BA-23

Barataria Bay Waterway West Side Shoreline Protection Summary Data and Graphics

Barmore, J. 2003. *BA-23 Barataria Bay Waterway West Side Shoreline Protection Summary Data and Graphics. Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana 32pp.*

BA-23 Barataria Bay Waterway West Side Shoreline Protection

Project Overview

- The BA-23 project consists of approximately 9,400 linear feet (2,865 m) of rock bankline protection (foreshore rock dike) along the west bank of the Barataria Bay Waterway (BBW) to protect the adjacent marsh from excessive water exchange and erosion from boat wakes. (Figure 1.)
- In addition, the U.S. Army Corps of Engineers (USACE) placed 750,000 cubic yards of dredged sediments from their BBW dredging operation behind the rock dike to fortify the shoreline, create new marsh, and to form a continuous protection levee.
- A water control structure was built on the southern end of the project area to allow control of water level during hunting season and still allow for the passage of marine organisms. (Figure 1.)
- Construction was completed on November 15, 2000

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Project Objective

1. Re-establish a hydrologic barrier to protect approximately 2,164 ac (876 ha) of combined marsh and open-water from excessive wave energy, water level fluctuations, and saltwater intrusion from the Barataria Bay Waterway.

Specific Goal

The following goal will contribute to the evaluation of the above objective:

1. Maintain or increase marsh to open-water ratio in the project area.

BA-23 Barataria Bay Waterway West Side Shoreline Protection

Monitoring Elements

Aerial Photography : To evaluate land to water ratios in the project area, near vertical, color infrared aerial photography (1:12,000 scale, with ground controls) was obtained in 1997 (pre-construction) and will be obtained 2003, 2009, and 2017 post-construction.

Water Level : To monitor water level variability, one continuous recorder is located within the project area and one recorder is located in the Barataria Bay Waterway. Mean daily water level variability was monitored continuously prior to construction (1998-2000), and will continue after construction in through 2003.

Salinity : To monitor salinity variability, one continuous recorder is located within the project area and one recorder is located in the Barataria Bay Waterway. Mean daily salinity variability was monitored continuously prior to construction (1998-2000), and will continue after construction through 2003.

Vegetation : Plant species composition and relative abundance of wetland and submersed vegetation will be documented in the project area in 1997 (pre-construction) and will be documented post-construction in 2003, 2009, and 2017.

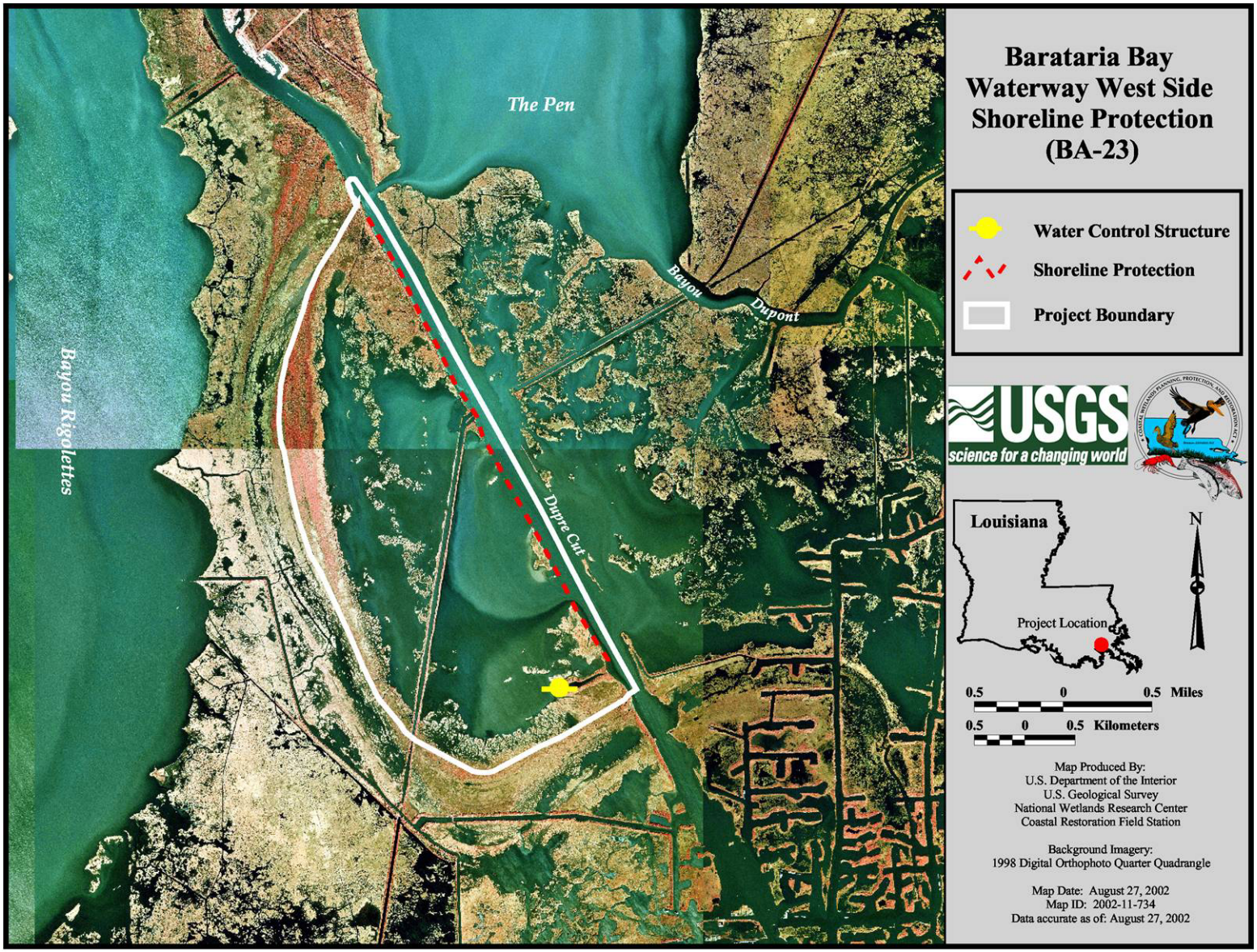


Figure 1. Barataria Bay Waterway West Side Shoreline Protection project boundaries and features.

BA-23 Habitat Mapping

Aerial photography was collected in November 1997 and will also be collected in 2003, 2009, and 2017.

- 1997 Photomosaic (Figure 2.)
- 1997 Land-Water analysis (Figure 3.)

Figure 2. 1997 Photomosaic of the Barataria Bay Waterway West Side Shoreline Protection project.

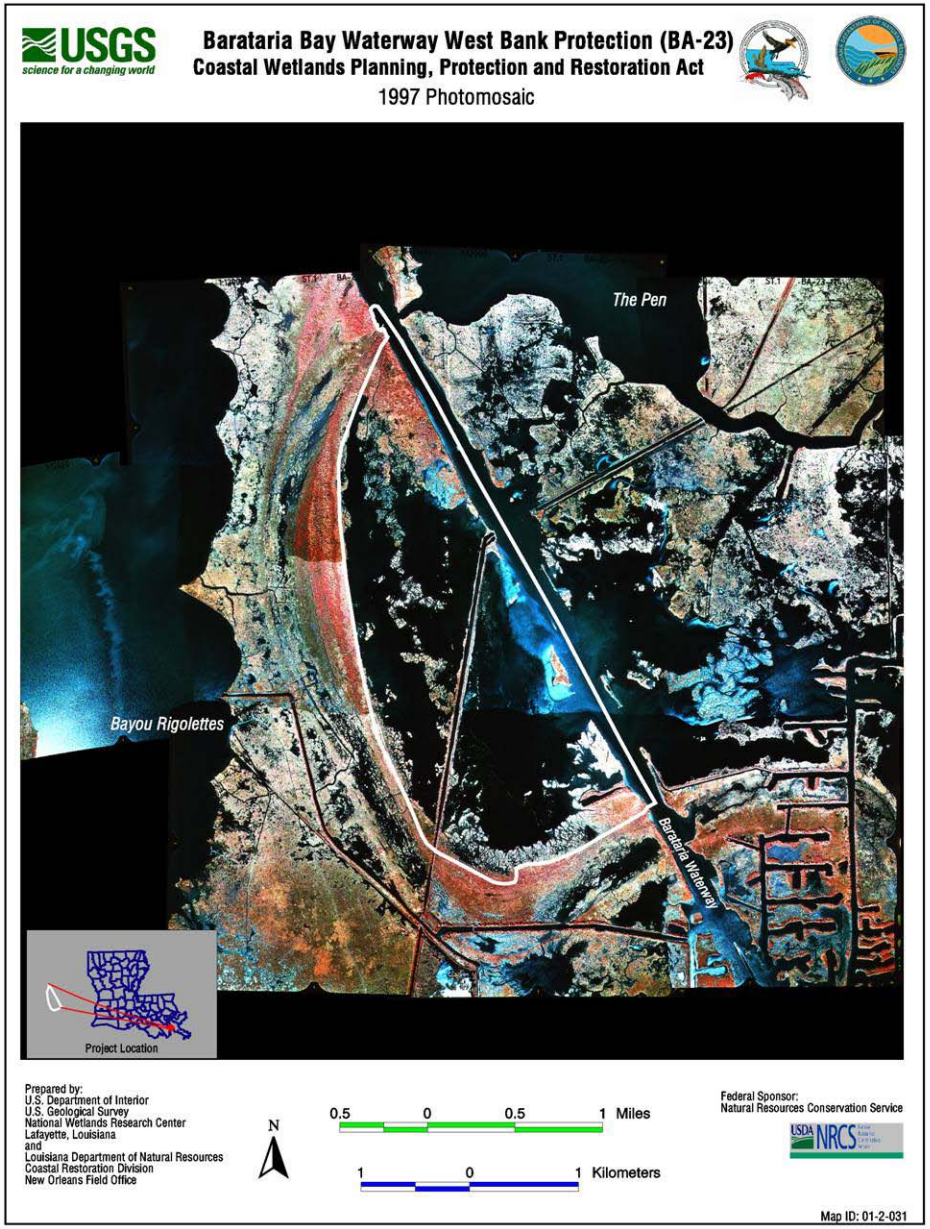
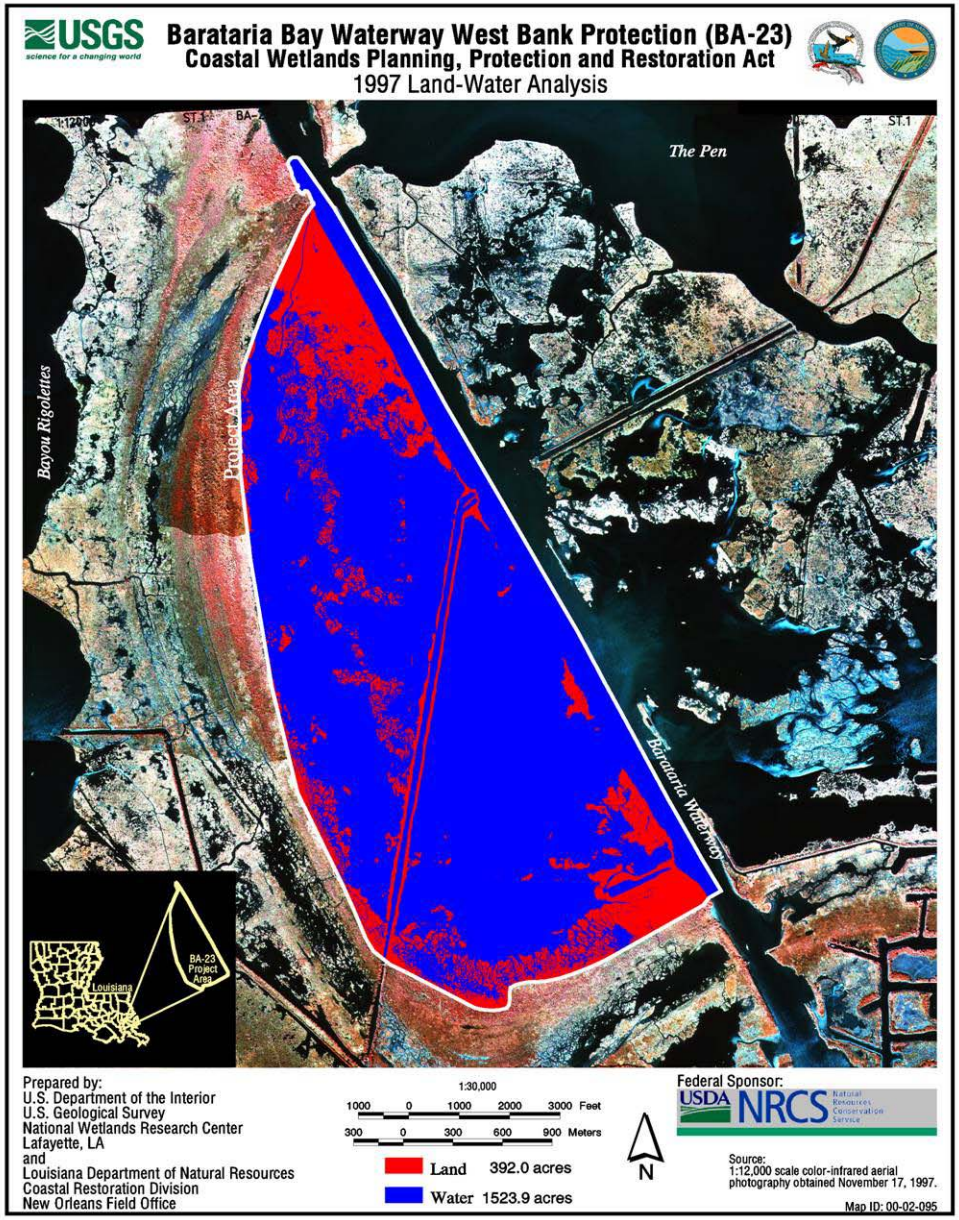


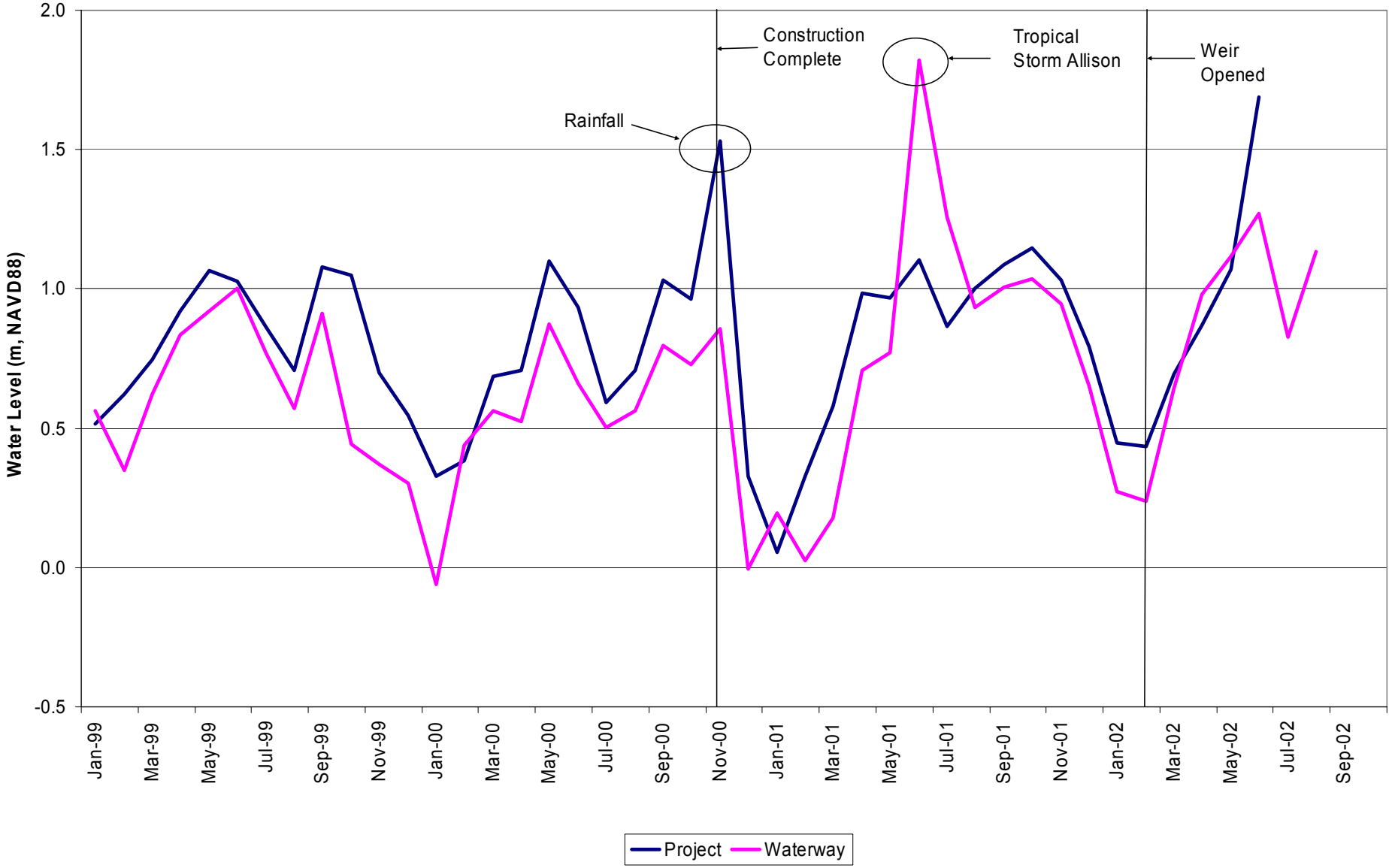
Figure 3. 1997 Land-Water analysis of the Barataria Bay Waterway West Side Shoreline Protection project.



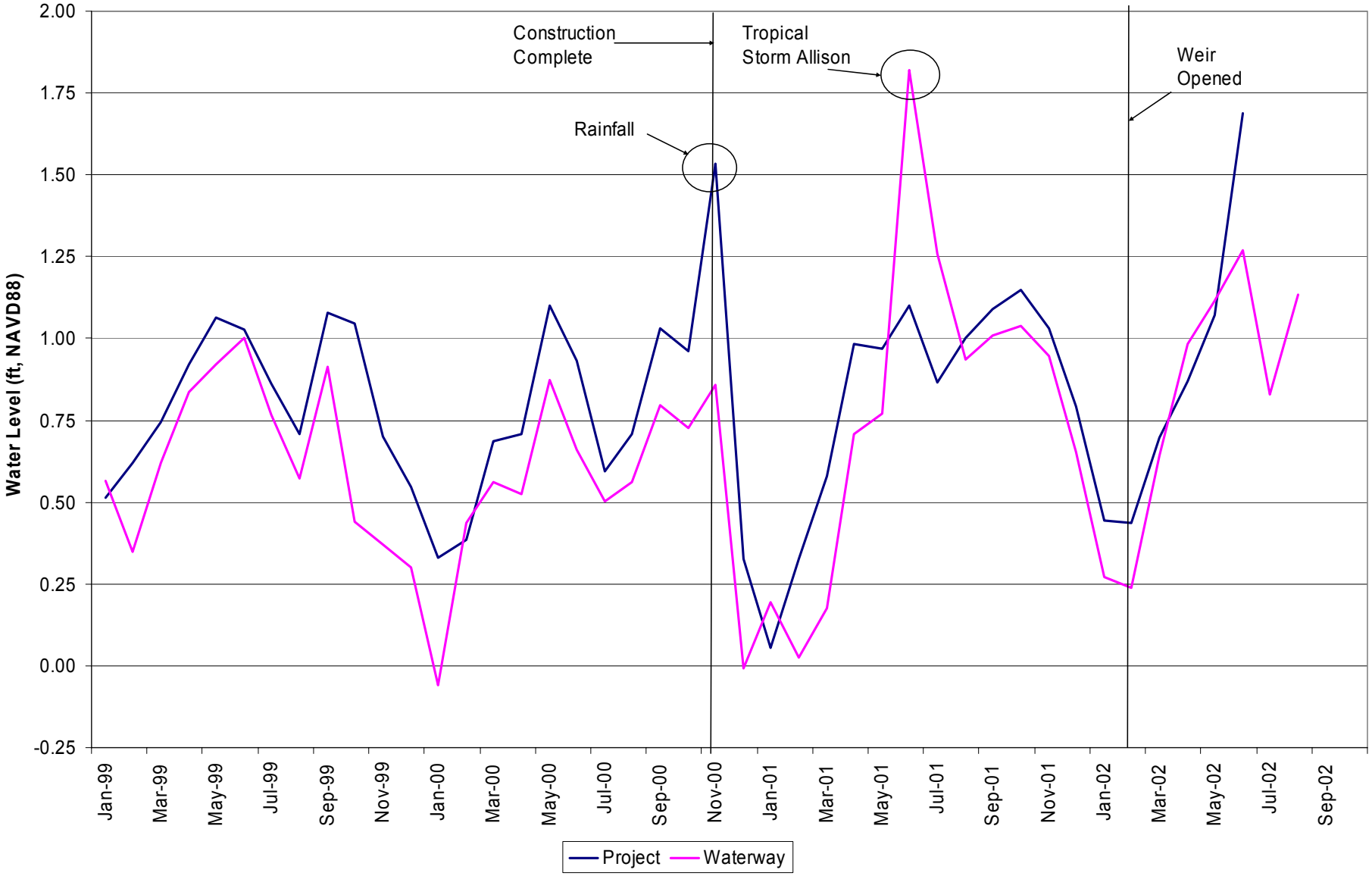
BA-23 Hydrologic Data : Water Level

- Water Level : Monthly average (Metric units)
- Water Level : Monthly average (English units)
- Variance in Water Level : Monthly average

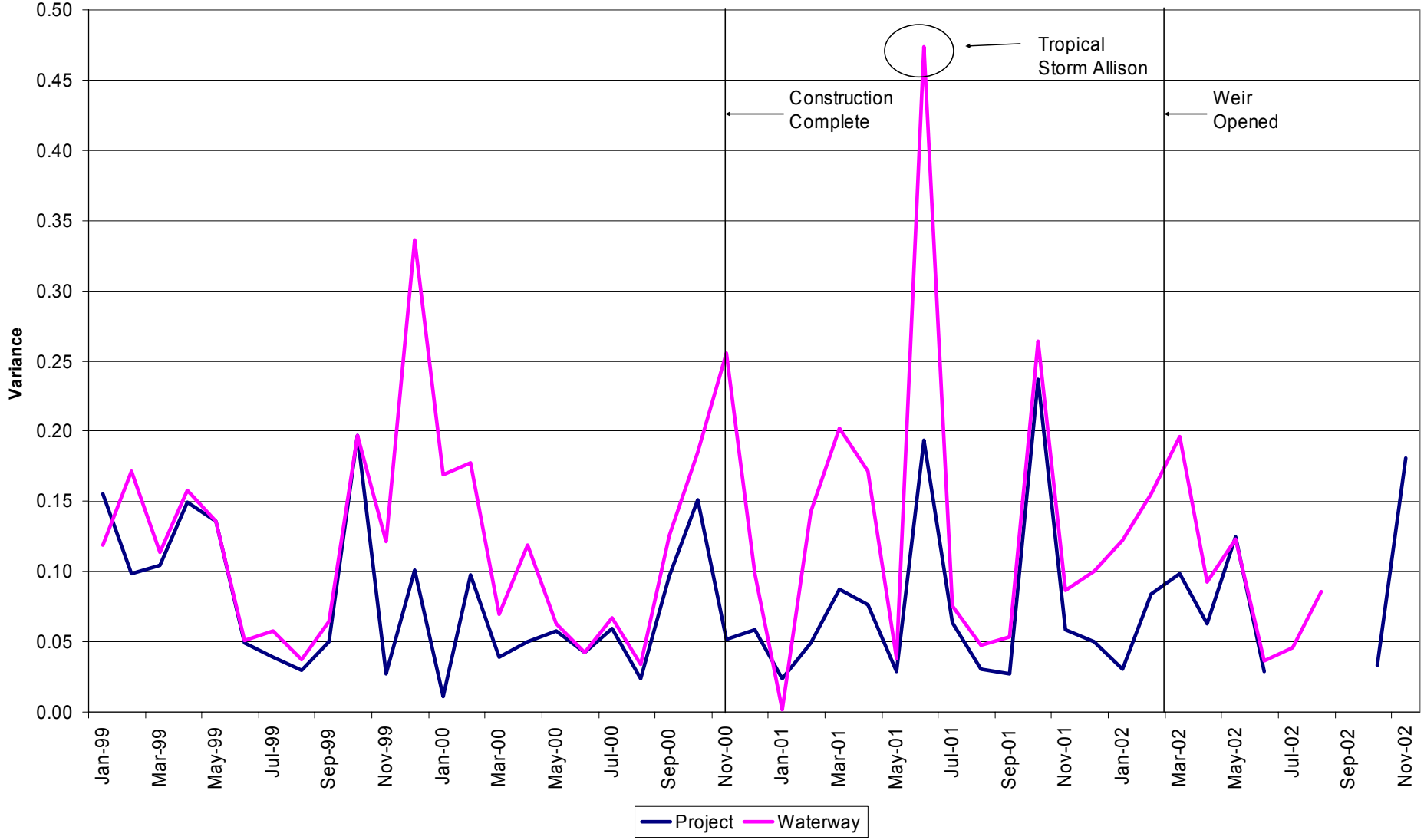
Monthly Average Water Level Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



Monthly Average Water Level Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



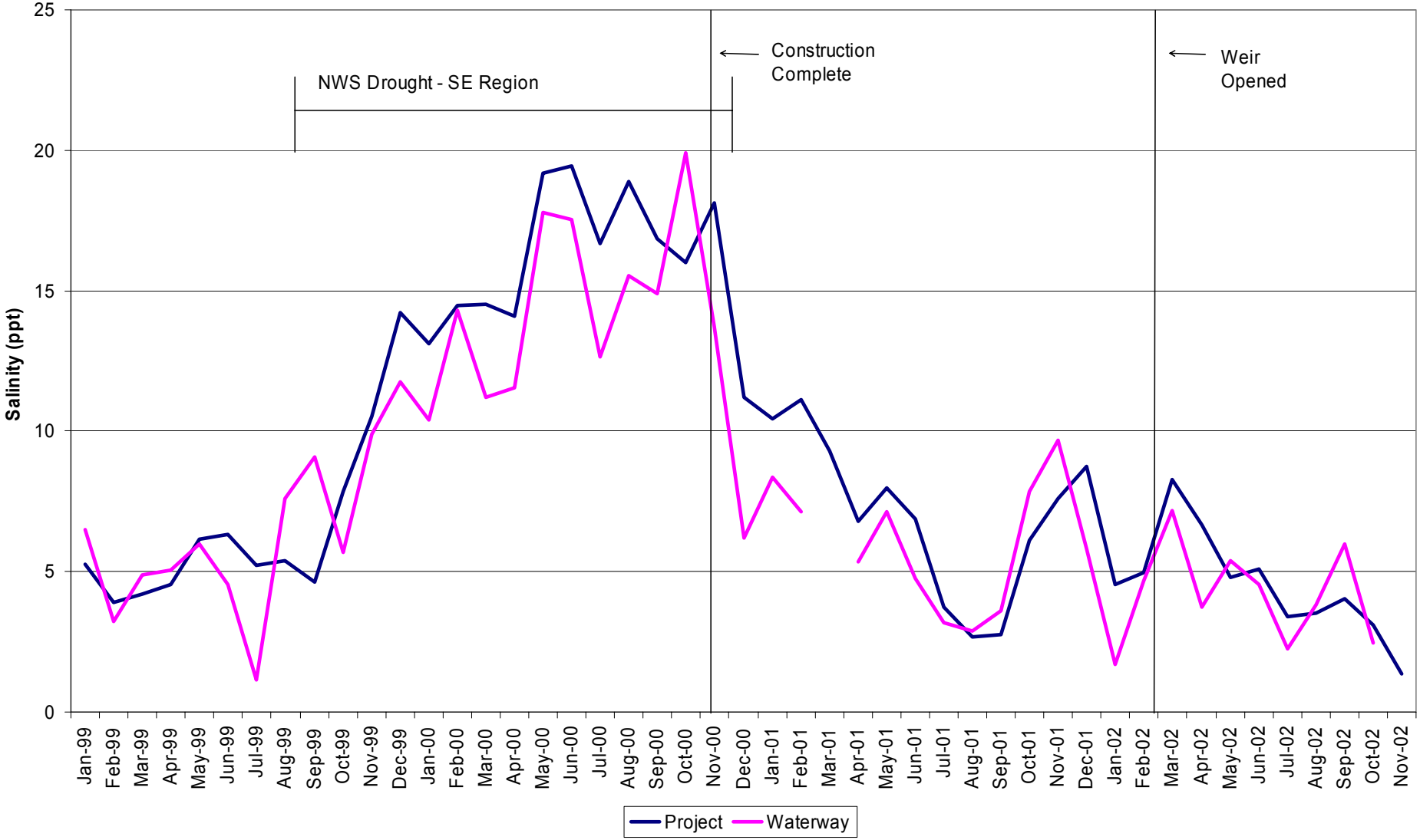
Monthly Variance in Water Level Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



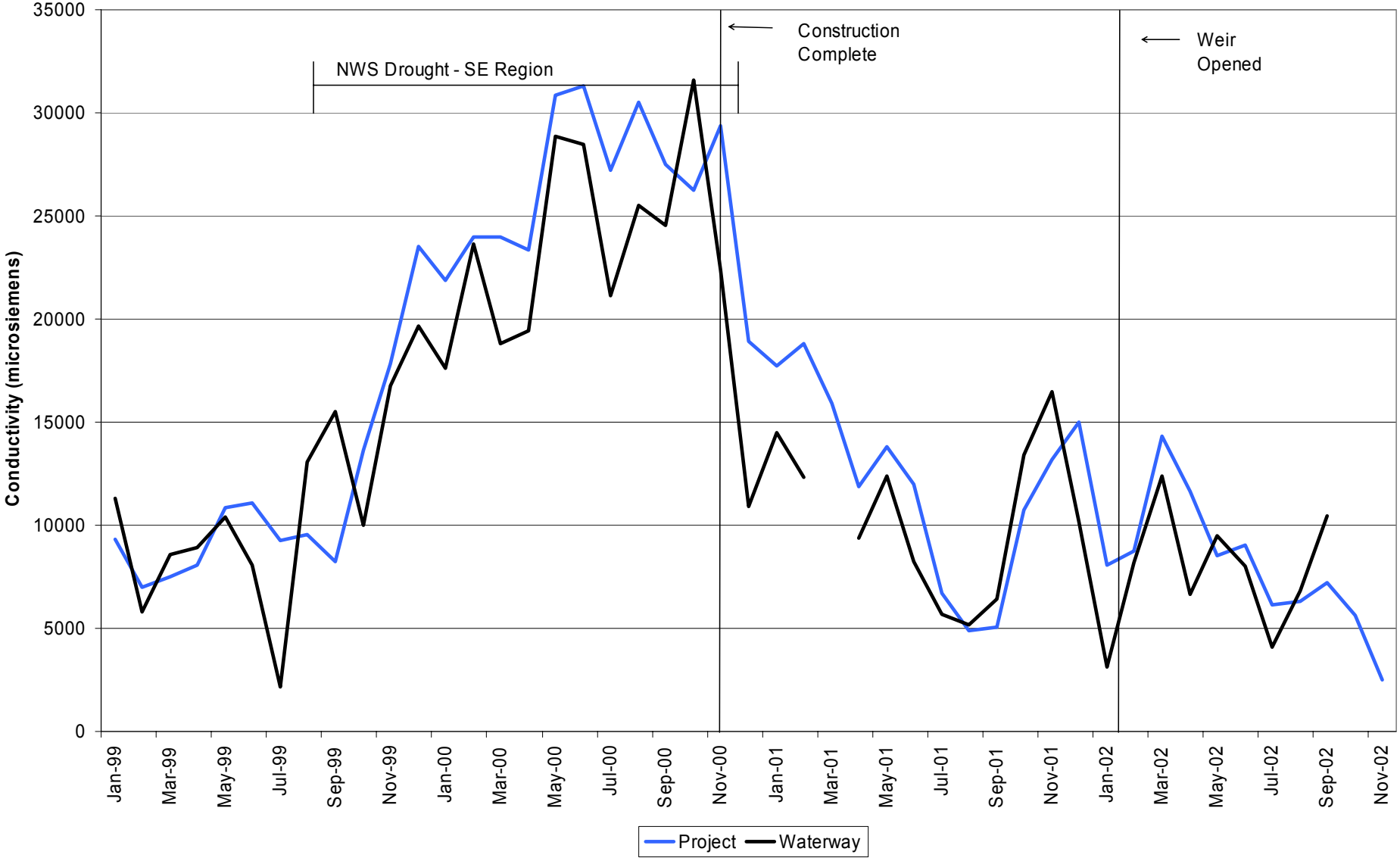
BA-23 Hydrologic Data : Salinity

- Salinity: monthly average
- Specific Conductivity: monthly average
- Variance in Salinity: monthly average

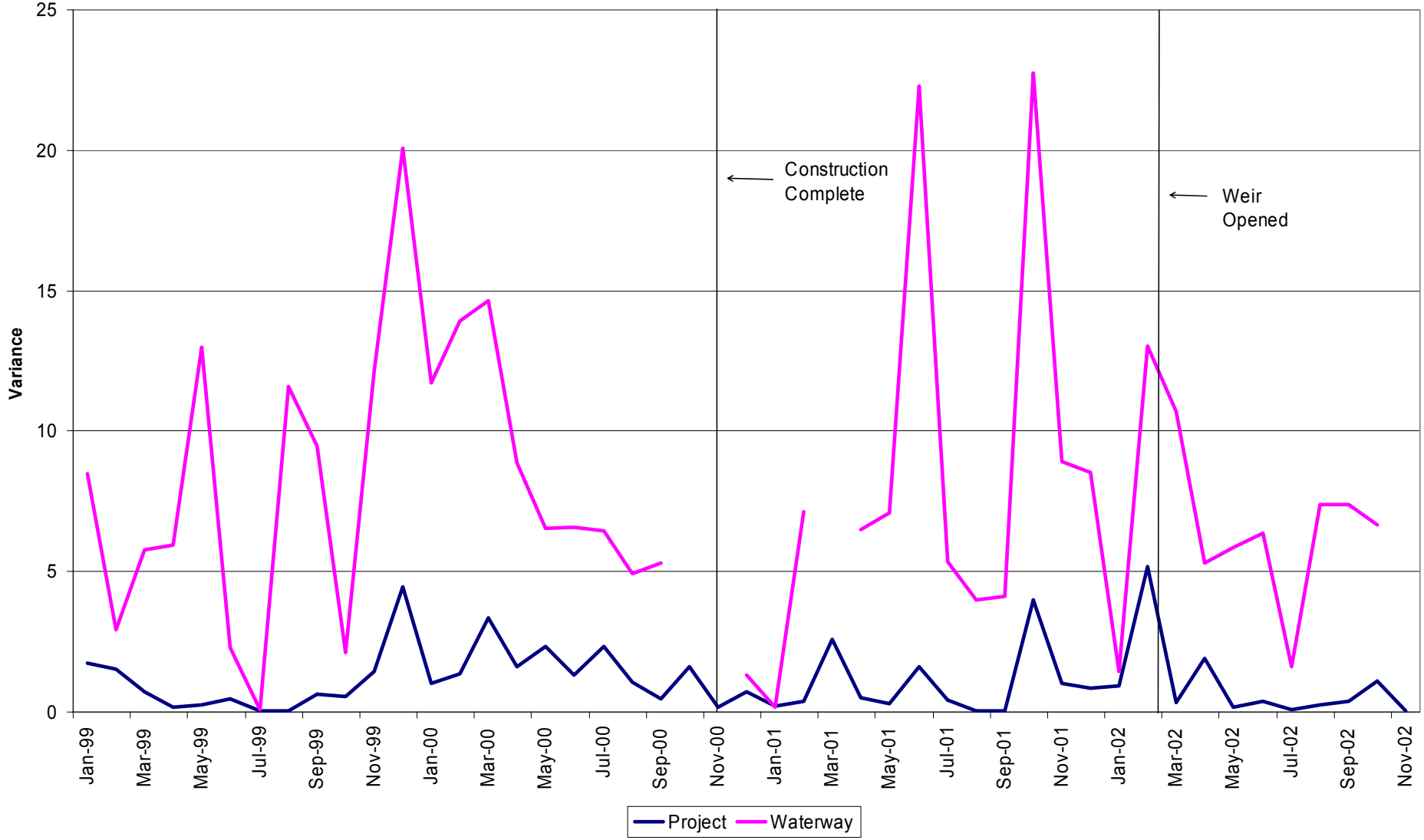
Monthly Average Salinity Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



Monthly Average Specific Conductance Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



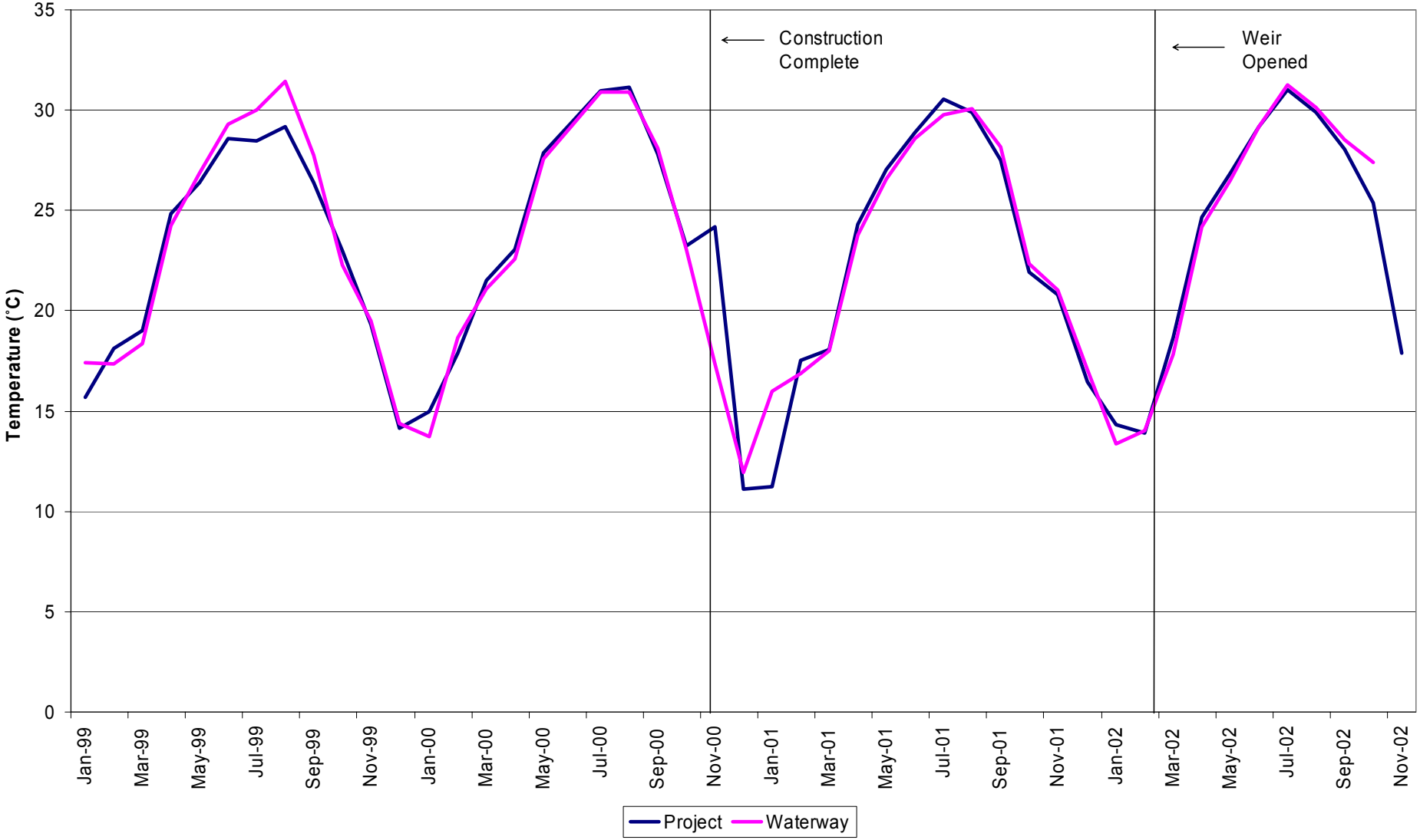
Monthly Variance in Salinity Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



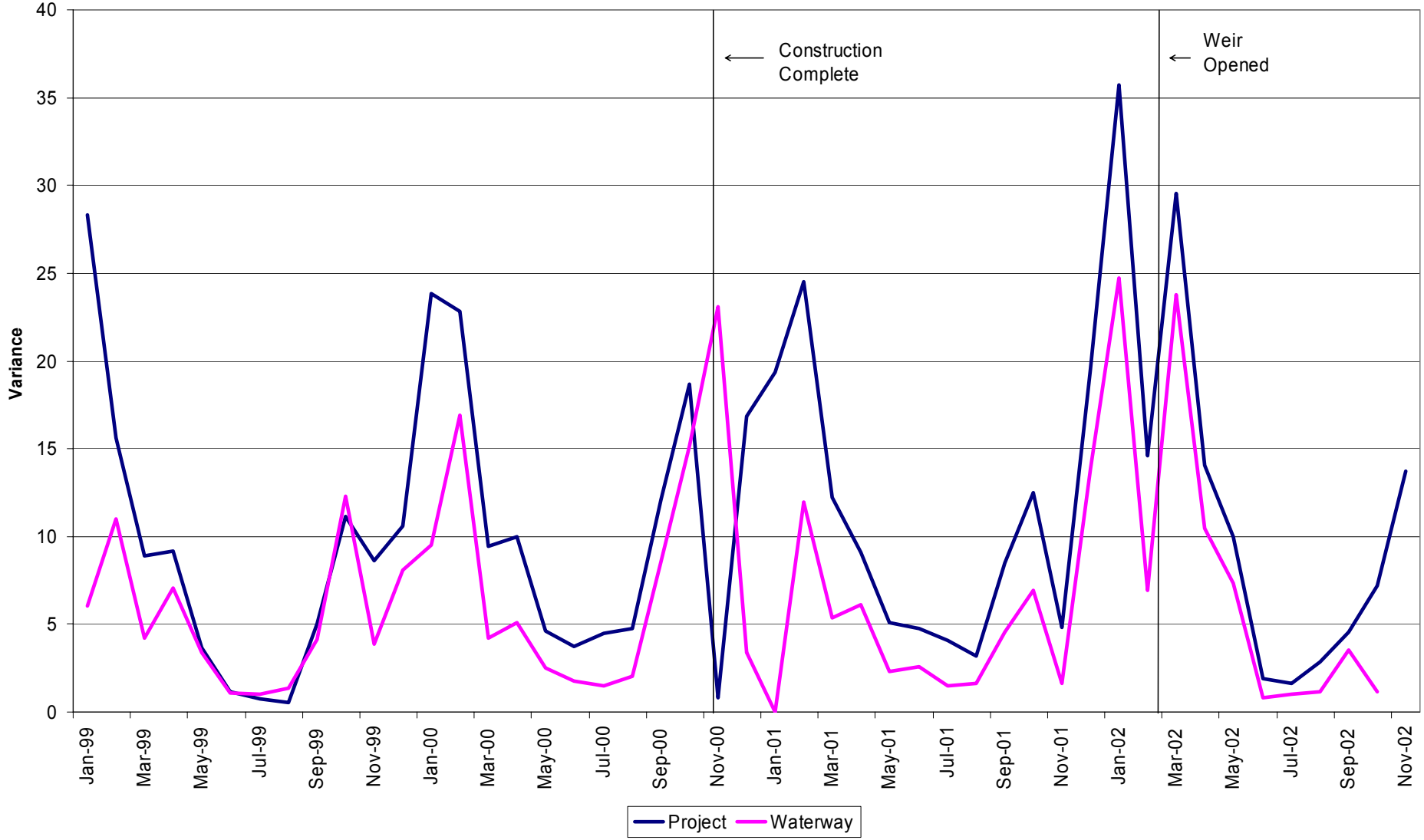
BA-23 Hydrologic Data : Water Temperature

- Temperature: monthly average
- Variance in Temperature: monthly average

Monthly Average Water Column Temperature vs Time Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



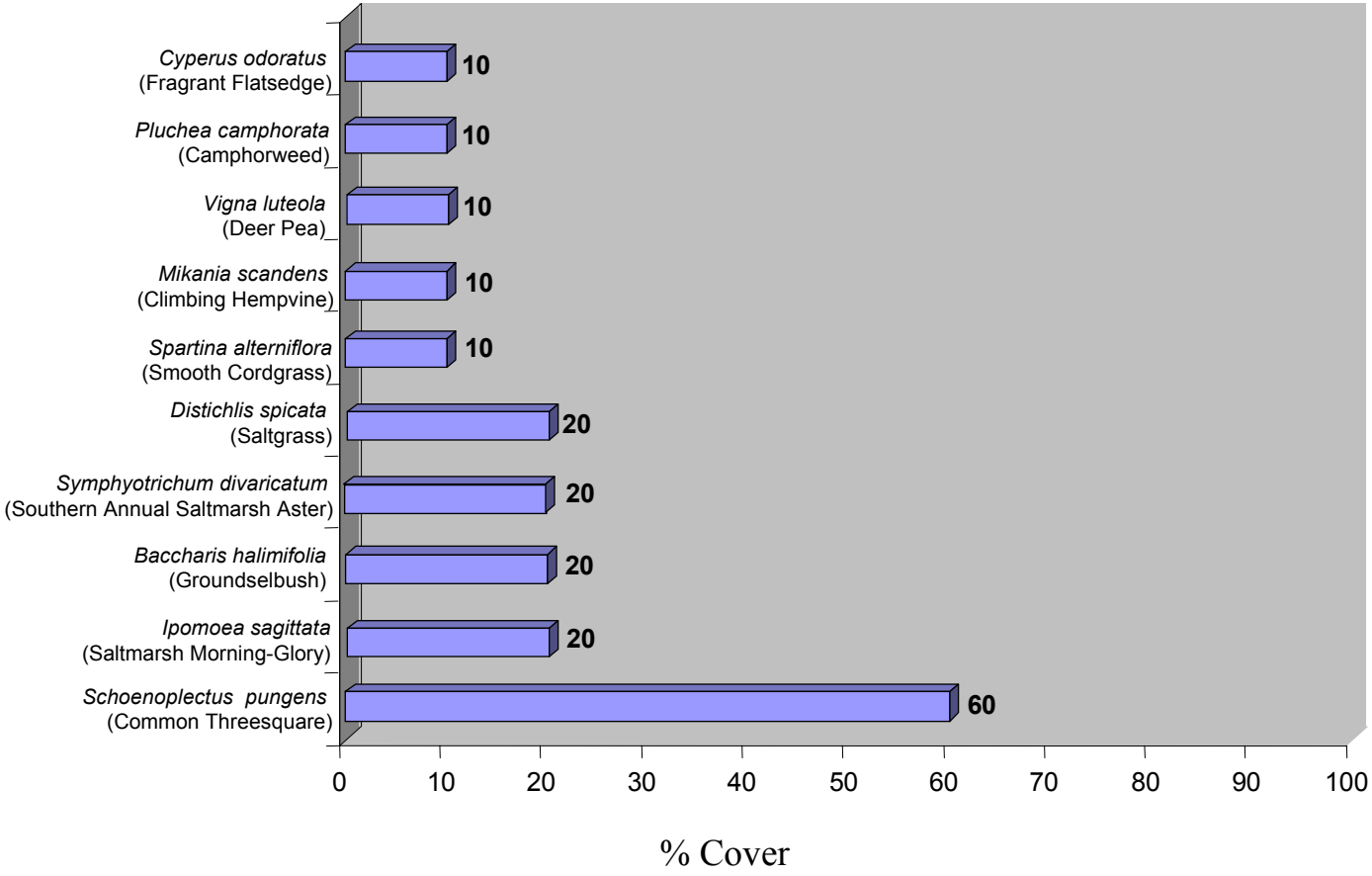
Monthly Variance in Water Temperature Measured at the Barataria Bay Waterway West Side Shoreline Protection Project (BA-23) from January 1999 - July 2002



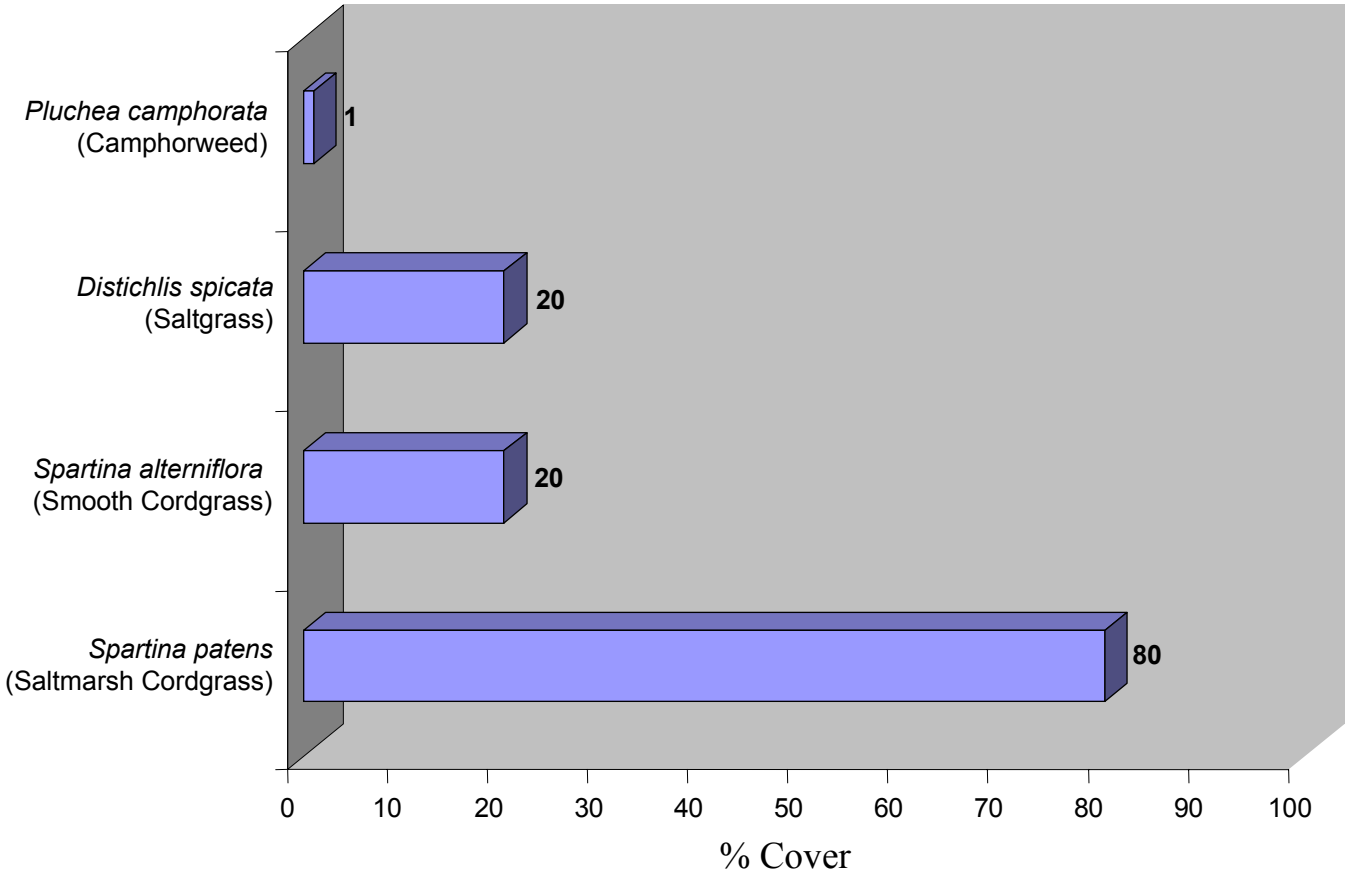
BA-23 Vegetation Data

- Method: Modified Braun-Blanquet $4m^2$ plots
- 10 Stations sampled and presented
- Submersed Aquatic Vegetation

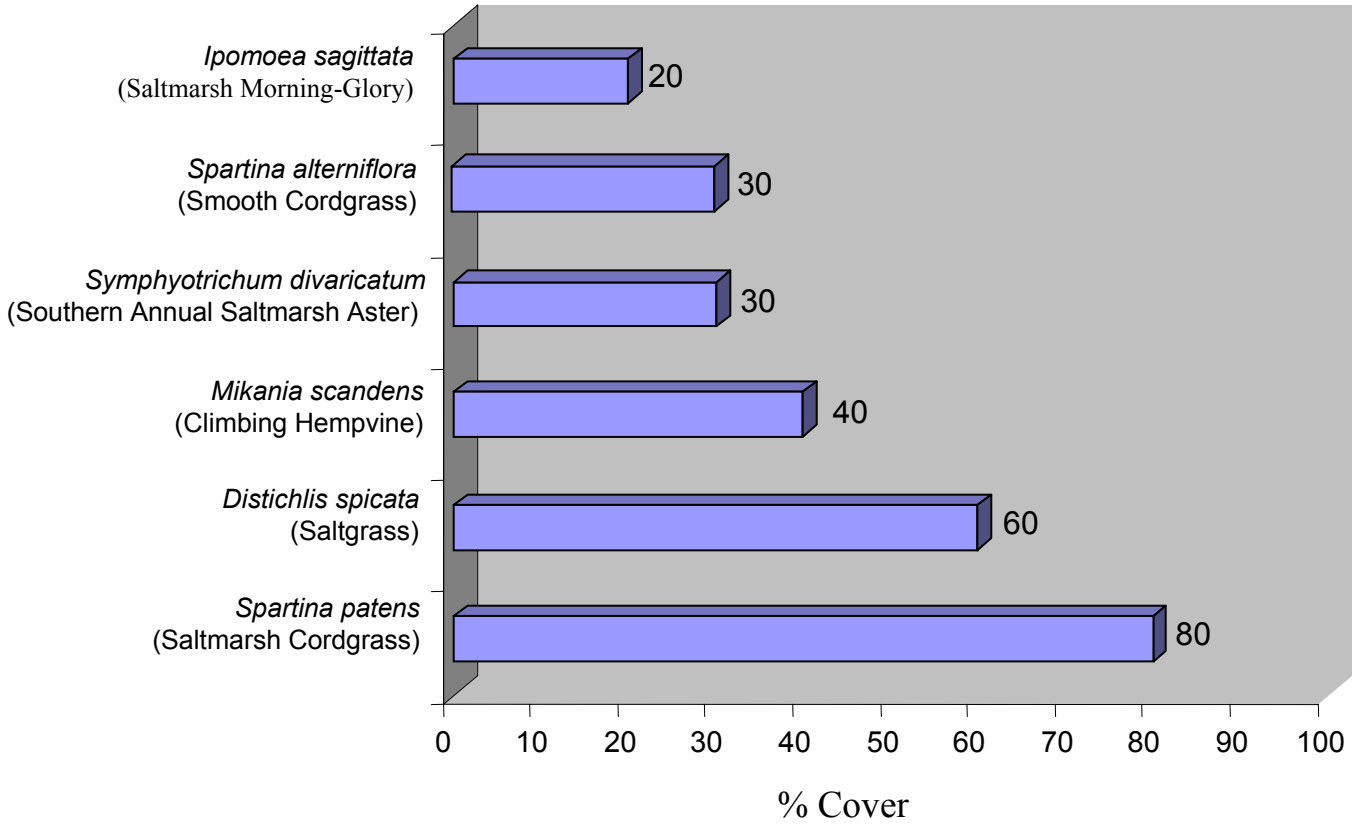
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-101
November 1997



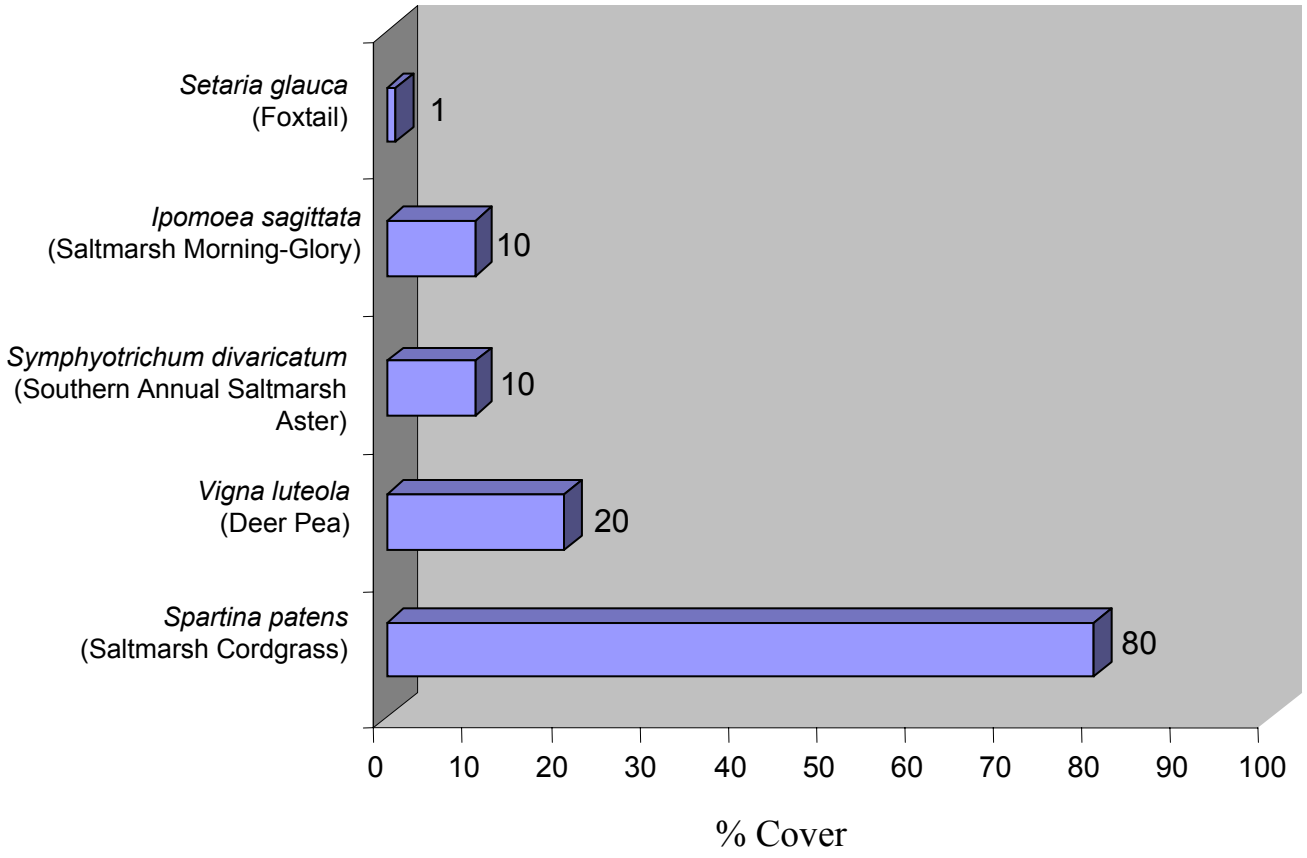
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-105
November 1997



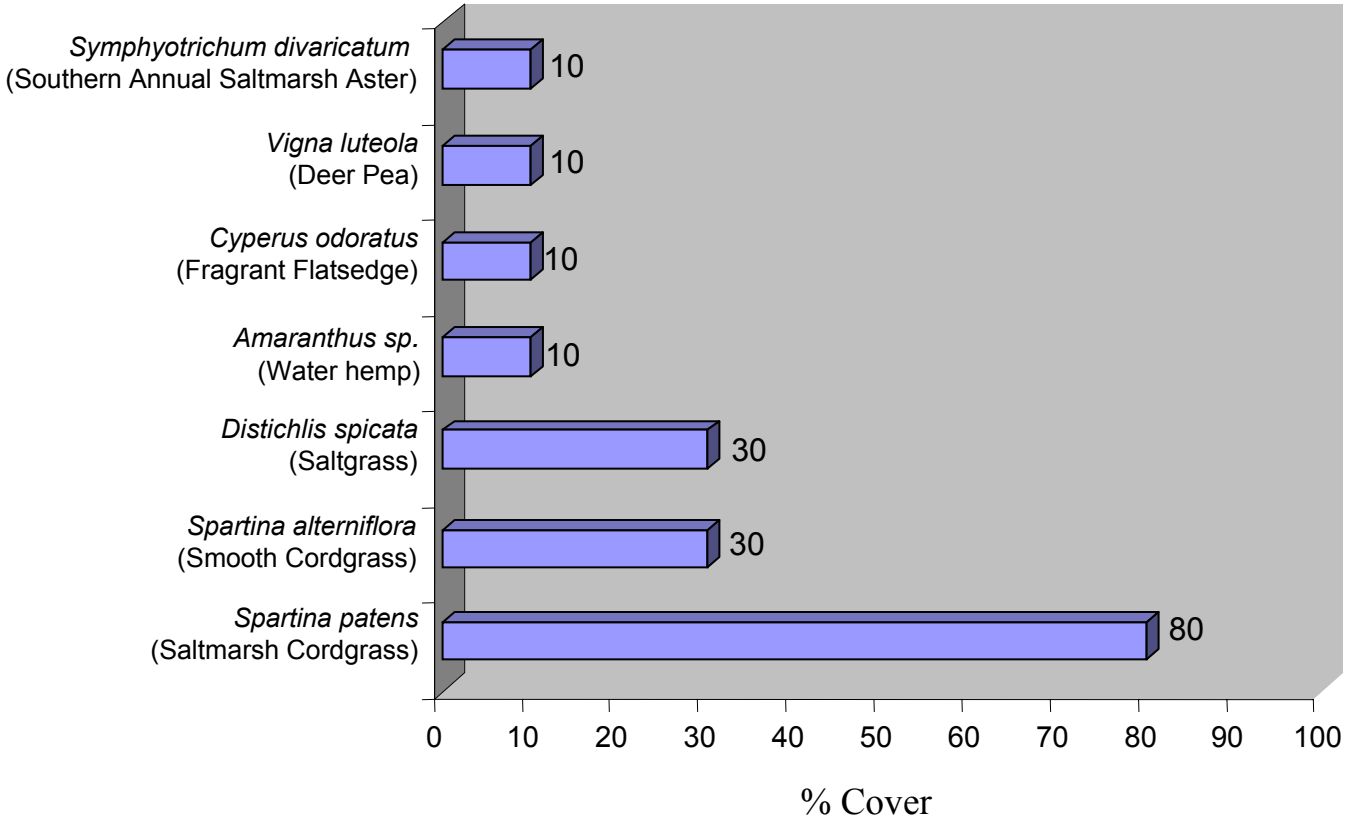
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-106
November 1997



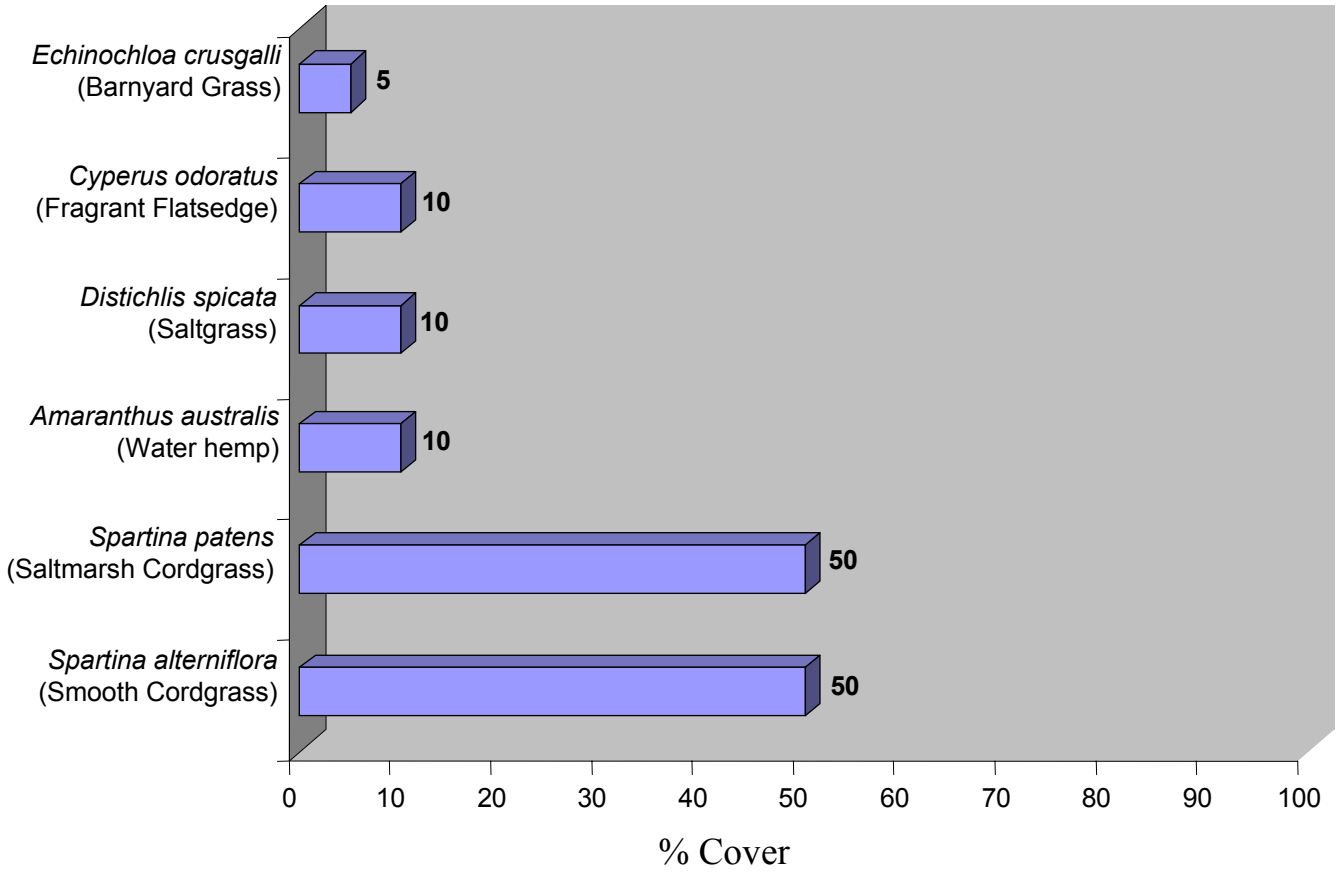
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-107
November 1997



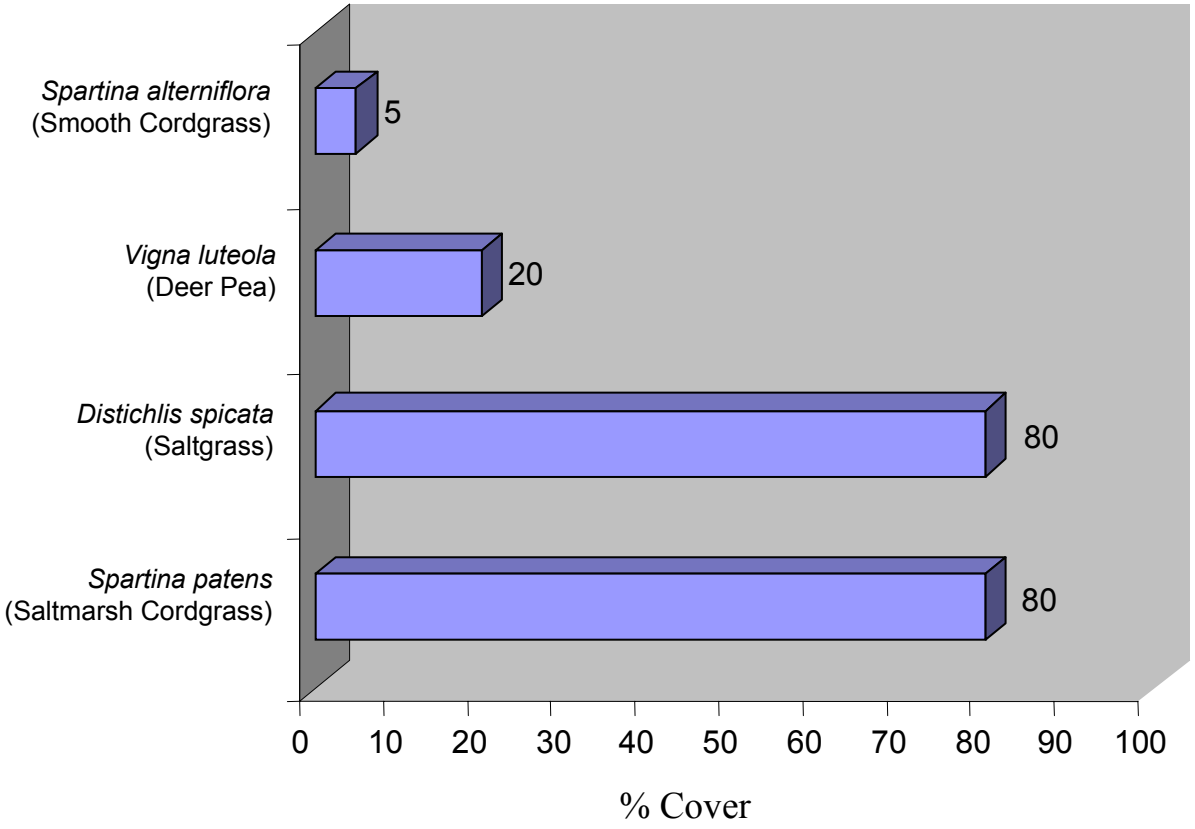
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-108
November 1997



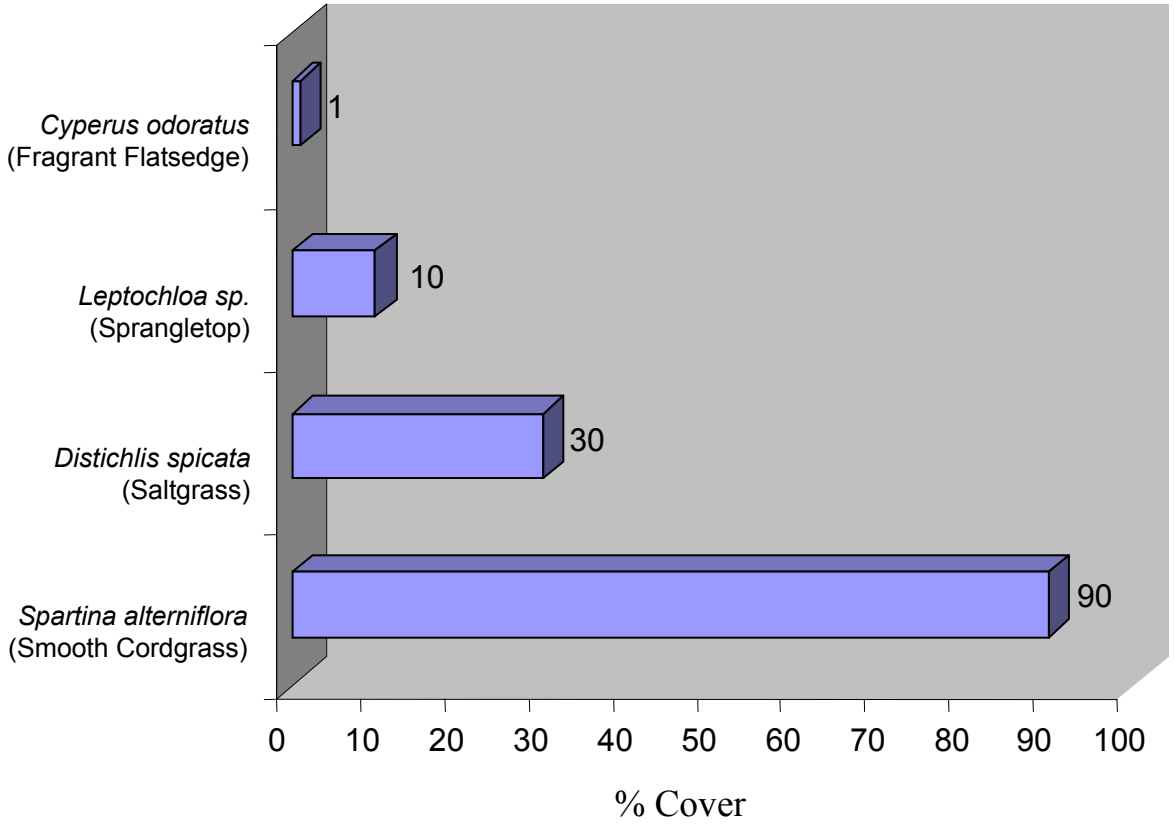
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-115
November 1997



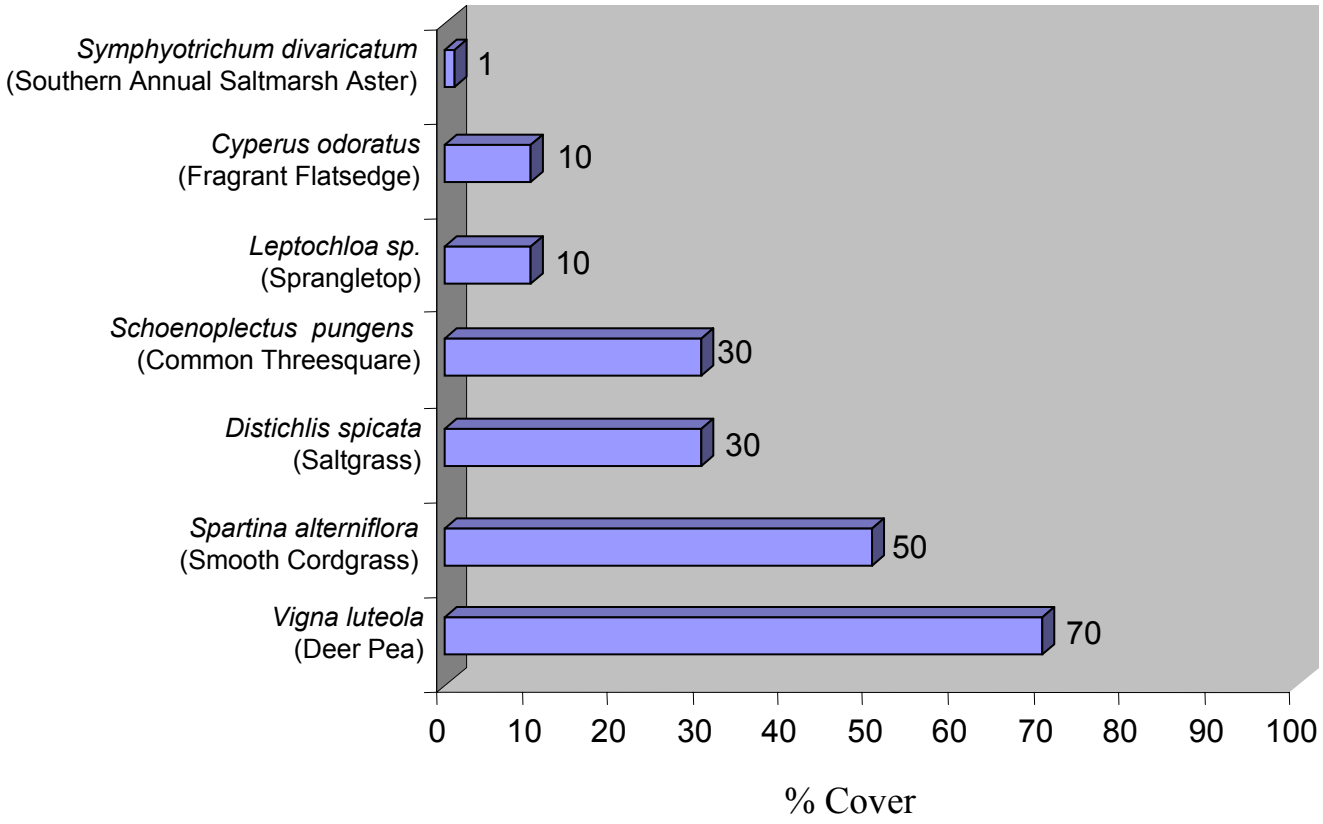
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-117
November 1997



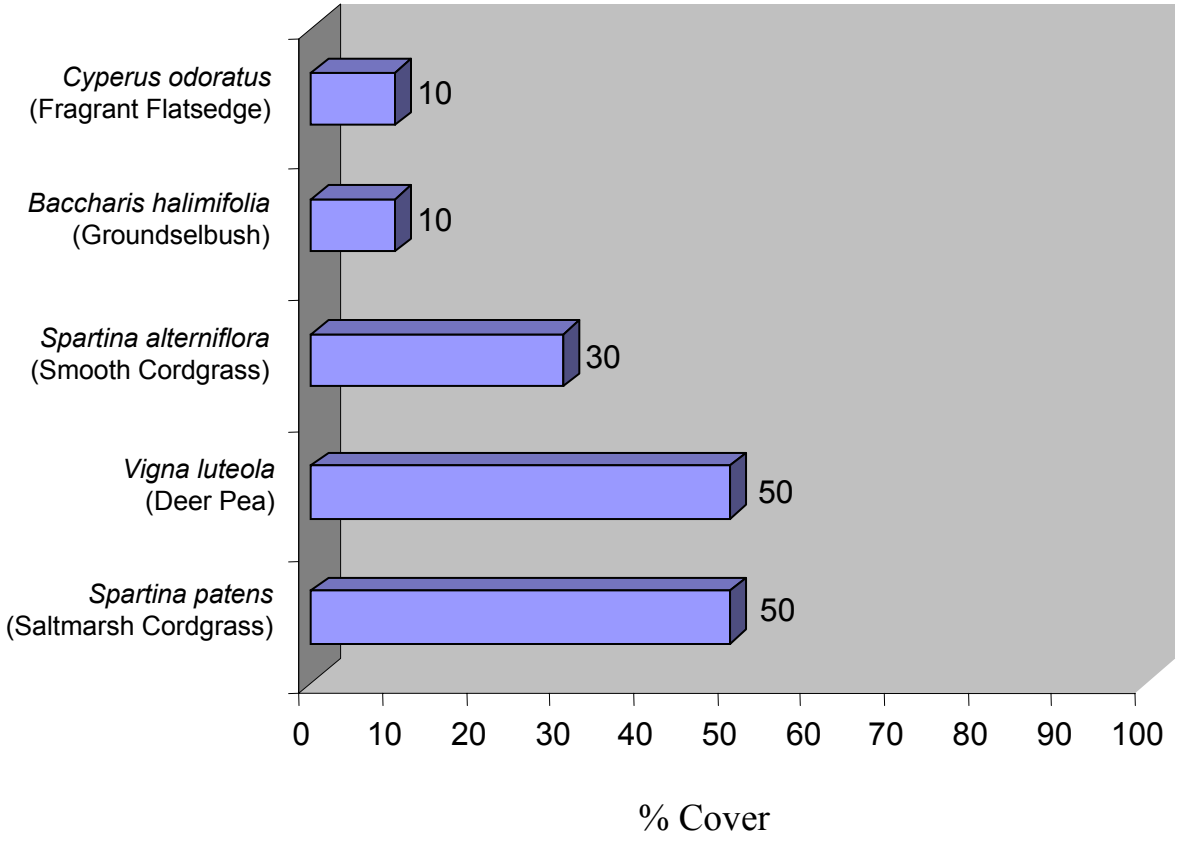
Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-118
November 1997



Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-119
November 1997



Vegetation Data (Percent Cover) for the Barataria Bay Waterway West Side Shoreline Protection Project
Station BA23-120
November 1997



SAV at Barataria Bay Waterway West Side
Shoreline Protection November 1997

Station	Species	Common
BA23-102	Ceratophyllum demersum	Common Hornwort
	Myriophyllum spicatum	Eurasian Water Milfoil
	Ruppia maritima	Widgeon Grass
BA23-103	Ceratophyllum demersum	Common Hornwort
	Ruppia maritima	Widgeon Grass
BA23-104	Ceratophyllum demersum	Common Hornwort
	Myriophyllum spicatum	Eurasian Water Milfoil
	Ruppia maritima	Widgeon Grass
BA23-109	Ceratophyllum demersum	Common Hornwort
	Myriophyllum spicatum	Eurasian Water Milfoil
	Ruppia maritima	Widgeon Grass
BA23-110	Ceratophyllum demersum	Common Hornwort
	Myriophyllum spicatum	Eurasian Water Milfoil
	Ruppia maritima	Widgeon Grass
BA23-111	Myriophyllum spicatum	Eurasian Water Milfoil
BA23-112	Myriophyllum spicatum	Eurasian Water Milfoil
BA23-113	Myriophyllum spicatum	Eurasian Water Milfoil
BA23-114	Myriophyllum spicatum	Eurasian Water Milfoil
BA23-116	Myriophyllum spicatum	Eurasian Water Milfoil

BA-23 Barataria Bay Waterway

Preliminary Findings

Aerial Photography:

- Aerial surveys identified 392.0 acres of land and 1523.9 acres of water (Pre-construction – 1997).

Vegetation:

- *Spartina* dominated or co-dominated 8/10 stations (Pre-construction – 1997).

Water Level :

- Daily and Monthly water levels as well as variability have not significantly decreased, but this may be due to less than one year of post weir data analysis.

Salinity :

- Daily and Monthly salinity levels as well as variability have not significantly decreased, but this may be due to less than one year of post weir data analysis and a drought that coincided with the completed construction.