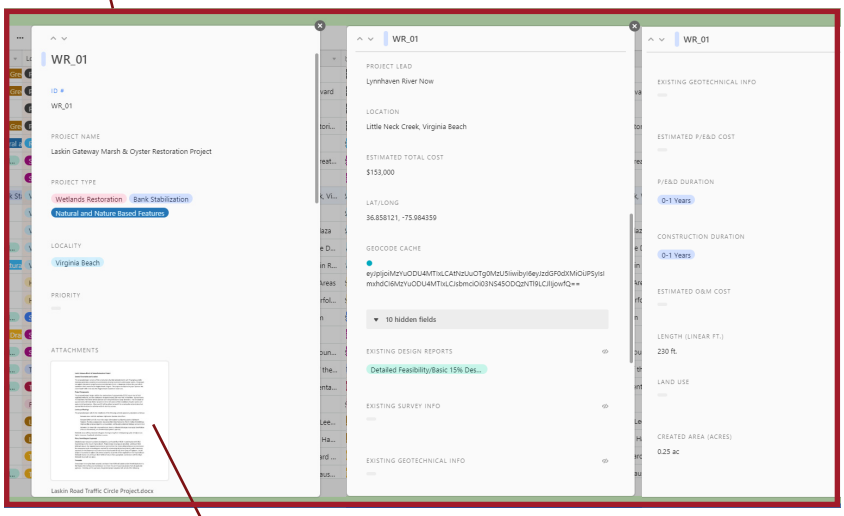
**Link: https://airtable.com/shrUC7n5frWaol2S8**

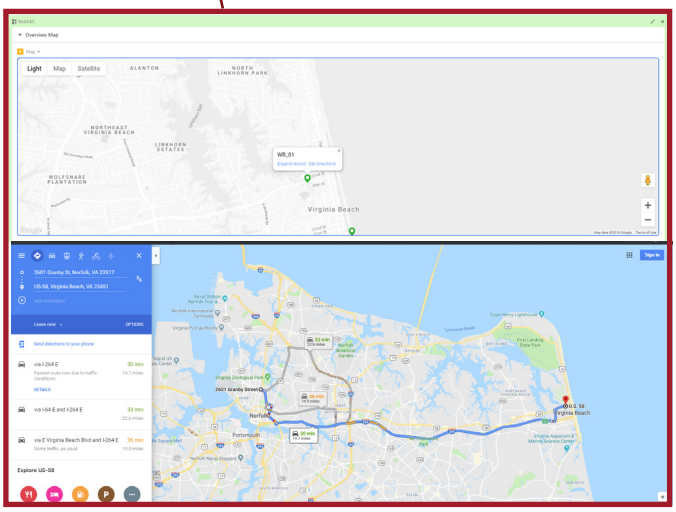
## *GRID VIEW* | Resiliency Project Proposal Database

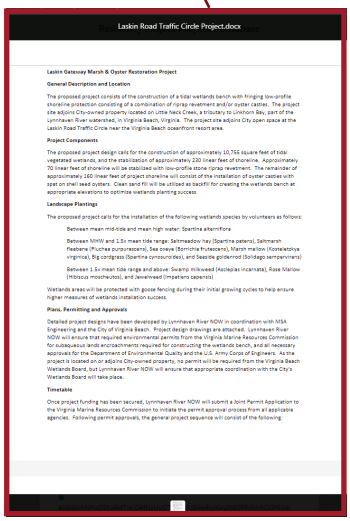



*Map | Site Directions*
*The database contains a mapping feature to visualize project locations. It can be hidden to show the full extent of the project fields*

## *Expanding a Record* | Project Inventory Details



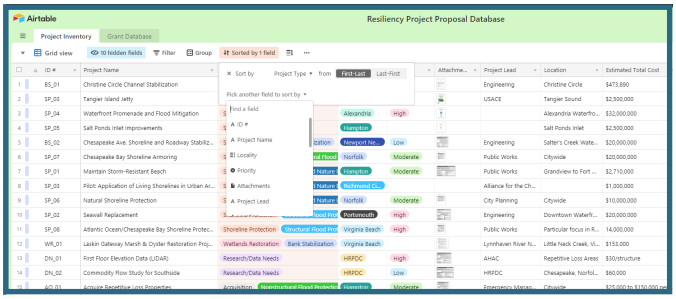




## *Attachments* | Project Documents

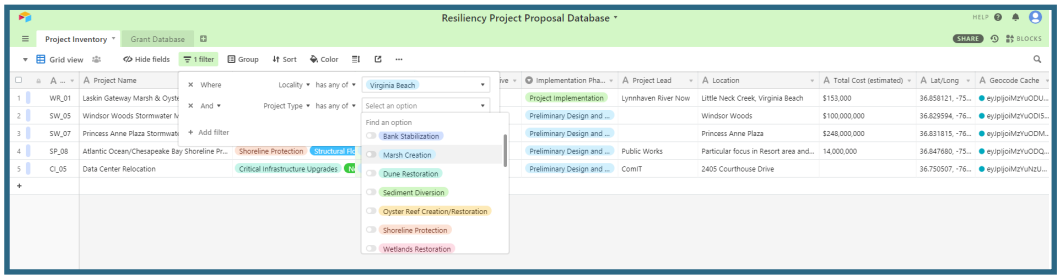
This shows a sample narrative provided by Lynnhaven River Now: Laskin Gateway Marsh & Oyster Restoration Project Description.

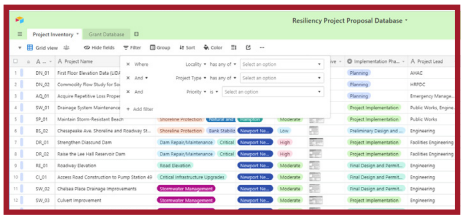
## *Sorting by Field* | Project Search




Sorting/Grouping Project Database:
Projects may be sorted or grouped by project type, locality, priority, or implementation phase.

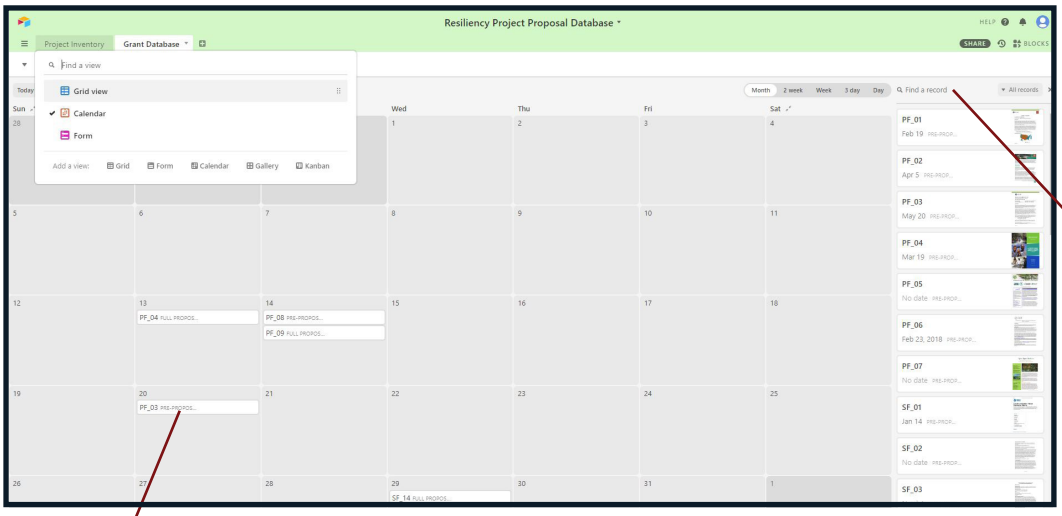
## *Filtering a Record* | Grid View



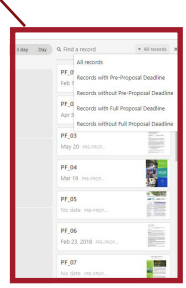
Filter Selection:
Records may be filtered to quickly identify specific projects available.
For example, a user could identify all high shoreline protection projects within a given locality.

## *GRANT DATABASE | CALENDAR VIEW* | Resiliency Project Proposal Database



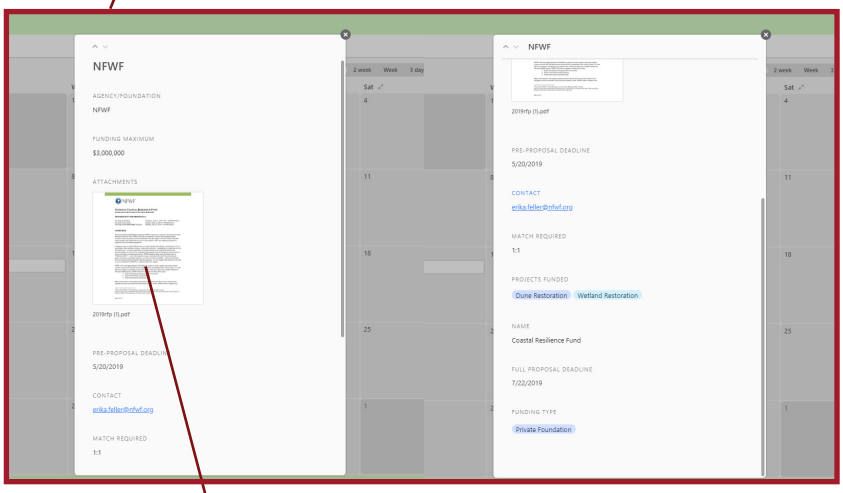

### *Calendar Overview*

The grant inventory can be shown as a calendar, highlighting pre-proposal and proposal deadlines.

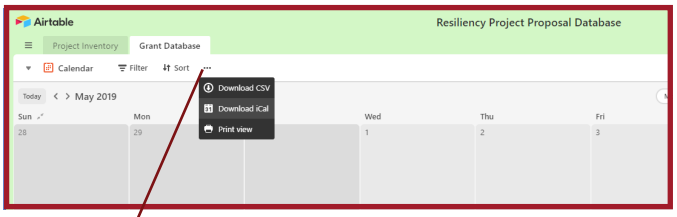


Records can be filtered to identify grants based on requirements

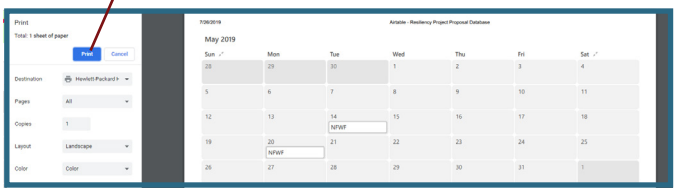
### *Expanding a Record* | Grant Database

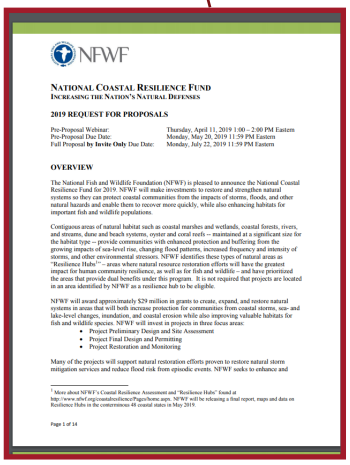



### *Calendar View* | Navigation




### *Printing* | Data Acquisition

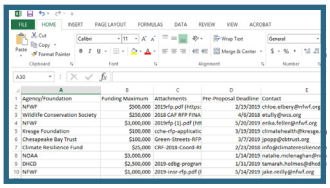





### *Attachments* | Project Documents

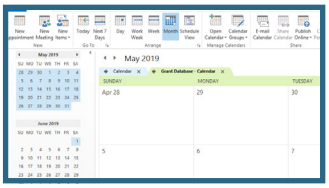
The NFWF 2019 Coastal Resiliency Fund RFP is included here as an example

### *CSV Download*



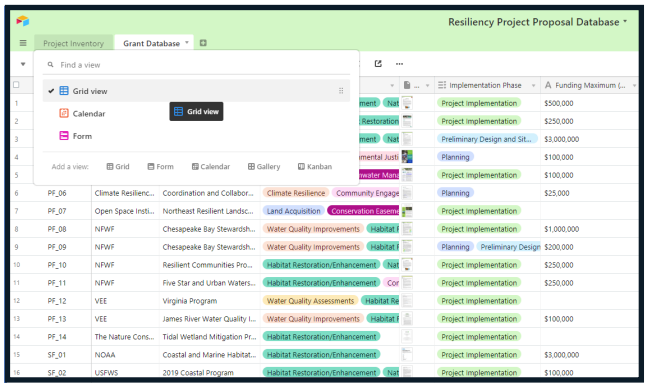
Data can be downloaded directly as a CSV file

### *iCal Download*



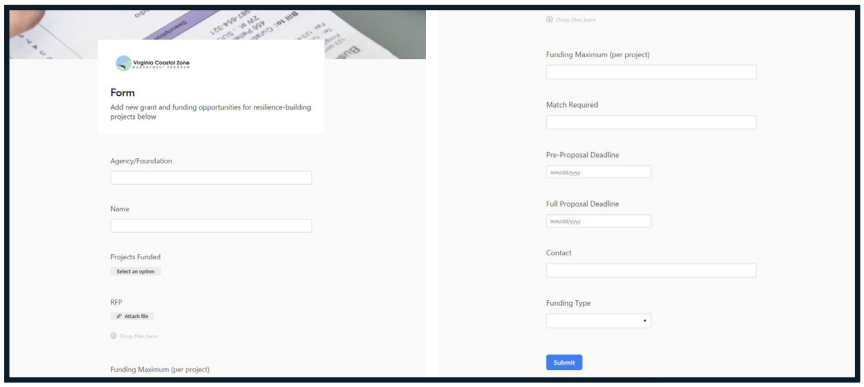
Calender downloads allow users to input important dates into their own calendars

## *GRANT DATABASE | GRID VIEW*




The Grid View shows the full extent of data available

## *GRANT DATABASE | FORM VIEW*




Form View: Provides a quick and easy way to input both projects and grants

# MAINTENANCE PLAN

Outreach and stakeholder feedback has indicated that maintenance will be one of the critical components dictating the successful implementation of the Resiliency Database. Fortunately, there are a number of ways to ensure the Database will continue to be updated, through local and regional action, as well as through Wetlands Watch's role as a boundary organization for many of the key stakeholders within the coastal zone.

## *Project Solicitation and Inputting Existing Proposals*

Research throughout the development of the Database has indicated there are a wide array of existing plans and programming documents that can provide the basis for project proposals. Attached in the Appendix is a list of reports incorporating priority areas and project recommendations. While not a comprehensive list, this provides an example of the existing initiatives that can be used to help localities identify and refine project submissions. Another future avenue is in seeking out past grant applications that went unfunded, which can be requested through targeted meetings throughout the coastal zone.

Wetlands Watch has submitted a grant application to continue our outreach work into 2020. One strategy to pursue is to focus this period on targeted, capacity-building workshops to review the existing projects and sites that have been identified within the regions of the coastal PDCs, with the expected outcome of prioritizing that work and developing more detailed proposals. Wetlands Watch would engage with local committees, nonprofits, and other relevant stakeholders to ensure a diverse range of opinions on priority sites, and begin these workshops with a region-specific review of the opportunities available through tools like ConserveVA and our NNBF prioritization work with VIMS.

Beyond Wetlands Watch's direct project solicitations, the Resiliency Database has been set up to allow anyone to easily submit a project online. This helps expand the range and scope of the database without expending staff time, except to verify new submittals.

## *Future Expenses*

Airtable: The software used to develop the database is reasonably priced, currently costing $144 annually. The database can be embedded directly into AdaptVA, so there are no significant cost considerations with moving the work onto a new host. Moreover, all data can be downloaded directly into Microsoft Excel, ensuring there are no concerns with data migration.

## *Future Responsibilities*

VIMS will play a role in hosting the database on AdaptVA, but as that is a resource Wetlands Watch also helps develop, there should not be a large burden placed on VIMS. Wetlands Watch can leverage the existing need to maintain and update AdaptVA generally with the need to continue to improve the Database. This will include removing (and cataloging) projects that have been funded, updating metrics, and editing narratives to keep proposals up to date.

The regional PDCs will also have a large role in acting as the point of contact for localities and encouraging future project development. Wetlands Watch can assist these efforts by presenting information on the Database at various regional meetings and workdays with targeted localities.

The grant calendar incorporated into the database will require quarterly updates. Annual funding sources can have their records revised with new RFPs, which does not require much staff time.

# INFORMING SITE SELECTION

As previously noted, the Database should be used in conjunction with other tools to maximize its utility. Although far from extensive, the section below provides examples of resources that can be used to justify project need. These tools, along with a comprehensive review of the existing plans and programs that identify potential resilience-building projects within a locality or planning region, can be used as the basis for inputs within the Database. An example of the scope of this planning review can be found in the Appendix.

### VA Institute of Marine Science: Adapt Virginia

Link: Adaptva.org

Identified through workshop meetings as the best location to host the Resiliency Database, Adapt VA provides a "one stop shop" for resiliency needs within the Commonwealth. In addition to sea level rise projections, tidal forecasts, case studies, and planning/policy strategies, Adapt VA's comprehensive interactive map provides a litany of data that can help identify and enhance project proposals. Critically, it includes information from the Virginia Flood Risk Information System by displaying the regulatory Special Flood Hazard Area, which provides added incentive for project siting.

### National Fish and Wildlife Foundation: Coastal Resilience Evaluation and Siting Tool (CREST)

Link: https://resilientcoasts.org

CREST can help inform siting for restoration and resilience projects through the identification of "Resilience Hubs". While state and regional resources with more localized data are available, CREST is a valuable tool to identify priority sites, especially when applying for NFWF funding.

### The Nature Conservancy: Coastal Resilience Tool

Link: https://maps.coastalresilience.org/virginia/

This mapping and decision support tool, available on the Eastern Shore, incorporates a range of data to visualize flooding and sea level rise, future habitat and marsh migration, as well as coastline change. This can be overlaid with zoning maps from the counties of Accomack and Northampton, the Virginia Ecological Value Assessment (VEVA) Rank, and a screening tool for living shoreline suitability, among other features.

### VA Coastal Zone Management Program: VA Coastal Geospatial and Educational Mapping System (GEMS)

Link: http://www.coastalgems.org/

Coastal GEMS was proposed as another potential location for the database. The mapping system provides extensive information on coastal resources, including data on coastal water, coastal wildlife, coastal land, conservation planning, shellfish management, and access/recreational use. Currently used by a wide range of agencies, academic institutions, and nonprofit organizations, GEMS can also be used as a tool to identify multiple benefits during the project siting process, as well as provide additional justifications during grant applications. As an example, one of the metrics used by NFWF for their Coastal Resilience Fund is restoring aquatic connectivity, which is measured by the number of fish passage barriers rectified in a project, or miles of fish passage improvements. Data on impediments

to fish movement and fisheries management areas are both available on GEMS. Additionally, the CZM program funds land acquisition based in part on its VEVA tool, which is incorporated within GEMS.

### ConserveVA

Link: https://vanhde.org/

ConserveVirginia identifies 6.3 million acres of high priority conservation areas across the Commonwealth. These mapped acres will help guide a long-term land conservation strategy for Virginia by serving as a "menu" to guide and inform state land acquisitions, environmental mitigation projects, and Virginia Land Conservation Foundation Grants. Acquisition proposals within these areas are scored higher in several existing funds, and this data can be incorporated within Adapt VA to provide added tools for proposal justification.

### VA Department of Conservation and Recreation: VA Wetlands Catalog (VWC)

Link: https://www.dcr.virginia.gov/natural-heritage/wetlandscat

The VWC contains an inventory of both wetlands and prioritized potential wetlands restoration sites. The full database is available in ArcGIS and free to download.

### Virginia Institute of Marine Science: Increasing the Use of Natural and Nature-Based Features to Build Resilience to Storm-Driven Flooding

Wetlands Watch is working with VIMS and the Virginia Coastal Policy Clinic to develop a tool to assess the flood resilience benefits of NNBFs. The overall goal of the project is to expand the use of NNBFs by enabling local officials to see the practical benefits from the use of these features. The final product will take the form of a viewer, enabling a user to identify targeted areas for NNBF protection or implementation. While the project is currently under development, it will soon allow localities and NPOs to identify sites based on "Inundation Pathways", the lowest areas that tidal waters first come ashore during flood events. This tool will help quantify how many structures are protected by specific NNBFs, which is another example of a metric that is often incorporated into grant opportunities.

# OPPORTUNITIES FOR THE BENEFICIAL USE OF DREDGED MATERIAL

As noted in the feedback section, there is a great deal of interest in identifying and prioritizing opportunities for the beneficial use of dredged material for natural infrastructure projects. Wetlands Watch has begun exploring how this process could occur, through conversations with key stakeholders like the Virginia Marine Resources Commission and Maryland's Department of Natural Resources, which has begun this work as well.

**Maryland's BUILD Tool**

> Maryland's Department of Natural Resources has developed a tool called Beneficial Use: Identifying Locations for Dredge (BUILD). This tool, visualized through an ArcGIS layer, allows project planners to identify sources of dredged material to place in restoration projects. Potential projects include living shoreline and marsh creation, beach nourishment, thin-layer placement, and island restoration. As one example, a 2014 project in Ferry Point Park used dredged material for a living shoreline restoration, saving $1.4 million in reduced transportation and fill costs, while improving public access and coastal resilience.
>
> In essence, this approach requires three components; 1) Database of Dredging Projects, 2) Database of Natural Infrastructure Projects, and 3) GIS tool, with a 2 mile buffer around dredging projects to identify opportunities. The tool will be available to the public through Maryland's Coastal Atlas. Maryland's DNR works through their Waterway Improvement Fund (which finances dredging activities) to populate their database of dredging projects. They collaborate with regulatory agencies to identify natural infrastructure projects that have been permitted, which populates the inventory of infrastructure projects. There is a need to find more suitable opportunities, but the long-term goal is to tie into the Maryland Community Resilience Grant Program, which will provide another avenue to input natural infrastructure projects.

Virginia is being proactive in addressing this need. In 2018, the Virginia Waterway Maintenance Fund was established to support shallow dredging projects throughout the state. Funds may be used to support the beneficial use of dredged materials from waterway projects. Additionally, the General Assembly has directed VMRC to adopt regulations to establish and implement a fast-track permitting program, authorizing the selection and use of sites for the use of dredged material.

In addition to this recent legislation, there are a number of reports and planning documents detailing dredging opportunities within the Commonwealth. VMRC maintains a database of habitat management permits and applications, which includes both new dredging and dredging maintenance. The Middle Peninsula has developed a Shallow Water Dredging Master Plan Framework, while the Accomack-Northampton Planning District Commission has created an Eastern Shore Regional Dredging Needs Assessment. The USACE's Chesapeake Bay Comprehensive Water Resources and Restoration Plan also addresses this need, identifying significant opportunities for wetlands enhancement/restoration within three miles of USACE navigation channels. Additionally, Virginia's Working Waterfront Plan recommends the state establish a shallow channel dredging matching grant program.

There are several considerations that need to be addressed for Virginia to follow the model that Maryland has developed. Not all sediment is suitable for natural infrastructure projects. In general, beach nourishment requires coarse sand, shoreline erosion control requires coarse to medium sand, and wetlands restoration requires fine sediments. The real challenge is in aligning upcoming natural infrastructure projects with upcoming dredging needs, although

this is an opportunity for the Database to provide significant value to the state. In addition to helping identify projects based on implementation schedules, this may benefit applicants and project sponsors with the permit review process. Unless a particular identified project within the database was subjected to a complete public interest review, solely being on the list would not guarantee approval. While future work is required to delineate sediment types from specific dredging projects for matching with natural infrastructure interventions, VMRC has noted that a comprehensive inventory can be an important resource for future shoreline management initiatives and decisions. Wetlands Watch is in the process of developing lists of identified dredging needs and planned dredging activities within each coastal planning district commission, which can be inputted into the existing Database to begin highlighting opportunities for the beneficial use of these dredged materials.

# STATE COASTAL MASTER PLANNING

Many states are taking steps to address resiliency at the state and regional level. Two states in particular provide a good model for Virginia as the Commonwealth develops its first comprehensive coastal master plan, Texas and Louisiana. A brief summary of their respective planning efforts are included below.

## *Texas Coastal Resiliency Master Plan*

First enacted in 2017, the Texas Coastal Resiliency Master Plan guides the management of the state's coastline by identifying and prioritizing resiliency interventions. It identifies eight priority "Issues of Concern"; 1) Altered, Degraded, or Lost Habitat, 2) Gulf Beach Erosion and Dune Degradation, 3) Bay Shoreline Erosion, 4) Existing and Future Coastal Storm Surge Damage, 5) Coastal Flood Damage, 6) Impact on Water Quality and Quantity, 7) Impact on Coastal Resources, and 8) Abandoned or Derelict Vessels, Structures, and Debris.

The Plan relies on advanced coastal modeling to predict the impact of future coastal hazards, including both sea level rise and coastal storm surge. This model helps to validate the project proposals included within the Plan. The 2019 update of the Plan includes a total of 250 reviewed projects, with 123 projects recommended as Tier 1 priorities. The total cumulative cost of these Tier 1 projects is estimated at $5.4 billion.

Each Tier 1 project includes a "project cut sheet", which includes a map and description of the need, benefit, and estimated total project cost. An example of this cut sheet is available in the appendix.

This updated, shovel-ready list of Tier 1 projects positions Texas to advance their long-term coastal management initiatives as funding becomes available, giving them an advantage over less organized states. The Texas General Land Office (GLO) will use this Plan to identify, select, and fund the most beneficial coastal projects within the state. To this point, 7 of the 63 Tier 1 projects from the 2017 Plan have been implemented.

### Project Evaluation

A Technical Advisory Committee (TAC) has been established to gather new project ideas. The TAC provides input on the level of benefit a project will have, based on issues of concern identified in the Plan. The TAC also evaluates feasibility and priority of projects. This committee is comprised of state and regional experts from agencies, universities, local governments, NPOs, engineering firms, regional foundations, etc.

Projects are put within three tiers. Tier 1 projects have the highest TAC approval ratings, high feasibility, and address the Plan's Issues of Concern. Tier 2 Projects have moderate TAC approval ratings, and moderate feasibility projections, but may still effectively contribute to the state's resiliency goals. Tier 3 projects need further research and development, or are addressed under another planning efforts.

### Project Funding

Recent legislative action within the state has enabled significant funding streams to implement the Plan. Texas has created two funds that provide grants and loans for flood control and mitigation projects. The Texas Infrastructure Resiliency Fund received over $600 million, with $47 million being made available to update flood risk maps throughout the state, ensuring future risks are accurately accounted for. Additionally, the Texas Water Development Board received appropriations of $793 million for future flood infrastructure projects, which will be managed by the recently enacted Flood Infrastructure Fund.

The Texas Infrastructure Resiliency Fund allows localities to apply for grants and low interest loans for projects through the Texas Water Development Board. This fund is comprised of four accounts; 1) The Hurricane Harvey Account, directing federal dollars for flood projects following the damage of Hurricane Harvey, 2) The Federal Matching Account, which uses state money to help localities meet matching fund requirements for projects eligible for federal funding, 3) the Flood Implementation Account, which finances high priority projects in the Texas State Flood Plan, and 4) The Floodplain Management Account, which directs funding for future analysis, planning, and evaluation.

## *Louisiana Coastal Master Plan*

The Louisiana Master Plan, first enacted in 2007, is a transformative planning document, providing a 50-year blueprint for the direction of the state's coastal resilience goals. The Plan, which is required to be updated every five years, has identified $50 billion in a combination of coastal protection and restoration projects, and has led to the implementation of at least 135 projects since its adoption. Projects have initially been funded through settlements stemming from the Deepwater Horizon oil spill, as well as oil drilling royalties directed to the state. However, having the Master Plan in place has helped the state secure additional funding, providing an advantage over other regions.

Two innovative tools are used to evaluate projects for their inclusion within the Plan. The Coastal Louisiana Risk Assessment Model (CLARA) is an analytical program designed to estimate flood depths and damage that occur as a result of major storms. This allows for the systematic evaluation of potential projects for inclusion in the coastal master plan, based on unbiased, nonpartisan science and practical feasibility. CLARA has been used to estimate surge and wave heights from 40 simulated storm to represent range of coastal flooding threats and provide data on the state's hurricane protection system. This allows decision-makers to estimate the effects of risk-reduction projects on residual damage at 3 intervals- 50, 100, and 500 years.

The Coastal Protection and Restoration Authority's (CPRA) Planning Tool allows the agency to; 1) Make analytical and objective comparisons of hundreds of different risk-reduction and restoration projects, 2) Identify and assess groups of projects (alternatives), and 3) visualize trade-offs to support deliberation of these alternatives. This combination of tools found in the Louisiana Master Plan has provided a methodology to systematically evaluate over 400 structural, non-structural, and

restoration projects.

## *Virginia's Coastal Master Plan*

A key takeaway from these summaries is that Virginia needs significant funding to keep pace with these forward-thinking states. Directing resources to provide matching funds to localities would make an immediate on the ground, while an account to finance priority projects within Virginia's own Coastal Master Plan provides a tremendous incentive for localities to develop long-range projects to build resiliency. The section below provides a brief primer on Virginia's Coastal Master Plan development and includes feedback brought up through Wetlands Watch's outreach activities.

In November of 2018, Governor Northam signed Executive Order 24, laying the groundwork for a series of initiatives to increase Virginia's resiliency to sea level rise and natural hazards. In addition to designating a Chief Resilience Officer for the Commonwealth, reviewing the vulnerability of state-owned buildings, and adopting a unified sea level rise projection and freeboard standard for state-owned buildings, the Order directs the Chief Resilience Officer and the Special Assistant to the Governor for Coastal Adaptation and Protection to create and implement a Coastal Resilience Master Plan.

The Plan is required to incorporate all ongoing planned and proposed projects to reduce tidal flooding, storm surge flooding, and flood risk. It must be updated and amended every five years, include detailed funding analysis, and mitigate flood risks at the community level or greater whenever possible. Of note, the Plan is also required to employ natural and nature-based solutions to the maximum extent possible.

Meetings with the Office of the Secretary of Natural Resources, the Special Assistant to the Governor Ann Phillips, and relevant agency stakeholders, have helped identify priorities for the development of the Plan. There is a strong need for more comprehensive studies within the coastal zone and state-wide. The City of Virginia Beach has recently developed a study on historic and projected precipitation in the Hampton Roads region, which found an increase in the Annual Maximum Series of 24-hour rainfall[1]. The study found about a 7% increase per decade, using a 70-year period from the Norfolk Airport rain gauge. Furthermore, future projections show an increase in heavy precipitation. There is a need to conduct a similar rainfall study state-wide. Virginia Beach has been proactive on this issue by increasing their stormwater design guidelines by 20% to account for these changes, an action that many localities across the state may need to consider. In addition to a rainfall study, the state needs to conduct a full floodplain analysis rather than wait for FEMA to update regulatory floodplain maps. The state must work with USACE on conducting additional "3x3x3" studies, which is a planning process costing no more than $3 million, with a timeframe of 3 years, and 3 concurrent levels of review. Critically, the state recognizes the need to make available new streams of funding, potentially through the Shoreline Resilience Fund, which has remained unfunded since its formation.

Stakeholders engaged with the Master Plan have expressed a difficulty in getting a state-wide view of what resilience-building projects have been implemented recently (within five years). This data resides in many local, state, and federal agencies, but

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1 Smirnov, D; Batten, B. "Analysis of Historical and Future Heavy Precipitation". City of Virginia Beach, Dewberry. https://www.vbgov.com/government/departments/public-works/comp-sea-level-rise/Documents/anaylsis-hist-and-future-hvy-precip-4-2-18.pdf

it has been a challenge to organize and compile that information cohesively. The full development of the Plan is limited by a lack of funding and staff capacity, which poses a challenge to any project prioritization process, especially compared with the intensive efforts found in Texas and Louisiana. A Technical Advisory Committee, modeled after the TAC created in the Texas Coastal Master Plan, may be the best avenue to begin project review until more funding is made available to develop an analytical tool. Ben McFarlane of the HRPDC has noted that the process for incorporating projects within the Long Range Transportation Plan may also be a good model to follow. That process took years to develop and involves hundreds of separate metrics, but it was feasible because large pots of money were available. Critically, a similar funding stream for resilience will be needed for these processes to succeed.

## CONCLUSION

The development of this project has led to a great number of lessons learned, and recognized the need for future work. Upcoming opportunities will provide us an opportunity to continue engaging with stakeholders and modify the existing database. Wetlands Watch will be engaging with several planning district commissions in the coming months to review our work to date, and identify regional priority projects to input within the database. Additionally, we have uncovered a number of research needs to consider, including looking at the issues localities face obtaining matching funds for grant applications with quick timeframes, and monitoring new funding sources. Notably, FEMA is developing a new program known as Building Resilient Infrastructure and Communities (BRIC), which seeks to incentivize large-scale infrastructure projects. It will be important, not only to monitor this program's development, but to engage with stakeholders directly in an attempt to translate "FEMA-speak" to the local level.

A workshop planned by NOAA in September in the Middle Peninsula will provide an opportunity to share the database with a range of stakeholders, and input new prioritized projects. The goal of this workshop is to identify nearshore habitat restoration projects in the region, and recommend 1-2 for a pot of design funds that NOAA has available. This will help inform what works within the database, and what revisions and additions must be made. Furthermore, it may prove a model for future outreach programs, underscoring the need for a financial incentive to organize this work around. This is a living resource, and it is our hope that it can continue to be enhanced to provide value to stakeholders throughout the state.

# APPENDIX

## *Interview & Workshop Participants*

Shannon Alexander, Accomack-Northampton Planning District Commission

Amanda Bassow, National Fish and Wildlife Foundation

John Bateman, Northern Neck Planning District Commission

Sharon Baxter, VA Department of Environmental Quality

Marcia Berman, Virginia Institute of Marine Sciences

Clay Bernick, Lynnhaven River Now

Donna Bilkovich, VA Institute of Marine Sciences

Pam Braff, VA Institute of Marine Sciences

Amanda Campbell, Metropolitan Washington Council of Governments

Emily Cope, James River Association

Lynn Crump, VA Department of Conservation and Recreation

Shannon Cunniff, Environmental Defense Fund

Nissa Dean, Alliance for the Chesapeake Bay

Gina Dicicco, VA Department of Conservation and Recreation

Amber Ellis, James River Association

Christy Everett, Chesapeake Bay Foundation

Erika Feller, National Fish and Wildlife Foundation

Darlene Finch, National Oceanic and Atmospheric Administration

Jay Ford, Chesapeake Bay Foundation

Kaity Goldsmith, National Fish and Wildlife Foundation

Ashley Gordon, Hampton Roads Planning District Commission

Becky Gwynn, Department of Game and Inland Fisheries

Amy Hagerdon, Alliance for the Chesapeake Bay

John Harbin, City of Chesapeake

Troy Hartley, VA Sea Grant

Christine Hirt, National Oceanic and Atmospheric Administration

Tom Kelsch, National Fish and Wildlife Foundation

Angela King, Virginia Institute of Marine Sciences

John Kuriawa, National Oceanic and Atmospheric Administration

Sam Lake, VA Sea Grant

Andrew Larkin, National Oceanic and Atmospheric Administration

Lewie Lawrence, Middle Peninsula Planning District Commission

Joe Maroon, VA Environmental Endowment

Eric Martin, City of Chesapeake

Pam Mason, VA Institute of Marine Sciences

Nick Meade, VA Coastal Zone Management Program

Debbie Messmer, VA Department of Emergency Management

Ben McFarlane, Hampton Roads Planning District Commission

Laura McKay, VA Coastal Zone Management Program

Corey Miles, Northern Virginia Regional Commission

Shep Moon, VA Coastal Zone Management Program

Dennis Morris, Crater Planning District Commission

Barbara Nelson, VA Port Authority

Robert Newton, MD Department of Natural Resources

Kristin Owen, VA Department of Conservation and Recreation

Ann Phillips, Special Assistant to the Governor for Coastal Adaptation

Regina Poeske, Environmental Protection Agency

Jay Ruffa, Crater Planning District Commission

Josh Saks, Deputy Secretary of Natural Resources

Curt Smith, Accomack-Northampton Planning District Commission

Jackie Specht, MD Department of Natural Resources

Jennifer Starr, Alliance for the Chesapeake Bay

Grace Saunders, Elizabeth River Project

Bruce Sterling, VA Department of Emergency Management

Sarah Stewart, Richmond Regional Planning District Commission

Mary-Carson Stiff, Wetlands Watch

Taryn Sudol, Chesapeake Bay Sentinel Site Cooperative

Ryan Walsh, James River Association

Jennifer Wampler, VA Department of Conservation and Recreation

Tony Watkinson, VA Marine Resources Commission

Aaron Wendt, VA Department of Conservation and Recreation

# *Database Workshop Agenda*

**Resiliency Database Workshop Agenda**

**1:00 PM**

Davis Hall Boardroom
Virginia Institute of Marine Sciences
7539 Spencer Road
Gloucester Point, VA 23062

Virginia Coastal Zone
MANAGEMENT PROGRAM

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**1:00** || Introduction/Opening Remarks

- Wetlands Watch

**1:10** || Existing Efforts: Hampton Roads Resiliency Database

- Ben McFarlane, HRPDC

**1:20** || BUILD: Identifying Locations for Beneficial Use of Dredged Material

- Jackie Specht, Maryland DNR

**1:30** || Federal Funding Opportunities

- Andrew Larkin, NOAA

**1:40** || AdaptVA Overview

- Pam Mason, VIMS

**1:50** || Database Considerations & Lessons Learned

- Ross Weaver, Wetlands Watch

**2:10** || Break

**2:20** || Moderated Discussion: Database Structure

**3:00** || Moderated Discussion: Maintenance Plan

**3:45** || Next Steps

- Ross Weaver, Wetlands Watch

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WWW.WETLANDSWATCH.ORG

## *Project Inputs: Available Resources*

These resources are far from extensive, but they are included to highlight the variety of documents available to find potential project sources, and can serve as the foundation for identifying regional and local needs.

### Statewide

**Chesapeake Bay Comprehensive Water Resources and Restoration Plan (Virginia Chapter)**

Link: https://www.nab.usace.army.mil/Portals/63/docs/Civil%20Works/CBCP/VA_Annex_v2.pdf?ver=2018-07-02-152720-190

**Virginia Chesapeake Bay TMDL Phase III Watershed Implementation Plan**

Link: https://www.deq.virginia.gov/Portals/0/DEQ/Water/ChesapeakeBay/Draft%20WIP%20III/VirginiaDraftChesapeakeBayTMDLPhaseIIIWIP.pdf

**2018 Virginia Outdoors Plan**

Link: https://www.dcr.virginia.gov/recreational-planning/vop

**2015 Virginia Wildlife Action Plan**

Link: http://bewildvirginia.org/wildlife-action-plan/pdf/2015-Virginia-Wildlife-Action-Plan.pdf

**Virginia Comprehensive Historic Preservation Plan**

Link: https://www.dhr.virginia.gov/pdf_files/2015.CompPreserPlanFINAL.pdf

**Virginia Working Waterfront Master Plan**

Link: https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/Virginia-Working-Waterfront-Plan-Final-Nov-16.pdf?ver=2017-03-14-142711-097

**VDOT Six-Year Improvement Program**

http://www.virginiaroads.org/datasets/syip-projects

### Regional

**Hazard Mitigation Plans**

Example: A-NPDC Hazard Mitigation Plan

Link: http://www.a-npdc.org/accomack-northampton-planning-district-commission/coastal-resources/hazard-mitigation-planning/

Regional Hazard Mitigation Plans provide a good source of this data, as they can include funding estimates, existing priorities, and project leads.

**Regional Workgroups**

Example: Climate Adaptation Working Group

Link: http://www.a-npdc.org/accomack-northampton-planning-district-commission/coastal-resources/climate-adaptation-working-group/

Working groups like CAWG on the Eastern Shore, or the Coastal Resiliency in Hampton Roads, provide avenues to share this work and potentially hold

targeted meetings for project solicitation.

### Regional Vulnerability Assessments

Example: Eastern Shore Transportation Infrastructure Inundation Vulnerability Assessment

Link: https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/Virginia_CZM_Grant_Report_FY13_Task_53_no_appendices.pdf

Example: Resilient Critical Infrastructure: A Roadmap for Northern Virginia

Link: https://www.novaregion.org/DocumentCenter/View/11933/Resilient-Roadmap-Final-PDF

### Green Infrastructure Plans

Example: Richmond Green Infrastructure Assessment

Link: http://www.gicinc.org/PDFs/RichmondGIA_Report_FINAL.pdf

### Joint Land Use Studies

Example: Norfolk-Virginia Beach JLUS

Link: https://www.hrpdcva.gov/library/view/974/norfolk_vabeach-joint-land-use-study-draft-june-2019/

## Local

### Local Resiliency Plans

Example: Hampton Resiliency Plan

Link: https://hampton.gov/DocumentCenter/View/20644/Resilient-Hampton-Phase-I-Report?bidId=

### VIMS Shoreline Management Plans

Example: Mathews County Shoreline Management Plan

Link: https://scholarworks.wm.edu/cgi/viewcontent.cgi?article=1177&context=reports

### Capital Improvement Programs

Example: Chesapeake FY18-22 Capital Improvement Program

Link: http://www.cityofchesapeake.net/Assets/documents/departments/budget/2017-2018/Project+List+CIP+Ending+June+30+2022.pdf

Example: Norfolk Unfunded Capital Requests

Link: https://www.norfolk.gov/DocumentCenter/View/37880

Note: Some localities (like Norfolk) publish their unfunded capital requests, which provide another valuable avenue to project solicitation

### Stormwater Master Plans

Example: Stormwater Master Plan for the Hague (Norfolk)

Link: https://www.norfolk.gov/DocumentCenter/View/32524

### Green Infrastructure Plans

Example: Richmond Green Infrastructure Assessment

http://www.gicinc.org/PDFs/RichmondGIA_Report_FINAL.pdf

**TMDL Action Plan**

Example: Arlington County

https://projects.arlingtonva.us/wp-content/uploads/sites/31/2015/10/Chesapeake-Bay-TMDL-Action-Plan-Final-09.03.15.pdf

**Local Department Resources**

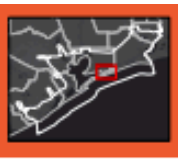
Example: Newport News

https://apps.nnva.gov/ps/Default.aspx

Many urban localities provide online updates on planned projects that may have value to the Database

## *Narrative Example: Texas Master Plan Cut Sheet*

# Anahuac National Wildlife Refuge Living Shoreline
*(Project ID R1-1)*



**Region:** 1

**Location:**

Shoreline along Easy Bay at Anahuac National Wildlife Refuge

**County:**

Chambers, Galveston

**Status:**

Conceptual

**Stakeholders:**

- U.S. Fish and Wildlife Service
- Chambers County
- Galveston County
- Galveston Bay Estuary Program
- Galveston Bay Foundation
- Texas General Land Office

**Project Type:**

Habitat Creation & Restoration; Shoreline Stabilization

**Action:**

Wetland Protection and/or Shoreline Stabilization

**Resiliency Strategy:**

**Ecological Resiliency** (Wetland Planning, Restoration and Monitoring); **Societal Resiliency** (Water-Based Transit Enhancement)

**Jobs Created:**

Creates approximately 61 jobs during construction.

### Project Benefits Per Issues of Concern

Project Specific

Average for Region 1

## Project Description

This project would restore estuarine wetland habitat along the Gulf Intracoastal Waterway (GIWW) using a living shoreline construction for up to 9 miles of eroding shoreline. This project also could beneficially use dredged material from the GIWW.

## Project Need

Abutting the Anahuac National Wildlife Refuge, this eroding portion of the GIWW is an important wildlife conservation area and wave action is only expected to increase as it serves a critical commercial navigational channel. As a result, strengthening the shoreline itself is the most effective erosion mitigation approach.

## Project Benefit

Stabilizing the banks of the GIWW promotes navigational safety and efficiency of barges that carry approximately 103 million tons of cargo across this segment of the GIWW annually. Wetland protection and restoration would enhance and create habitat for recreationally and commercially important aquatic and avian species.

**Estimated Total Project Cost:** $60,900,000

Texas General Land Office

2019 Texas Coastal Resiliency Master Plan **107**

Source: 2019 Texas Coastal Resiliency Master Plan, TX General Land Office