River Forecasting for West Central Florida

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Rivers of West Central Florida

• 10 Rivers/Creeks with 21 forecast points across the TBW Hydrologic Service Area.

• Withlacoochee, Anclote, Cypress Creek, Hillsborough, Alafia, Little Manatee, Manatee, Myakka, Peace, and Horse Creek
River Forecast Point Locations
River Forecasting

- Collaborative process between the local forecast office and the Southeast River Forecast Center (SERFC).
- River models run routinely at the SERFC twice per day (morning and evening)…more frequently if needed.
- River forecast sent to the local office. Based on local expertise, can call to discuss any potential changes.
- Official river forecast is then issued.
- River Flood warnings/statements issued by the local office.
River Forecasting

- Florida peninsula is unique in that river forecasts are only issued if a river is expected to get near flood or above flood stage.
- SERFC webpage: www.weather.gov/serfc
River Forecasting

- Multiple Factors go into river forecasts.
- What are the antecedent conditions?
- How much rain has fallen since the last forecast?
- How much rain is expected in each river basin over the next 12 to 48 hours?
- Will the rain fall over a short or extended period of time?
- Ultimate Goal: Determine how much water will runoff into the river and how quickly.
River Forecasting

Flood Prediction Process

- **Watershed Conditions:** How will the water move once it reaches the ground surface?
- **Rainfall:** How much and how intense will the rain be?
- **Snowmelt:** How much and how fast will it melt?

Runoff Processes:
- How much of the rain and/or snowmelt will turn into runoff?

River Ice:
- How does river ice affect the movement of water through the stream channel?

Flash Flood Processes:
- How do rainfall and land use combine to produce a flash flood?

Streamflow Routing:
- How does the volume of water change as it moves through the stream channel?

Stage-Discharge Relationship:
- How will the change in flow affect stream level at a given location?

Hydrograph:
- River/Stream Forecast
  Predicts discharge over time. What is the flow of the river downstream or later in time?

Unit Hydrograph:
- How will the runoff affect the flow over time?

Flood Frequency:
- How often and how big are floods over the long term?
Alafia River Basin
Alafia River

- Flood plain is narrow and heavily overgrown.
- Slope is a little over a foot per mile
  - North prong is 7 feet/mile
  - South prong is 4.5 feet/mile

Fast Responding River

- The last 8 miles of the river the channel widens increasing to 500-1000 feet near the mouth. This entire area is tidal.
**OCHLOCKONEE RIVER NEAR HAVANA (US 27)**

**Universal Time (UTC)**

- Latest observed value: 27.21 ft at 5:15 PM EST Feb 20, 2021. Flood Stage is 20 ft

**Stage (ft)**

- Moderate: 31.0
- Minor: 26.0
- Minor: 27.77 ft
- Minor: 27.3 ft

**Flow (cfs)**

- 2.5
- 3.2
- 4.2
- 5.8
- 7.8
- 10.4
- 13.7
- 17.4
- 21.7
- 25.6
- 31.0
- 34.5
- 36.0
- 38.0
- 44.5

**Site Time (EST)**

- Graph Created: 8:33 PM Feb 20, 2021
- Observed
- Forecast (Issued 8:52 AM Feb 20)

**HY/NFL (plotting HGR G) Gage '0' Datum: 98.36

Observations courtesy of US Geological Survey
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- Forecast Process
- NWS AHPS Page