

## User's Guide

Welcome to the Location File for Tampa Bay! Located in the southeastern U.S., Tampa Bay is Florida's largest open-water estuary. More than 100 tributaries flow into Tampa Bay, including dozens of creeks and four rivers—the Hillsborough, Alafia, Manatee, and Little Manatee.



NOAA 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 Tampa Bay, 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 choosing the model settings and entering the wind conditions. Click the Help button anytime you need help setting up the model. Check the "Finding Wind Data" Help topic 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***

Tampa Bay is one of the few estuaries in the U.S. that is not associated with a large river. Located in west-central Florida, where the winters are warm and the summers are hot and humid, the total Tampa Bay watershed (comprised of the Hillsborough, Alafia, Little Manatee, and Manatee Rivers) receives an average of 50 to 56 inches of precipitation each year, depending on the location. More than half (60%) of the precipitation occurs from June to September. (M.S. Flannery, "Tampa and Sarasota Bays: Watersheds and Tributaries" NOAA Estuary of the Month, pp 18-48.)

Tampa Bay is a broad, shallow, well-mixed tidal estuary with a surface area of 346 square miles and an average depth of 12 feet. The tidal range is also small, about 2 feet. These features lead to primarily horizontal circulation with the ebb and flood tides not necessarily exactly canceling. (C.R. Goodwin, "Circulation of Tampa and Sarasota Bays" NOAA Estuary of the Month, pp 49-64.) GNOME does not simulate these tidal recirculation areas, but these features are generally small (4 nm in diameter or less).

### ***Current Patterns***

The circulation of Tampa Bay and the surrounding areas is simulated with four tidal patterns and an offshore pattern. The tidal patterns were selected because they are each representative of different circulation regimes and have significant tidal phase differences (approximately one hour). The tide stations listed below were used to scale the current patterns in their areas:

<b>Clearwater Pass</b> (0.2 mi NE of Sand Key)	27° 57.4' N, 82°, 49.4' W
<b>Blind Pass</b>	27° 45.4' N, 82°, 45.7' W
<b>Tampa Bay Entrance</b> (Egmont Channel)	27° 36.26' N, 82°, 45.62' W
<b>Longboat Pass</b>	27° 26.5' N, 82°, 41.4' W

**Clearwater Pass** drives the circulation in the southern portion of St. Joseph Sound through Clearwater Harbor and The Narrows, including Hurricane Pass, Dunedin Pass, and Clearwater Pass. **Blind Pass** drives the circulation through south of The Narrows through Boca Ciega Bay, including Johns Pass and Blind

Pass. **Tampa Bay Entrance** drives the circulation throughout Tampa Bay. **Longboat Pass** drives the circulation from Anna Maria Sound south through Sarasota Bay.

The **Offshore** current pattern is tied to the northerly component of the wind forecast and is scaled so that a south wind of 4.5 m/s will generate a 15 cm/s current to the north (after Cragg and Sturges 1974).

## **References**

You can get more information about Tampa Bay from these publications and web sites.

### **Oceanographic**

Cragg, J. and W. Sturges (1974). Wind-Induced Currents and Sea Surface Slopes in the Eastern Gulf of Mexico. Florida State University Technical Report.

NOAA Estuary-of-the-Month Seminar series No. 11 (December 1989). "Tampa and Sarasota Bays: Issues, Resources, Status and Management." Edited by Ernest D. Estavez.

Tampa Bay Physical Oceanographic Real-Time System (PORTS) web site  
<http://ompl.marine.usf.edu/PORTS/>  
Real-time data for the Tampa Bay region.

NOAA NOS Center for Operational Oceanographic Products and Services (CO-OPS)  
[http://www.co-ops.nos.noaa.gov/ports\\_screens/tbscreen.html](http://www.co-ops.nos.noaa.gov/ports_screens/tbscreen.html)  
Real-time tide, current, and meteorological conditions at the Tampa PORTS stations.

University of South Florida Department of Marine Science Ocean Modeling and Prediction Laboratory  
<http://ompl.marine.usf.edu/>  
Links to the department's Tampa Bay Circulation Model and the Tampa Bay PORTS site.

US Geological Survey (USGS)  
<http://waterdata.usgs.gov/nwis-w/FL/>  
Historical watershed data for Tampa Bay.

USGS Tampa Area Current Streamflow Conditions  
[http://www-tampa.er.usgs.gov/rt-cgi/gen\\_tbl\\_pg](http://www-tampa.er.usgs.gov/rt-cgi/gen_tbl_pg)  
Real-time streamflow data for the Tampa Bay region.

## **Wind and Weather**

NOAA National Weather Service Internet Weather Source

<http://weather.noaa.gov/>

A summary of current conditions, weather forecasts, and wind data from local airports over the previous 24 hours.

NOAA National Weather Service, Tampa Bay, Florida

<http://www.srh.noaa.gov/tbw>

Current conditions and weather forecasts.

NOAA National Ocean Service (NOS) Center for Operational Oceanographic Products and Services (CO-OPS)

<http://www.opsd.nos.noaa.gov/tbports/tbAllMET.html>

Real-time meteorological data from the Tampa Bay Ports Project.

Florida Weather Center, part of Tampa Bay Online

<http://www.weathercenter.com/>

Current conditions and weather forecasts.

NOAA NWS

<http://www.nws.noaa.gov>

Current weather observations, forecasts, and warnings for the entire U.S.

NOAA NWS graphical version

<http://iwin.nws.noaa.gov/iwin/graphicsversion/bigmain.html>

National and world weather, live weather images, weather videos.

## **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.