Middle Hillsborough River: Water Levels, Water Quality and Water Management

Southwest Florida
Water Management District

Northern Tampa Bay Phase II Local Technical Peer-Review Group Meeting
July 7, 2009
Tampa Bay Water Cypress Creek Wellfield, Pasco County, Florida
Doug Leeper, Chief Environmental Scientist

Draft report is posted on the District Web site at:
watermatters.org

Click on the Minimum Flows and Levels Documents and Reports link on the Documents and Publications Page

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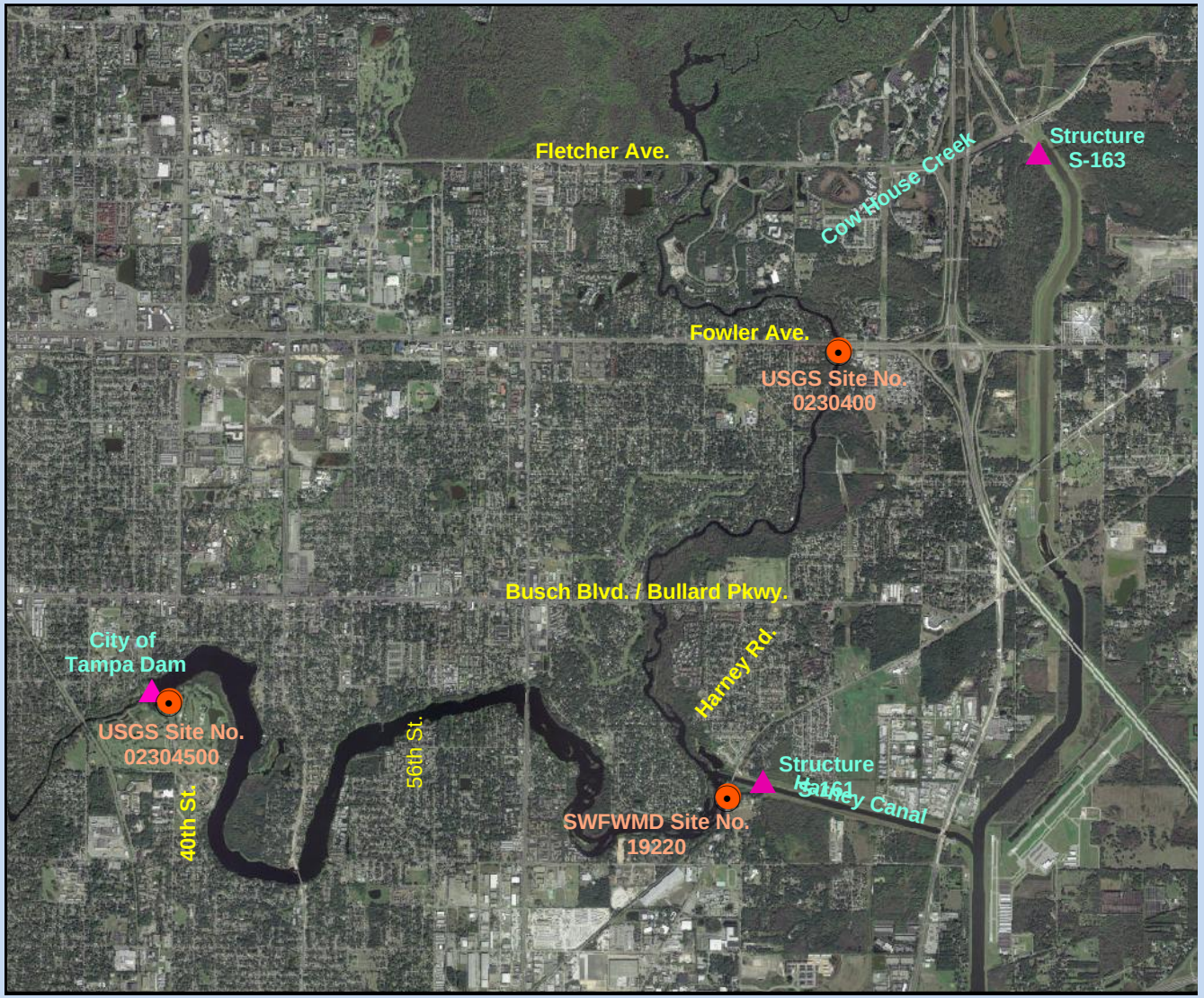
February 13, 2009 Draft

Southwest Florida Water Management District

Douglas A. Leeper
Chief Environmental Scientist
Ecologic Evaluation Section
Resource Projects Department

Middle Hillsborough River



Legend

- Water Level Gauge Site
- Water Control Structure

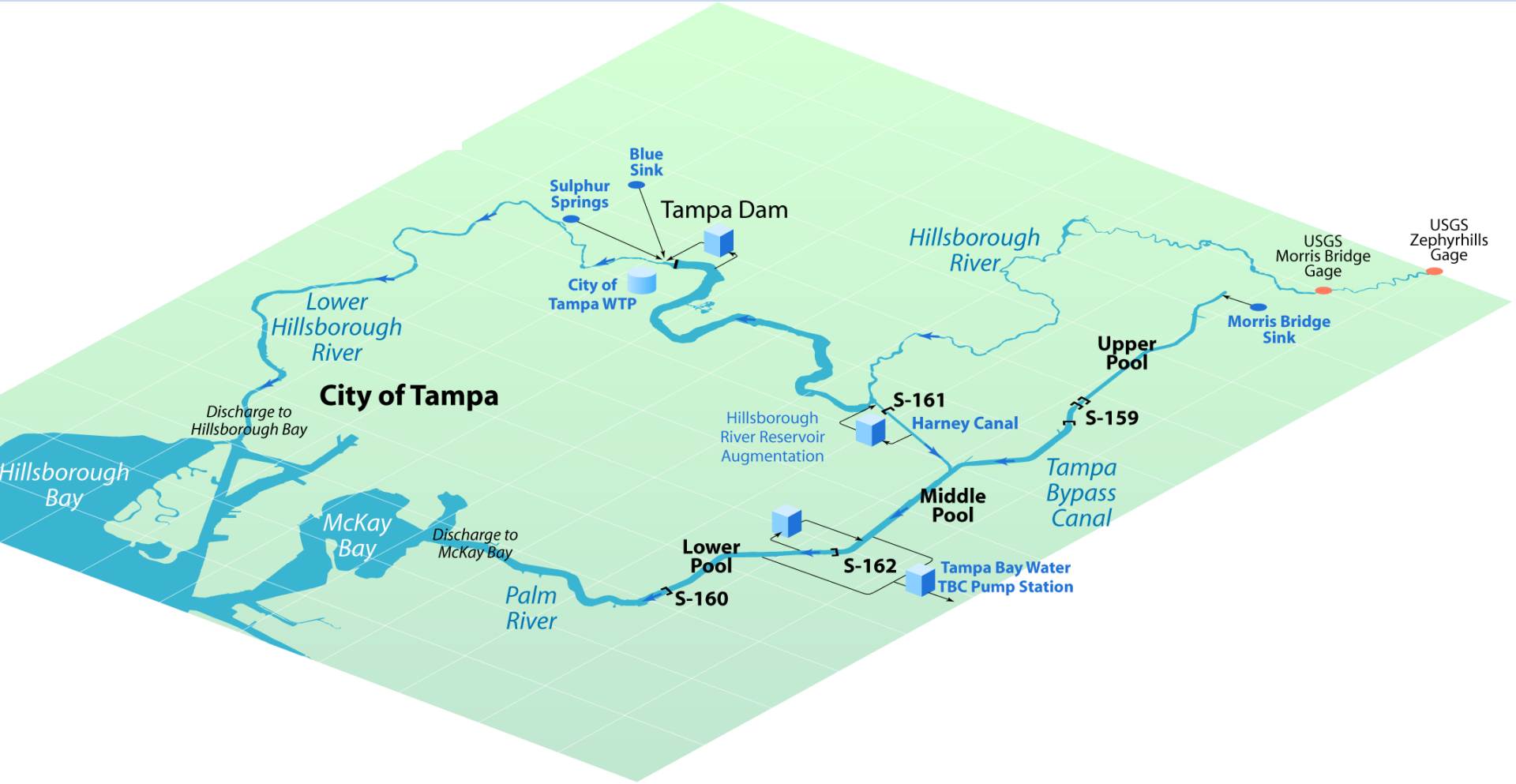
0 1 2 Miles

N

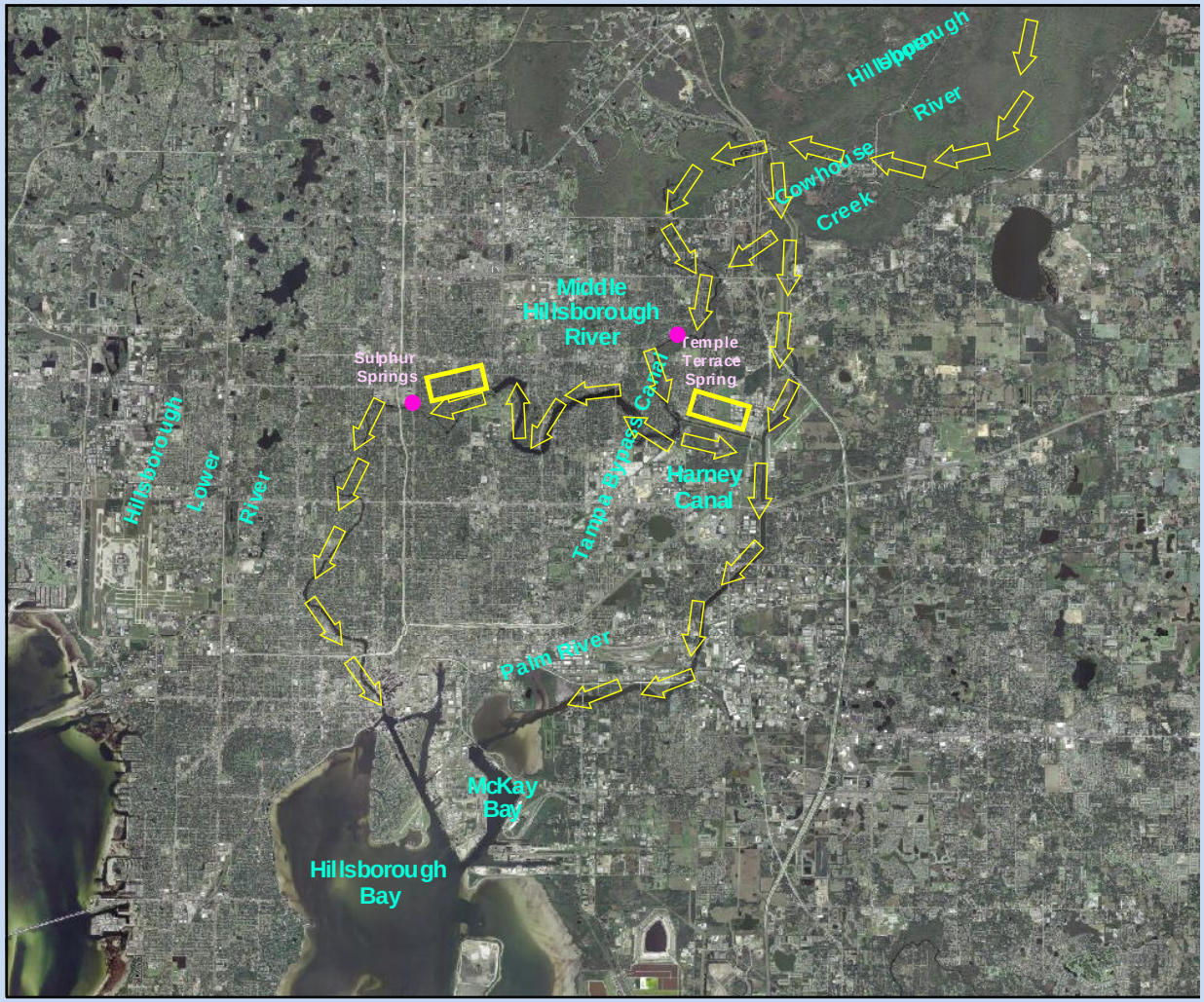
Middle River Study - Timeline

May 2008	Project initiated at the request of the City of Temple Terrace River Watch Task Force
February 2009	Draft project report completed and presented to Task Force, Hillsborough River Interlocal Planning Board and District Governing Board
March 2009	Draft project report presented to Hillsborough County City-County Planning Commission
March 2009	Rule amendments concerning clarification of language dealing with the establishment of management levels for the middle Hillsborough River and other water-supply reservoirs presented to the Governing Board – Board delayed action in response to a request from the City of Temple Terrace
May 2009	Governing Board withdrew proposed rule amendments, based on comments from the Department of Environmental Protection
June 2009	Draft project report presented to Hillsborough River Basin Board and discussed with consultant for Temple Terrace River Watch Task Force

Hillsborough River and Tampa Bypass Canal



Hillsborough River and Tampa Bypass Canal



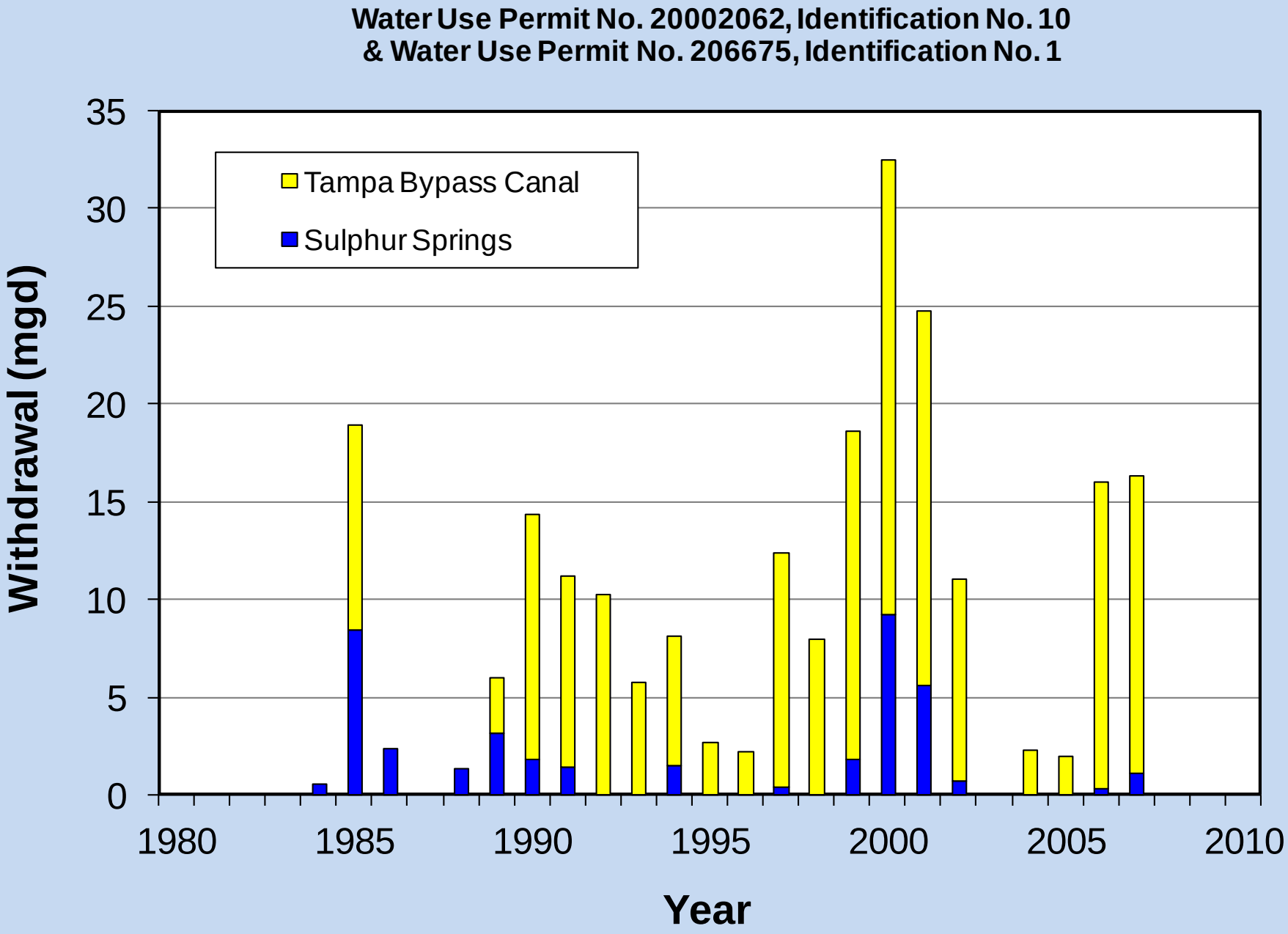
Legend

- Flow Direction
- Augmentation Flow Direction
- Spring

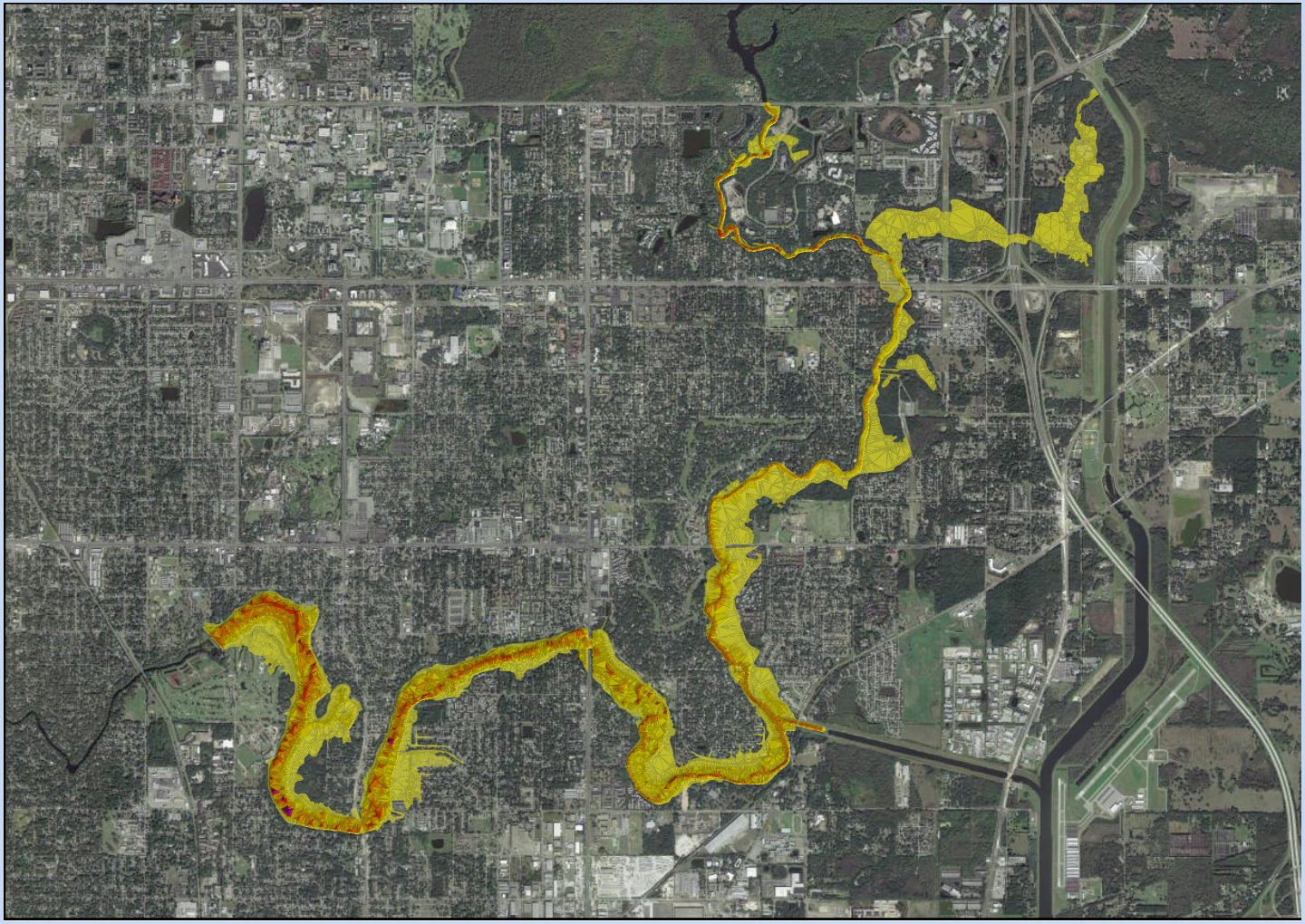
0 2.5 5 Miles

N

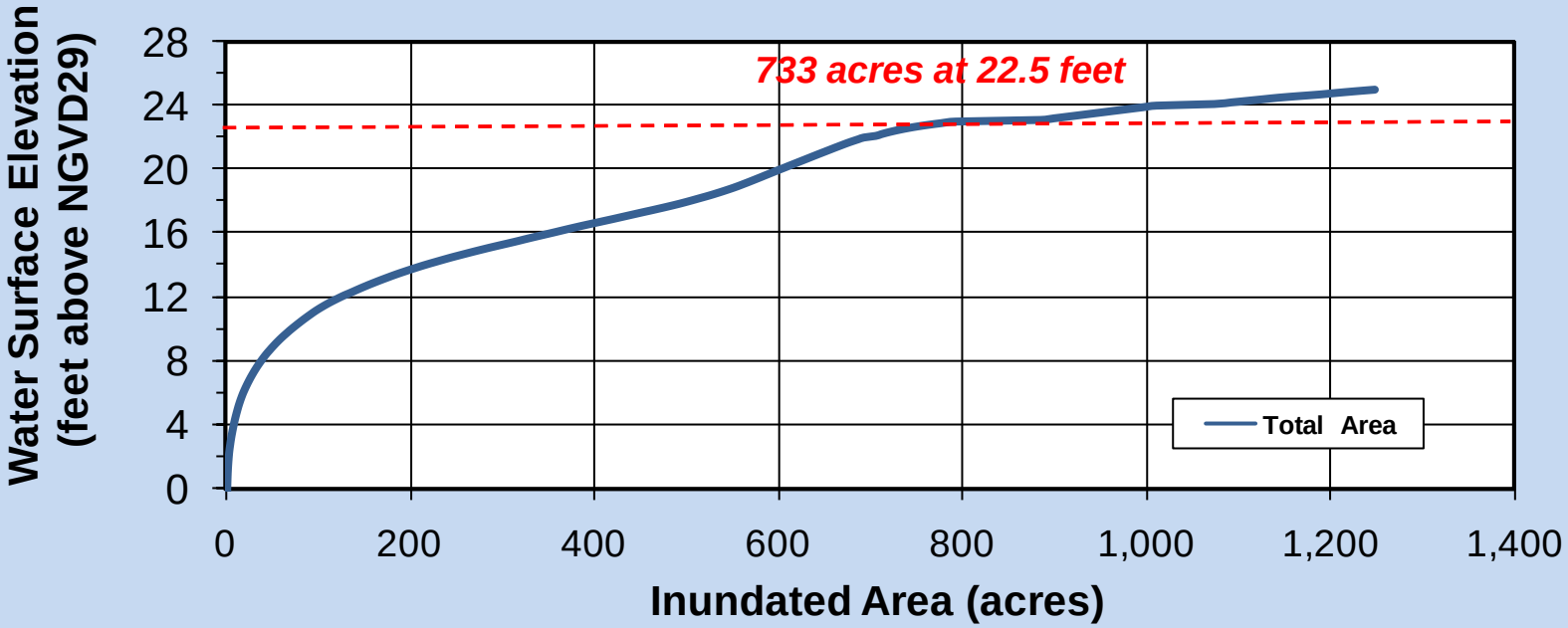
Middle Hillsborough River – Augmentation

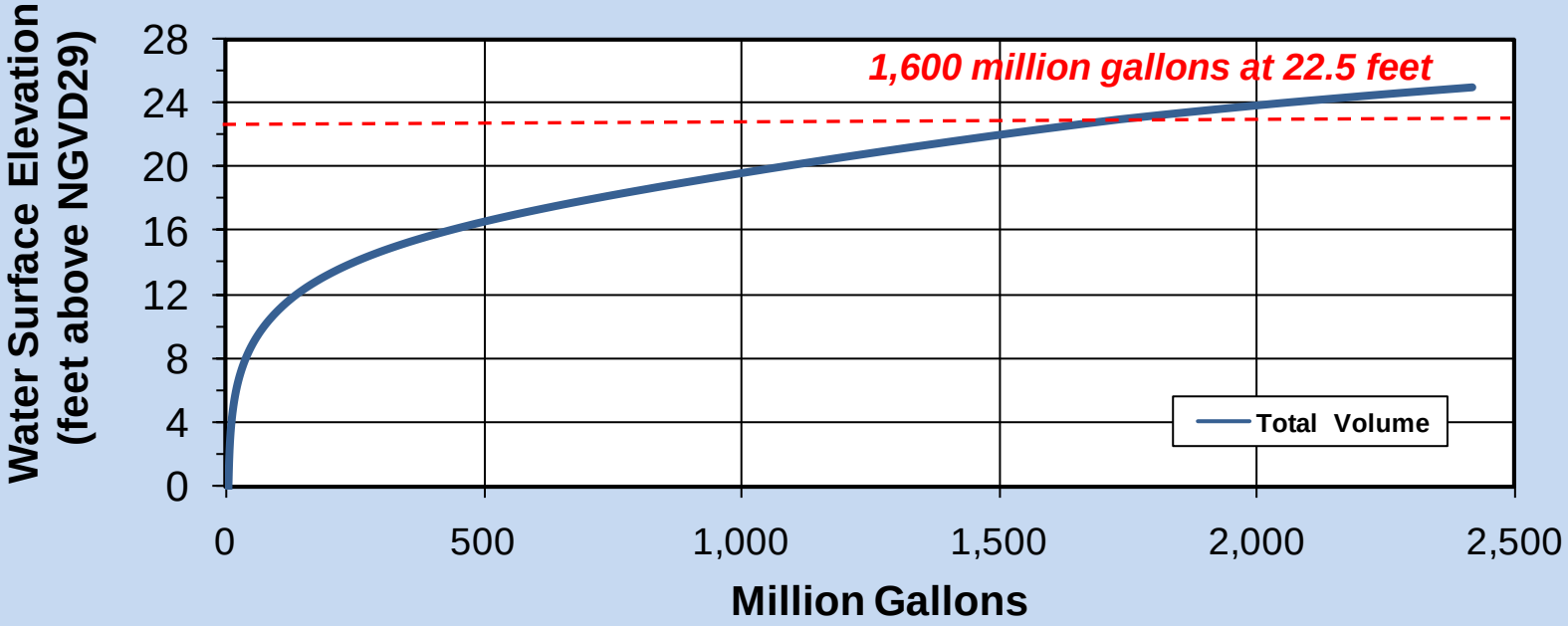


Middle Hillsborough River Bathymetry

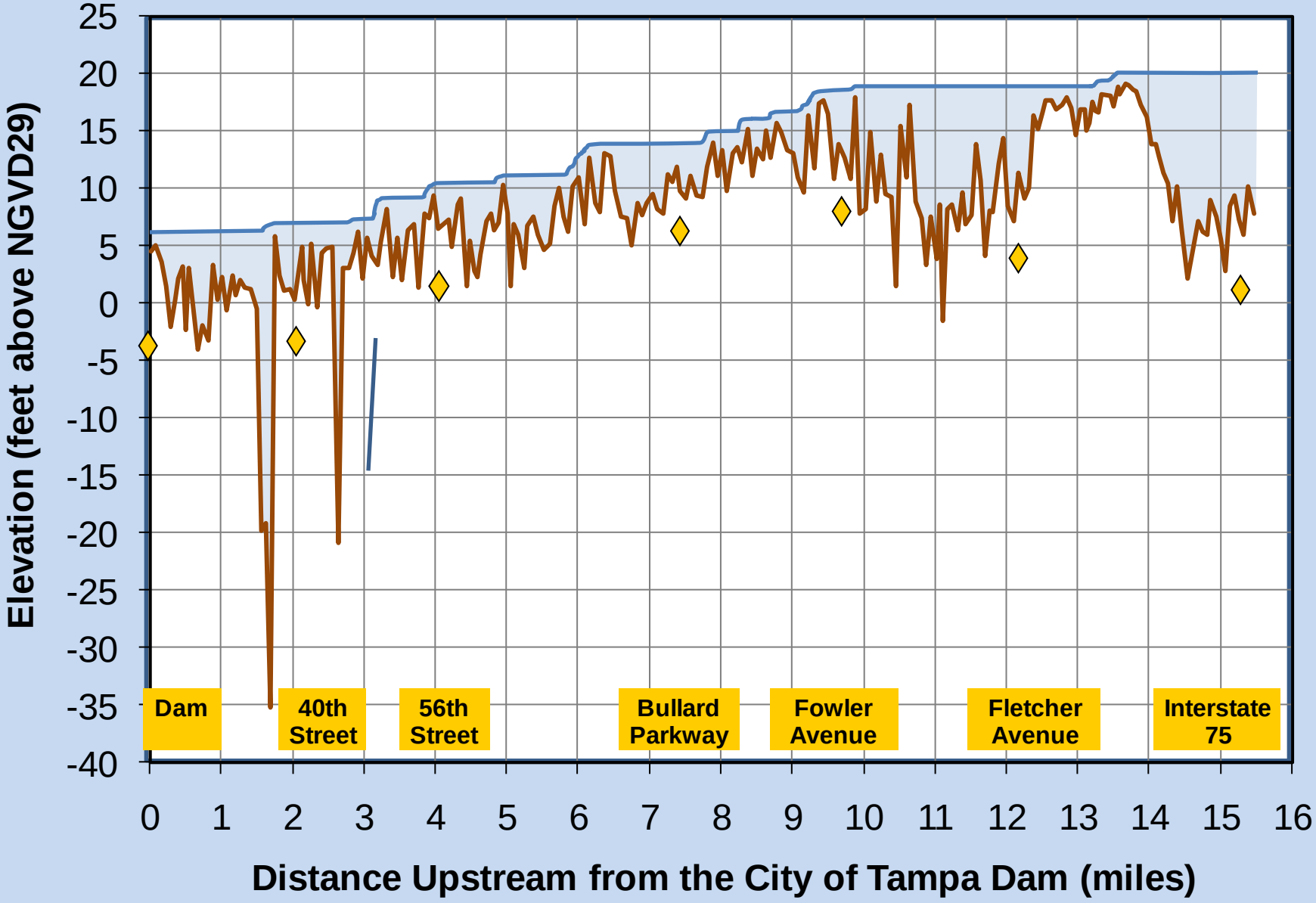


Middle Hillsborough River Stage-Area-Volume

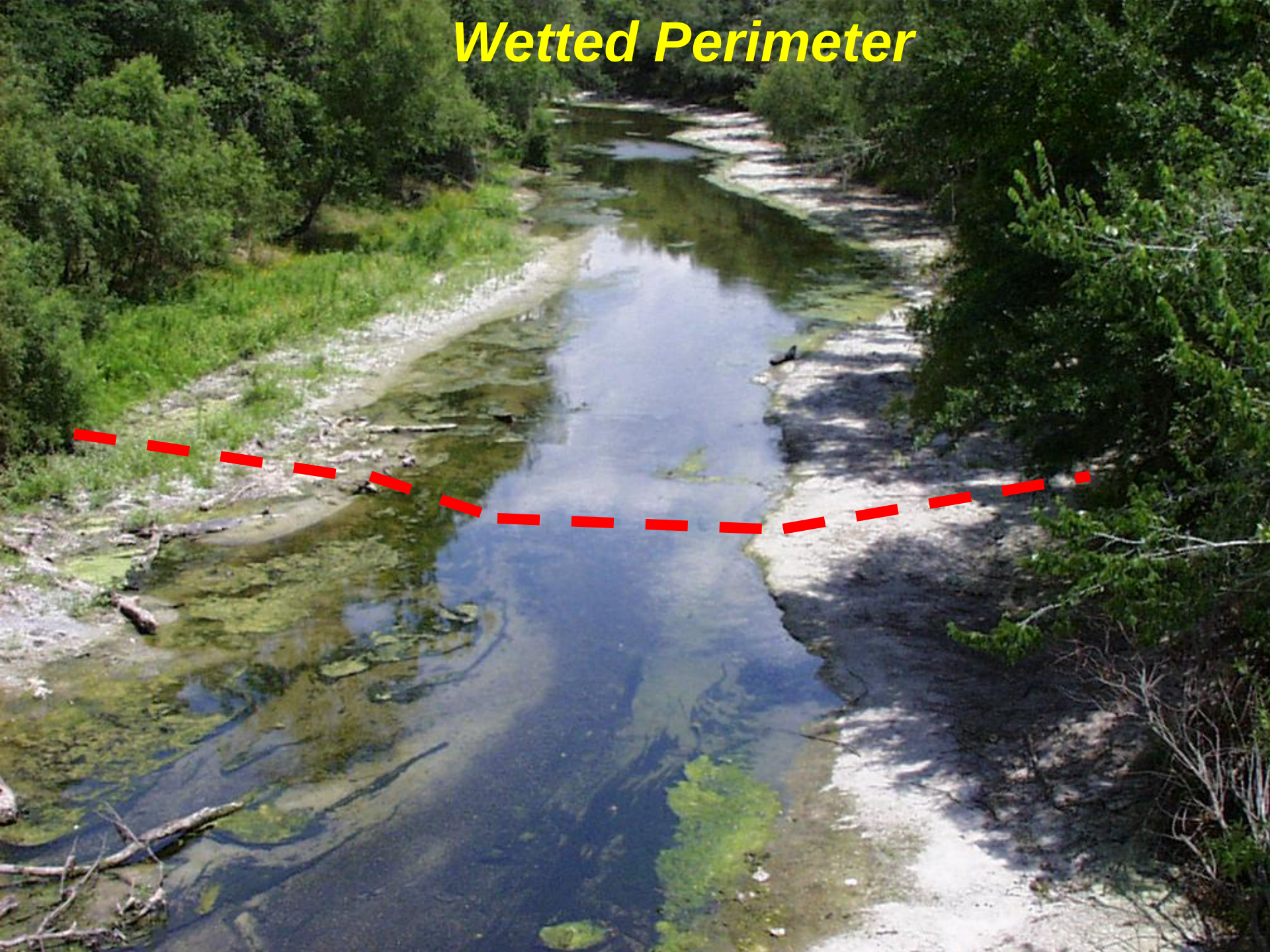


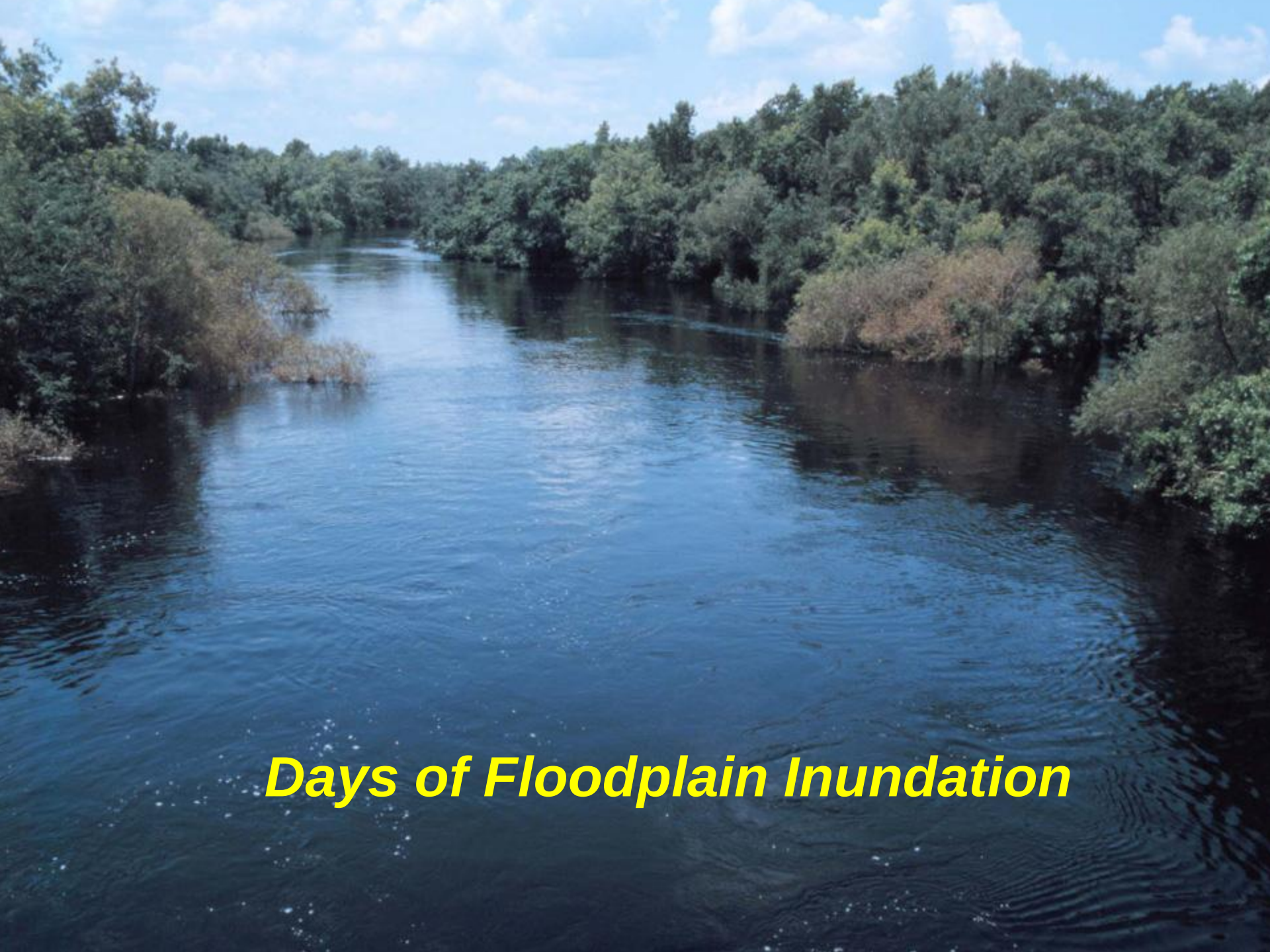


Middle Hillsborough River Bottom Profile and Hypothetical Water Surface Profile without the Dam

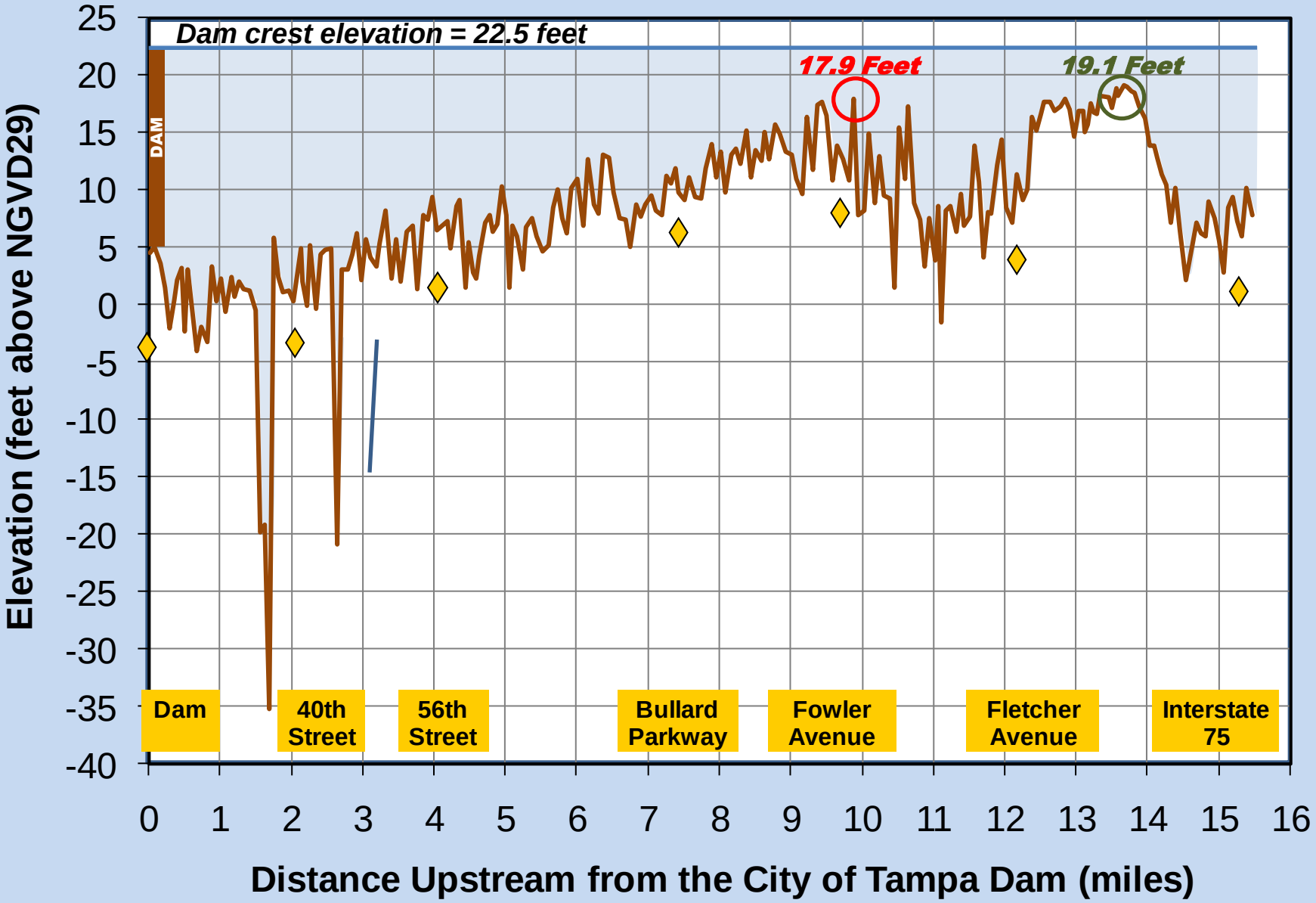



Fish Passage

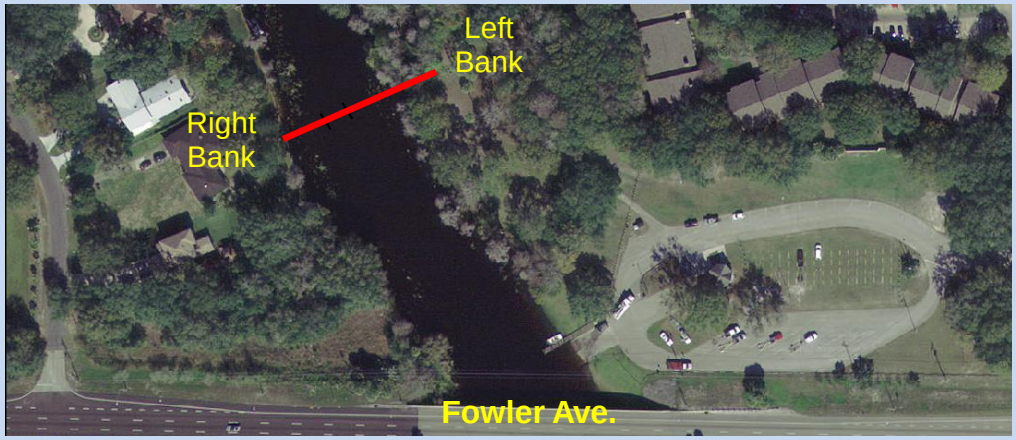

Wetted Perimeter

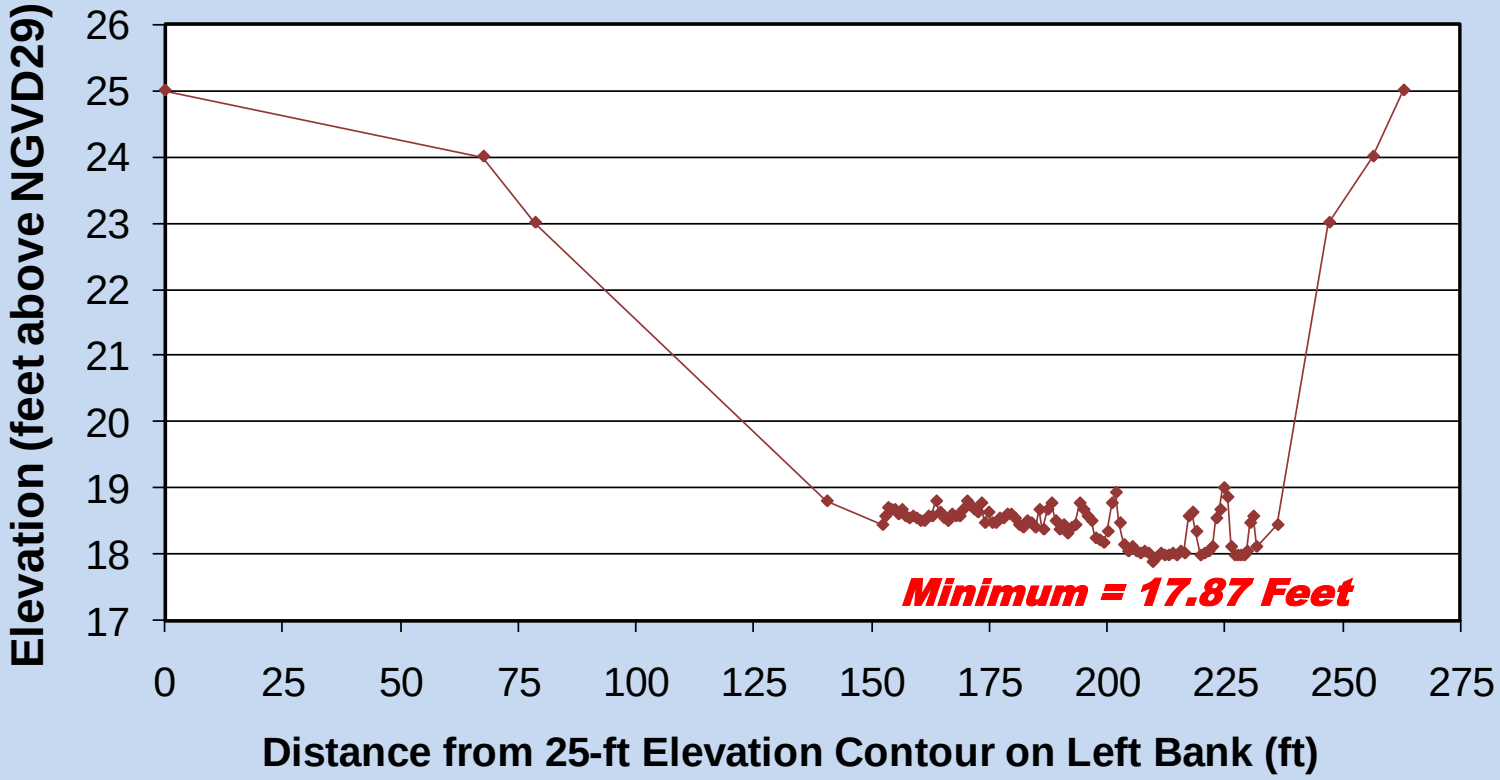

Days of Floodplain Inundation

Middle Hillsborough River Bottom Profile and Hypothetical Water Surface Profile At Full Pool

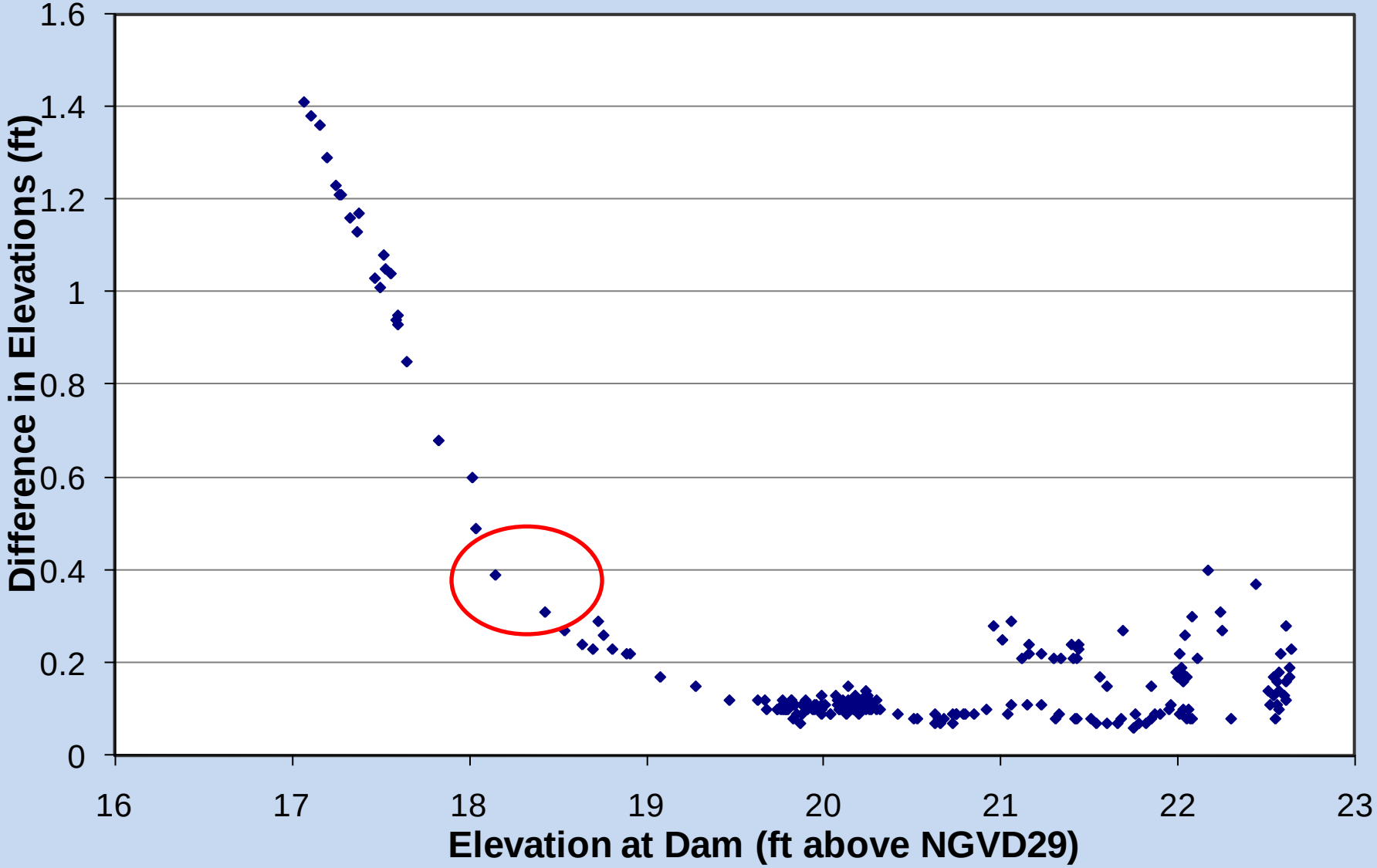


Middle Hillsborough River Control Point

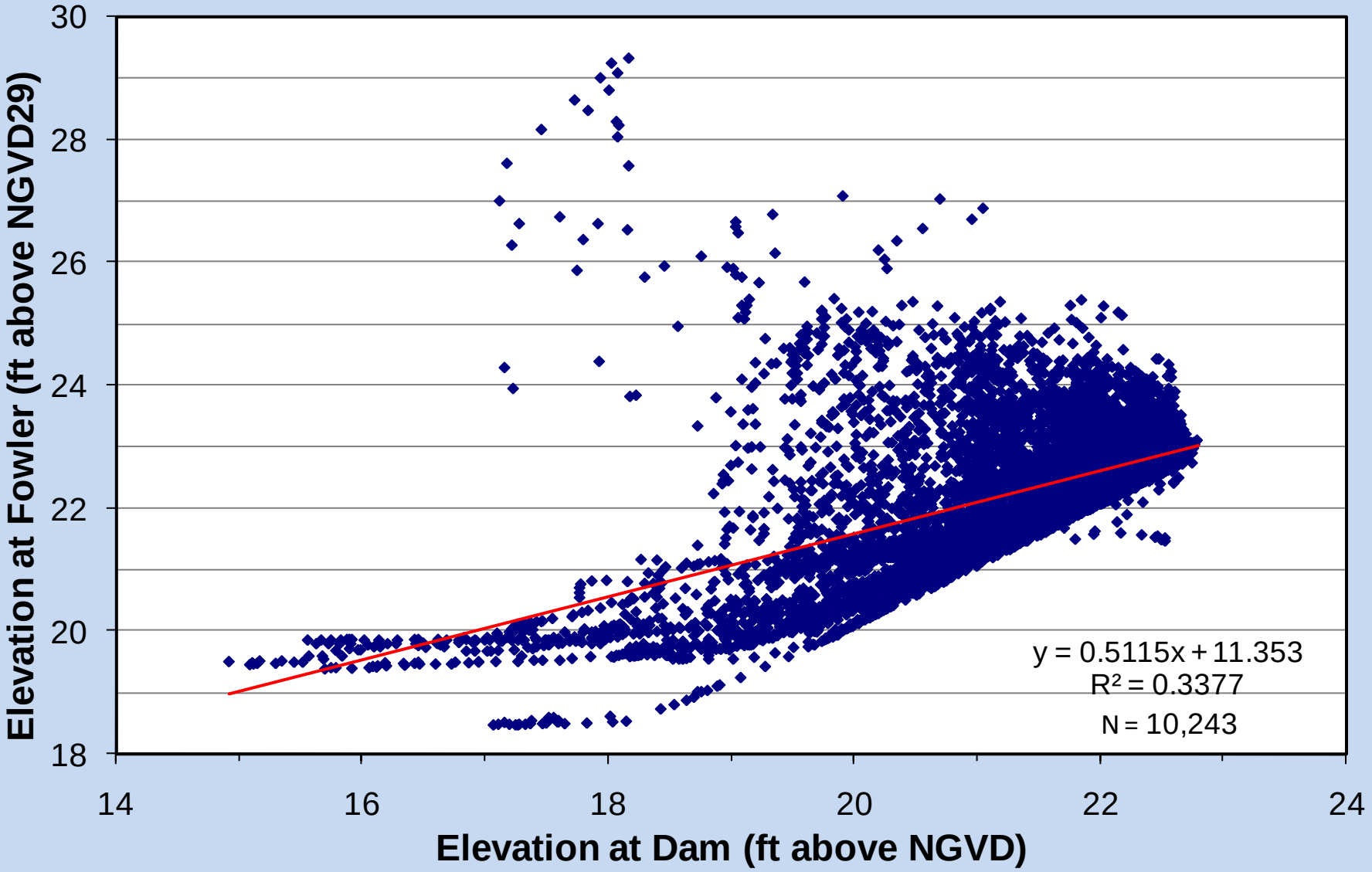




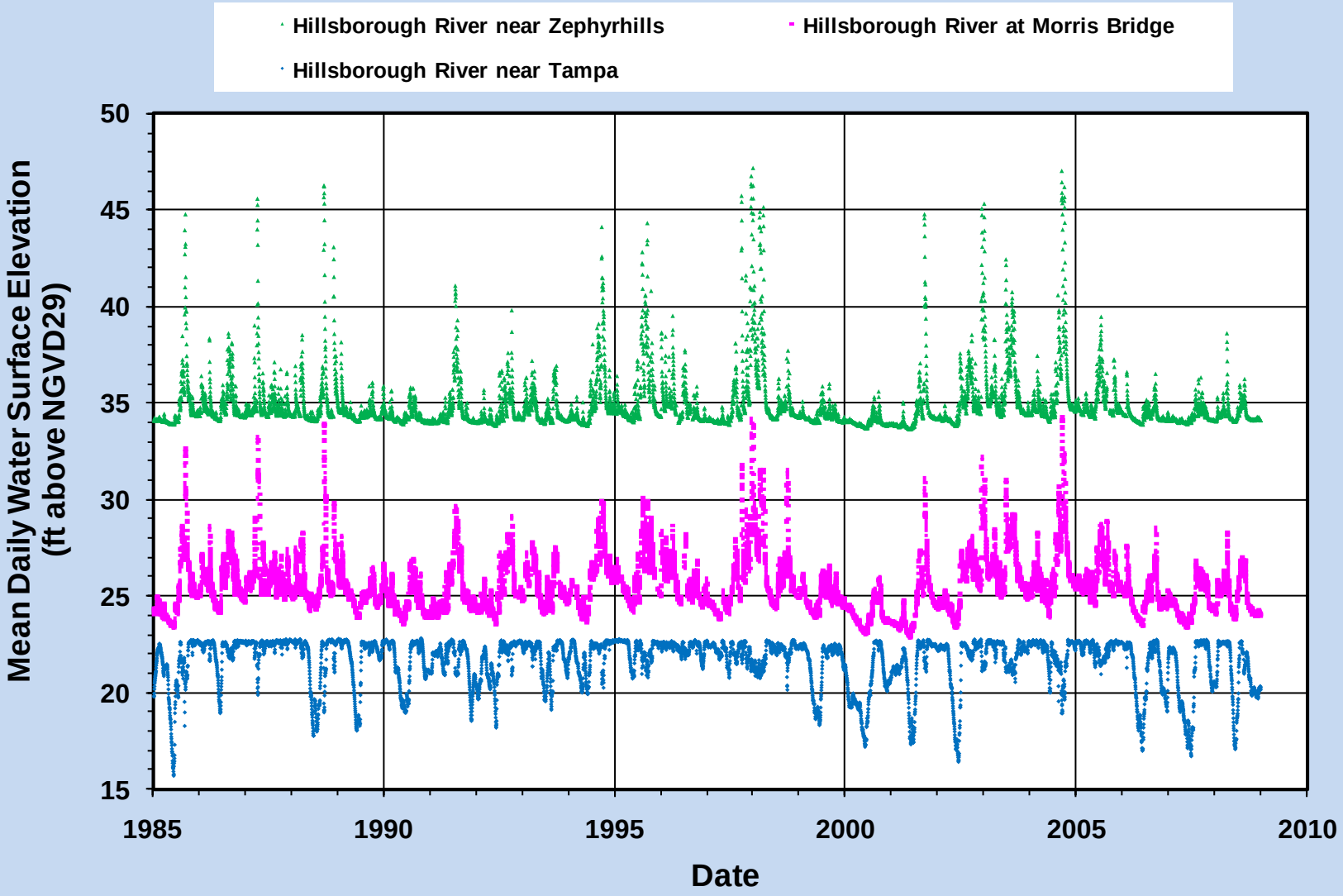
Difference Between Water Levels at the Dam and Fowler Avenue (Recent Data)



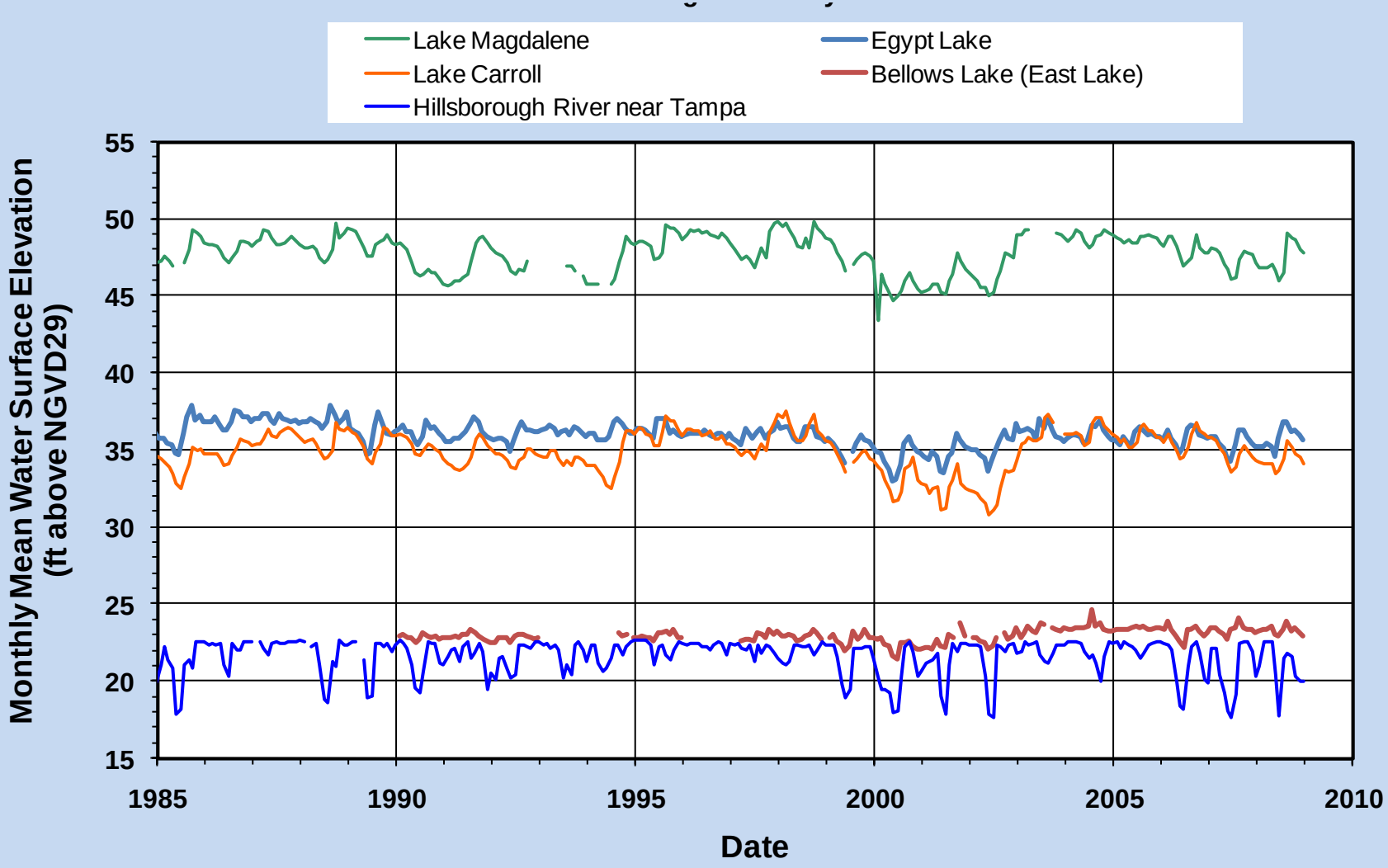
Water Levels at the Dam and Fowler Avenue



Water Level Fluctuations in the Middle River are Unlike Fluctuations Upstream

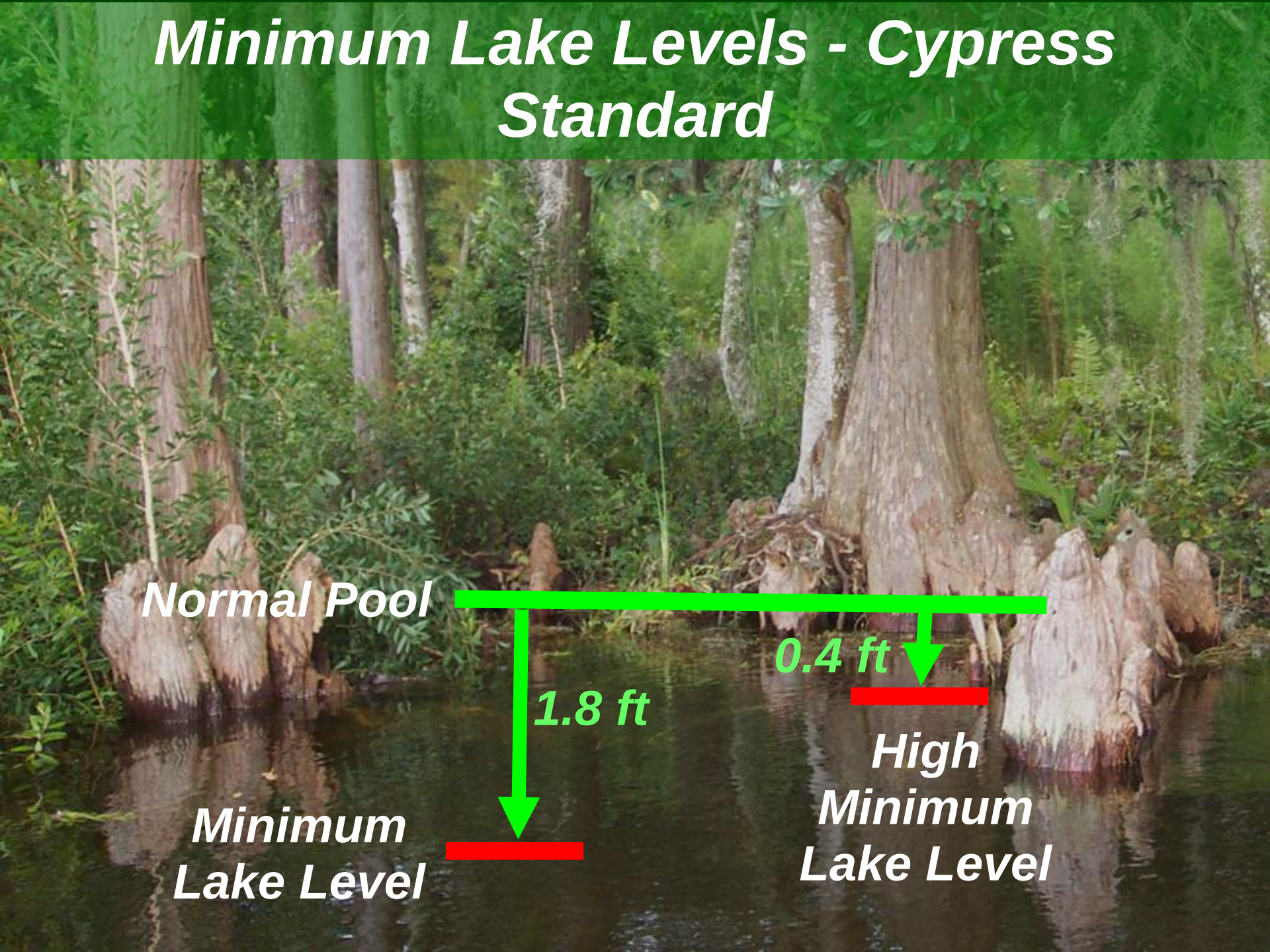


Water Level Fluctuations in the Middle River are More Similar to Area Lakes

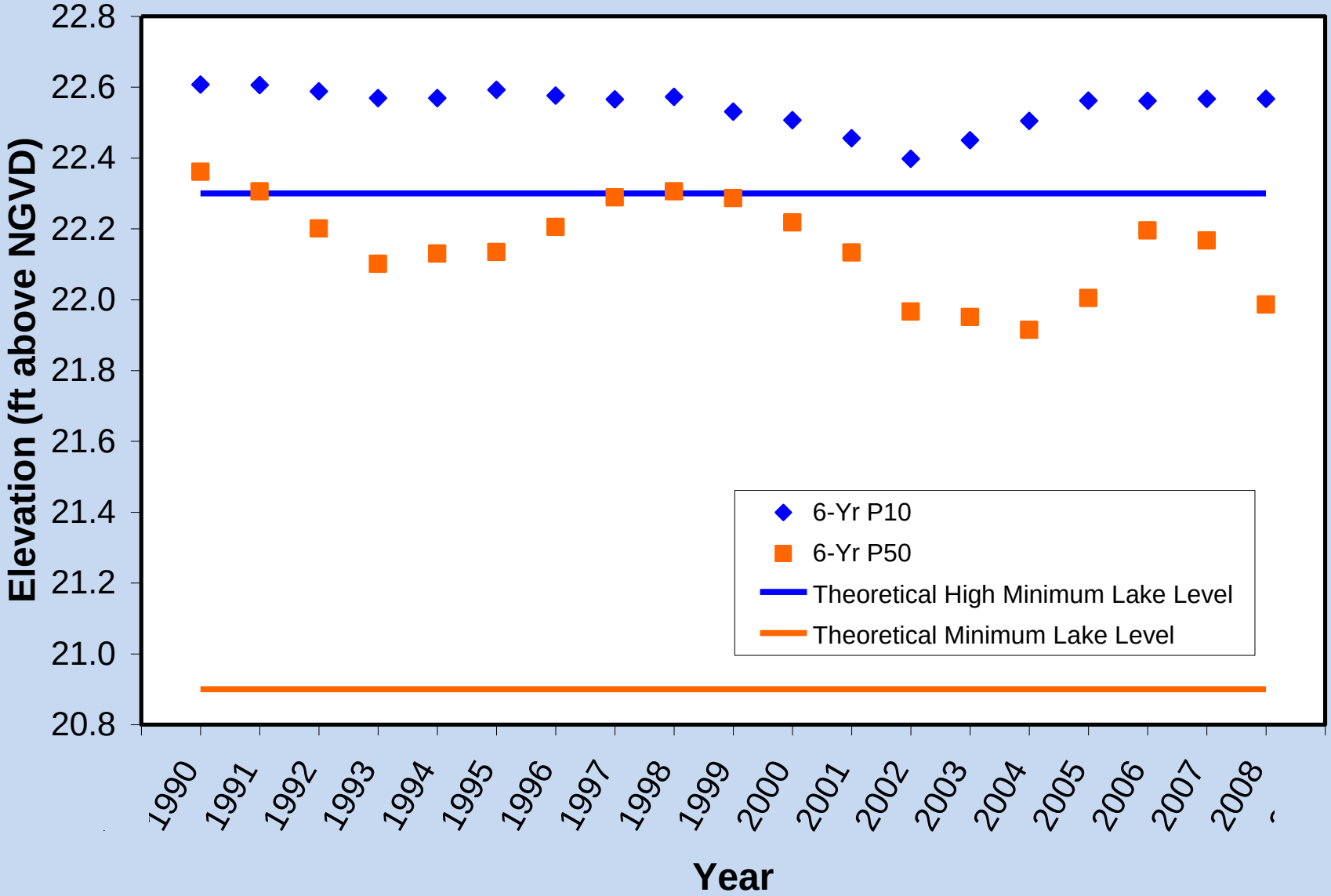


Cypress on the Middle River

Minimum Lake Levels - Cypress Standard



Middle Hillsborough River
Theoretical Minimum Lake Levels and Six-Year P10 and P50 Elevations



Other Significant Change Standards

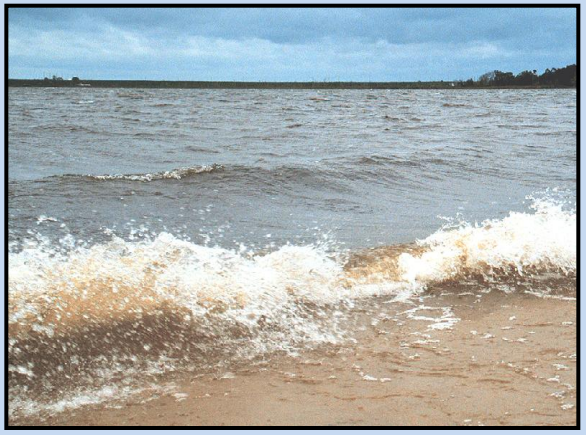
Species Richness

Basin Connectivity

Recreation/Ski

Aesthetics

Dock-Use



Lake Mixing

Other Significant Change Standards

Species Richness

Basin Connectivity

Recreation/Ski

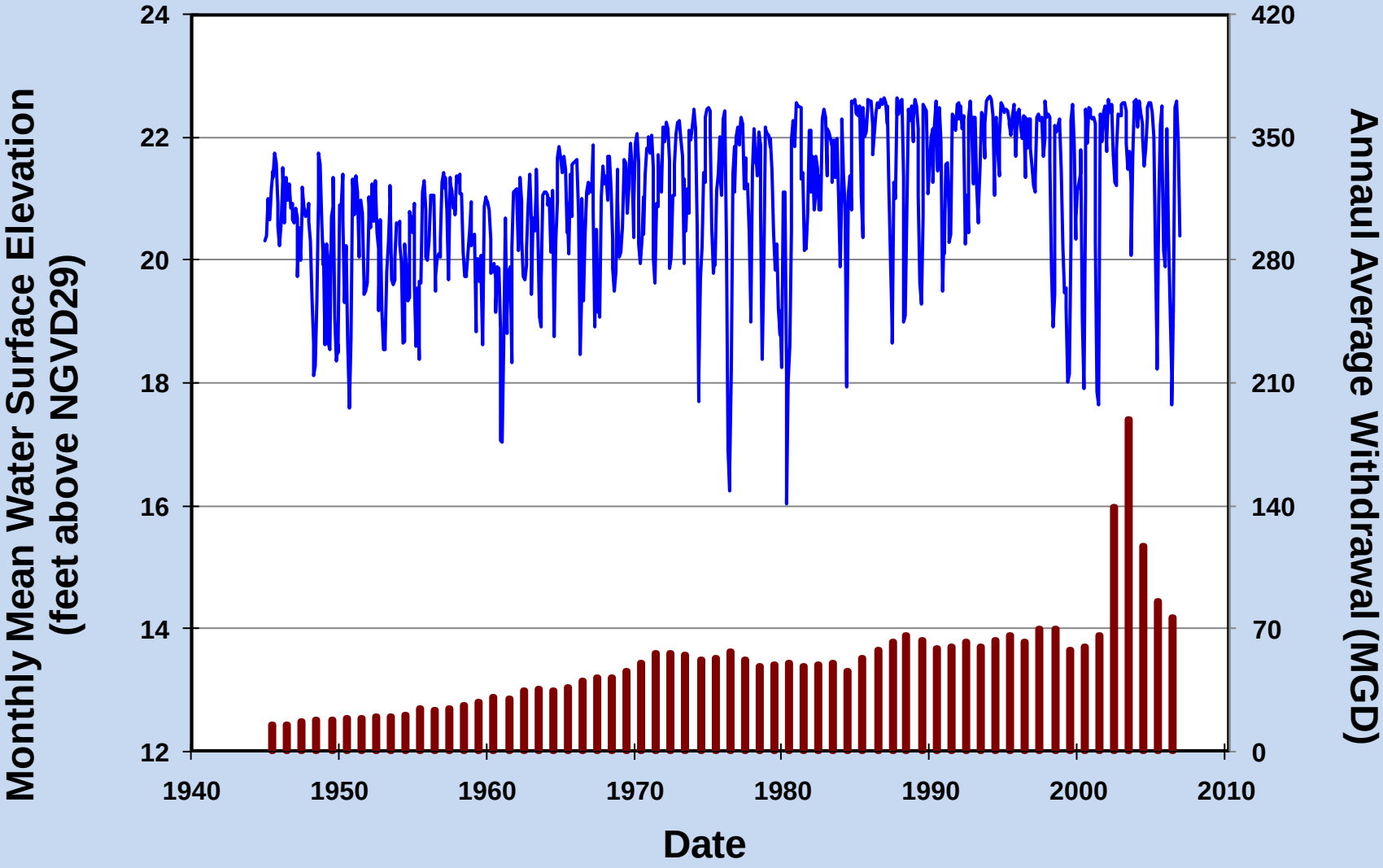
Aesthetics

Dock-Use

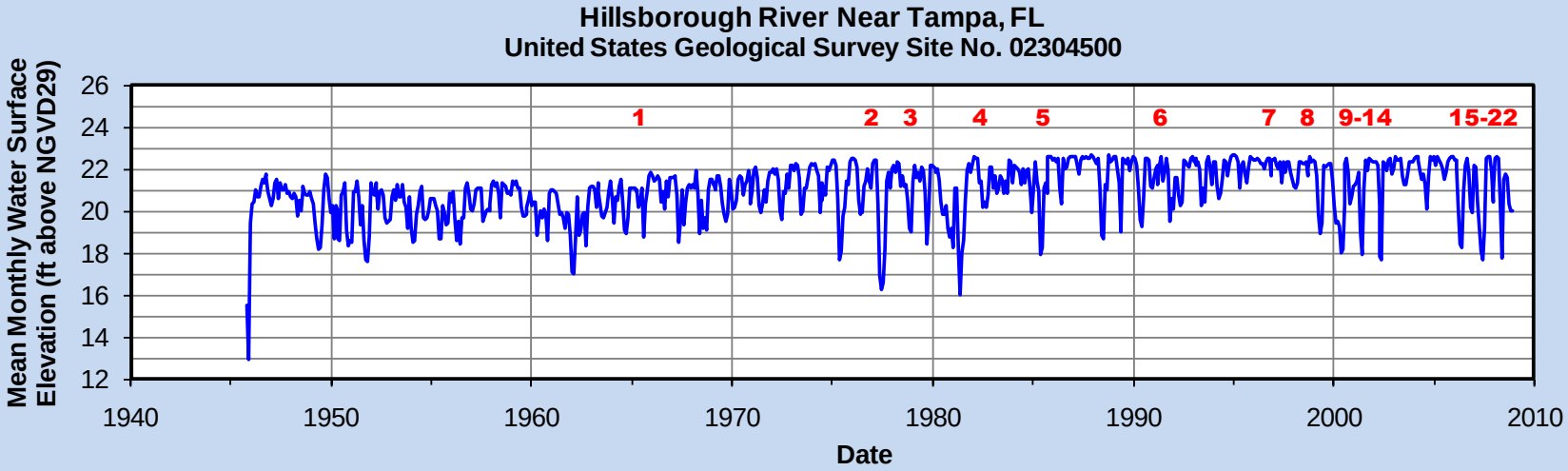
Lake Mixing

Monthly Mean Middle River Water Surface Elevations and Annual Average Withdrawals

- 1946 through 2007 -

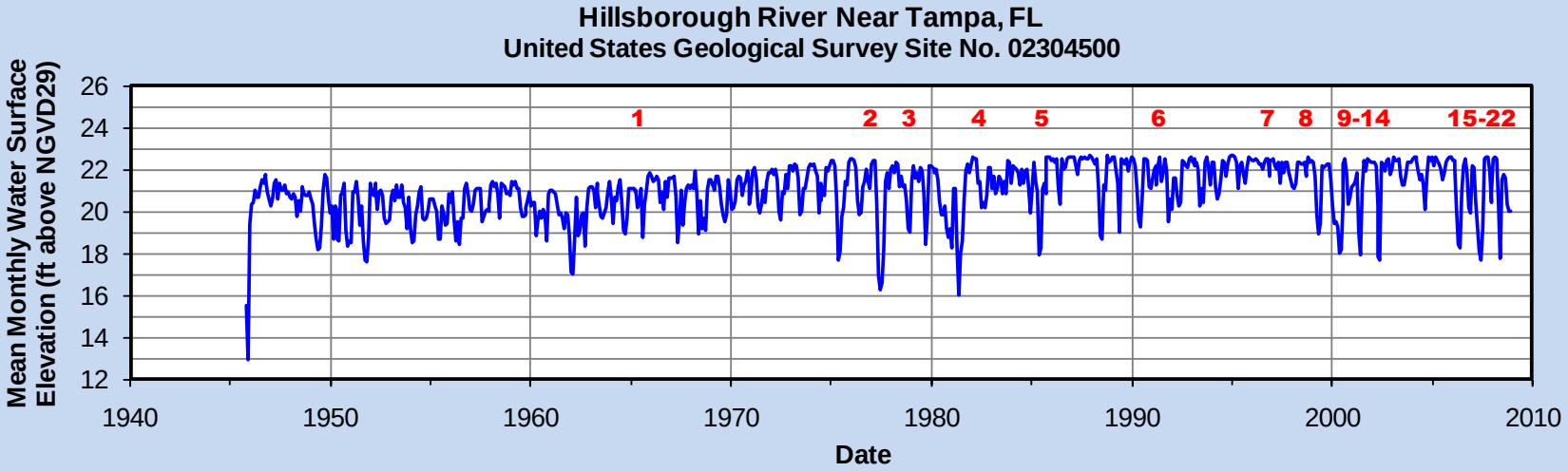


Management Activities – Middle Hillsborough River



1	1964 or 65	Augmentation of the middle river with water from Sulphur Springs initiated.
2	1976-Dec	First water-use permit issued to City of Tampa for middle river withdrawals.
3	1978	Morris Bridge Well Field becomes operational.
4	1982	Tampa Bypass Canal system completed.
5	1985	Augmentation initiated with water from the Tampa Bypass Canal system.
6	1991	Permanent pumping facility constructed for augmentation with water from the Tampa Bypass Canal system.
7	1996-Sep	Aquifer Storage and Recovery system initiated by City of Tampa.
8	1998-May	Tampa Bay Water formed; Partnership Agreement capped withdrawals from middle river at 82 million gallons per day.
9	2000-Apr	Executive Director Order No. SWF 00-16 authorized increased augmentation with water from the Tampa Bypass Canal system.
10	2000-Apr	Executive Director Order No. SWF 00-17 authorized increased augmentation with water from Sulphur Springs.
11	2000-May	Executive Director Order No. SWF 00-26 authorized augmentation with water from Morris Bridge Sink.
12	2000-Aug	Minimum levels and recovery strategy adopted for lower Hillsborough River.
13	2000-Nov	Executive Director Order No. SWF 00-57 authorized augmentation with water from Morris Bridge Sink.
14	2000-Nov	Executive Director Order No. SWF 01-22 authorized increased augmentation with water from Sulphur Springs.

Management Activities – Middle Hillsborough River
(continued)



15	2006-May	Executive Director Order No. SWF 06-31 authorized increased augmentation with water from the Tampa Bypass Canal system.
16	2006-May	Executive Director Order No. SWF 07-3 authorized increased augmentation with water from the Tampa Bypass Canal system.
17	2007-Aug	Revised minimum flows adopted for lower Hillsborough River; minimum flows adopted for Sulphur Springs, Tampa Bypass Canal; Recovery Strategy for lower river also adopted.
18	2007-Dec	Minimum flows adopted for upper Hillsborough River and Crystal Springs
19	2008-Jan	Pumping from Tampa Bypass Canal initiated as part of Lower Hillsborough River Recovery Strategy.
20	2008-Oct	Executive Director Order No. SWF 08-043 authorized increased augmentation with water from the Tampa Bypass Canal system
21	2008-Oct	Tampa Bypass Canal Middle Pool pipeline study completed.
22	2008-Dec	Executive Director Order No. SWF 08-043 amended for increased augmentation with water from the Tampa Bypass Canal system

Summary of Water Quality Data Review

- Middle Hillsborough River may be classified as eutrophic or hypereutrophic based on concentrations of phosphorus, nitrogen and chlorophyll and water transparency included in the United States Geological Survey and District data sets.

- ~70% of the 4,690 dissolved oxygen concentration measurements in the United States Geological Survey and District data sets were below state standard of 5.0 mg/L.

- Low dissolved oxygen concentrations may be associated with anthropogenic pollutant loading or natural phenomena, including inputs of organic matter from floodplain wetlands and oxygen depletion in deeper waters within the system.

Water Quality Standards and Water Body Impairment

- Final 2009 Verified List developed by the Department of Environmental Protection identifies the Hillsborough Reservoir as impaired due to low dissolved oxygen concentrations with total phosphorus identified as the causative pollutant.

- To date, no Total Maximum Daily Loads addressing impairment of middle River or Cow House Creek have been finalized, although some draft recommendations have been developed.

- Upon development of TMDLs, a Basin Management Plan will be developed by the Department to restore the Hillsborough Reservoir.

Rules Clarification
- Rule 40D-8.031, Florida Administrative Code -

40D-8.031 Implementation.

(1) No Minimum Flows, Minimum Levels or Guidance Levels shall be prescribed for any reservoir or other artificial structure which is located entirely within lands owned, leased, or otherwise controlled by the user, and which require water only for filling, replenishing, and maintaining of the water level thereof, provided however:

(a) That Chapter 40D-2, F.A.C., shall apply to the use of water for such filling, replenishing, and maintaining of the water level, and

(b) That the High Guidance Level, determined pursuant to the procedures set forth in Rule 40D-8.624, F.A.C., may be established for any lake determined by the Board to be in the public interest.

(2) No Minimum Flows, Minimum Levels or Guidance Levels shall be prescribed for Lake Manatee in Manatee County, Evers Reservoir in Manatee County, the City of Tampa Reservoir on the Middle Hillsborough River ~~in Hillsborough County~~, Shell Creek Reservoir above the Hendrickson Dam in Charlotte County and the Peace River/Manasota Regional Water Supply Authority Reservoir in DeSoto County.

(3) – (5) No change.

Specific Authority 373.044, 373.113, 373.171, F.S. Law Implemented 373.042, 373.0421, 373.216, 373.219, 373.223, 373.413, 373.414, 373.416, F.S. History – New 6-7-78, Amended 10-16-78, 1-22-79, Formerly 16J-8.03, Amended 3-23-81, 8-7-00, 2-18-08, _____.

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(3) – (5) [unchanged].

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WITHDRAWN


Questions?

For More Information Contact

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