

Chapel Island/James River Public Access Enhancement Project

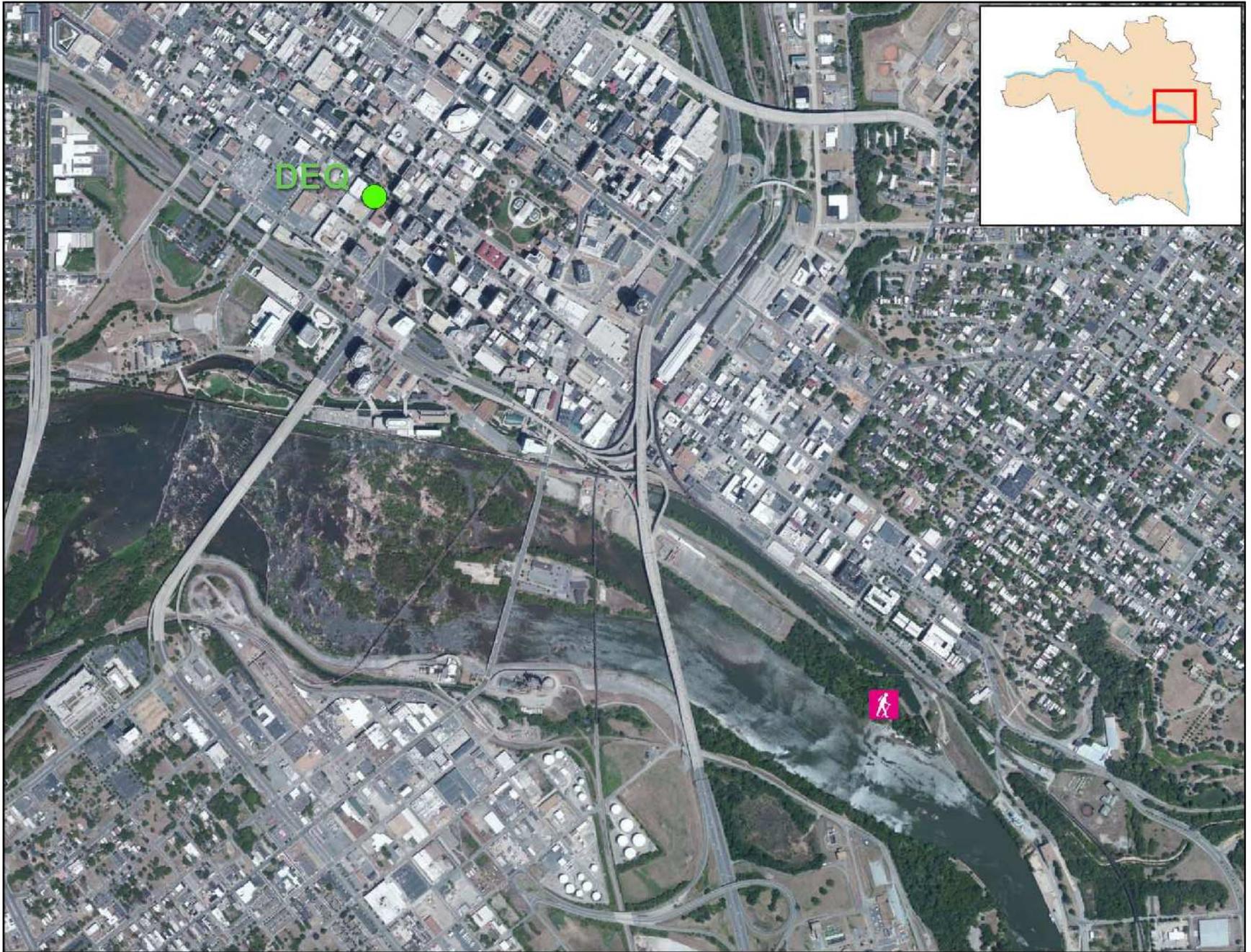
Richmond Regional Planning District Commission
&
Virginia Coastal Zone Management Program

Coastal Partners Workshop
December 6, 2012



Virginia Coastal Zone
MANAGEMENT PROGRAM





CSO Retention Basin
Estimated Expansion

The middle portion of the Chapel Island trail is intended to make use of the existing Access Road bed



CONCEPTUAL Chapel Island/James River Public Access Enhancement Project Virginia Coastal Zone Management Grant Funds

Draft July 27, 2012



Project Partners & Stakeholders

- RRPDC
- Virginia CZM
- City of Richmond Dept of Public Utilities
- City of Richmond Dept of Parks & Recreation
- Friends of the James River Park System
- Virginia Capital Trail Foundation

- Possibly more...

Proximity to Virginia Capital Trail



Richmond Riverfront Plan

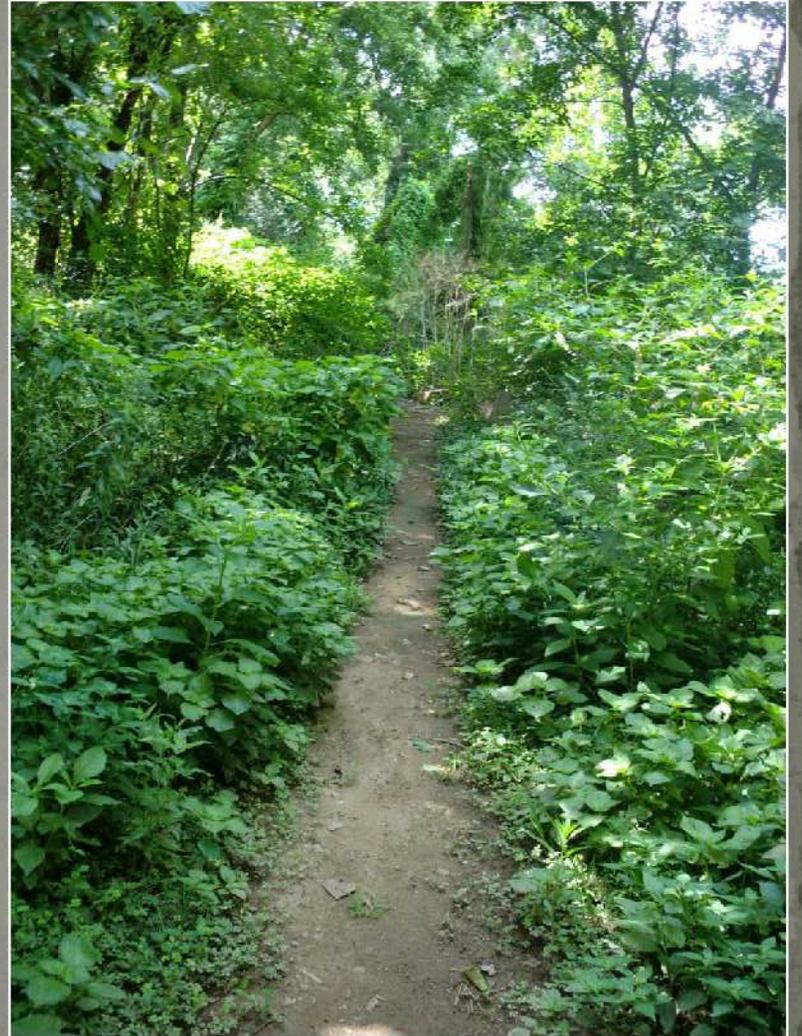


RICHMOND RIVERFRONT PLAN



CHAPEL ISLAND

Existing Access Road & Trails



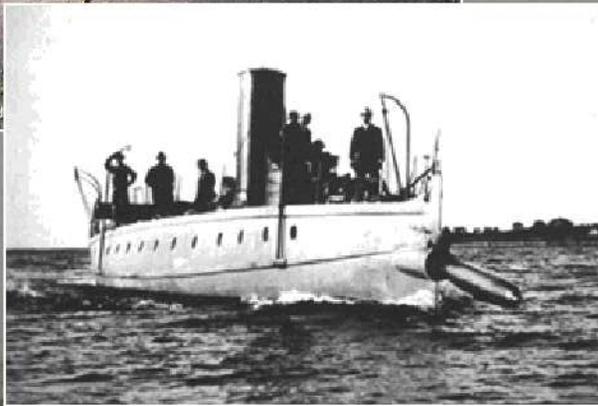
Views



Boat Put-in



Historic Trigg Shipyard



Variety of War Ships

Interpretive Signage

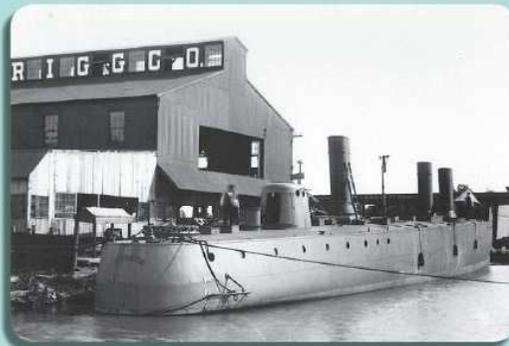
welcome to CHAPEL ISLAND

THE ISLAND ON WHICH YOU ARE STANDING HAS A RICH AND VARIED HISTORY. The first record of what is now Chapel Island - a peninsula of land running from 14th Street to Pear Street - may well have been the first record of Richmond. When Captains John Smith and Christopher Newport sailed up the James River, Smith's diary described "mountains" to the right (Church Hill), "plains" on the left (Manchester) and the "ocean" (the Fall Line rapids) before them. It is possible the name "Chapel" could have originated at this time for on May 24, 1607, Newport erected a cross around the present day location of 14th and Cary Streets.

In 1816, the Richmond Dock Company built three basins forming a ship harbor and a series of wooden locks to serve as the City's primary shipping terminal. The James River Company purchased and improved the lock system to complete the "tidewater connection" in 1854. It consisted of five stone locks, the improved Richmond dock, and the Great Ship Lock, over which you walked to get here.

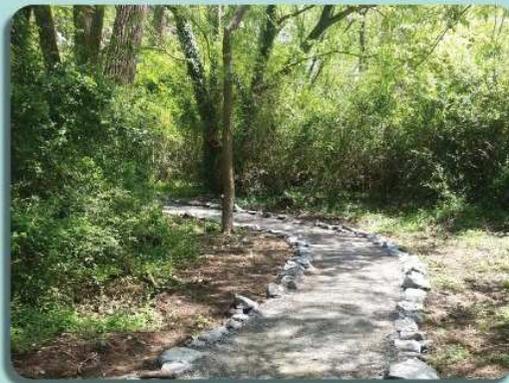


Captain John Smith, circa 1616.
(Courtesy of Encyclopædia Britannica)



Above: The USS Thorton sitting out at the Trigg Shipyard, 1900.
(Courtesy of the Naval Historical Center)

Below: Trails covering the eastern tip of the island. (Courtesy of RRPDC)



THE CANAL ERA ENDED IN 1880 DUE TO COMPETITION FROM RAIL TRANSPORT, but the area around you continued to serve as an industrial site. From 1898 to 1903, great ships were built here at the Trigg Shipyard, which produced vessels of war such as steam torpedo boats and destroyers. As you walk around the island's trails, you will come across the only remnants of the Trigg Shipyard - the large concrete walls just southwest of the canal bridge.

TODAY, FIVE ACRES OF THE ISLAND'S 25 ACRES ARE NATURAL AND ACCESSIBLE FOR RECREATION. A major portion of the island is covered by the retention basin for the City's Combined Sewer System (CSS) as shown in the aerial image above.

Thanks to a grant from the Virginia Coastal Zone Management Program and the help of many volunteers, the City of Richmond, and the Richmond Regional Planning District Commission (RRPDC), there is a half-mile gravel trail winding around the island with interpretative signs like this one. The grant also funded a kayak/canoe launch just down the path to the left, which gives access to the tidal section of the James River. The island is accessed by a now immovable 1929 bascule bridge leading to a Norfolk Southern railway siding.



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This project is funded in part by NOAA's National Coastal Zone Management Program.

Interpretive Signage

WATER QUALITY *in the* JAMES

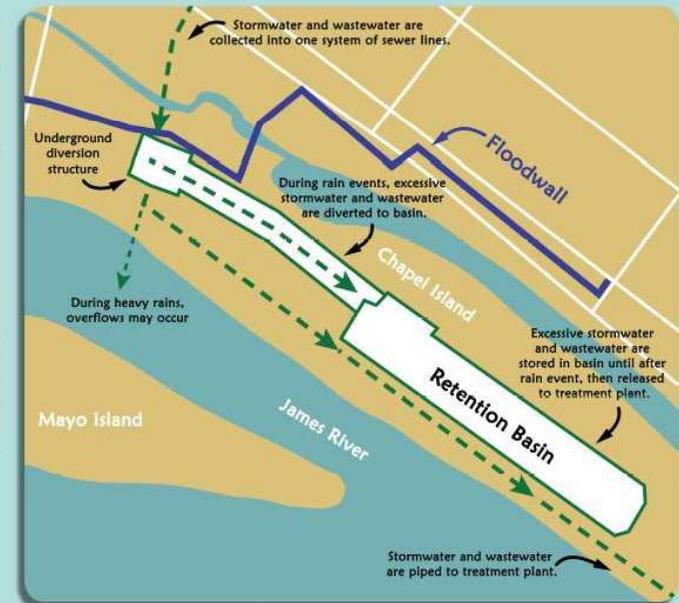
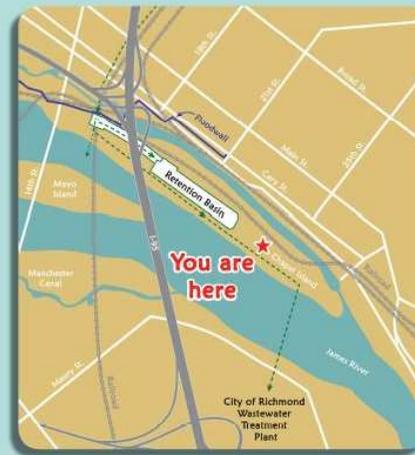
FOR MUCH OF THE 20TH CENTURY, the James River became extremely contaminated with acids used in metal production, bases and dyes used in paper manufacturing, and untreated sanitary wastewater. As was common practice in most cities, the James River was used to dilute wastewater and carry it away from populated areas. Sewers constructed before 1950 delivered wastewater directly to the river without treatment. Illness and disease were common occurrences for people who came in contact with the river. In 1954, the City began construction of its wastewater treatment plant, which provided solids removal, also known as primary treatment of wastewater.

THE 1972 CLEAN WATER ACT, one of the most important and successful Federal laws impacting public health, restricted the release of industrial wastes into water bodies and required the construction of wastewater treatment plants meeting secondary treatment requirements. Richmond's existing wastewater treatment plant, located on the other side of the river just downstream from here, was upgraded to meet the requirements for removing solids and organic material prior to discharge in the James River. Additional regulations such as the Chesapeake Bay Preservation Act continue to require water quality protection measures that result in the removal of nitrogen and phosphorus to protect the James River and Chesapeake Bay ecosystems.

YOU ARE SURROUNDED BY THE INFRASTRUCTURE THAT MAKES ALL THIS POSSIBLE. Miles of sewers are necessary to collect wastewater and convey it to the treatment plant. Richmond's original sewer system, some of it dating back to the late 1800s, was comprised of pipes that carried a combination of sanitary wastewater and stormwater runoff. No longer constructed, this type of Combined Sewer System (CSS) may be overwhelmed by large rain fall events. In these events, the CSS is designed to overflow at designated locations called combined sewer outfalls (CSO). The original CSS still serves over one-third of the area within the City of Richmond, although only separate sanitary wastewater and stormwater sewer systems have been constructed since the 1950s. The City has invested a large amount of resources to reduce overflows and close outfalls where possible.

THE DIAGRAM AT THE RIGHT shows how the Shockoe Retention Basin works. During dry weather, wastewater flows from the Shockoe Creek CSS area through the large Shockoe Arch Sewer and the Shockoe Diversion Structures to the 96-inch Shockoe Creek Interceptor and ultimately to the wastewater treatment plant across the river for full treatment. During rain fall events, combined wastewater and stormwater flows through the Shockoe Arch Sewer and is diverted into the Shockoe Retention Basin. At the same time, the wastewater treatment plant increases its pumping and treatment capacity to maximize the treatment of combined wastewater and stormwater, up to its wet-weather capacity of 75 million gallons per day. The contents of the Shockoe Retention Basin are held here until it can be pumped through large pipes to Richmond's wastewater treatment plant for full treatment.

DESPITE THESE MAJOR ADVANCES, water quality in the James River is far from perfect. The brown color of the water indicates that silt and sediment are flowing off of farm fields, construction sites, and other disturbed lands upstream. Occasionally, due to extremely heavy rain fall events, combined sewer overflows containing untreated stormwater may discharge into the river, though these events have been greatly reduced due to the construction of the Shockoe Retention Basin and other structures. It is advised that you do not swim in the river after heavy rain fall events due to increased exposure to bacteria from untreated runoff.



Interpretive Signage

here stood the TRIGG SHIPYARD

THE CONCRETE WALLS IN FRONT OF YOU are all that is left of the once-bustling Trigg Shipyard. The yard employed 2,000 men and was comprised of 16 large industrial buildings on a 25-acre site with 20 acres in water, dock, and boat basin. In 1898, Richmond business man William R. Trigg, already a successful and well-known fabricator of locomotives, announced several contracts for steam torpedo boats and destroyers for the U.S. Navy.

Torpedo boats were those used to attack larger ships, first introduced in the Civil War. Destroyers, short for "Torpedo Boat Destroyers", were introduced shortly thereafter to attack the torpedo boats. On October 31, 1899, President William McKinley, his cabinet, and 30,000 observers attended the launch of the first boat, the USS Shubrick. The yard built torpedo boats, destroyers, steamers, cruisers, tugboats, dredges, and cutters until 1903 when William Trigg declared bankruptcy. The last ship to be built, the USS Galveston, was unfinished and eventually transported to the Norfolk Naval Shipyard for completion.



Above: The retaining walls as they exist today, from east side facing southwest. (Courtesy of RRPDO)
Below: Trigg Shipyard, circa 1900. (Courtesy of the Library of Virginia)

SHIPS WERE LAID DOWN IN A DRY DOCK OR "CAISSON". The photo on the right (looking west) shows two of the largest and well-known ships, the USS Decatur and the USS Dale, being fitted out in 1900. The stadium-like structure could be emptied of water to create a protected area for construction. Opening the gate filled the caisson with water to allow ship launching into the canal. The buildings in the background supported the ship-building operations.

THE PLACE IN WHICH YOU ARE NOW STANDING was once under water in a "laying up basin," an area for ships to move in and out of the caisson. The wall remnants before you (photo left) formed the ship lock shown on the map below. In the woods west of where you are standing is a long, vertical depression which may be the only remaining evidence of the huge caisson.



Above: USS Decatur and USS Dale fitting out circa 1902. (Courtesy of the Library of Virginia)



Right: USS Dale in 1900. (Courtesy of Navesource.org)



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This project is funded in part by NOAA's National Coastal State Management Program.

Interpretive Signage

the TIDAL JAMES

THE VIEW BEFORE YOU is the westernmost section of the tidal portion of the James River. The James stretches from headwaters in the Appalachian Mountains to the Chesapeake Bay, and is one of the United States' six longest rivers whose watershed lies entirely in one state.

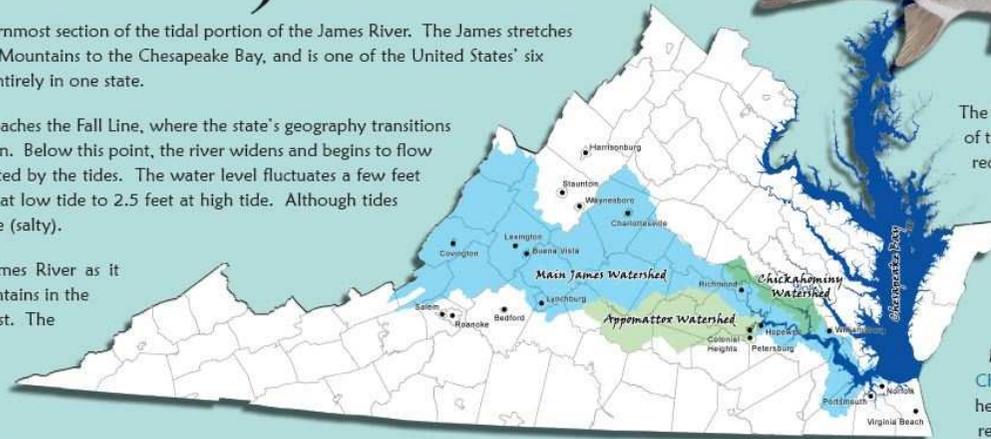
In the middle of the city, the James reaches the Fall Line, where the state's geography transitions from the Piedmont to the Coastal Plain. Below this point, the river widens and begins to flow more slowly and deeply, and is affected by the tides. The water level fluctuates a few feet every six hours, rising about 0.5 feet at low tide to 2.5 feet at high tide. Although tides do affect the river here, it is not saline (salty).

The map at the right shows the James River as it flows through Virginia from the mountains in the west to the Chesapeake Bay in the east. The areas highlighted in light blue are the main James River watershed. Every rain drop that falls within the approximately 10,000 square miles of the watershed eventually flows into the James, and now passes Chapel Island. East of Richmond, the James is joined by the Appomattox and then the Chickahominy rivers (whose watersheds are shown in light and dark green), bringing all the rain and runoff from their watersheds.

HUMAN ACTIVITIES IN THESE WATERSHEDS AFFECT THE RIVER AND THE CHESAPEAKE BAY. Rain washes chemicals and debris into the rivers, which eventually find their way to the Bay. Litter on the ground, chemicals on roadways, parking lots, and lawns, and nutrients and bacteria from agricultural facilities all have negative effects on water quality.

THE CLOSE PROXIMITY TO THE ATLANTIC OCEAN AND THE BAY, as well as deep waters with few obstructions, allow several species to migrate up to the Fall Line, including **Atlantic Sturgeon**, **Shad** and **Blue Crab**. **American** and **Hickory Shad** come up the river to spawn in the spring. For a couple of months each spring, large concentrations of shad are present in the tidal James, bringing many sport fishermen to the river.

The **Striped Bass**, or **Rockfish**, is another fish which migrates up the James, from the Bay to Richmond. Though present in small numbers all year, they are most plentiful in the spring.



Atlantic Sturgeon

The tidal reaches of the James River support the last viable population of the iconic **Atlantic Sturgeon** in the Chesapeake Bay watershed. Listed recently as a federally endangered species, the Atlantic Sturgeon is the largest, oldest, and arguably the most interesting inhabitant of Virginia's coastal rivers, which historically supported a major fishery for meat and caviar. Construction of dams, sediment pollution, and overfishing almost eradicated this migratory species from Virginia waters, but ambitious efforts are underway to restore critical habitat and support the species' recovery.

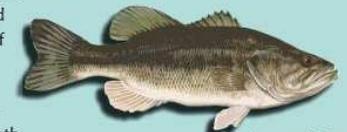
Many common James River fishes, including **Largemouth Bass** and **Channel Catfish**, are not native to coastal Virginia, but were introduced here to provide enhanced fishing for recreational anglers.

Two of these species, the **Blue Catfish** and



Flathead Catfish

Flathead Catfish, were stocked in the James River several decades ago and have since expanded into many coastal and estuarine habitats. As adults, both species are top predators and may be responsible for unintended impacts on native fish and fisheries throughout much of Chesapeake Bay.



Largemouth Bass

Other fish found in this section of the river are the **Common Carp** and the **Bluegill Sunfish**, both non-native, invasive species.



Common Carp



Bluegill Sunfish



American Shad



Striped Bass (Rockfish)

KEEP IT CLEAN!

Help protect our river by picking up after yourself and your pets during your visit to Chapel Island. Even a small amount of litter, fishing line, or pet waste can be devastating to wildlife living on the island and in the river.



Virginia Coastal Zone MANAGEMENT PROGRAM



This sign created in cooperation with the Virginia Commonwealth University Center for Environmental Studies

This project is funded in part by NOAA's National Coastal Area Management Program.

Project to be
totally completed
in the summer of
2013.

