# User's Guide

Introduction

Welcome to the Location File for Norfolk, Virginia! This Location File covers the James River from the western end of Jamestown Island to Chesapeake Bay. It also includes the Elizabeth River, from Paradise Creek to the James River. The James River originates in the Allegheny Mountains and flows to the southeast, terminating in the Chesapeake Bay. It drains approximately one fourth of the Commonwealth of Virginia. Commercial navigation extends from Chesapeake Bay up river approximately 80 miles [128 km] to Richmond, Virginia.
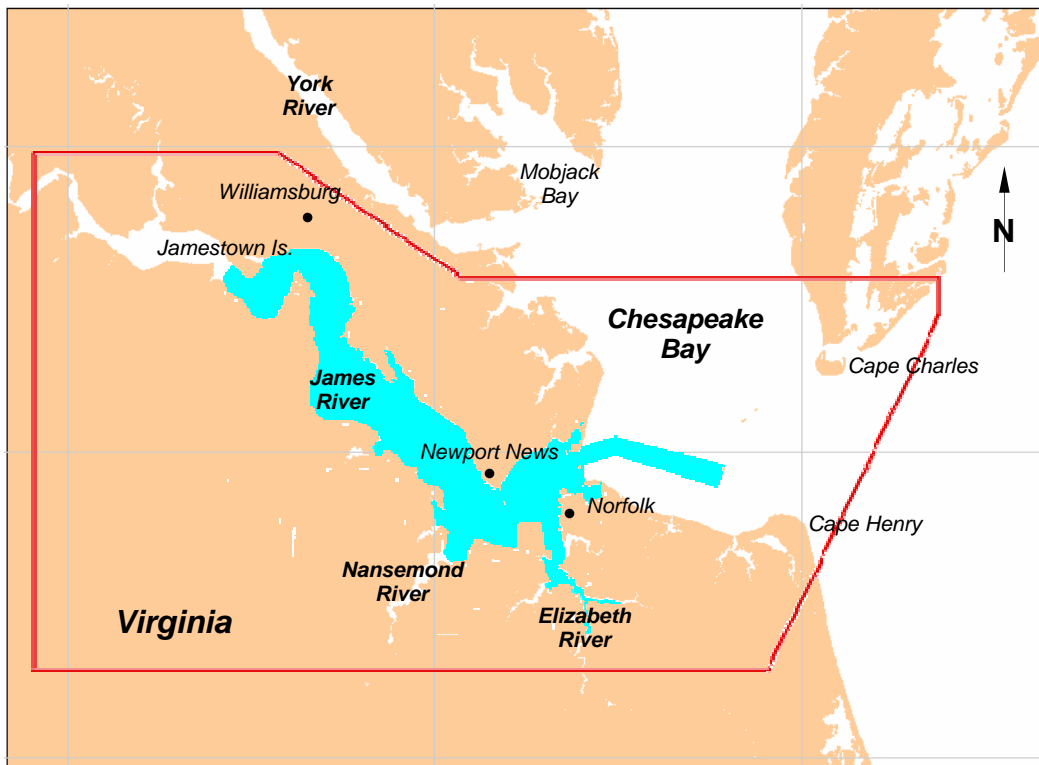
The red polygon represents the region included in the Norfolk Location File. The blue region shows the "spillable area" (the region where spills can be set) in this Location File.

NOAA has created Location Files for different U.S. coastal regions to help you use the General NOAA Oil Modeling Environment, GNOME. In addition, on a case-by-case basis, NOAA develops international Location Files when working with specific partners. Each Location File contains information about local oceanographic conditions that GNOME uses to model oil spills in the area covered by that Location File. Each Location File also contains references (both print publications and Internet sites) to help you learn more about the location you are simulating.

As you work with the Location File for Norfolk, GNOME will prompt you to:

1. Choose the model settings (start date and time, and run duration).

2. Input the wind conditions.

GNOME will guide you through each of these choices. Each window has a button that leads you to helpful information and the general Help topic list. Click the Help button anytime you need help setting up the model. For example, when you need to input the wind conditions in GNOME, you can click the "Finding Wind Data" button to see a list of web sites that publish wind data for this region.

More information about GNOME and Location Files is available at http://response.restoration.noaa.gov/software/gnome/gnome.html.

Technical Documentation

Background

This Location File is designed to simulate the river flow from Jamestown Island to Chesapeake Bay. Hampton Roads is a natural tidal basin formed by the confluence of the James, Nansemond, and Elizabeth Rivers. The area has been a major anchorage point since colonial times. The port is located approximately 18 miles [29 km] from open ocean and is one of the world's deepest, natural ice-free harbors.

At this point, the James and Elizabeth rivers are tidal, not inputting enough fresh water to significantly drive surface currents when compared to the tides.

Current Patterns

The Norfolk Location File contains one current pattern, which was developed using the NOAA Current Analysis for Trajectory Simulation (CATS) hydrodynamic application. The tidal current pattern is scaled to the tidal prediction station at Carney Island Reach, station number 5276 (36° 53.43' N, 76° 20.15' W). The tidal pattern is reflective of a net outward transport of water from both the James and Elizabeth Rivers.

References

You can get more information about the lower James and Elizabeth Rivers from these publications and web sites.

General Information

Mouth of the Bay, Hampton Roads & James River
    http://www.baygateways.net/region_mouthofbay.cfm
Information about Chesapeake Bay, and its watershed and regions, provided by Chesapeake Bay Gateways Network.

The Port of Virginia
    http://www.vaports.com/
A brief description of the Port of Virginia, provided by the Virginia Port Authority/Virginia International Terminals, Inc.

Oceanography

U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS). 2005. Tide Tables 2005, East Coast of North and South America including Greenland. Silver Spring, MD: NOS. 415 pp.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS). 2005. Tide Current Tables 2005, Atlantic Coast of North America. Silver Spring, MD: NOS. 235 pp.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS). 2005. United States Coast Pilot 3, Atlantic Coast: Sandy Hook, NJ to Cape Henry, VA. 38th Edition. Washington, DC: NOS. 373 pp.

Chesapeake Bay PORTS Data Products
    http://140.90.121.76/cbports/cbpics_all.shtml
Real-time graphic displays of Physical Oceanographic Real-Time System (PORTS) data products, provided by NOAA National Ocean Service (NOS), Center for Operational Oceanographic Products and Services (CO-OPS).

Naval Meteorology and Oceanography Center - Norfolk
    http://www.nlmoc.navy.mil/home1.html
Oceanographic and meteorological products.

Wind and Weather

National Weather Service (NWS) - Norfolk, VA
    http://www.srh.noaa.gov/data/forecasts/VAZ095.php?warncounty=VAC710&city=Norfolk
Current conditions and forecast for Norfolk, VA.

National Weather Service (NWS) Forecast Office - Wakefield, VA
    http://www.erh.noaa.gov/akq/update.htm
NWS forecasts and discussions for Wakefield, VA.

National Data Buoy Center - Station Information for Station SWPV2 - Sewells Point, VA
    http://www.ndbc.noaa.gov/station_page.php?station=swpv2
Observations and marine forecast for Station SWPV2 - 8638610 - Sewells Point, VA. Provided by NOAA's National Ocean Service (NOS).

Naval Meteorology and Oceanography Center - Norfolk
    http://www.nlmoc.navy.mil/home1.html
Meteorological and oceanographic products.

Oil Spill Response

NOAA Hazardous Materials Response Division (HAZMAT)
   http://response.restoration.noaa.gov
Tools and information for emergency responders and planners, and others concerned about the effects of oil and hazardous chemicals in our waters and along our coasts.