

Long-term Water Quality Monitoring in Estero Bay

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Estero Bay Monitoring Programs

- Three significant monitoring programs have been conducted by LCEL
 1. Charlotte Harbor National Estuary Program's Coastal Charlotte Harbor Monitoring Network, Estero Bay Random Strata
 2. Lee County's Estuarine Program, Estero Bay Fixed Sites.
 3. Lee County's Big Hickory Pass Program

Estero Bay Monitoring Programs

- These monitoring programs were selected because:
 - I personally know who collected and tested each sample.
 - I know what lab and field procedures were used.
 - I know what quality assurance plans were followed.
 - Most importantly,

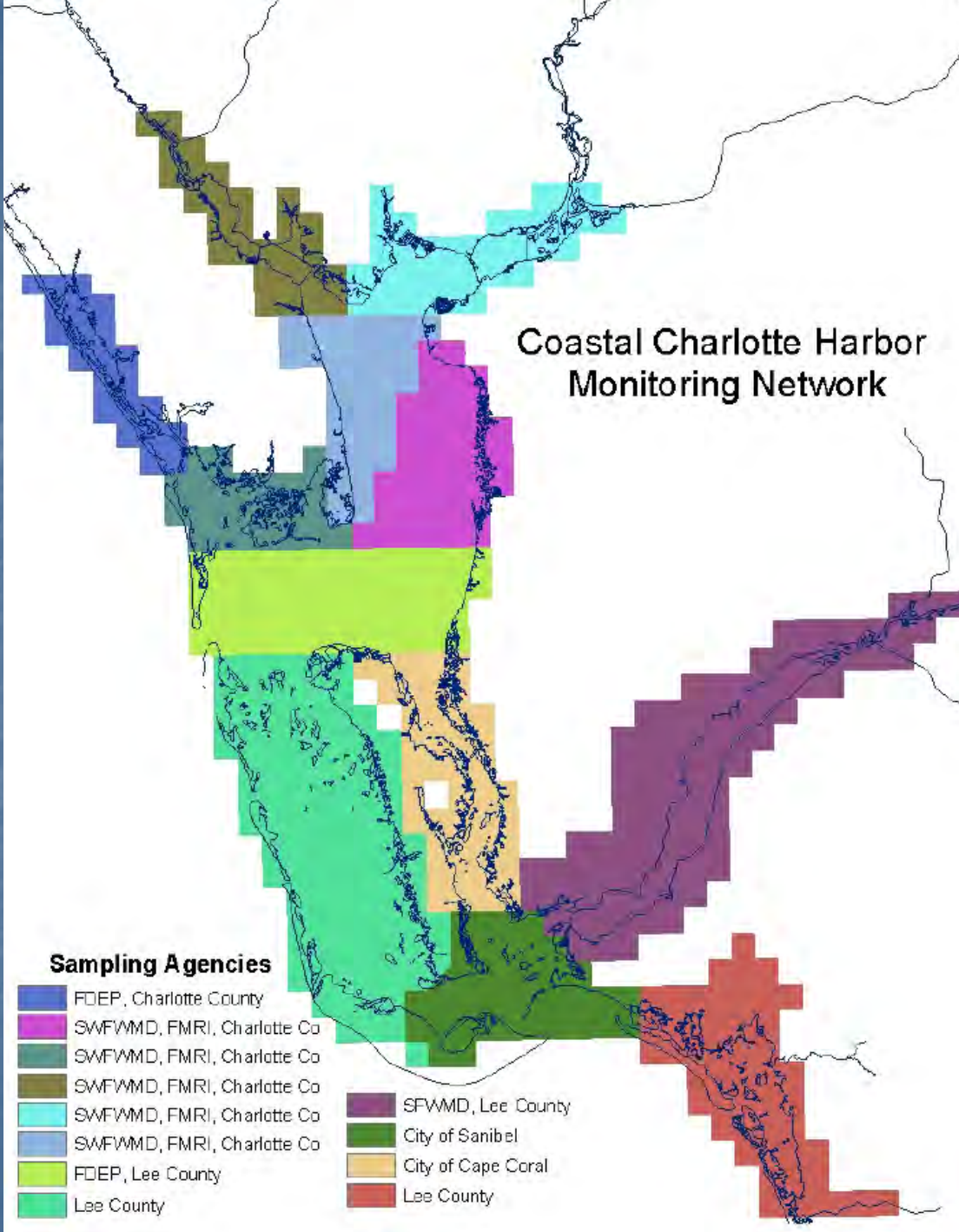
Estero Bay Monitoring Programs

- These monitoring programs were selected because:
 - I personally know who collected and tested each sample.
 - I know what lab and field procedures were used.
 - I know what quality assurance plans were followed.
 - Most importantly, I have the data.

Estero Bay Monitoring Programs

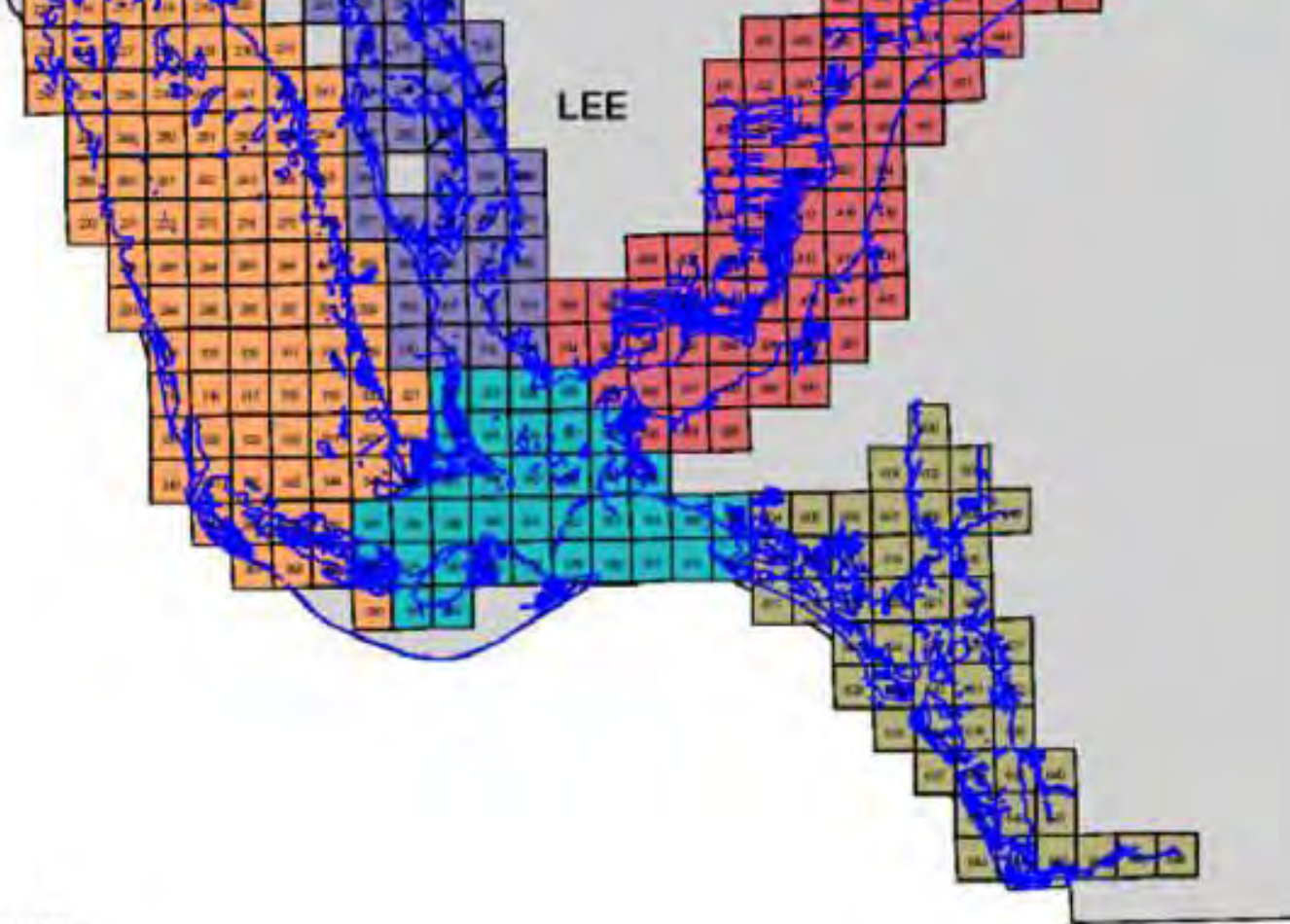
1. Charlotte Harbor National Estuary Program's Coastal Charlotte Harbor Monitoring Network
 - Estero Bay Stratum Started September 2003
 - Five Random grids are selected monthly
 - One random site is selected in each of the five random grids.

Coastal Charlotte Harbor Monitoring Network




Sampling Agencies

- FDEP, Charlotte County
- SWFWMD, FMRI, Charlotte Co
- SWFWMD, FMRI, Charlotte Co
- SWFWMD, FMRI, Charlotte Co
- SWFWMD, FMRI, Charlotte Co
- SWFWMD, FMRI, Charlotte Co
- FDEP, Lee County
- Lee County
- SWFWMD, Lee County
- City of Sanibel
- City of Cape Coral
- Lee County



STRATA

-  CAPE HAZE
-  EAST WALL
-  ESTERO BAY
-  LOWER CHARLOTTE HARBOR
-  LOWER LEMON BAY
-  MATLACHA PASS
-  PINE ISLAND SOUND
-  SAN CARLOS BAY
-  TIDAL CALOOSAHA TCHEE
-  TIDAL MYAKKA
-  TIDAL PEACE
-  UPPER LEMON BAY
-  WEST WALL

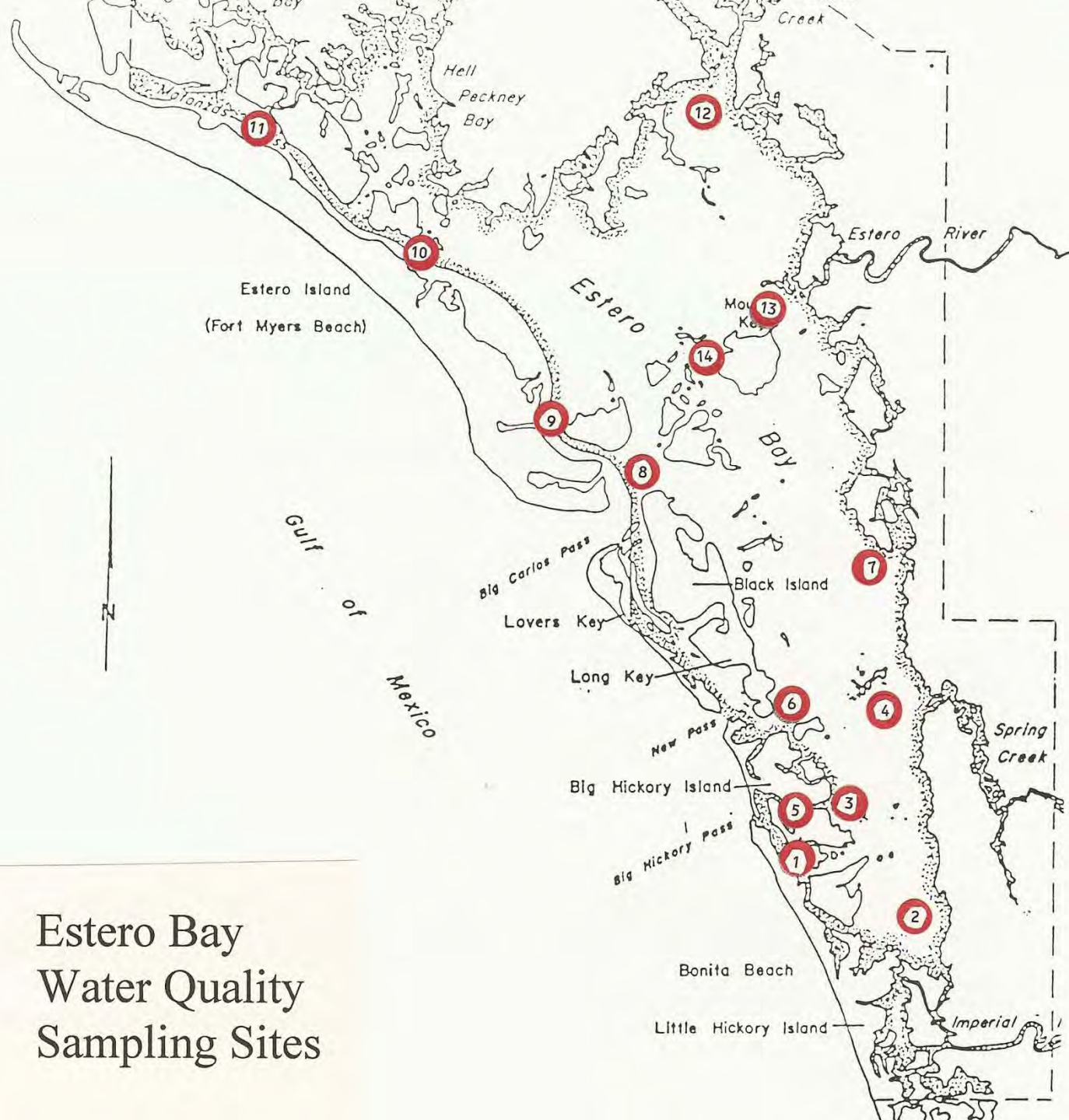
 Coastline



Estero Bay Monitoring Programs

2. Lee County's Estuarine Program

- 14 fixed stations in Estero Bay
- Estero Bay Started March 1991
- Frequency:
 - Quarterly 1991 – 2000
 - Monthly 2000 - present



Estero Bay
Water Quality
Sampling Sites

Estero Bay Monitoring Programs

3. Big Hickory Pass Monitoring Program
 - Started August 1981 ended December 1990
 - Data gaps in 1986

* Please return



*Water Quality,
Circulation Patterns*



*and
Sediment Analysis
of the*



ESTERO BAY
ESTUARINE SYSTEM



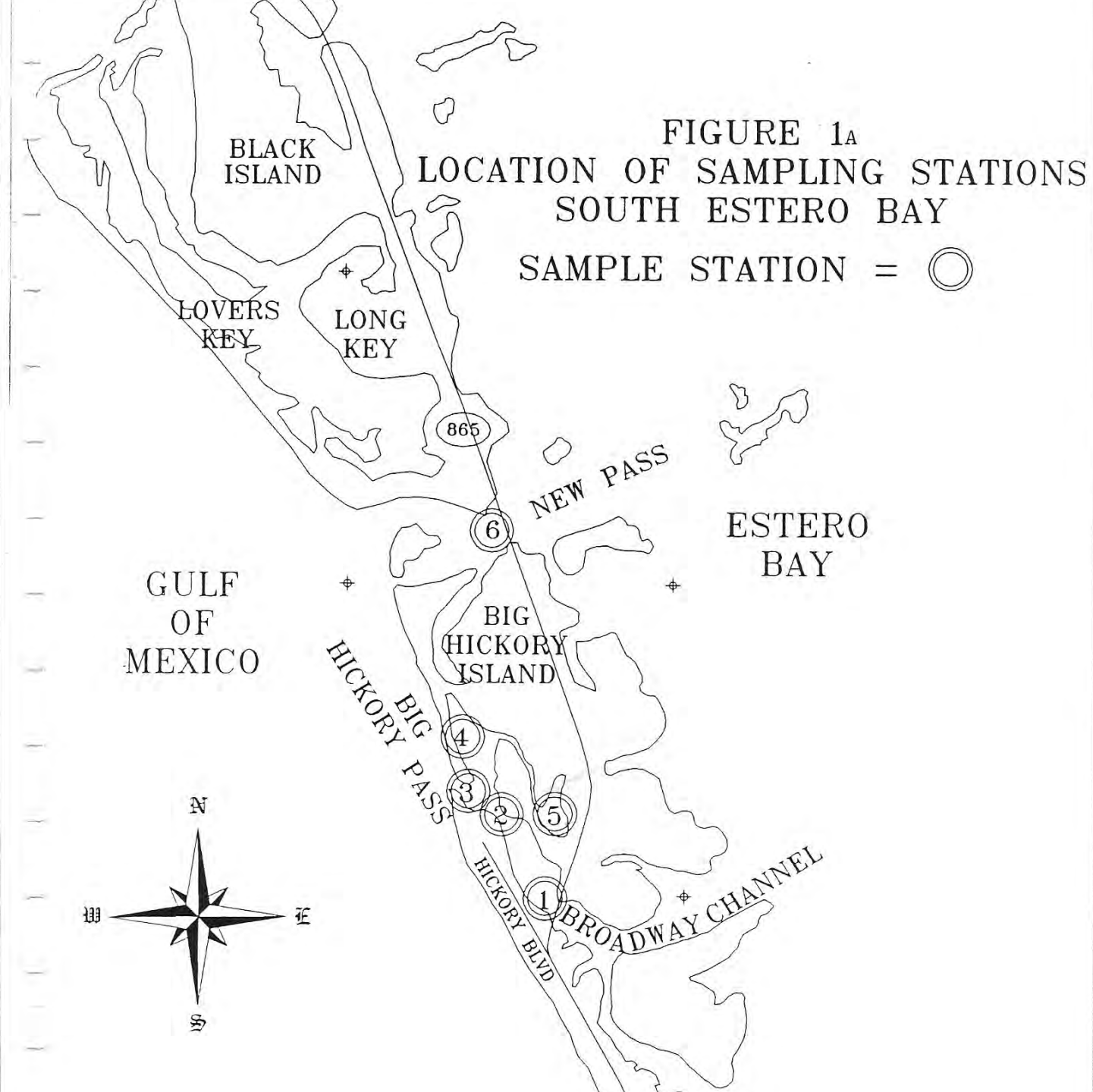
Estero Bay Monitoring Programs

3. Big Hickory Pass monitoring Program

- Started August 1981 ended December 1990
- Data gaps in 1986
- Limited analytes until 1986
- Sampled every other month in the later years.

FIGURE 1A
LOCATION OF SAMPLING STATIONS
SOUTH ESTERO BAY

SAMPLE STATION = 



Estero Bay Monitoring Programs

- In 1990 Big Hickory Pass was open.
- The Environmental Lab was funded by the general fund.
- Directed biologist, Dave Ceilley to:
 - Write a report to conclude Big Hickory Pass Monitoring.
 - Develop a monitoring program for the entire Bay using the Big Hickory resources.

SOUTH ESTERO BAY

•

BIG HICKORY PASS

Report on Water Quality
Monitoring - 1990



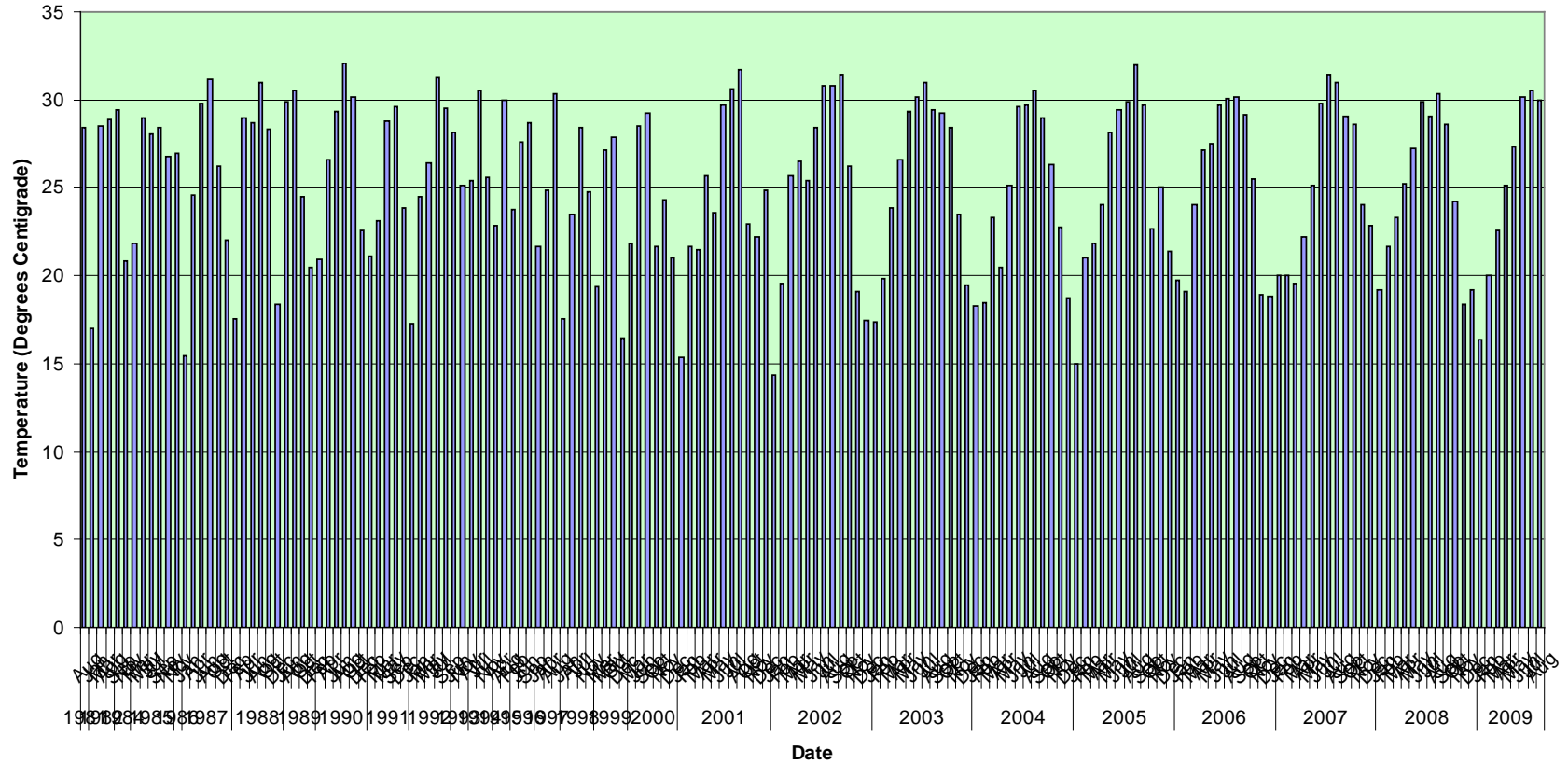
Estero Bay Monitoring Programs

Big Hickory Sites 1, 5, and 6
Are the Same as
Estero Bay Sites 1, 5, and 6

This gives a data set from 1981 to Present

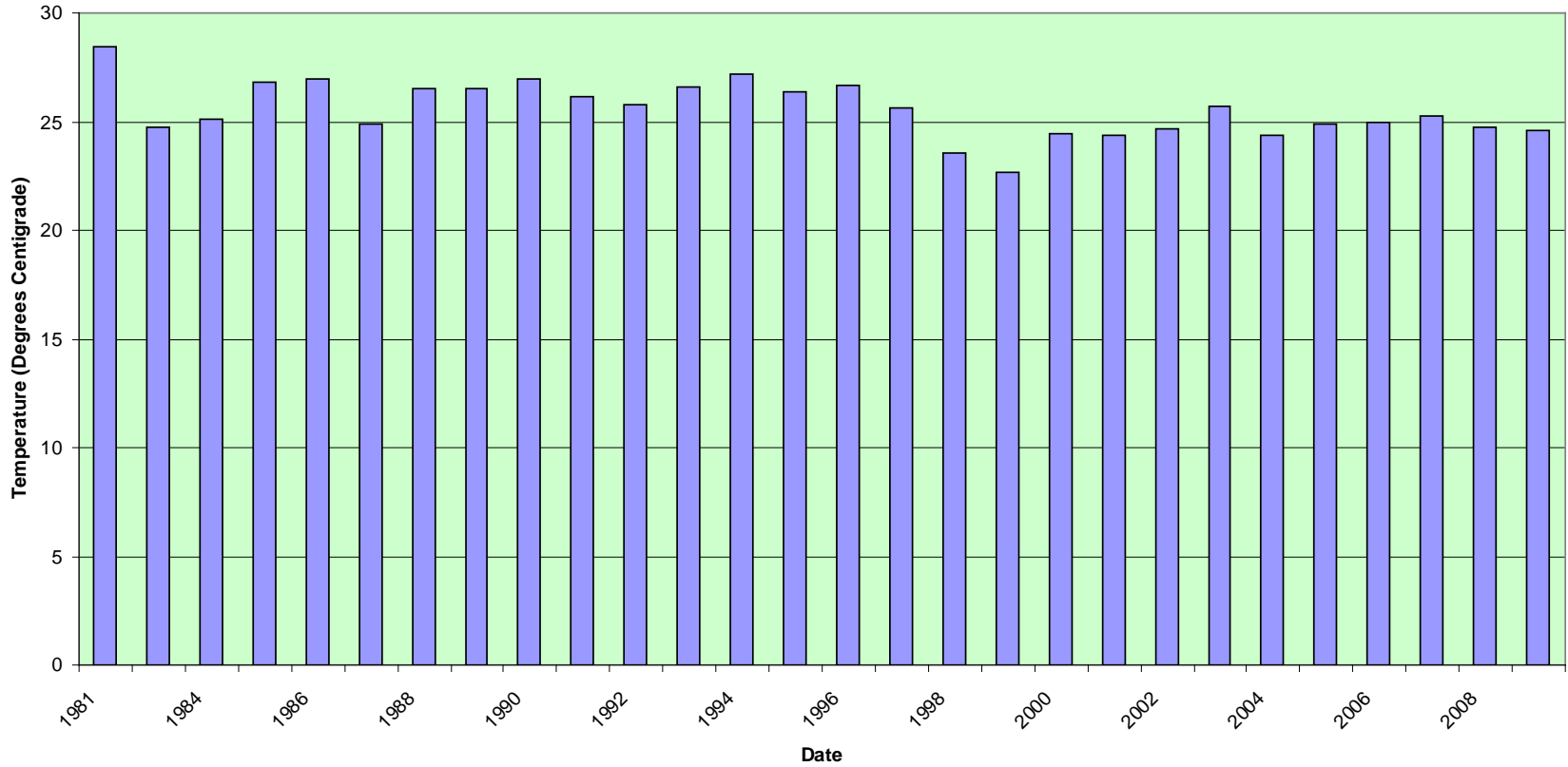
Estero Bay Site (All)

Temperature (Degrees Centigrade)



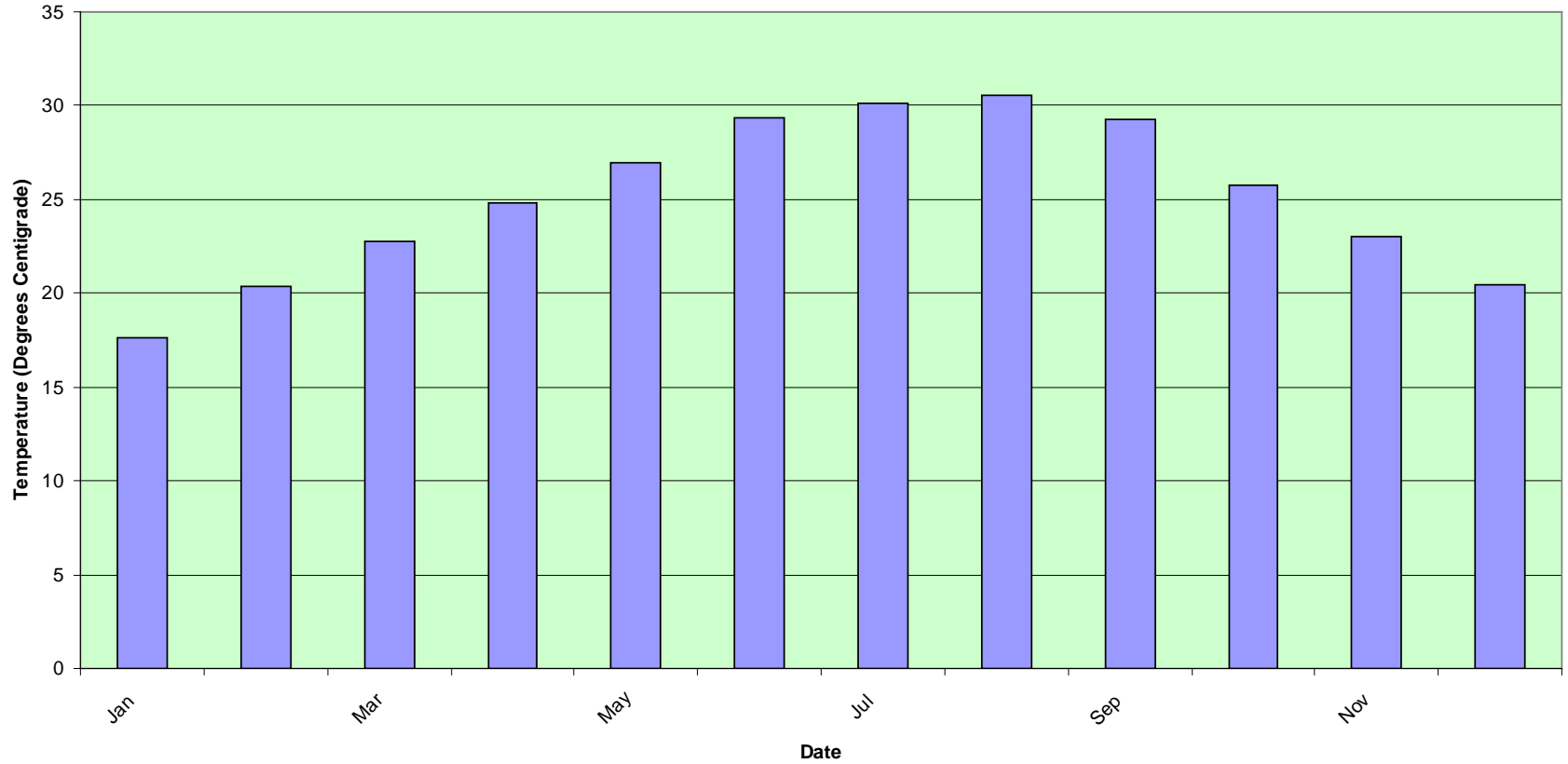
Estero Bay Site (All)

Temperature (Degrees Centigrade) versus



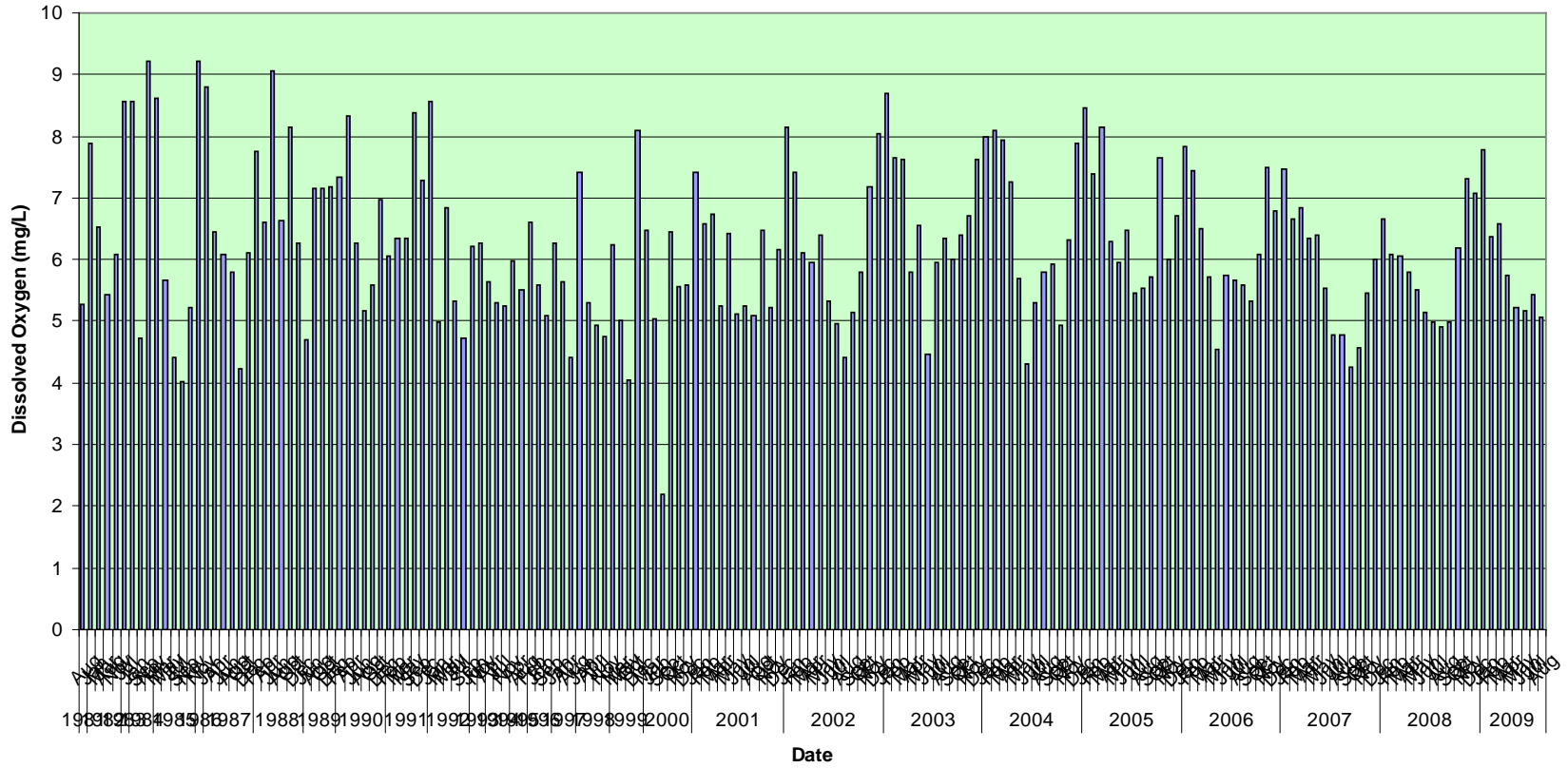
Estero Bay Site (All)

Temperature (Degrees Centigrade) versus



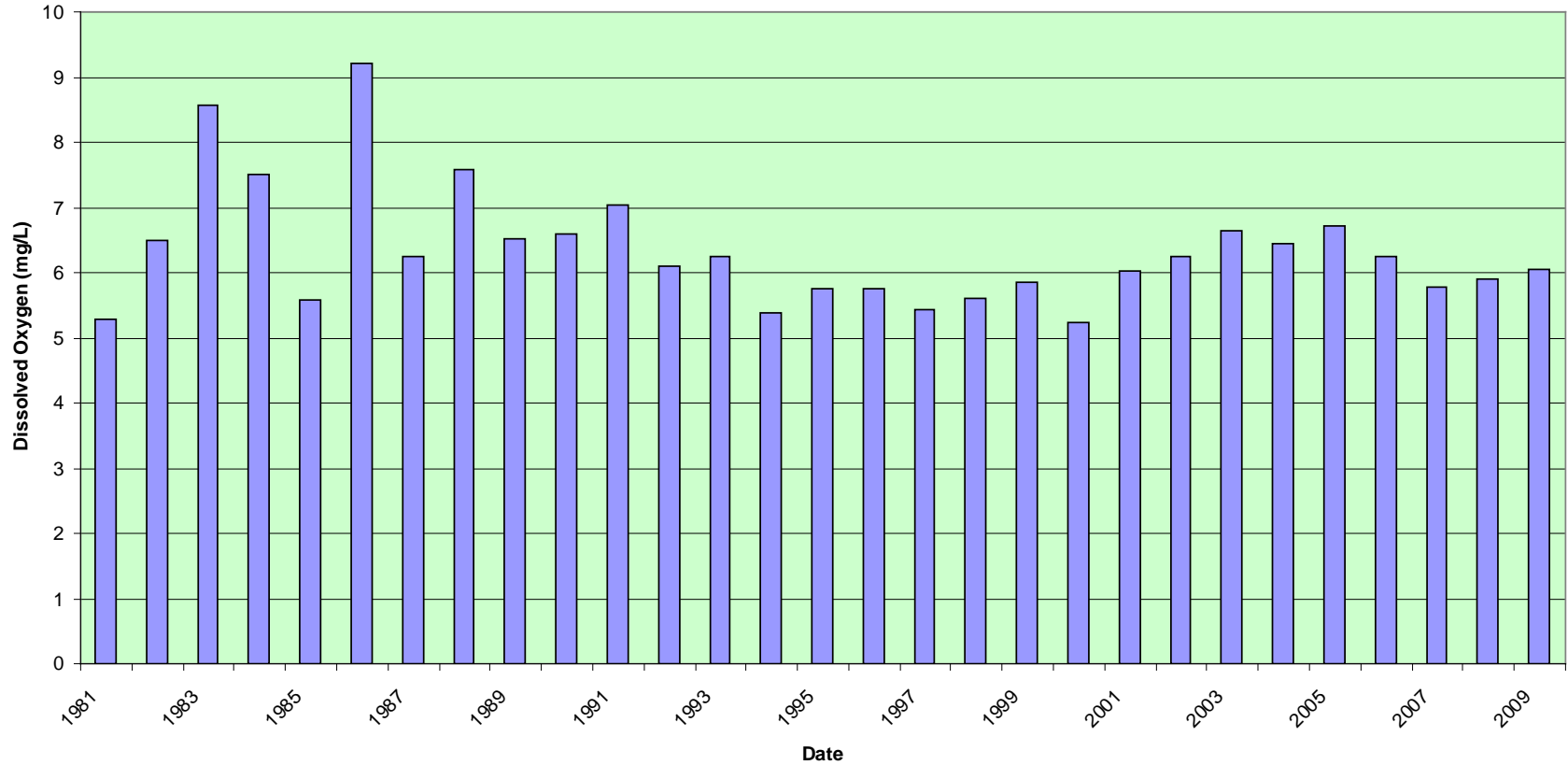
Estero Bay Site (All)

Dissolved Oxygen (mg/L) versus Time



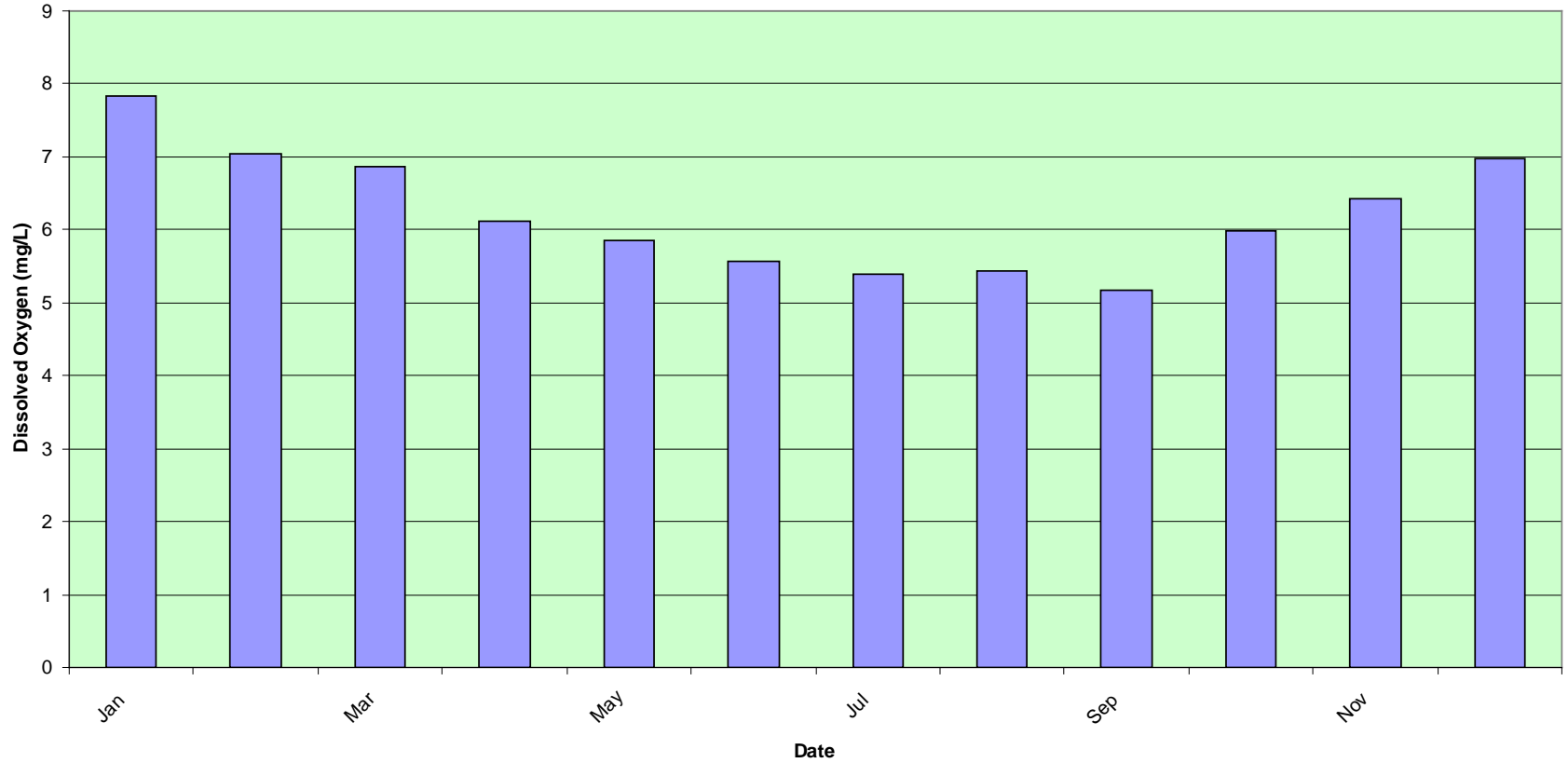
Estero Bay Site (All)

Dissolved Oxygen (mg/L) versus Time



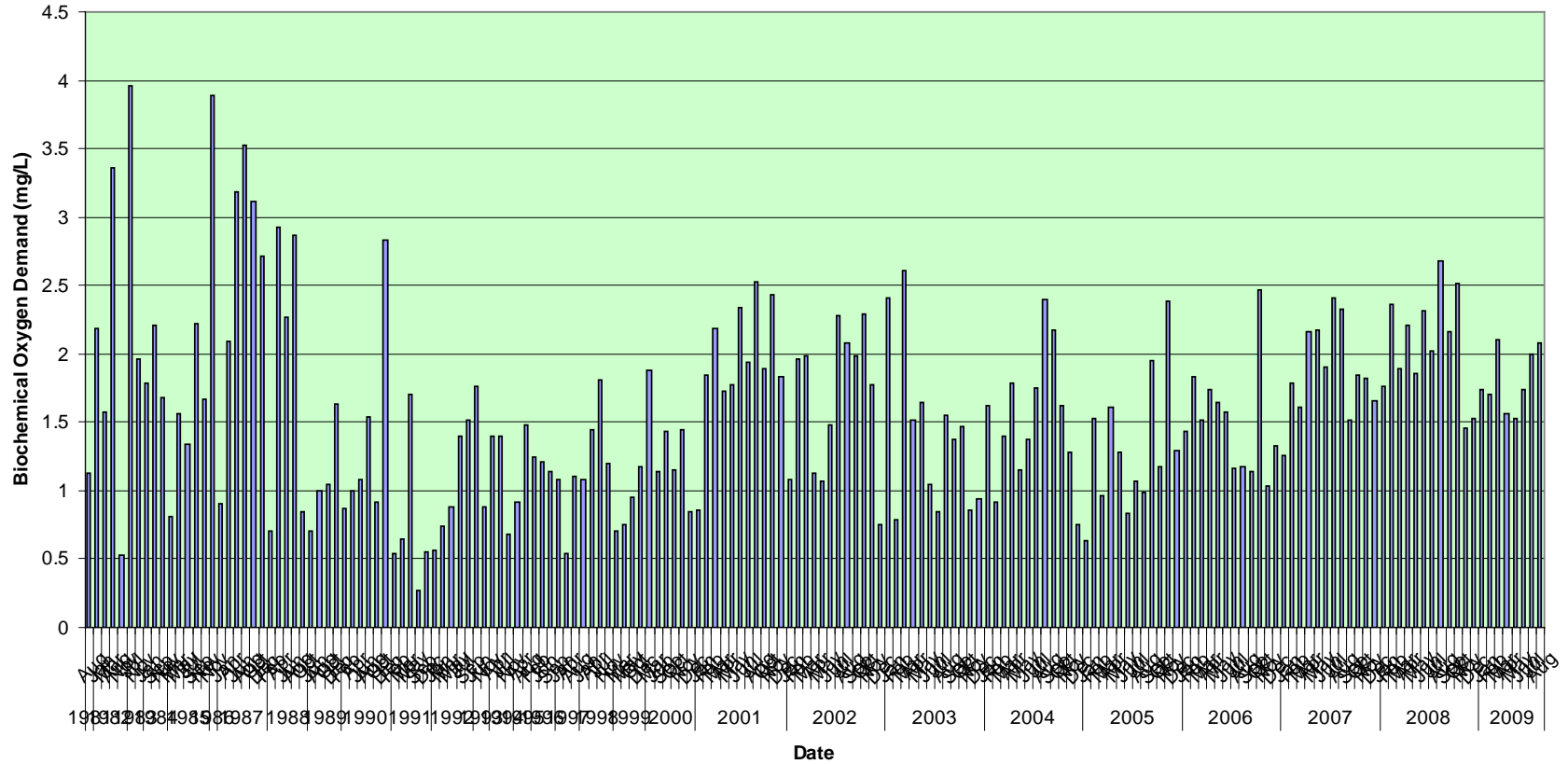
Estero Bay Site (All)

Dissolved Oxygen (mg/L) versus Time



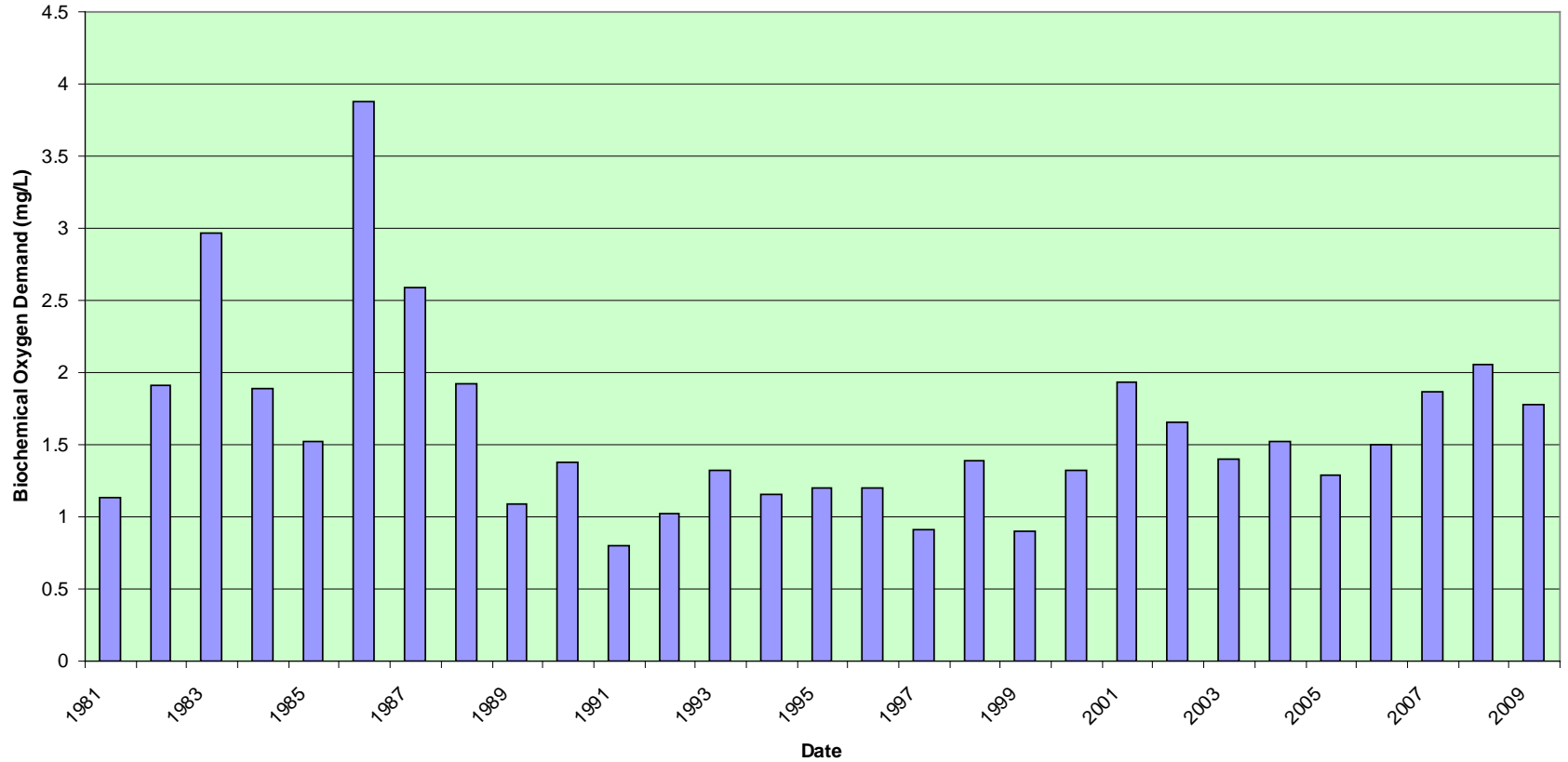
Estero Bay Site (All)

Biochemical Oxygen Demand (mg/L)



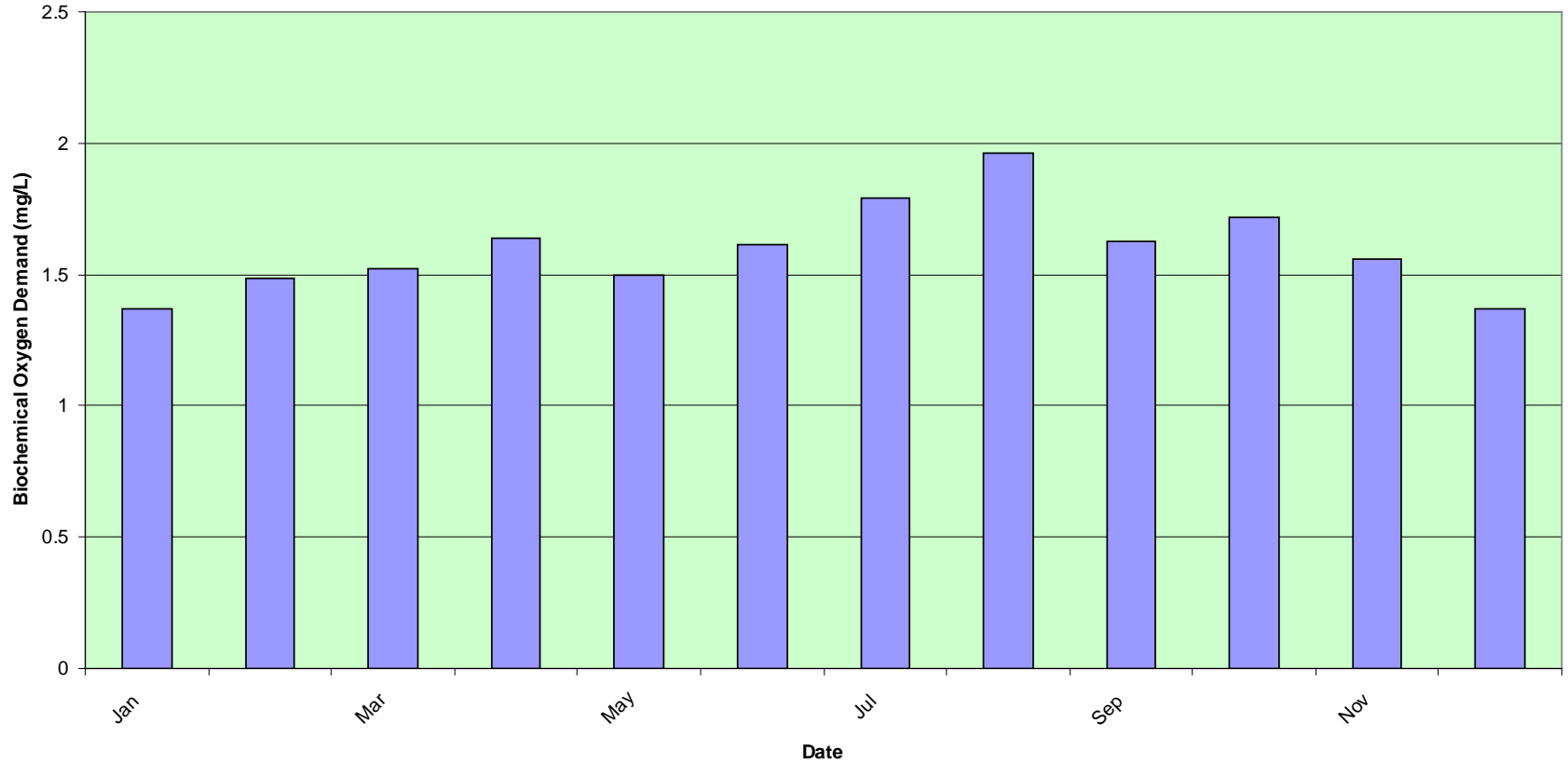
Estero Bay Site (All)

Biochemical Oxygen Demand (mg/L)



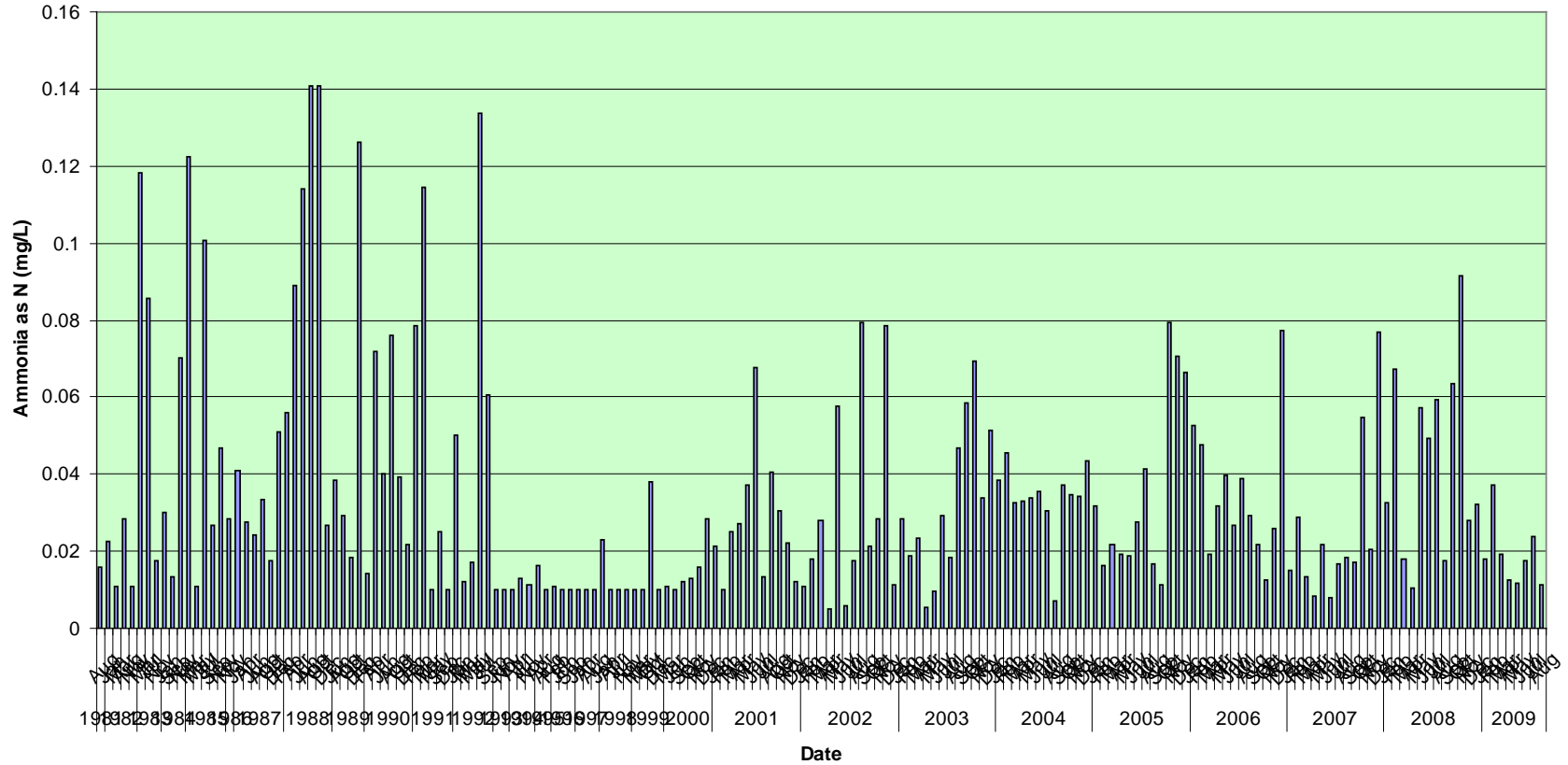
Estero Bay Site (All)

Biochemical Oxygen Demand (mg/L)



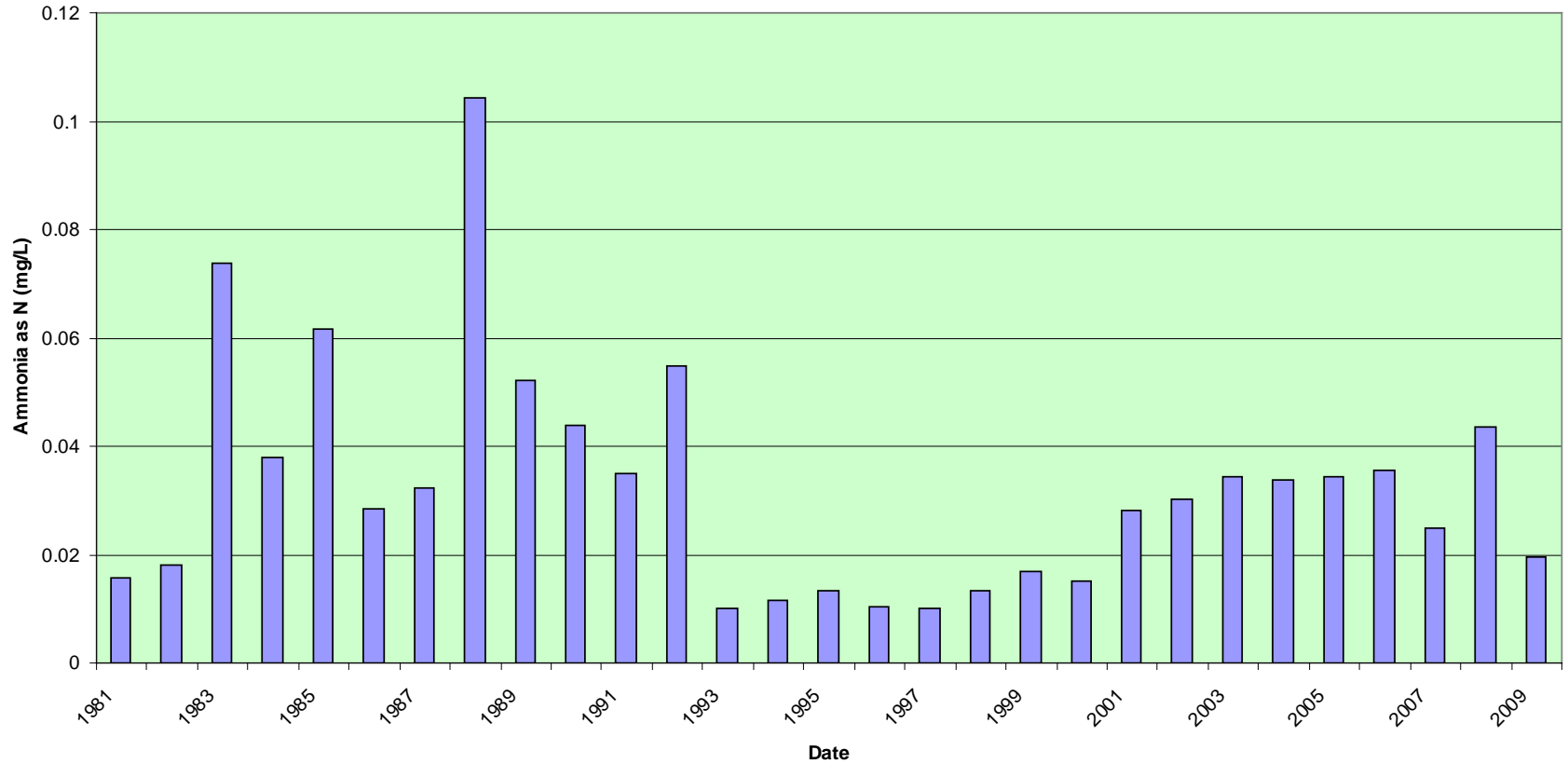
Estero Bay Site (All)

Ammonia as N (mg/L) versus Time



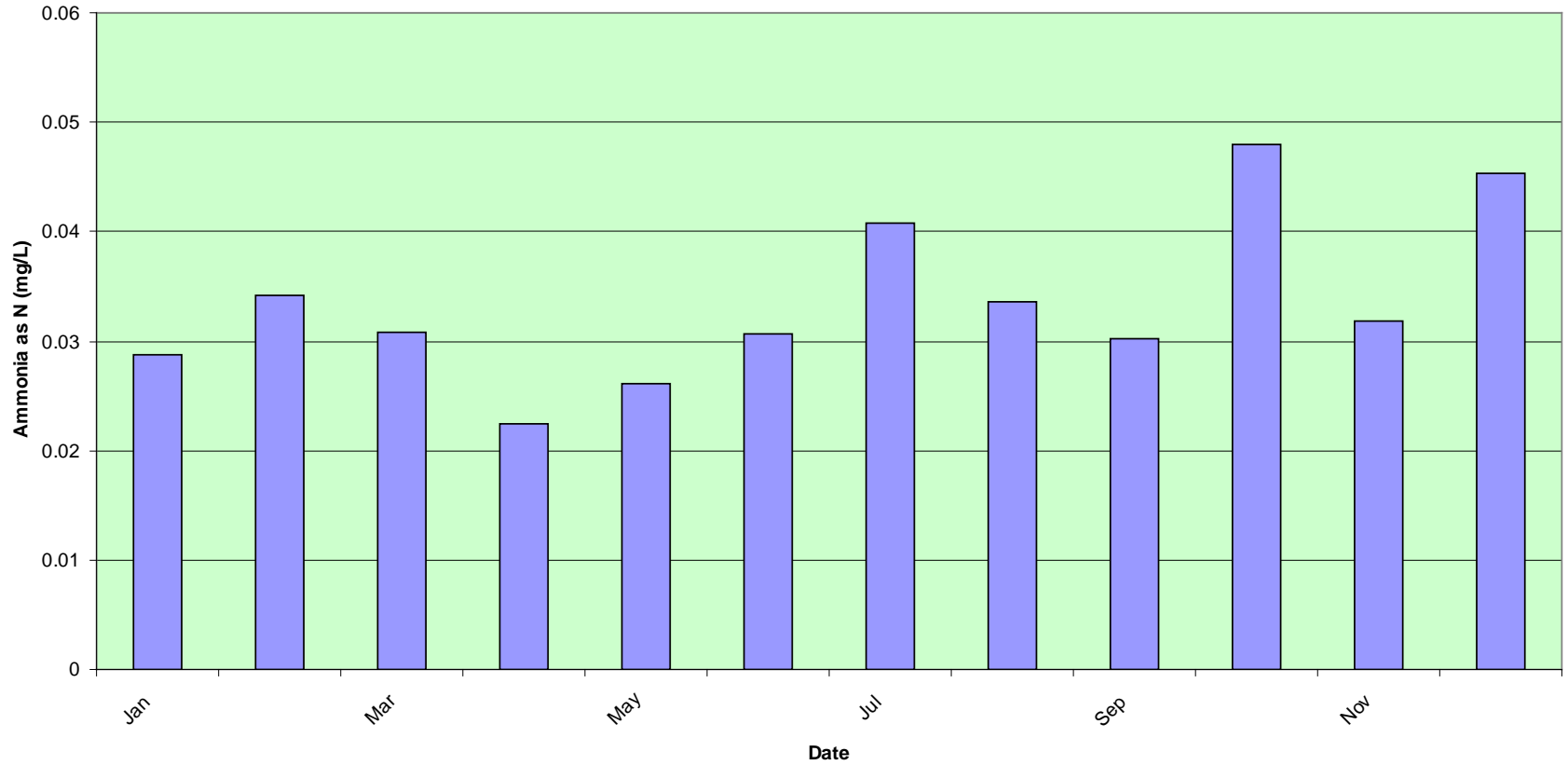
Estero Bay Site (All)

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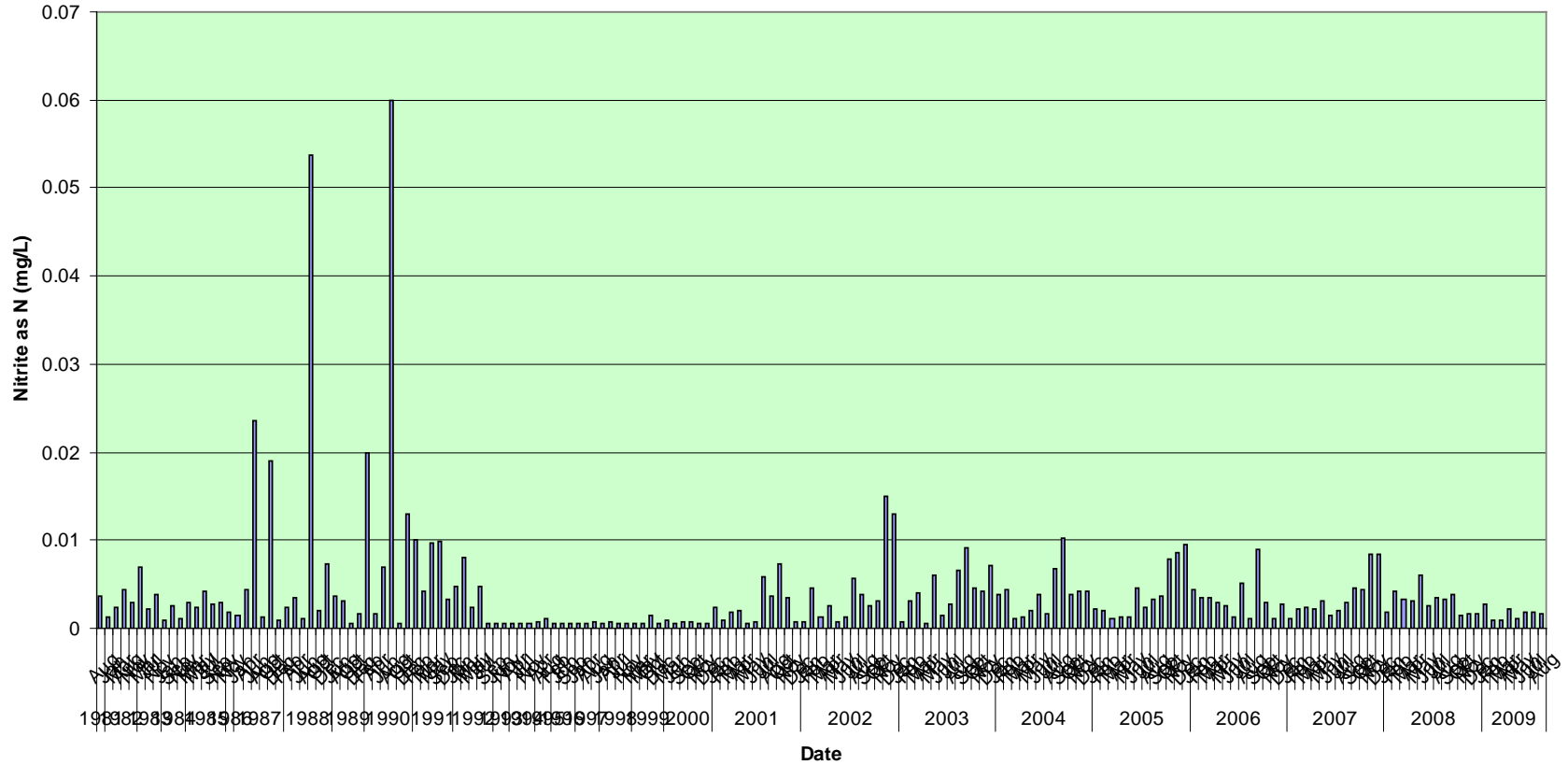
Estero Bay Site (All)

Ammonia as N (mg/L) versus Time



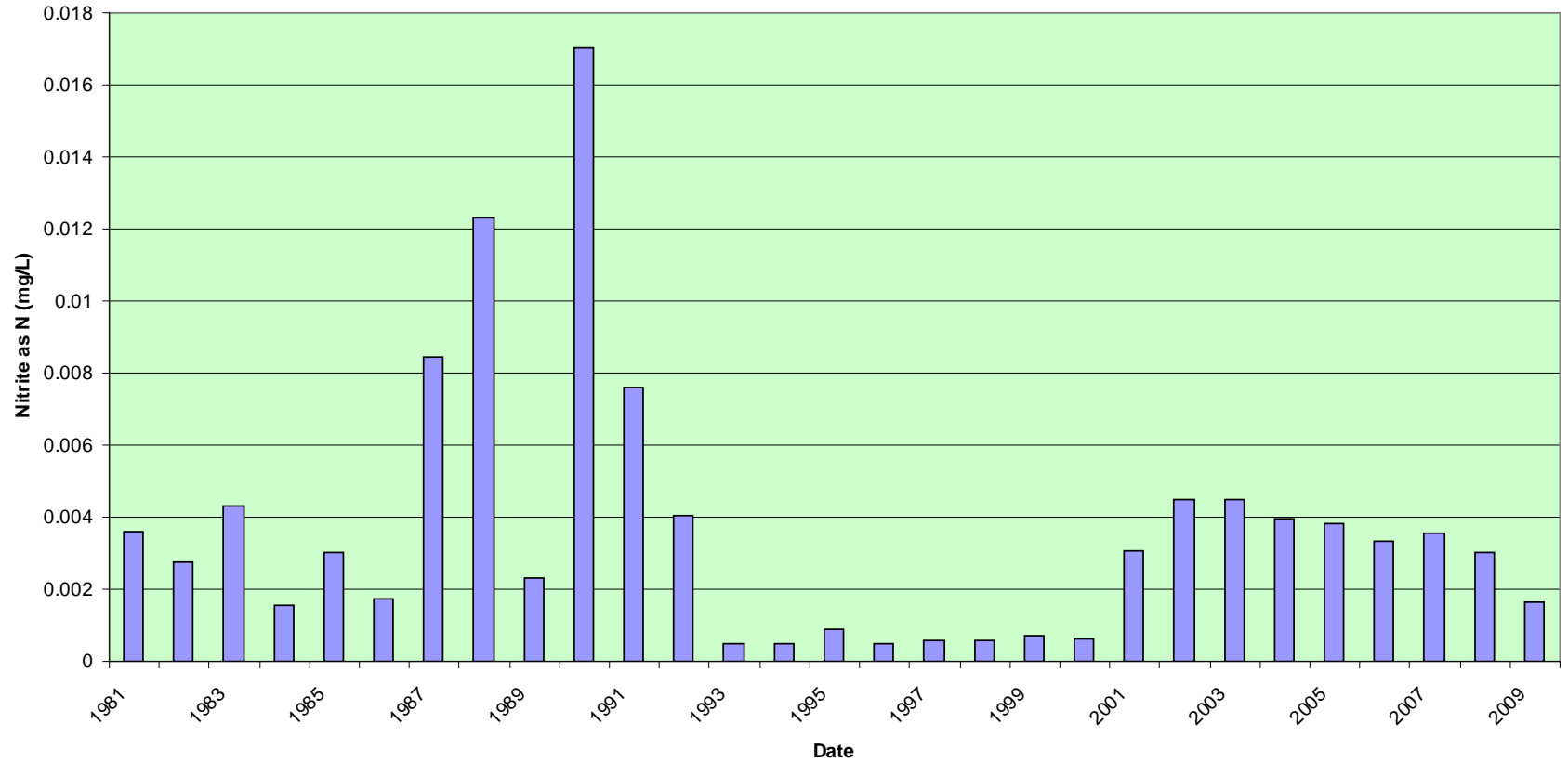
Estero Bay Site (All)

Nitrite as N (mg/L) versus Time



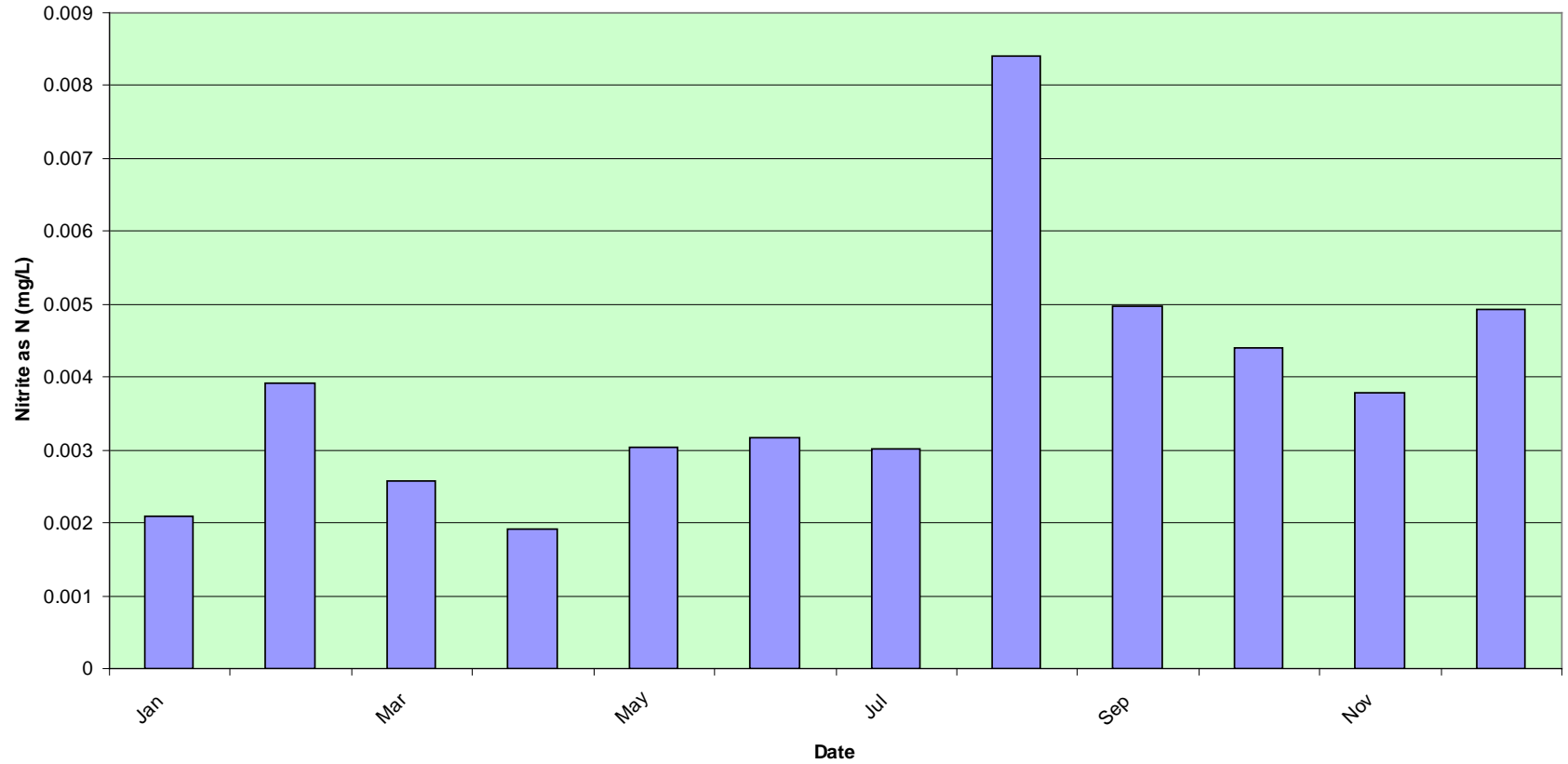
Estero Bay Site (All)

Nitrite as N (mg/L) versus Time



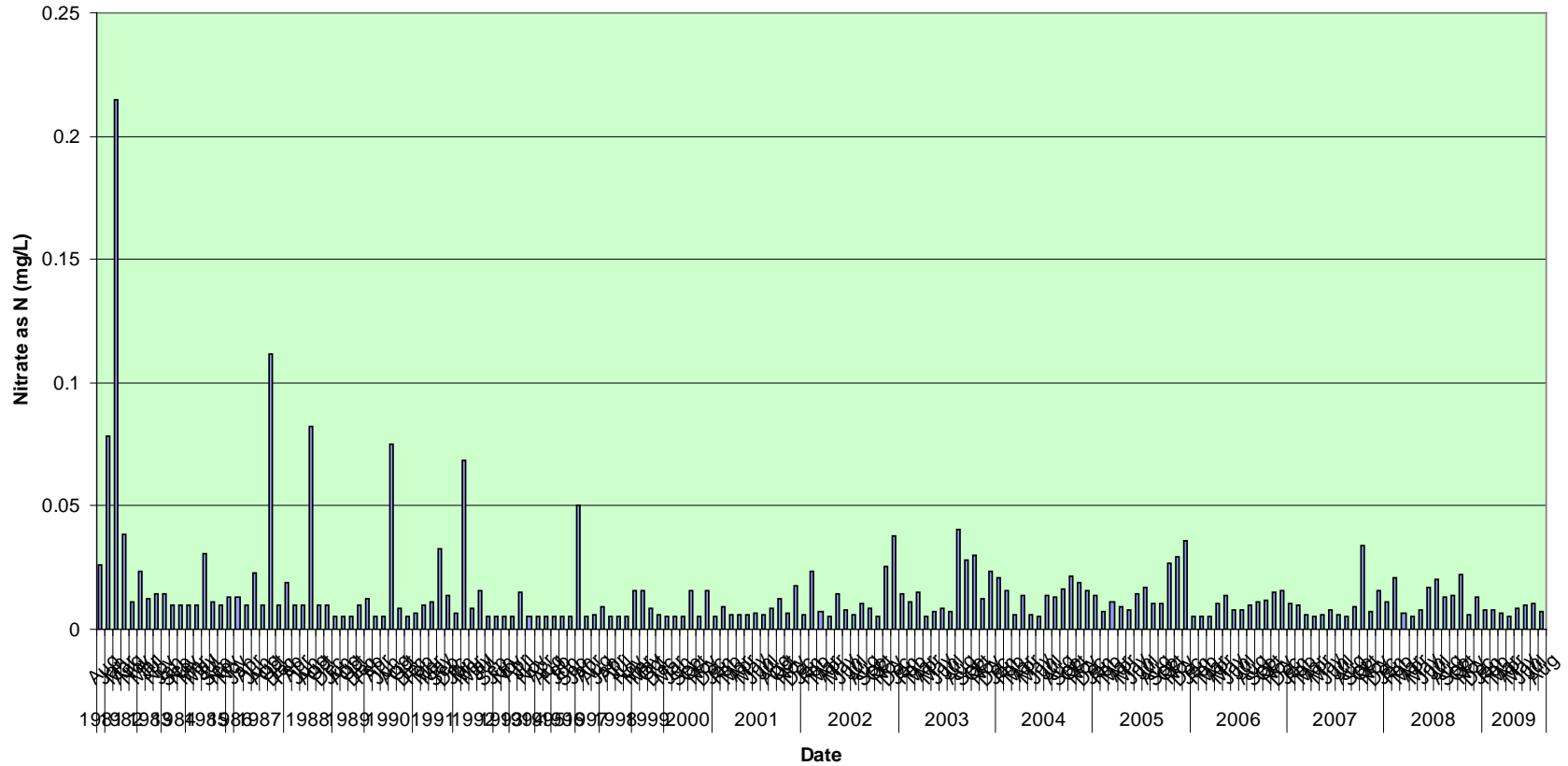
Estero Bay Site (All)

Nitrite as N (mg/L) versus Time



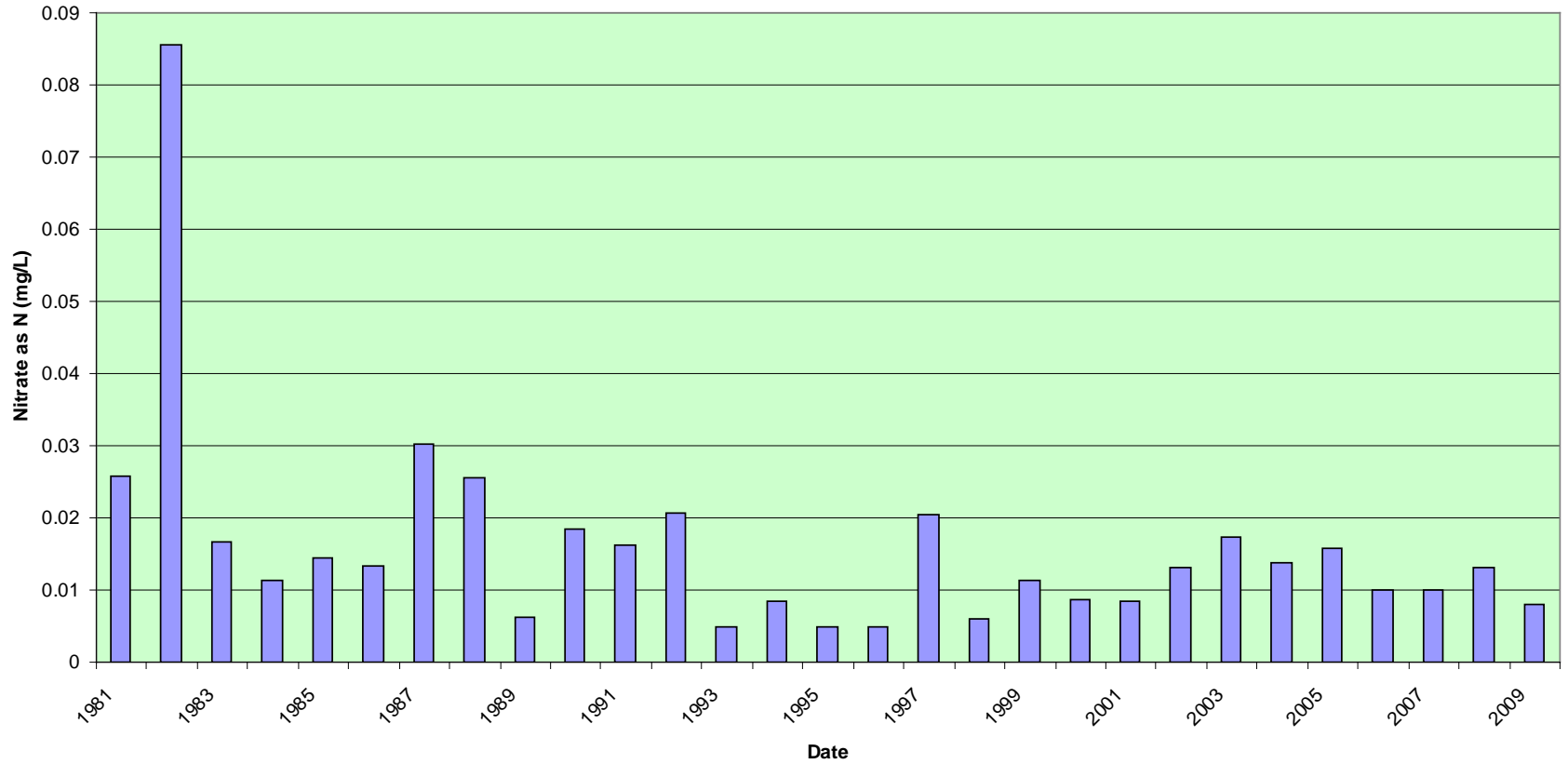
Estero Bay Site (All)

Nitrate as N (mg/L) versus Time



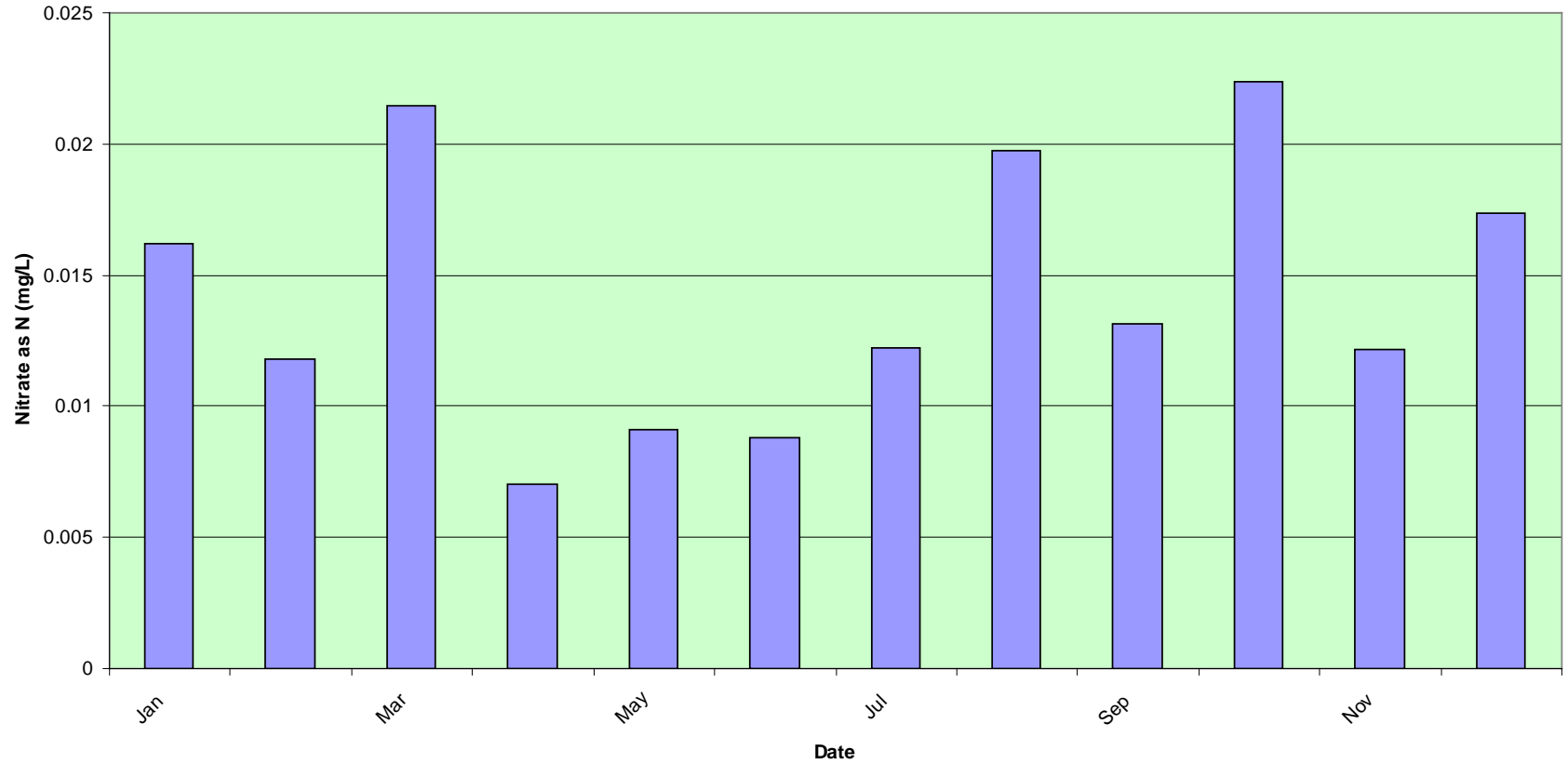
Estero Bay Site (All)

Nitrate as N (mg/L) versus Time



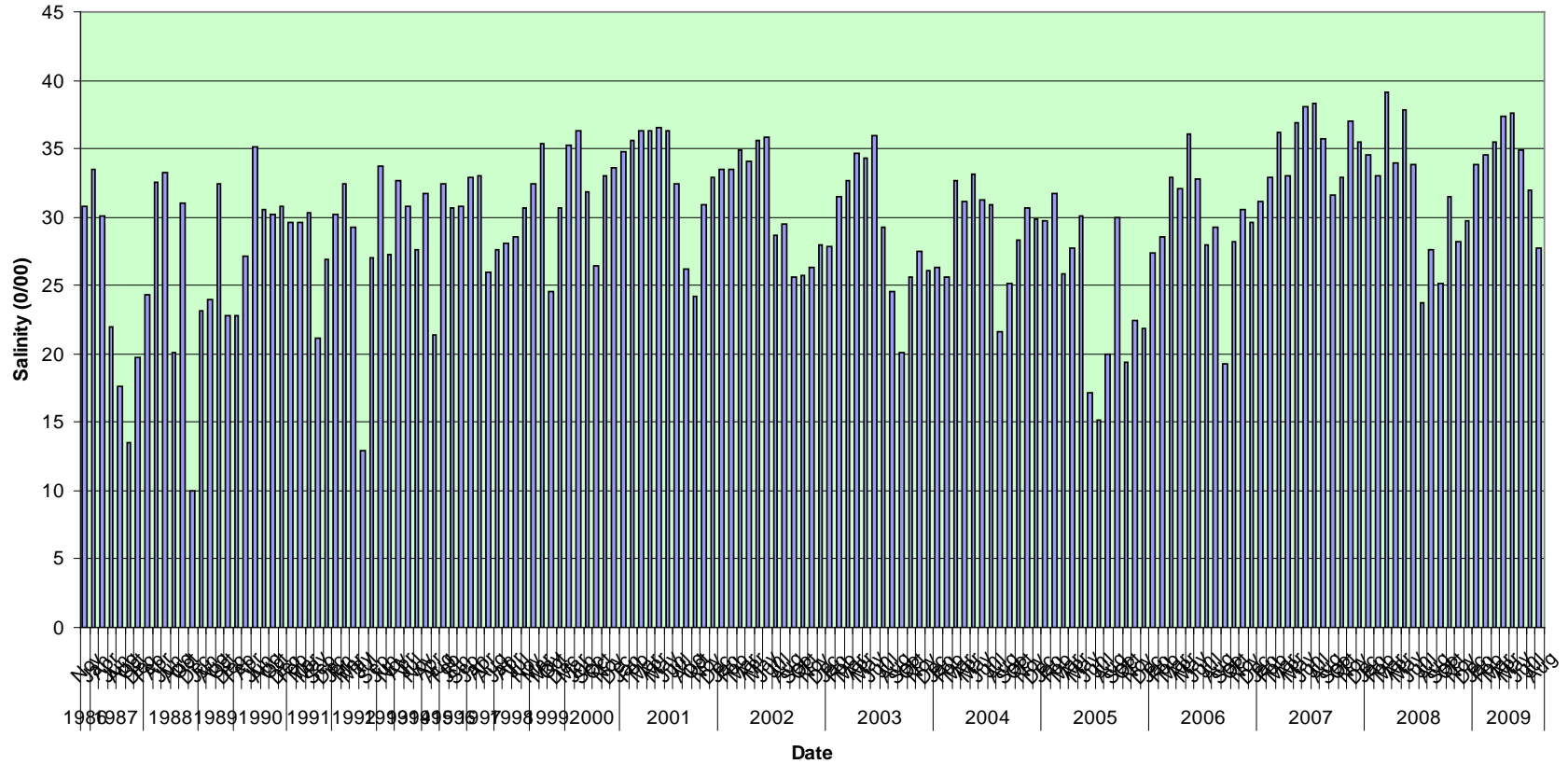
Estero Bay Site (All)

Nitrate as N (mg/L) versus Time



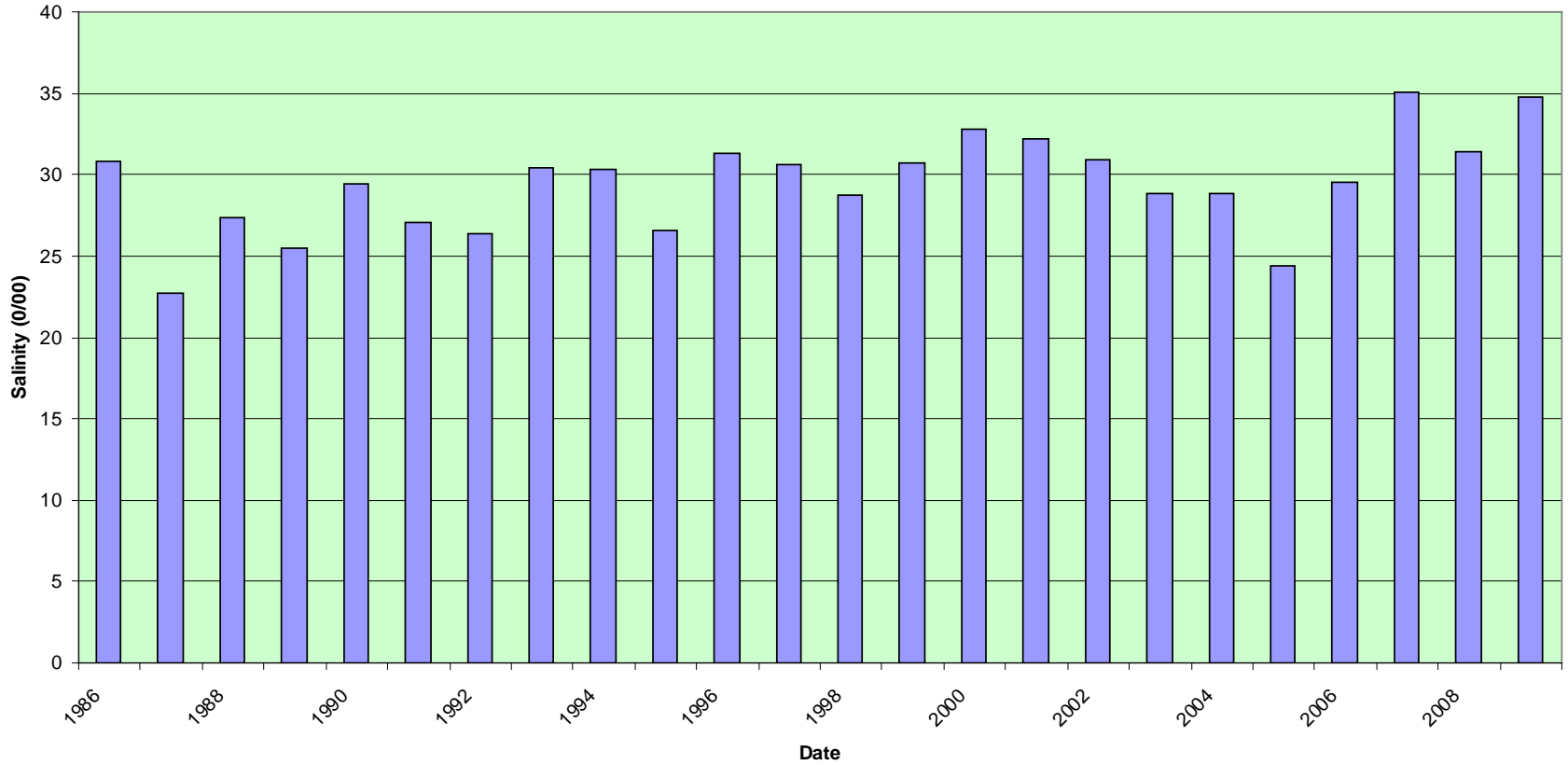
Estero Bay Site (All)

Salinity (0/00) versus Time



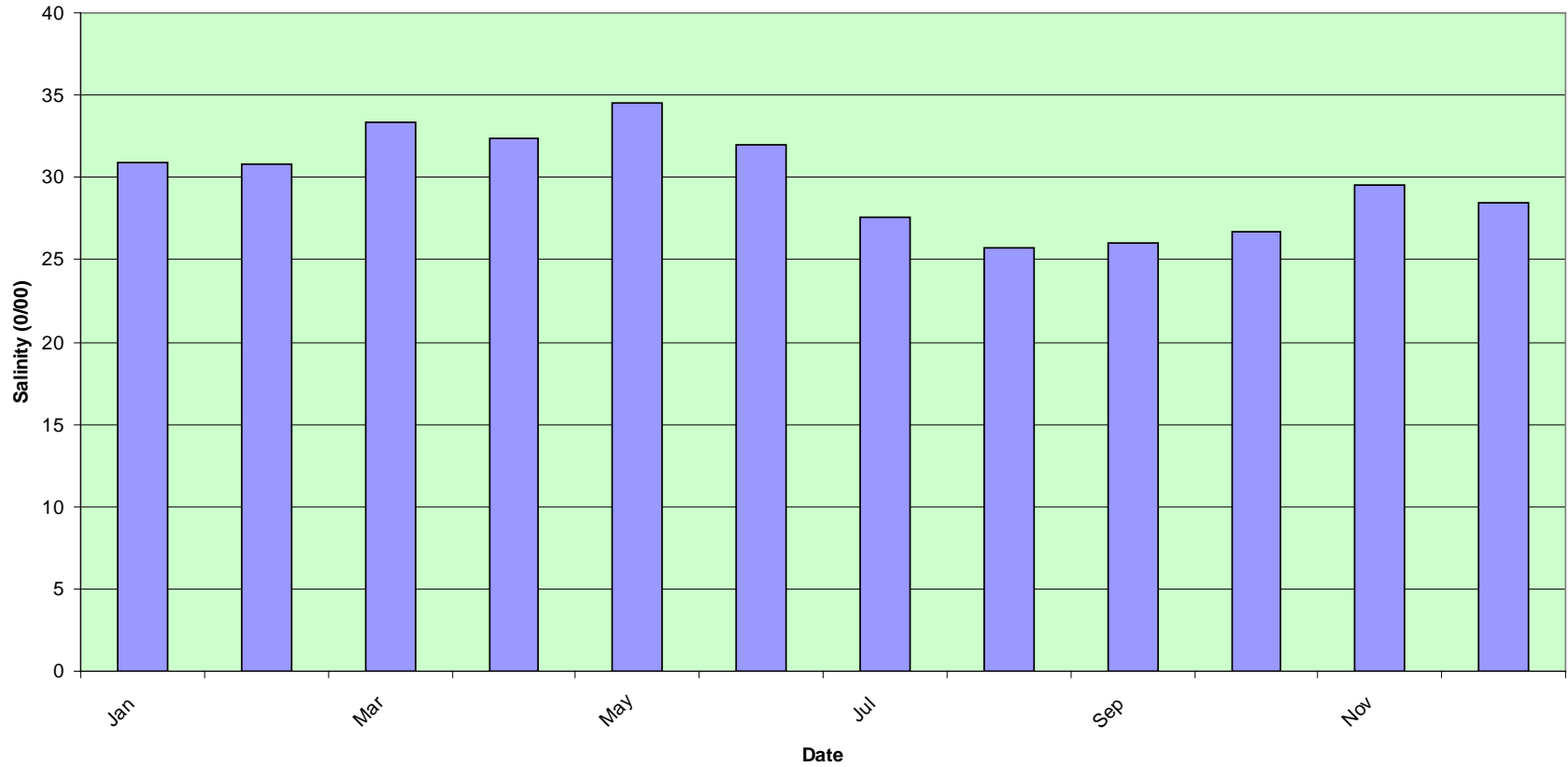
Ester Bay Site (All)

Salinity (0/00) versus Time



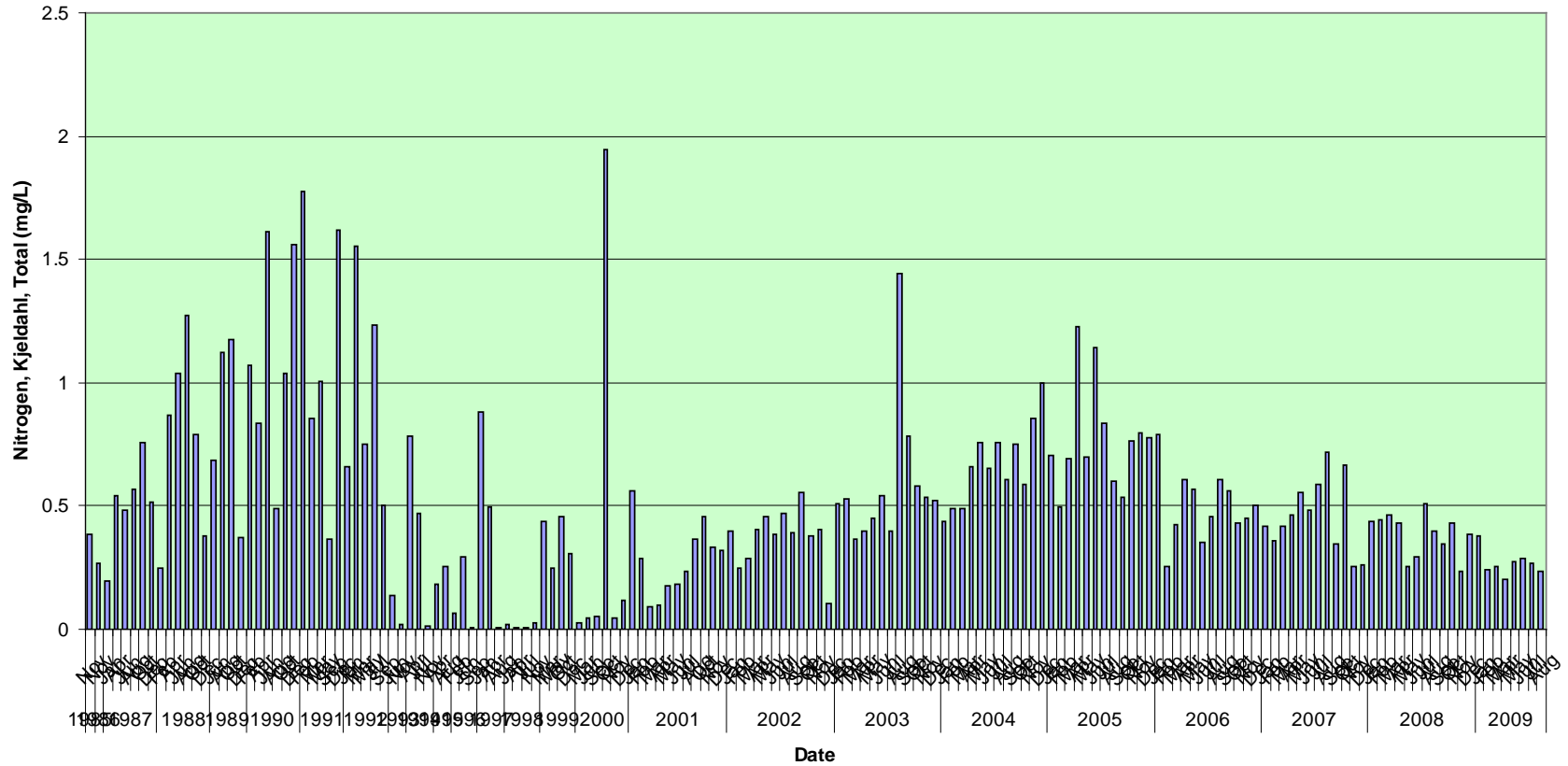
Estero Bay Site (All)

Salinity (0/00) versus Time



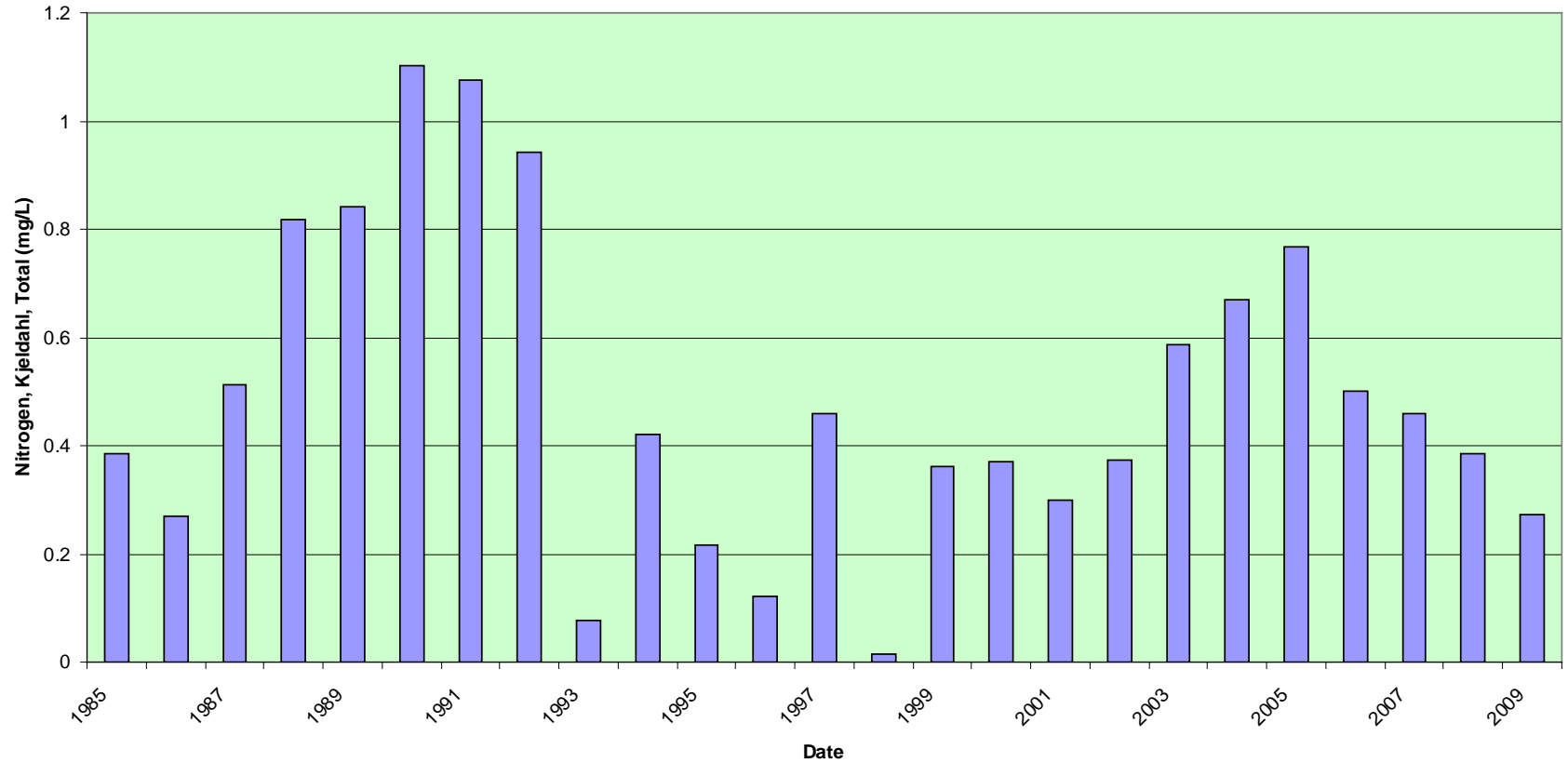
Estero Bay Site (All)

Nitrogen, Kjeldahl, Total (mg/L) versus



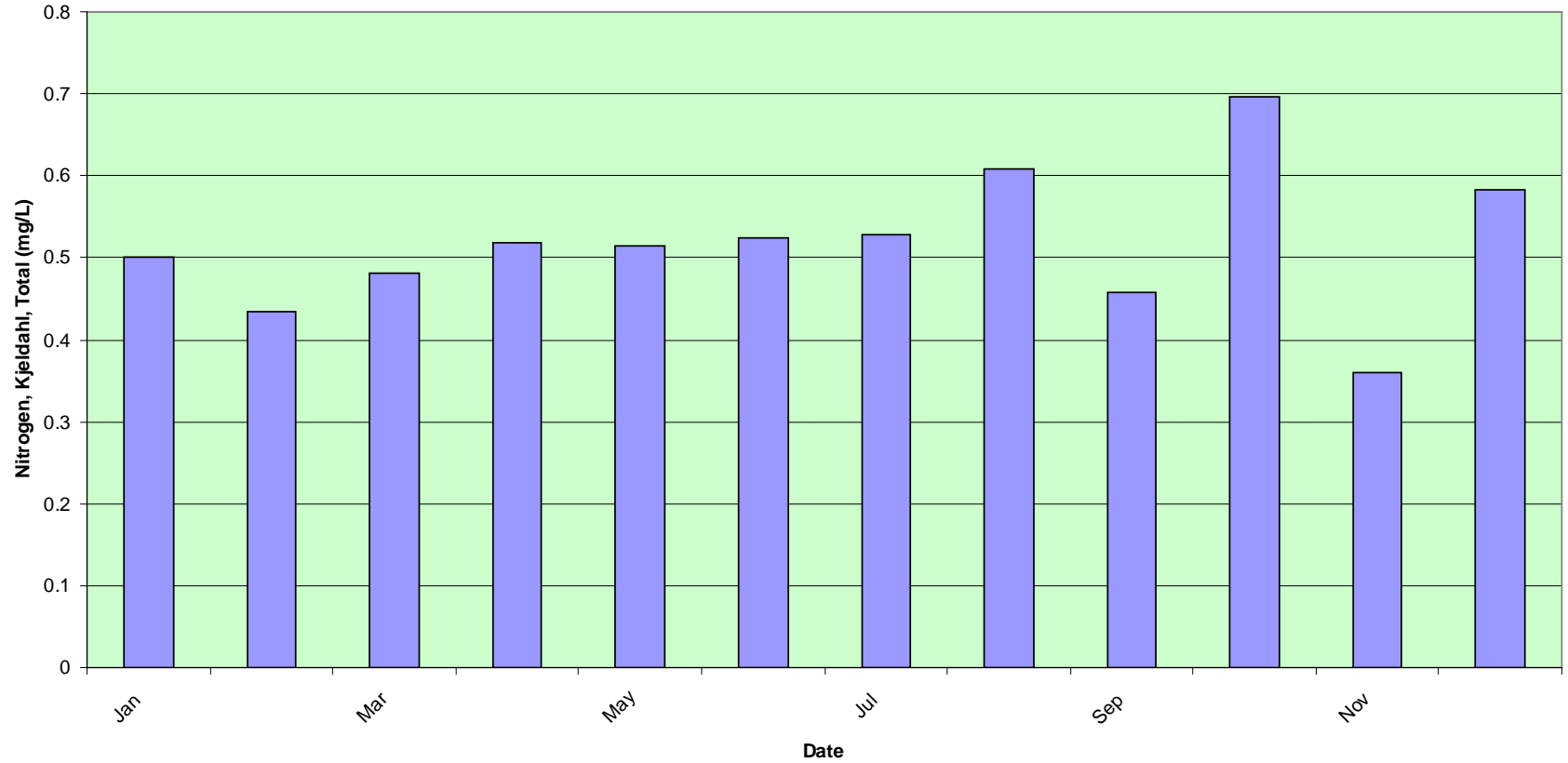
Estero Bay Site (All)

Nitrogen, Kjeldahl, Total (mg/L) versus



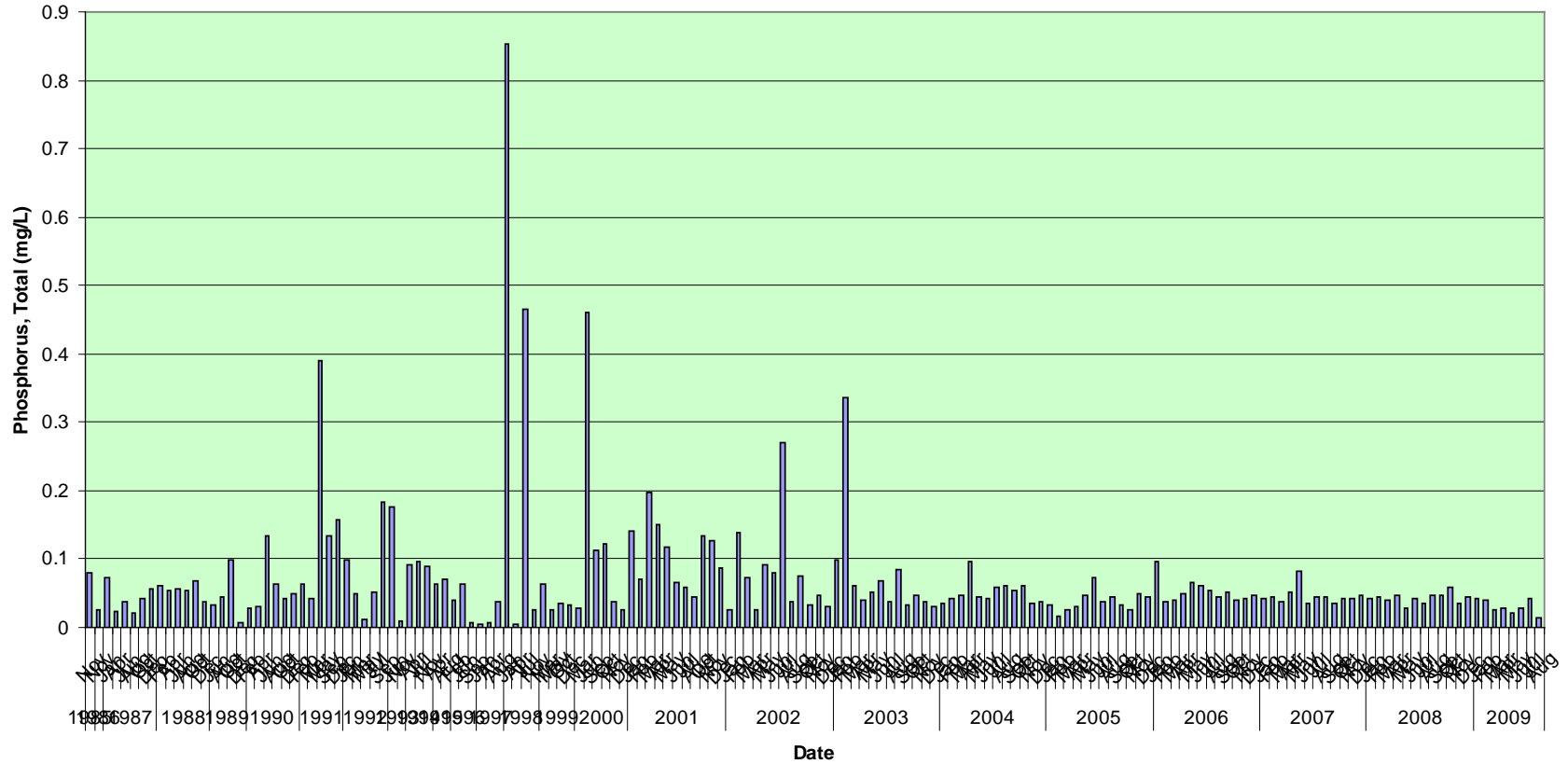
Estero Bay Site (All)

Nitrogen, Kjeldahl, Total (mg/L) versus



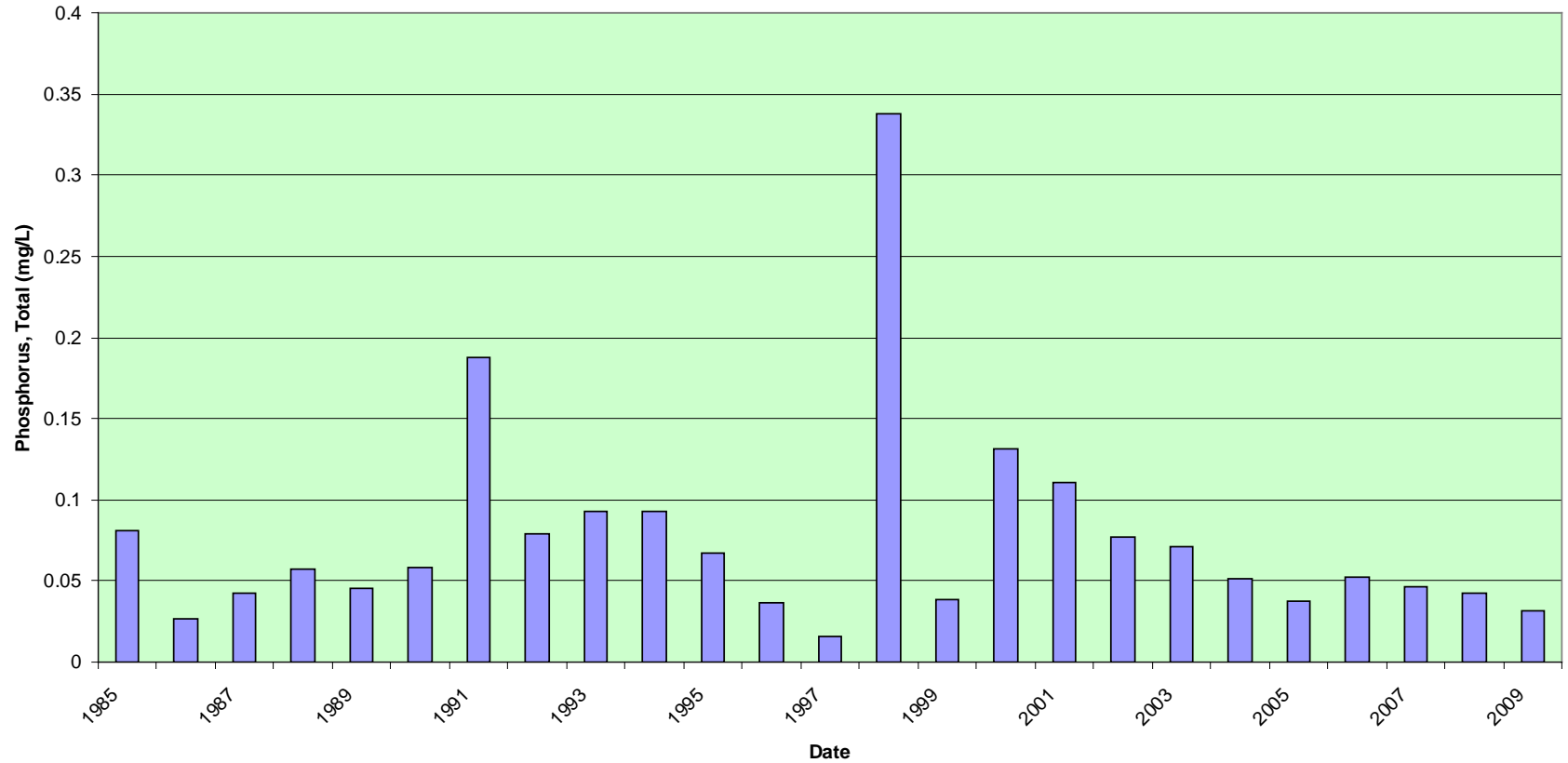
Estero Bay Site (All)

Phosphorus, Total (mg/L) versus Time



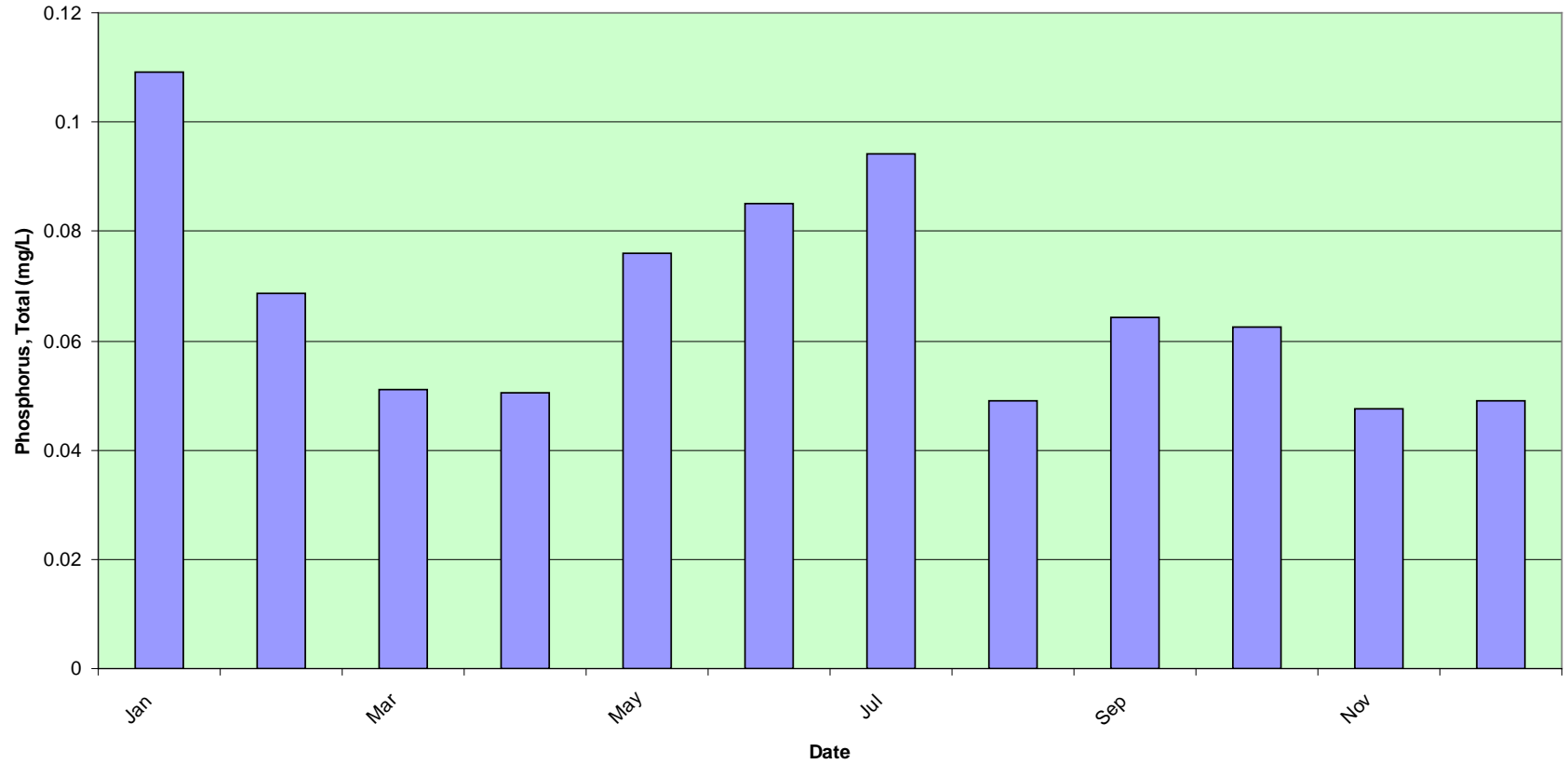
Estero Bay Site (All)

Phosphorus, Total (mg/L) versus Time



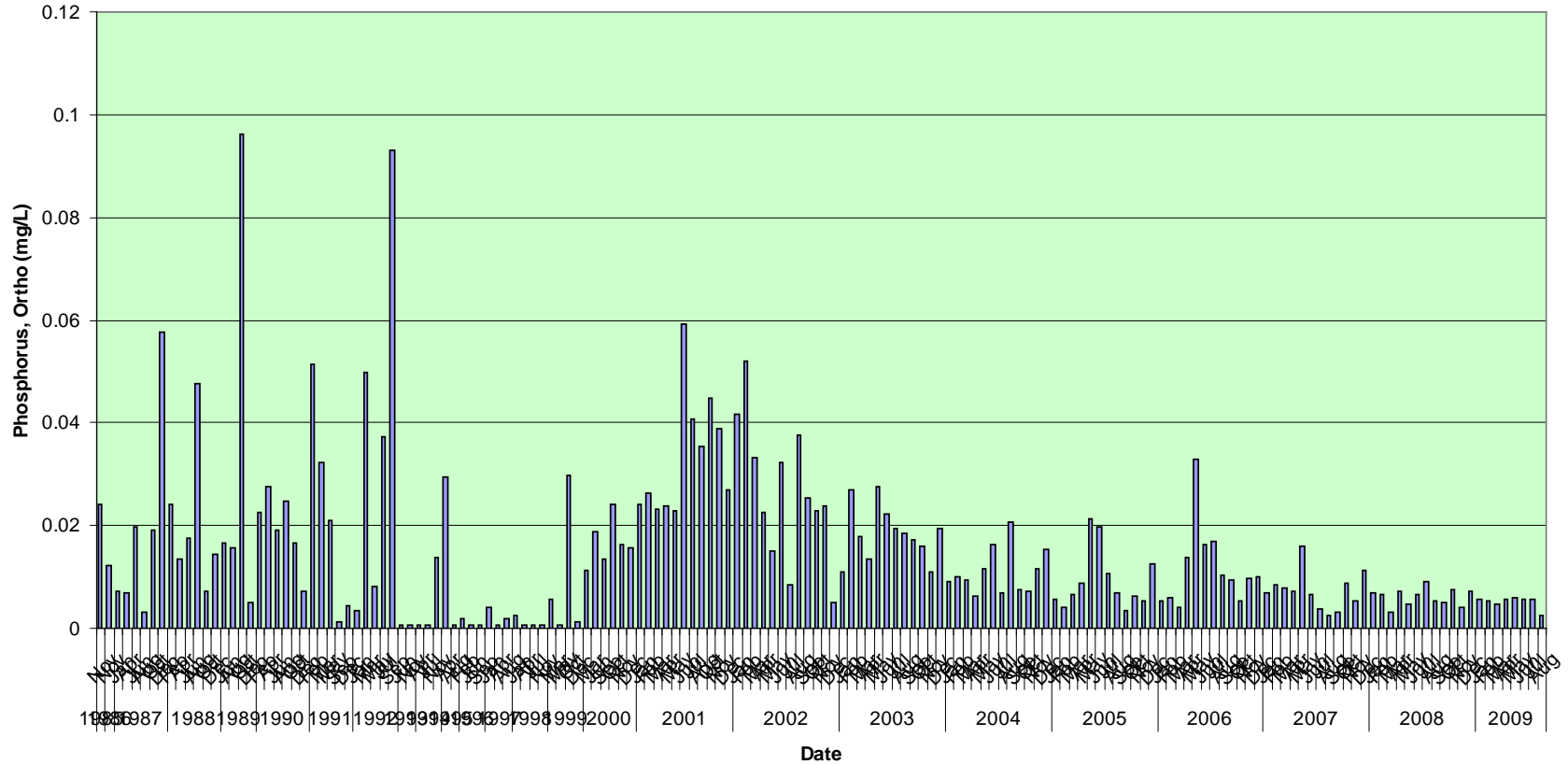
Estero Bay Site (All)

Phosphorus, Total (mg/L) versus Time



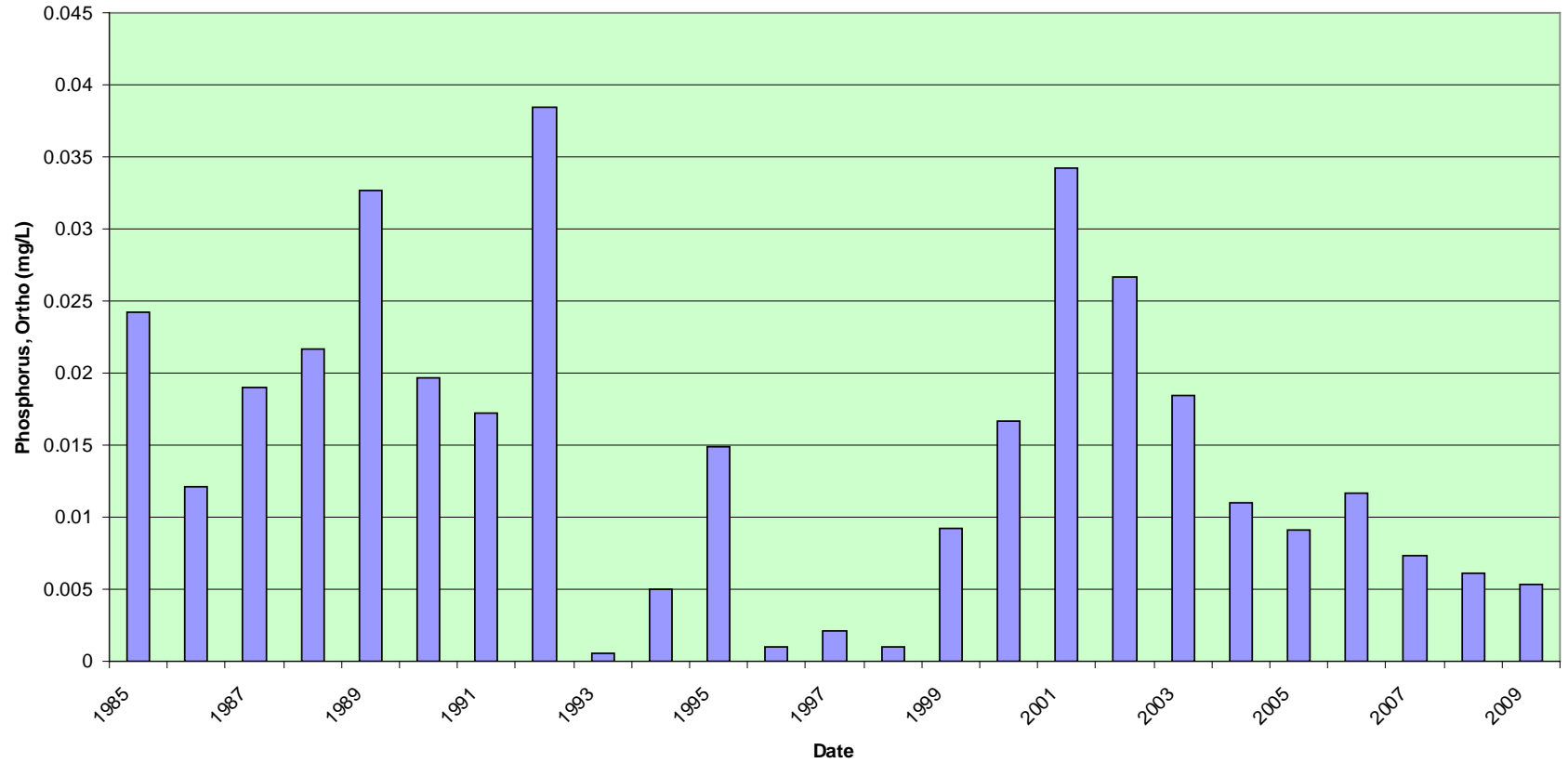
Estero Bay Site (All)

Phosphorus, Ortho (mg/L) versus Time



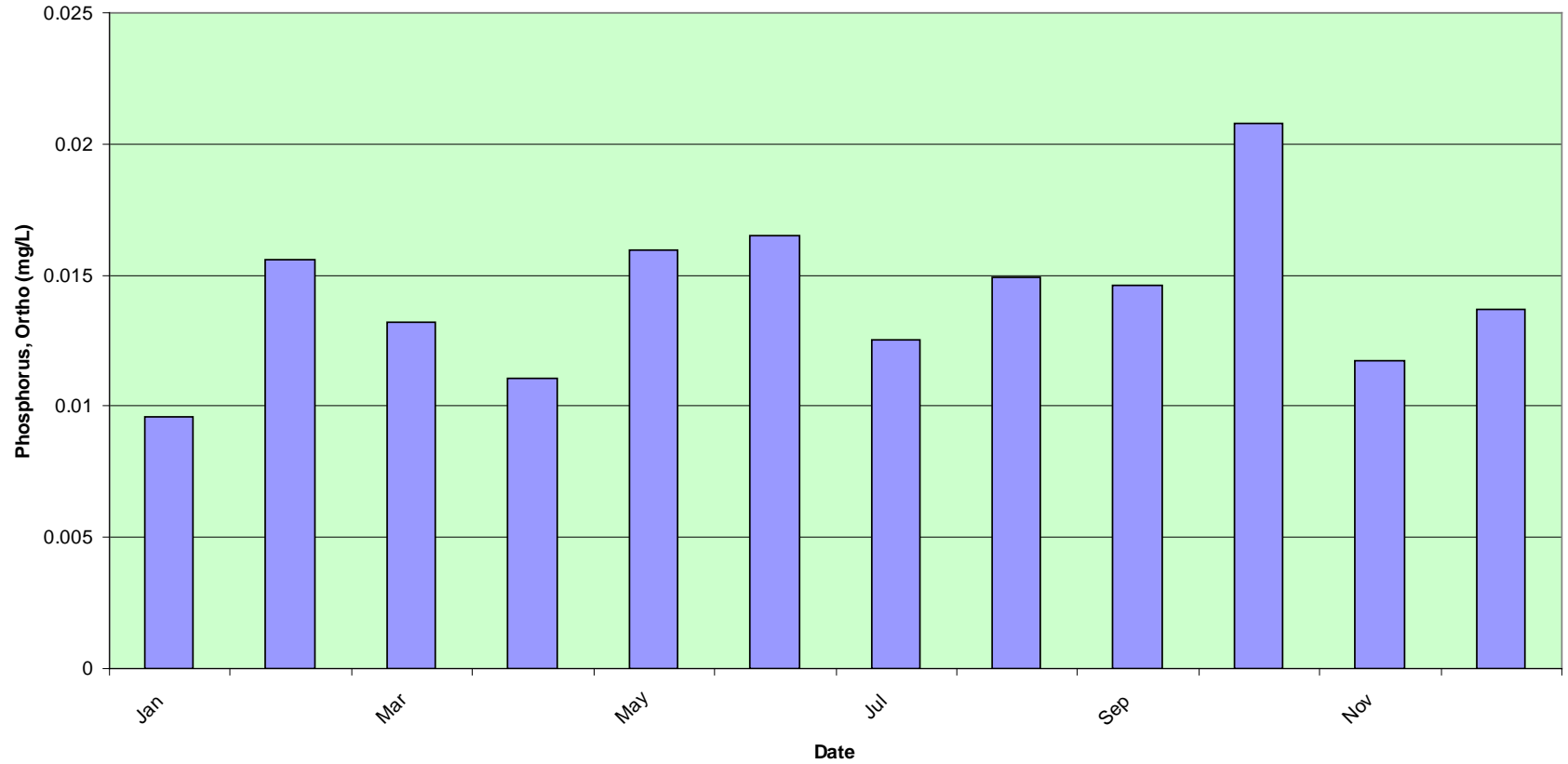
Estero Bay Site (All)

Phosphorus, Ortho (mg/L) versus Time



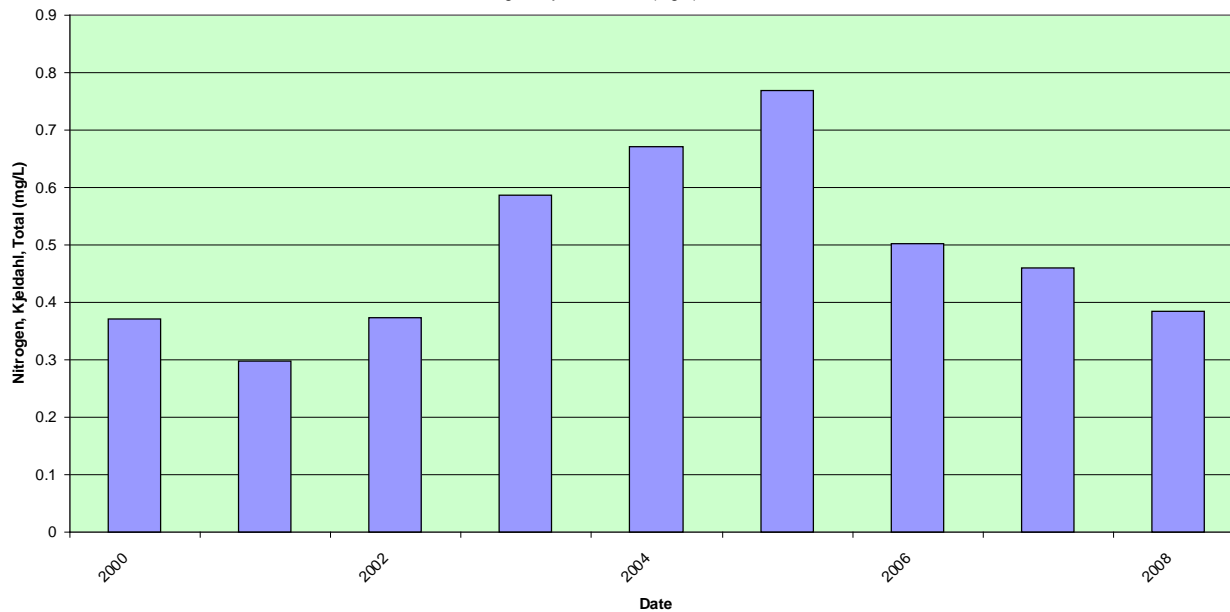
Estero Bay Site (All)

Phosphorus, Ortho (mg/L) versus Time



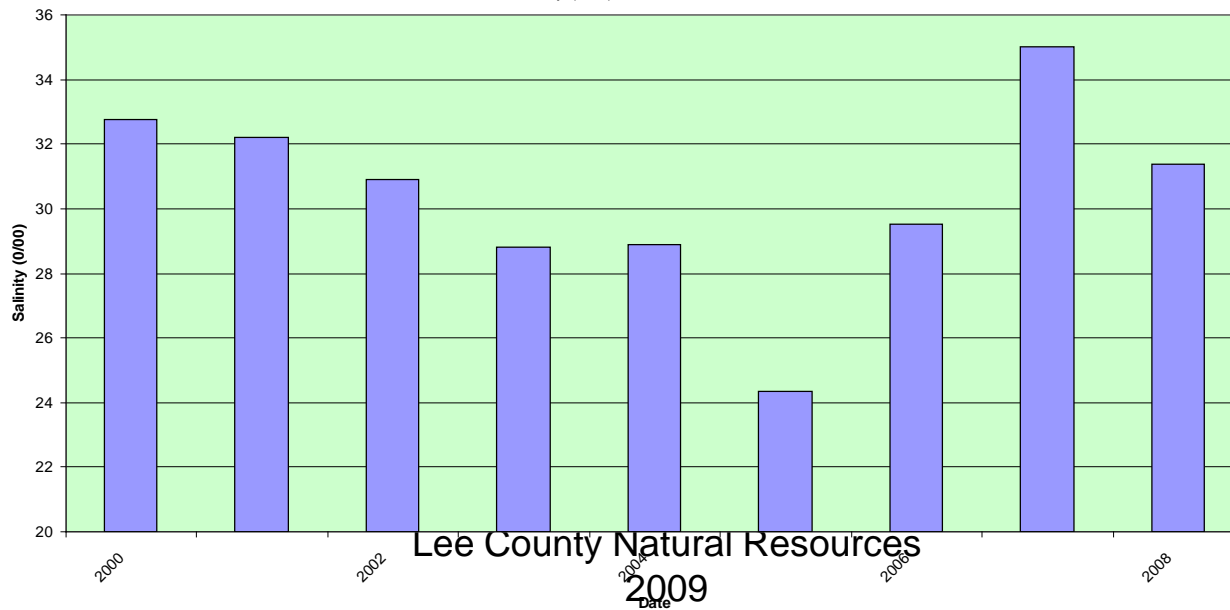
Estero Bay Site (All)

Nitrogen, Kjeldahl, Total (mg/L) versus

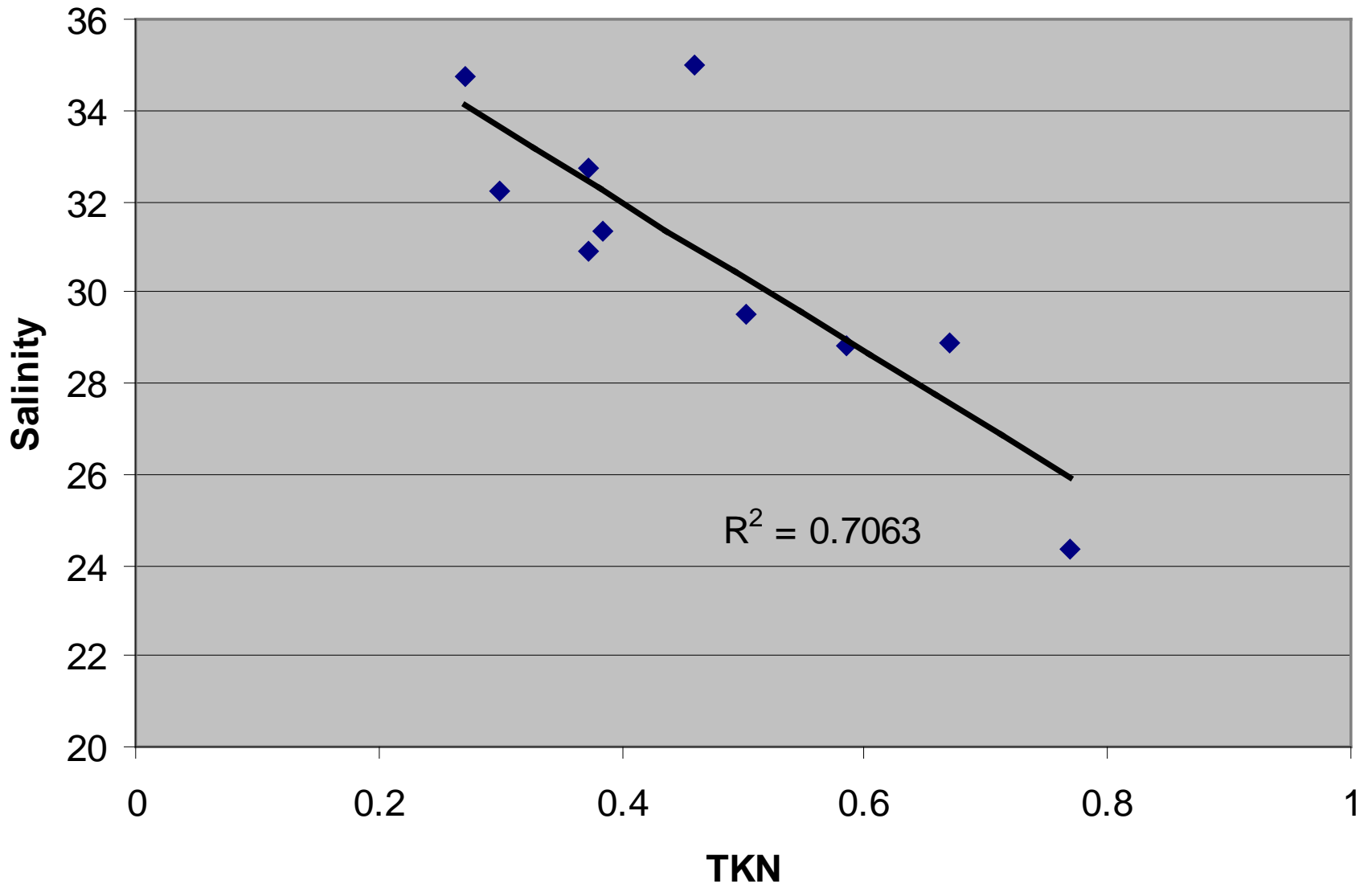


Estero Bay Site (All)

Salinity (0/00) versus Time



Salinity verses TKN 2000-2009



Questions?

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