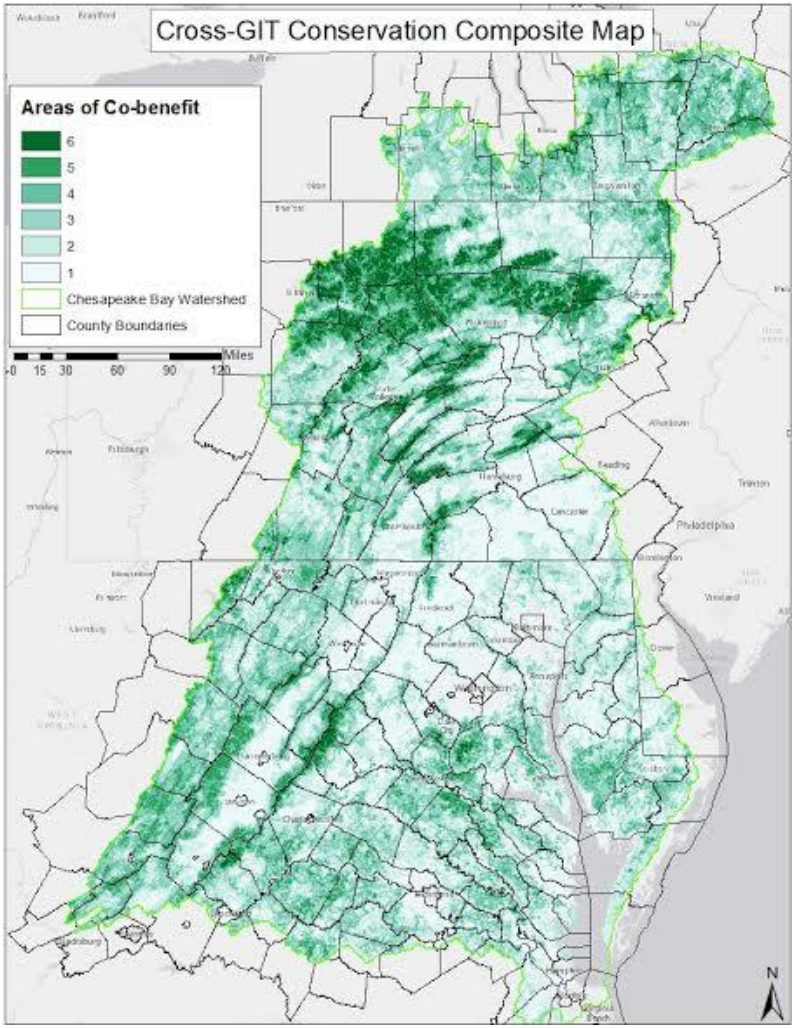
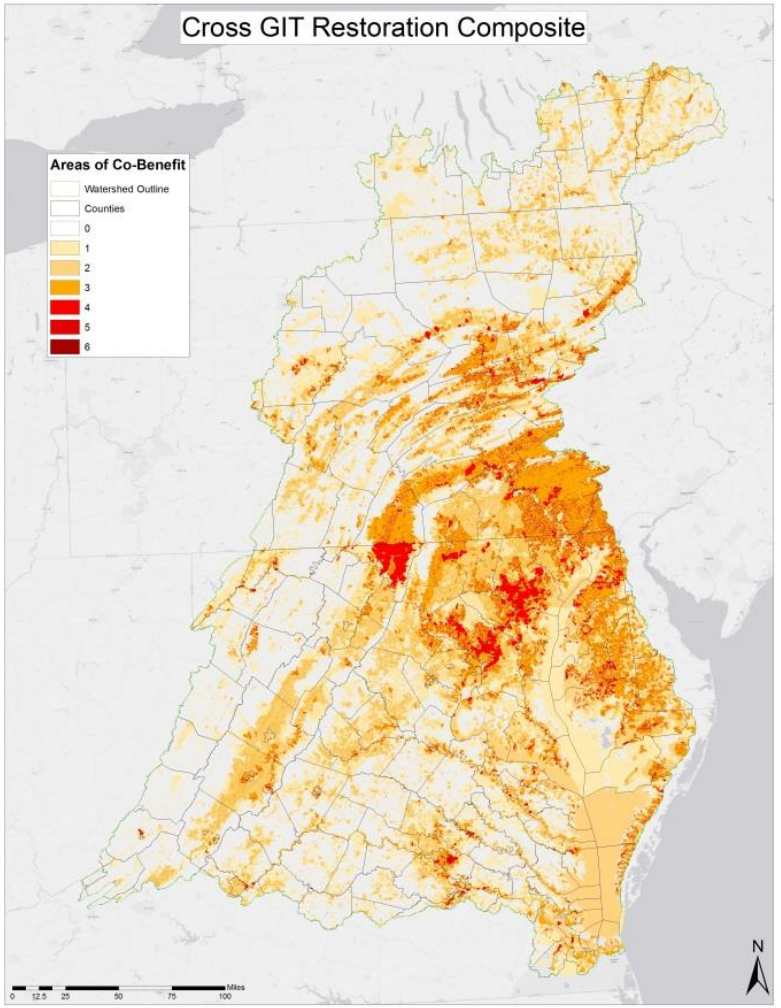
ATTACHMENT 2: Current Composite Maps and Contributing Data Inventories

Cross-GIT Restoration Composite Inventory 1/23/2017		
GIT	Layer	Layer Description
3	Designated Use NonAttaining	The Bay and its tidal tributaries can be divided into 92 segments. Each of these segments contains up to five "designated uses," including deep channel; deep water; open water; shallow water; and migratory fish, spawning and nursery. Each of these designated uses—also known as aquatic habitats—has its own set of criteria for dissolved oxygen, water clarity/underwater grasses and chlorophyll *a* designed to protect those uses. This map shows the segments that have and have not attained the 1 or any designated use criteria. Attainment of Water Quality Standards is the ultimate goal of the Chesapeake Bay TMDL.
3	All Toxic contaminant Impairments	NHDplus V1 catchments (inland) and state monitoring segments (tidal) that contain a full or partial overlay with state designated impairments pertaining to all Toxic Contaminant Impairments: Ammonia, Cyanide, Oil and grease, Metals other than mercury, Mercury, Pcbs, Pesticides, pH/Acidity/Caustic Conditions, Salinity/Total dissolved solids/Chlorides/Sulfates, Toxic organics, Total Toxics.
3	SPARROW Nutrient Yields Top 25% Loads to the Bay Nitrogen	This dataset contains mean-annual total nitrogen (TN) fluxes predicted by the SPARROW models, CBTN_v4, for individual stream and shoreline reaches in the Chesapeake watershed as defined by NHDPlus, a 1:100,000 scale representation of stream hydrography built upon the National Hydrography Dataset (NHD) (Horizon Systems, 2010; Simley and Carswell, 2010).
3	SPARROW Nutrient Yields Top 25% Loads to the Bay Phosphorus	This dataset contains mean-annual total Phosphorus (TP) fluxes predicted by the SPARROW model, CBTP_v4, for individual stream and shoreline reaches in the Chesapeake watershed as defined by NHDPlus, a 1:100,000 scale representation of stream hydrography built upon the National Hydrography Dataset (NHD) (Horizon Systems, 2010; Simley and Carswell, 2010).
1	Oyster Restoration Areas	The Oyster Restoration Management Strategy goal is to restore native oyster habitat and populations in 10 tributaries by 2025. Six tributaries have been selected for oyster restoration at this time, Harris Creek, the Little Choptank, and Tred Avon rivers in Maryland and the Lafayette, Lynnhaven and Piankatank rivers in Virginia. This map depicts the location of current oyster restoration efforts.
1	National Fish Habitat Inland Assessment (risk of current habitat degradation)	The National Fish Habitat Partnership compiled freshwater datasets available at the national scale to develop habitat vulnerability scores across the United States. Datasets included anthropogenic disturbances and accounted for natural variation at different spatial scales. Chesapeake Bay watershed scores depict the current risk of habitat degradation and do not represent regional or local data sets for specific watersheds or geographies. The most limiting disturbances for Chesapeake Bay habitats were found to be agriculture, urbanization, mining and nutrients. The areas shown on this map indicate a high risk or very high risk of habitat degradation within the watershed.
2	Index of Ecological Integrity (NALCC) – Less than 25%	The index of ecological integrity (IEI) is a measure of relative intactness (i.e., freedom from adverse human modifications and disturbance) and resiliency to environmental change (i.e., capacity to recover from or adapt to changing environmental conditions driven by human land use and climate change) on a 0-1 scale. It is a composite index derived from up to 21 different landscape metrics, each measuring a different aspect of intactness (e.g., road traffic intensity, percent impervious) and/or resiliency (e.g., ecological similarity, connectedness) and applied to each 30 m cell. The IEI acts as an all-encompassing measure of habitat quality, and provides inclusion of both habitat types addressed by the Watershed Agreement (with Management Strategies and Outcomes) and those omitted.


Cross-GIT Conservation Composite Map
Areas of Co-benefit
6
5
4
3
2
1
Chesapeake Bay Watershed
County Boundaries
Miles
0 15 30 60 90 120
N


Cross GIT Restoration Composite
Areas of Co-Benefit
Watershed Outline
Counties
0
1
2
3
4
5
6
N

Cross GIT Conservation Composite Inventory – 1/23/2017		
GIT	Layer	Layer Description
1	Priority Living Resources Areas – Water Column (surrogate for Fish Habitat)	Target species were acquired from the list in Habitat Requirements for Chesapeake Bay Living Resources, Second Edition (1991) to contribute to a map of priority living resource areas. Water column species which had habitat requirements that could be directly affected by excess nutrients or sediments were identified and included in this spatial depiction. Species selected for water column habitat included: menhaden, striped bass, anchovy, alewife, hickory shad, American shad, yellow perch, white perch, blueback herring, largemouth bass, and chain pickerel. This map was combined with the bottom dwelling habitat map, and overlapped areas were included in the development of a priority living resources map.
1	Priority Living Resources Areas – Bottom Dwelling (surrogate for Fish Habitat)	Target species were acquired from the list in Habitat Requirements for Chesapeake Bay Living Resources, Second Edition (1991) to contribute to a map of priority living resource areas. Bottom dwelling species which had habitat requirements that could be directly affected by excess nutrients or sediments were identified and included in this spatial depiction. Species selected for bottom dwelling habitat included: blue crab, oyster, soft shell clam, hard shell clam, spot, speckled sea trout, postlarval blue crab, catfish, summer flounder, Atlantic sturgeon, and croaker. This map was combined with the bottom dwelling habitat map, and overlapped areas were included in the development of a priority living resources map.
1	Potential Oyster Habitat	This layer is derived from NOAA's Coastal and Marine Ecological Classification Standard. This data describes the bottom substrate conditions that can support oyster populations if potential salinity or depth (dissolved oxygen) constraints are met. Benthic data were aggregated from multiple sources to create a baywide record of seabed material in the Chesapeake Bay. Habitat polygons are classified with an adaptation of the Coastal and Marine Ecological Classification Standard (CMECS) Substrate Component (SC). Source data were collected during the interval 1842-2014. Because of potential temporal changes in bottom conditions and deficiencies in survey methodology, benthic habitat characterizations may be in error in some areas. These are, however, the best data currently available. This is a dynamic dataset. As new surveys occur the resulting CMECS habitat characterizations will spatially replace existing habitat depictions
1	National Fish Habitat Inland Assessment (risk of current habitat degradation)	The National Fish Habitat Partnership compiled freshwater datasets available at the national scale to develop habitat vulnerability scores across the United States. Datasets included anthropogenic disturbances and accounted for natural variation at different spatial scales. Chesapeake Bay watershed scores depict the current risk of habitat degradation and do not represent regional or local data sets for specific watersheds or geographies. The most limiting disturbances for Chesapeake Bay habitats were found to be agriculture, urbanization, mining and nutrients. The areas shown on this map indicate a very low, low, or moderate risk of habitat degradation within the watershed.
2	Regional Conservation Opportunity Areas Cores and Connectors	The RCOA vision is to identify and map a connected network of resilient and ecologically intact habitats that will support biodiversity under changing conditions to prioritize restoration and inform land protection. RCOAs will supplement State Wildlife Action Plans in identifying core habitats and restoration/connectivity opportunities. Similar to the IEI, the RCOAs follow a complete wildlife approach. It shows areas where conservation and restoration will have the largest impact on threatened species and habitats.
2	Brook Trout	This dataset represents areas with subwatershed priority scores that are intended to assist in identifying areas that are best suited for brook trout protection, enhancement, and restoration projects. The higher the subwatershed score, the higher the priority for conservation action. Priority scores for the EBTJV subwatersheds, which have a range of 0-2, were developed using a model-based approach that relates a measure of priority with a set of variables associated with the subwatersheds. This prioritization method also adds a measure of priority from neighboring subwatersheds to take into account the potential to increase habitat connectivity and resilience. This is important to our GIT because the Brook Trout is a representative species of healthy habitats. Brook Trout symbolize healthy waters because they rely on clean, cold stream habitat and are sensitive to rising stream temperatures.
2	Index of Ecological Integrity (NALCC) Greater than 75% intact	The index of ecological integrity (IEI) is a measure of relative intactness (i.e., freedom from adverse human modifications and disturbance) and resiliency to environmental change (i.e., capacity to recover from or adapt to changing environmental conditions driven by human land use and climate change) on a 0-1 scale. It is a composite index derived from up to 21 different landscape metrics, each measuring a different aspect of intactness (e.g., road traffic intensity, percent impervious) and/or resiliency (e.g., ecological similarity, connectedness) and applied to each 30 m cell. The IEI acts as an all-encompassing measure of habitat quality, and provides inclusion of both habitat types addressed by the Watershed Agreement (with Management Strategies and Outcomes) and those omitted.
2	American Black Duck habitat	Place holder for Black Duck Capacity Maps from NALCC
3	Designate Use Attainment	The Bay and its tidal tributaries can be divided into 92 segments. Each of these segments contains up to five "designated uses," including deep channel; deep water; open water; shallow water; and migratory fish, spawning and nursery. Each of these designated uses—also known as aquatic habitats—has its own set of criteria for dissolved oxygen, water clarity/underwater grasses and chlorophyll *a* designed to protect those uses. This map shows the segments that have been designated as attaining all designated use criteria. Attainment of Water Quality Standards is the ultimate goal of the Chesapeake Bay TMDL.
4	State Identified Healthy Waters and Watersheds	The data presented in this map is based on state derived definitions and classifications of their own healthy waters and watersheds. Healthy watersheds begin with healthy streams, and bring resilience to the region in the form of clean water, critical habitat and social and economic benefits. Healthy watersheds are also a bargain: protecting them is much less expensive than restoring degraded waters.