

### Instructions on How to Use the Spreadsheet

This spreadsheet compiles all data used for the CBT Partnership-Building and Identification of Collaborative Tidal Marsh Adaptation Project. The data has been separated out into Tiers 1 and 2 as the project has progressed.

**Tier 1:** Bay-wide data used to assist in identifying areas of need to target for project opportunities. Identified areas of need based on resilience, conservation and social vulnerability criteria. Identify alignment between Tier 1 areas and partner interest/activity locations.

**Tier 2:** Data to support project identification, site evaluation, and scenario development. Integrate supplemental regional datasets to support partnership building and potential project identification. Data and information specific to the focus areas and partner interests will identify and evaluate potential project opportunities.

To view all of the data layers within a web based map, follow the links provided to either the web map or full mapping application.

### Links to Mapping Tools

[Full Mapping Application](#)

[Web Map](#)

Tier 1 Mapper Data and Updates		Tier 1 Data Sources and Descriptions			
Layer Group Name	Data Layers	Data Description	Data Application	Source	Source/Reference Link
Boundaries	Parcels, HUC, Basins, Watershed				
Partner Engagement - Active Projects and Areas of Interest	Partner Activity & Focus Areas	Areas of interest indicated and provided by partners through a targeted survey (June, 2023).	Identify areas where partners are likely to be positioned for pursuing project opportunities.	Survey Results	Shapefiles from survey respondents
Marsh Health	UVVR, Tidal Range, Elevation, Marsh Units	Data indicative of marsh health and vulnerability provided by USGS (Data Synthesis Project)	Identify marsh health to inform opportunities within and adjacent to potential marsh vulnerability and migration areas. UVVR: Less Healthy/ Not Stable- Restoration (> 0.15), Stability Threshold (0.1 - 0.15), Healthy/ Stable- Conservation (0 - 0.1)	USGS	CBP data source; data source information link: <a href="https://www.sciencebase.gov/catalog/item/5b73325ee4b0f5d5787c5ff3">https://www.sciencebase.gov/catalog/item/5b73325ee4b0f5d5787c5ff3</a>
Reference Layers	Marsh Mask	Mask of marsh areas based on National Wetland Inventory for Maryland, and Virginia Tidal Marsh Inventory data for Virginia. 30 M resolution.	Mask for developed areas and existing marsh available for comparison.	Combination layer of National Wetland Inventory for Maryland and Virginia Tidal Wetland Inventory data	National Wetland Inventory: <a href="https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/">https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/</a> Virginia Tidal Wetland Inventory data: <a href="https://www.vims.edu/ccrm/research/inventory/virginia/index.php">https://www.vims.edu/ccrm/research/inventory/virginia/index.php</a>
	Impervious Surfaces	Impervious land cover for the state of MD (or VA) at 30 meter resolution. Impervious surface mask created using the high resolution LCLU for the CBW.	Mask for developed areas and existing marsh available for comparison.	Chesapeake Bay Land Use (publication: <a href="https://www.sciencebase.gov/catalog/item/633302d8d34e900e86c61f81">https://www.sciencebase.gov/catalog/item/633302d8d34e900e86c61f81</a> )	<a href="https://cicgis.org/arcgis/rest/services/NPS_Land_Cover/ChesapeakeBayWatershedLandCover/ImageServer">https://cicgis.org/arcgis/rest/services/NPS_Land_Cover/ChesapeakeBayWatershedLandCover/ImageServer</a>
Marsh Migration Corridor	Multiple Models - 2 ft Sea Level Rise	Areas of overlap between 3 bay wide marsh migration models - SLAMM 5.0, InVEST, NOAA SLR Viewer - based on 2 ft relative sea level rise projections using methodology from marsh migration data synthesis project (VIMS).	Identify areas of potential marsh vulnerability and migration in MD and VA. Model agreement between more than one model does not indicate that one model is more accurate than another. Areas where there is more agreement between models should be interpreted as areas where the underlying factors built into the models produce similar results.	Marsh Migration Corridor Envelope (Customized for Marsh Adaptation Project)	CBP data source; data source information link: <a href="https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf">https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf</a>
	Multiple Models - 4 ft Sea Level Rise	Areas of overlap between 3 bay wide marsh migration models - SLAMM 5.0, InVEST, NOAA SLR Viewer - based on 4 ft relative sea level rise projections using methodology from marsh migration data synthesis project (VIMS).	Identify areas of potential marsh vulnerability and migration in MD and VA. Model agreement between more than one model does not indicate that one model is more accurate than another. Areas where there is more agreement between models should be interpreted as areas where the underlying factors built into the models produce similar results.		
Sea Level Rise	U.S. Sea Level Rise - Intermediate (2050)	Projected amount of sea level rise by NOAA, according to an "Intermediate" scenario for the year 2050. NOAA SLR Viewer: <a href="https://coast.noaa.gov/slr/#">https://coast.noaa.gov/slr/#</a>	Consider various scenarios of SLR to overlay with marsh migration projections.	NOAA SLR Viewer	<a href="https://coast.noaa.gov/slr/#">https://coast.noaa.gov/slr/#</a>
	U.S. Sea Level Rise - Intermediate High (2050)	Projected amount of sea level rise by NOAA, according to an "Intermediate High" scenario for the year 2050.	Consider various scenarios of SLR to overlay with marsh migration projections.		
	U.S. Sea Level Rise - Intermediate (2090)	Projected amount of sea level rise by NOAA, according to an "Intermediate" scenario for the year 2090.	Consider various scenarios of SLR to overlay with marsh migration projections.		
	U.S. Sea Level Rise - High (2090)	Projected amount of sea level rise by NOAA, according to an "High" scenario for the year 2090.	Consider various scenarios of SLR to overlay with marsh migration projections.		
Existing Marsh	National Wetlands Inventory	Combination layer: National Wetland Inventory And Virginia tidal marsh inventory data. 30 M resolution (to match Marsh Migration Models). The US FWS National Wetlands Inventory (NWI) is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands. The Virginia Shoreline and Tidal Marsh Inventory is a series of reports that describe the condition of tidal shorelines for individual localities in the Commonwealth of Virginia. This inventory series started with historic reports produced in the 1970's. It also includes contemporary digital inventory updates generated from 1998 to the present using a combination of Geographic Information Systems (GIS), Global Positioning System (GPS), and remote sensing technology.	Maryland - Identify marsh migration potential and marsh condition in relation to existing tidal marsh areas.	National Wetland Inventory	<a href="https://data.nal.usda.gov/dataset/national-wetlands-inventory#:~:text=The%20US%20FWS%20National%20Wetlands%20Inventory%20%28NWI%29%20is,promote%20the%20understanding%2C%20conservation%20and%20restoration%20of%20wetlands.">https://data.nal.usda.gov/dataset/national-wetlands-inventory#:~:text=The%20US%20FWS%20National%20Wetlands%20Inventory%20%28NWI%29%20is,promote%20the%20understanding%2C%20conservation%20and%20restoration%20of%20wetlands.</a>
	Virginia Tidal Wetlands		Virginia - Identify marsh migration potential and marsh condition in relation to existing tidal marsh areas.	VA Tidal Marsh Inventory	<a href="https://www.vims.edu/ccrm/research/inventory/virginia/index.php">https://www.vims.edu/ccrm/research/inventory/virginia/index.php</a>
Protected Lands	MD DNR Owned Lands and Conservation Easements	The Maryland Department of Natural Resources (DNR) manages over 446,000 acres of public lands and protected open space in the state. The DNR Lands data (part of Technology Toolbox Protected Lands data set) consists of mapped information that represent those lands that are owned by the Maryland Department of Natural Resources.	Identify protected areas and public-owned lands which might be more readily accessible for adaptation activity.	MD Greenprint	<a href="https://geodata.md.gov/greenprint/">https://geodata.md.gov/greenprint/</a>
	MD Environmental Trust Easements	The Maryland Environmental Trust (MET) is a statewide local land trust governed by a citizen Board of Trustees. Since its creation by the General Assembly in 1967, MET's main goal is the preservation of open land, such as farmland, forest land, and significant natural resources. The primary tool for doing this is the conservation easement, a voluntary agreement between a landowner and the MET Board of Trustees.	Identify protected areas and public-owned lands which might be more readily accessible for adaptation activity.	MD Greenprint	<a href="https://geodata.md.gov/greenprint/">https://geodata.md.gov/greenprint/</a> , <a href="https://geodata.md.gov/imap/rest/services/Environment/MD_ProtectedLands/MapServer/0">https://geodata.md.gov/imap/rest/services/Environment/MD_ProtectedLands/MapServer/0</a>
	MD Protected Federal Lands	The Federal Lands data consists of land areas that are run and maintained by U.S. Governmental authorities and are considered protected. Data were contributed by the Department of Natural Resources Land Acquisition Program and Geospatial Information and Analysis, as well as the Maryland Department of Planning Md Property View.	Identify protected areas and public-owned lands which might be more readily accessible for adaptation activity.	MD Greenprint	<a href="https://geodata.md.gov/greenprint/">https://geodata.md.gov/greenprint/</a> , <a href="https://geodata.md.gov/imap/rest/services/Environment/MD_ProtectedLands/MapServer/8">https://geodata.md.gov/imap/rest/services/Environment/MD_ProtectedLands/MapServer/8</a>

	VA Protected Lands	Public and private conservation and recreation lands in Virginia. The layer includes: Properties protected in perpetuity by conservation easements under the Virginia Outdoors Foundation and other public and private qualified easement holders. Lands managed by state and federal natural resource agencies. Local government lands owned and managed for open space values excluding ball fields or other heavily developed areas. Open space university lands that are protected from development. Permanently protected private conservation organization lands.	Identify protected areas and public-owned lands which might be more readily accessible for adaptation activity.	VA Natural Heritage Data Explorer	<a href="https://vanhde.org/content/map">https://vanhde.org/content/map</a>
	Dept of Defense Lands	Department of Defense land boundaries.	Identify protected areas and public-owned lands which might be more readily accessible for adaptation activity or involvement through REPI.	Department of Defense	Shapefile from project partner.
State Targeted Priorities	MD Targeted Ecological Areas (TEAs)	Targeted Ecological Areas (TEAs) are lands and watersheds of high ecological value that have been identified as conservation priorities by the Maryland Department of Natural Resources (DNR) for natural resource protection.	Identify areas for potential marsh vulnerability and migration near priority conservation areas.	MD Greenprint	<a href="https://geodata.md.gov/greenprint/">https://geodata.md.gov/greenprint/</a> , <a href="https://geodata.md.gov/imap/rest/services/Environment/MD_FocalAreas/MapServer/1">https://geodata.md.gov/imap/rest/services/Environment/MD_FocalAreas/MapServer/1</a>
	ConserveVirginia Map	Priority areas identified by six public resource agencies as lands and waters around existing protected lands that are important habitats, connections, enhance climate resilience, and protect scenic and recreational values.	Compare the priority areas identified in VA with data from marsh migration models to find overlaps.	VA Natural Heritage Data Explorer	<a href="https://vanhde.org/content/map">https://vanhde.org/content/map</a>
Social Vulnerability	FEMA National Risk Index-Census Tracts	Metric developed by FEMA to look at natural hazard and community risk factors at the census tract level. In the National Risk Index, risk is defined as the potential for negative impacts as a result of a natural hazard. The risk equation behind the Risk Index includes three components: a natural hazards component (Expected Annual Loss), a consequence enhancing component (Social Vulnerability), and a consequence reduction component (Community Resilience).	Initial tool used to identify socially vulnerable areas across MD and VA.	FEMA National Risk Index	<a href="https://hazards.fema.gov/nri/learn-more">https://hazards.fema.gov/nri/learn-more</a>

Tier 2 Data		Tier 2 Data Sources and Descriptions			
Layer Group Name	Data Layers	Data Description	Data Application	Source	Source/Reference Link
Adaptative Capacity	MD Wetland Adaptation Areas	Wetland Adaptation Areas as a result of climate change. The purpose of developing Wetland Adaptation Areas was to address climate change adaptation in response to the accumulative effects of localized land subsidence and global sea level rise, as well as to increase Maryland's resilience to other coastal hazards such as storm surge, flooding and erosion.	Identify the most important areas for wetland adaptation in MD, that may help increase coastal resiliency.	MD iMap	<a href="https://geodata.md.gov/imap/rest/services/Weather/MD_WetlandAdaptationtoSeaLevelRise/MapServer">https://geodata.md.gov/imap/rest/services/Weather/MD_WetlandAdaptationtoSeaLevelRise/MapServer</a>
	Marsh Migration-SLAMM - 2' and 4'	Individual SLAMMS model data from the VIMS marsh migration data synthesis project, based on 2 and 4 ft relative sea level rise projections.	Identify areas of potential marsh vulnerability and migration in MD and VA.	SLAMMS	CBP data source; data source information link: <a href="https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf">https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf</a>
	Marsh Migration-Invest - 2' and 4'	Individual InVest model data from the VIMS marsh migration data synthesis project, based on 2 and 4 ft relative sea level rise projections.	Identify areas of potential marsh vulnerability and migration in MD and VA.	InVEST	CBP data source; data source information link: <a href="https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf">https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf</a>
	Marsh Migration-NOAA SLR - 2' and 4'	Individual NOAA SLR Viewer model data from the VIMS marsh migration data synthesis project, based on 2 and 4 ft relative sea level rise projections.	Identify areas of potential marsh vulnerability and migration in MD and VA.	NOAA SLR Viewer	CBP data source; data source information link: <a href="https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf">https://cbtrust.org/wp-content/uploads/VIMS_Marsh_Migration_final_reportmetadatsheets_30Sept2022.pdf</a>
Boundaries	Chesapeake Bay National Estuarine Research Reserves	National Estuarine Research Reserves (NERRS) in Chesapeake Bay. The NERRS were established for long-term research, education and stewardship of estuarine land and water.	Identify locations of NERRS in both MD and VA to consider where adjacent marsh migration or restoration may occur, and where work may already be underway.	MD iMap	National dataset- <a href="https://coast.noaa.gov/arcgis/rest/services/nerrs/nerrs/MapServer/1">https://coast.noaa.gov/arcgis/rest/services/nerrs/nerrs/MapServer/1</a> ; <a href="https://geodata.md.gov/imap/rest/services/Environment/MD_ResearchReserves/MapServer">https://geodata.md.gov/imap/rest/services/Environment/MD_ResearchReserves/MapServer</a>
	VA Locations of Oyster farms	Location points of 2 Oyster farms surrounding the Guinea Marsh WMA and Big Island, along the Middle Peninsula.	Identify locations of oyster farms to consider where marsh migration or restoration may occur, and where these structures may be impacted.	Project Team Discussion	Coordinate points for 2 oyster farms: (37.269508108505555, -76.39058540204829) (37.300091121966254, -76.40361721435185)
Coastal Protection	MD Historic Shorelines	Historic shorelines in Maryland from 1841 to 1998	Consider how shorelines in MD have changed over the past century and any patterns that occur.	MD iMap	<a href="https://archive.geodata.md.gov/imap/rest/services/Hydrology/MD_ArchivedShorelineChanges/MapServer">https://archive.geodata.md.gov/imap/rest/services/Hydrology/MD_ArchivedShorelineChanges/MapServer</a>
	MD Shoreline Inventory	Shoreline Situation Reports (SSR) is intended to assist planners, managers, and regulators in decisions pertaining to management of coastal areas and natural resources therein. Data collected describes conditions in the immediate riparian zone, the bank, and along the shore.	Consider the current shoreline conditions in MD in the management of coastal areas and natural resources.	MD iMap	<a href="https://geodata.md.gov/imap/rest/services/Hydrology/MD_ShorelineInventory/MapServer">https://geodata.md.gov/imap/rest/services/Hydrology/MD_ShorelineInventory/MapServer</a>
	MD Coastal Resiliency Assessment: Marsh Protection Potential Index	The Marsh Protection Potential Index (MPPI) ranks Maryland's coastal marshes by their ability to protect vulnerable communities from coastal hazards. To do so, they have identified five key questions to assess each marsh: How much is the marsh able to reduce the impact of coastal hazards? Is the marsh located where coastal hazards are a threat? Is the marsh located where there are people to protect? Is the marsh located adjacent to other protective habitats? Is the marsh likely to survive in the face of rising sea levels? Using data from the Coastal Resiliency Assessment and other sources, they developed metrics to score each marsh on these five questions. Then, the sub-scores were combined to create the Marsh Protection Potential Index overall rating, which ranks the protective ability of over 14,000 marshes statewide. It is important to note that the MPPI ranks marshes relative to other marshes, rather than providing an absolute measure of protective services.	Identify MD marshes with ability to protected nearby land from coastal hazards, and compare to other marshes.	MD Greenprint	<a href="https://geodata.md.gov/imap/rest/services/Environment/MD_CoastalResiliencyAssessment/MapServer/3">https://geodata.md.gov/imap/rest/services/Environment/MD_CoastalResiliencyAssessment/MapServer/3</a>

	MD Flood Prevention Ecosystem Services Layer	An index of the Flood Prevention and Stormwater Mitigation Potential of forests and wetlands across the state of Maryland. Index values range from 1 (low) to 5 (high), based on a modified version of the Watershed Resource Registry Stormwater Preservation model which ranks relative capacity and stormwater load across the landscape.	Identify the flood prevention and stormwater mitigation potential of forests and wetlands across MD to consider regarding marsh migration and health.	MD iMap	<a href="https://geodata.md.gov/imap/rest/services/Environment/MD_EcosystemServices/MapServer/18">https://geodata.md.gov/imap/rest/services/Environment/MD_EcosystemServices/MapServer/18</a>
	VA ERP Shoreline Points 1937-2017	The 1937 shoreline was digitized from historic aerial photography that were orthorectified in ERDAS by the Shoreline Studies Program and the 2017 shoreline was digitized from the Virginia Base Mapping Program (VBMP) orthophotography for Chesapeake Bay region in Virginia. The bay side shore for 12 localities were included. These counties include Accomack, Northampton, Virginia Beach, Norfolk, Poquoson, York, Hampton, Gloucester, Middlesex, Mathews, Lancaster, Northumberland	View changes in VA shorelines over time to inform future action/ strategies.	VIMS Shoreline Studies Program	<a href="https://vims-wm.maps.arcgis.com/apps/webappviewer/index.html?id=cd5cf9b788d0407fb9ba5ffb494e9bae">https://vims-wm.maps.arcgis.com/apps/webappviewer/index.html?id=cd5cf9b788d0407fb9ba5ffb494e9bae</a>
Habitat	CBP Hardened Shoreline Layer Related to Fish Habitat Decline (Customized for Marsh Adaptation Project)	Percent Hardened Shorelines in VA and MD per 1000 meters based on thresholds of fish habitat decline. Demonstrates hardened shoreline thresholds (percentage per 1000 m) related to decline in fish abundance with < 10% shoreline hardening (green) indicating no to very little decline (high resilience), 10-30% shoreline hardening (yellow) indicating a range where a significant decline occurred for one or more species (intermediate resilience), and >30% shoreline hardening (red) indicating a substantial decline in species abundance (low resilience). Thresholds were established from research that quantified influences of shoreline change on ecosystem health and fish decline of six forage fish species, including Atlantic silverside, Atlantic menhaden, bay anchovy, hogchoker, croaker, and spot and one shellfish species, juvenile blue crab. Shoreline hardening of 10-30% (17% mean) was found to be a threshold number for forage species. For juvenile blue crabs, a 1% increase of hardened shoreline resulted in a 0.4% decrease.	Identify marsh area where fish habitat may be negatively affected by shoreline hardening in MD and VA. Could be used to help justify converting hardened shorelines to living shorelines to build resilience for fish habitat use where appropriate.	CB Program: Percent Hardened Shoreline in Virginia	Virginia Data: <a href="https://data-chesbay.opendata.arcgis.com/datasets/ChesBay::percent-hardened-shoreline-in-virginia-1/explore?location=37.788423%2C-76.527521%2C9.00">https://data-chesbay.opendata.arcgis.com/datasets/ChesBay::percent-hardened-shoreline-in-virginia-1/explore?location=37.788423%2C-76.527521%2C9.00</a> Maryland Data: <a href="https://data-chesbay.opendata.arcgis.com/datasets/ChesBay::percent-hardened-shoreline-in-maryland-1/explore?location=38.655027%2C-76.176154%2C9.81">https://data-chesbay.opendata.arcgis.com/datasets/ChesBay::percent-hardened-shoreline-in-maryland-1/explore?location=38.655027%2C-76.176154%2C9.81</a> Report: <a href="https://www.chesapeakebay.net/what/publications/threshold-effects-of-altered-shorelines-on-forage">https://www.chesapeakebay.net/what/publications/threshold-effects-of-altered-shorelines-on-forage</a>
	Atlantic Coastal Fish Habitat Partnership (ACFHP)-Diadromous Fish Habitat Scores	Shows scores from 0-80 with higher scores representing potentially better fish habitat (exposed to less stressors). Metrics for scoring included impervious surface, point and nonpoint source pollution, riparian buffers, species access, flow alteration, local fragmentation, Endangered Species Act (ESA) critical habitat. Suggested conversation actions based on final score: Protection, above 60 = area of excellent fish habitat; Restoration, 20-60 = restoration opportunity area for fish habitat; No action, below 20 = degraded areas of opportunity.	Indicate where less or more vulnerable fish habitat is to align with marsh restoration funding opportunities.		Report: <a href="https://www.atlanticfishhabitat.org/wp-content/uploads/2020/08/ACFHP-Mapping-and-Prioritization-Final-Report.pdf">https://www.atlanticfishhabitat.org/wp-content/uploads/2020/08/ACFHP-Mapping-and-Prioritization-Final-Report.pdf</a> Data Layers: <a href="https://databasin.org/maps/e8327d587c1a4eb583cf9a007361dc8c/">https://databasin.org/maps/e8327d587c1a4eb583cf9a007361dc8c/</a>
	Atlantic Coastal Fish Habitat Partnership (ACFHP)-Mid-Atlantic Estuarine Analysis	Shows scores from 0-80 with higher scores representing potentially better fish habitat (exposed to less stressors). Metrics for scoring included seagrass and oyster reef habitat, wetland habitat, water-vegetation edge, proximity to protected habitat, proximity to development, water quality, hardened shoreline, and habitat fragmentation. Suggested conversation actions based on final score: Protection, above 60 = area of excellent fish habitat; Restoration, 20-60 = restoration opportunity area for fish habitat; No action, below 20 = degraded areas of opportunity.	Identify the level/ quality of existing fish habitat to consider in relation to marsh location and future projects.		<a href="https://databasin.org/datasets/964cff03b10846e583eb732e91fb24e0/">https://databasin.org/datasets/964cff03b10846e583eb732e91fb24e0/</a>
	Land use - Agriculture	1m land use/ land cover data, depicting agriculture land.	Identify where potential marsh migration may occur on designated agricultural lands.	CBP High Resolution Land Use/ Cover	<a href="https://cicgis.org/arcgis/rest/services/LU/LC/bay_lu_tif/ImageServer">https://cicgis.org/arcgis/rest/services/LU/LC/bay_lu_tif/ImageServer</a>
	Natures Network Conservation Design	This data layer represents a combination of three Nature's Network products: 1) the Terrestrial Core-connector Network, 2) aquatic core areas, and 3) Core Habitat for Imperiled Species.	Locate current core terrestrial and aquatic habitat types for both MD and VA, that may be viable places for marsh migration/ restoration.	Natures Network	<a href="https://nalcc.databasin.org/datasets/3d670fad4c924e7ba2ae02f04a128256/">https://nalcc.databasin.org/datasets/3d670fad4c924e7ba2ae02f04a128256/</a>
	VA SAV layer: SAV 2017-2021	Submerged Aquatic Vegetation (SAV) locations from 2017-2021, shown by the Virginia Marine Resources Commission.	Identify locations of submerged aquatic vegetation for habitat and future marsh considerations.	VA Marine Resources Commission	<a href="https://webapps.mrc.virginia.gov/public/maps/chesapeakebay_map.php">https://webapps.mrc.virginia.gov/public/maps/chesapeakebay_map.php</a>
	MD Finfish data layers	Composition of layers pertaining to diversity of fisheries in Maryland's bay area, as well as geographic location of non-tidal tier II streams and catchment areas.	Identify locations and quality of fisheries and water bodies for habitat and future marsh considerations.	MD iMAP, DNR	<a href="https://geodata.md.gov/imap/rest/services/Biota/MD_Finfish/MapServer">https://geodata.md.gov/imap/rest/services/Biota/MD_Finfish/MapServer</a>

	Land use - Forests	1m land use/ land cover data, depicting forest land.	Identify where forests would be lost from allowing marsh migration.	CBP High Resolution Land Use/ Cover	<a href="https://cicgis.org/arcgis/rest/services/LU/LC/bay_lu_tif/ImageServer">https://cicgis.org/arcgis/rest/services/LU/LC/bay_lu_tif/ImageServer</a>
Communities	NOAA SLR Viewer Nuisance Flooding	The high tidal flooding layer is also often called "recurrent or nuisance flooding". The changes in high tide flooding over time are greatest where elevation is lower, local RSL rise is higher, or extreme variability is less.  The flood thresholds used in these plots are derived national flood thresholds from NOAA Technical Report NOS CO-OPS 086: Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold. The derived thresholds used here provide a national definition of coastal flooding and impacts for quantifying and communicating risk.	Identify nuisance flooding areas within both MD and VA to consider future risks/ vulnerabilities of infrastructure and the implications for marshes.	NOAA SLR Viewer	<a href="https://coast.noaa.gov/arcgis/rest/services/dc_slr/Flood_Frequency/MapServer">https://coast.noaa.gov/arcgis/rest/services/dc_slr/Flood_Frequency/MapServer</a>
	MD MDOT Nuisance Flood Layer	Flood Depth Grid consists of an image service showing geographic areas throughout the State of Maryland that are projected to be impacted by a nuisance tidal flooding scenario in year 2050. Flood Depth Grid data represents projected stillwater depths (ft) during a 'nuisance' tidal flooding scenario. This data is an attempt to aid in identifying potential vulnerabilities along Maryland's roadway infrastructure.	Identify nuisance flooding areas within MD to consider future risks/ vulnerabilities of infrastructure and the implications for marshes.	MDOT SHA Climate Change Vulnerability	<a href="https://www.arcgis.com/apps/webappviewer/index.html?id=86b5933d2d3e45ee8b9d8a5f03a7030c">https://www.arcgis.com/apps/webappviewer/index.html?id=86b5933d2d3e45ee8b9d8a5f03a7030c</a>
	FEMA Regulatory Floodplains (100 and 500yr)	1% annual chance, or 100-year floodplain and moderate-risk 0.2% annual chance, or 500-year floodplains designated by the Federal Emergency Management Agency (FEMA).	Consider locations/ extent of various FEMA floodplain designations in the context of marsh location and potential migration.	NOAA coastal flood exposure mapper	<a href="https://epa.maps.arcgis.com/home/item.html?id=2b245b7f816044d7a779a61a5844be23">https://epa.maps.arcgis.com/home/item.html?id=2b245b7f816044d7a779a61a5844be23</a>
	VA EJSscreen-Low Income Communities VA EJSscreen - Communities of Color	Indicates low income communities (30% or More of Population Under HUD 80% AMI and Under Two Times Federal Poverty Level based on 2011-2018 ACS) and communities of color (over statewide average [37.8%] based on 2014-2018 ACS)	Consider low income communities and communities of color within VA regarding marsh migration and the social considerations.	VA DEQ VA EJSscreen+	<a href="https://vadeq.maps.arcgis.com/apps/webappviewer/index.html?id=bad3e23c0d6545a1b6b36c1a45e8ed43">https://vadeq.maps.arcgis.com/apps/webappviewer/index.html?id=bad3e23c0d6545a1b6b36c1a45e8ed43</a>
	MD EJSscreen EJScore (Census Tract)	Population Burden and Population Characteristics, and Maryland Environmental Justice Screen (MD EJSscreen) Indicators contain a number of relevant indicators, and an average score. The two "Pollution Burden" average scores are then averaged together and the result is multiplied by the average of the "Population Characteristics" categories to get the total EJ Score of each tract.	Consider communities with high environmental justice risk factors within MD regarding marsh migration and the social considerations.	Maryland EJSscreen	<a href="https://p1.cgis.umd.edu/mdejscreen/help.html">https://p1.cgis.umd.edu/mdejscreen/help.html</a>
Marsh Vulnerability	VA WetCAT Vulnerability	Vulnerability of tidal marshes to climate change for the time periods 2050 and 2100 throughout Virginia. The vulnerability scores given to the marshes combine exposure, sensitivity and adaptive capacity of wetland habitats within tidally-connected wetland complexes.	Consider tidal marsh vulnerability in VA for 2050 and 2100 near the focus areas and marsh migration potential.	VIMS	<a href="https://cmap2.vims.edu/arcgis/rest/services/WetCAT/VulnerabilityAssessments/MapServer">https://cmap2.vims.edu/arcgis/rest/services/WetCAT/VulnerabilityAssessments/MapServer</a>
Water Quality	Trust Fund Priority Zones - Current	Chesapeake and Atlantic Coastal Bays Trust Fund (Trust Fund) allows Maryland to accelerate Bay restoration by focusing limited financial resources on the most effective non-point source pollution control projects. This data depicts the Bay Trust Fund current priority zones. Priority funding areas for FY12 were developed using information from the USGS SPARROW model and local knowledge and expertise.	Identify locations of trust fund priority areas in MD where funding/ projects are currently being focused.	MD iMap	<a href="https://geodata.md.gov/imap/rest/services/Environment/MD_TrustFund/MapServer/1">https://geodata.md.gov/imap/rest/services/Environment/MD_TrustFund/MapServer/1</a>