

**Tidal Potomac Integrative Analysis Project, A Series of Reports on the
Water Quality and Living Resources Responses to Management Actions
to Reduce Nutrients in the Potomac River Estuary, Final Draft.**

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APPENDIX F

**CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM:
1995 MESOZOOPLANKTON COMPONENT**

Fred Jacobs
Coastal Environmental Services, Inc.
Linthicum, MD

and

William Burton
Versar, Inc.
Columbia, MD 21045
burtonwil@versar.com

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**CHESAPEAKE BAY WATER QUALITY
MONITORING PROGRAM
1995 MESOZOOPLANKTON
COMPONENT**

Prepared for

Maryland Department of Natural Resources
Resource Assessment Service
580 Taylor Avenue
Annapolis, MD 21401

Prepared by

Versar, Inc.
ESM Operations
9200 Rumsey Road
Columbia, MD 21045

and

Coastal Environmental Services, Inc.
1099 Winterson Road, Suite 130
Linthicum, MD 21090

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3.2. Potomac River

The current status (1993-1995) of spring zooplankton density in the Potomac River appears to be somewhat lower than that for the spring baseline period (1985-1986) at the upstream and transition zone stations (Figure 3-4). Trends in abundance over time, however, were not significant at either location. At the downstream station, current zooplankton density is extremely high, when compared to the 1985-1986 baseline period. Furthermore, Kendall's T test indicated a significantly increasing long term trend in abundance (113%) at the downstream station.

There appeared to be a significant downward trend in TP (49%) and Chl a (40%) in spring at the upstream station. However, as stated above, there was not a corresponding trend in zooplankton abundance. An 82% reduction in Chl a at the transition Potomac station was the only other parameter examined that exhibited a significant trend in the spring.

The current status of summer zooplankton density appears to be somewhat greater at all three Potomac River stations when compared to the baseline period (Figure 3-5). However, none of the observed increases were statistically significant, indicating a general lack of a long term trend over the eleven year period. There were no significant long term trends in the nutrient data at any of the three stations in summer.

The Potomac fall zooplankton data indicated an increase in the current status at the upstream and downstream stations and a decrease in current status from the baseline period at the transition zone station (Figure 3-6). However, conclusions drawn from these findings should be viewed with caution, as none of the three stations showed a significant long term trend of increasing or decreasing abundance. The findings merely indicate that the current period exhibits higher densities than the baseline period. Because there was a lack of a consistent trend, it can be surmised that data in the middle years (1987-1992) were more randomly distributed about some mean value for the entire time period. Except for a significant increase in Chl a at the transition zone station, the nutrient data for the fall did not indicate any other significant trends.

The Potomac River, unlike the Patuxent, has shown little in the way of consistent long term trends in seasonal abundance. While the current status of zooplankton density may be higher or lower than the baseline period, in most cases this was not reflective of a significant trend. For example, the current status of the spring zooplankton data at the upstream station was lower than the baseline period. Examination of the historical data indicated that in both 1985 and 1986, spring zooplankton densities were relatively high, when compared to data from most subsequent springs. Data collected from 1993 and 1994 were more consistent with those from the 1987-1992 period, than from the baseline period.

Zooplankton Density in the Potomac River

Spring

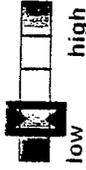
Zooplankton Density

TRENDS STATUS
(1985-1995) 1993-1995

No Trend



No Trend



↑ 113%



Tidal Fresh

Low Salinity

Moderate Salinity

NUTRIENT TRENDS
(1985-1994)

TN TP Chla

NT

↓ 49%

↓ 40%

NT

NT

↓ 82%

NT

NT

NT



Figure 3-4. Zooplankton Status and Trends for the Potomac River, spring.

Zooplankton Density in the Potomac River

Summer

Zooplankton Density

TRENDS STATUS
(1985-1995) 1993-1995

NUTRIENT TRENDS
(1985-1994)

TN TP Chla

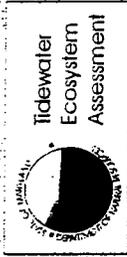
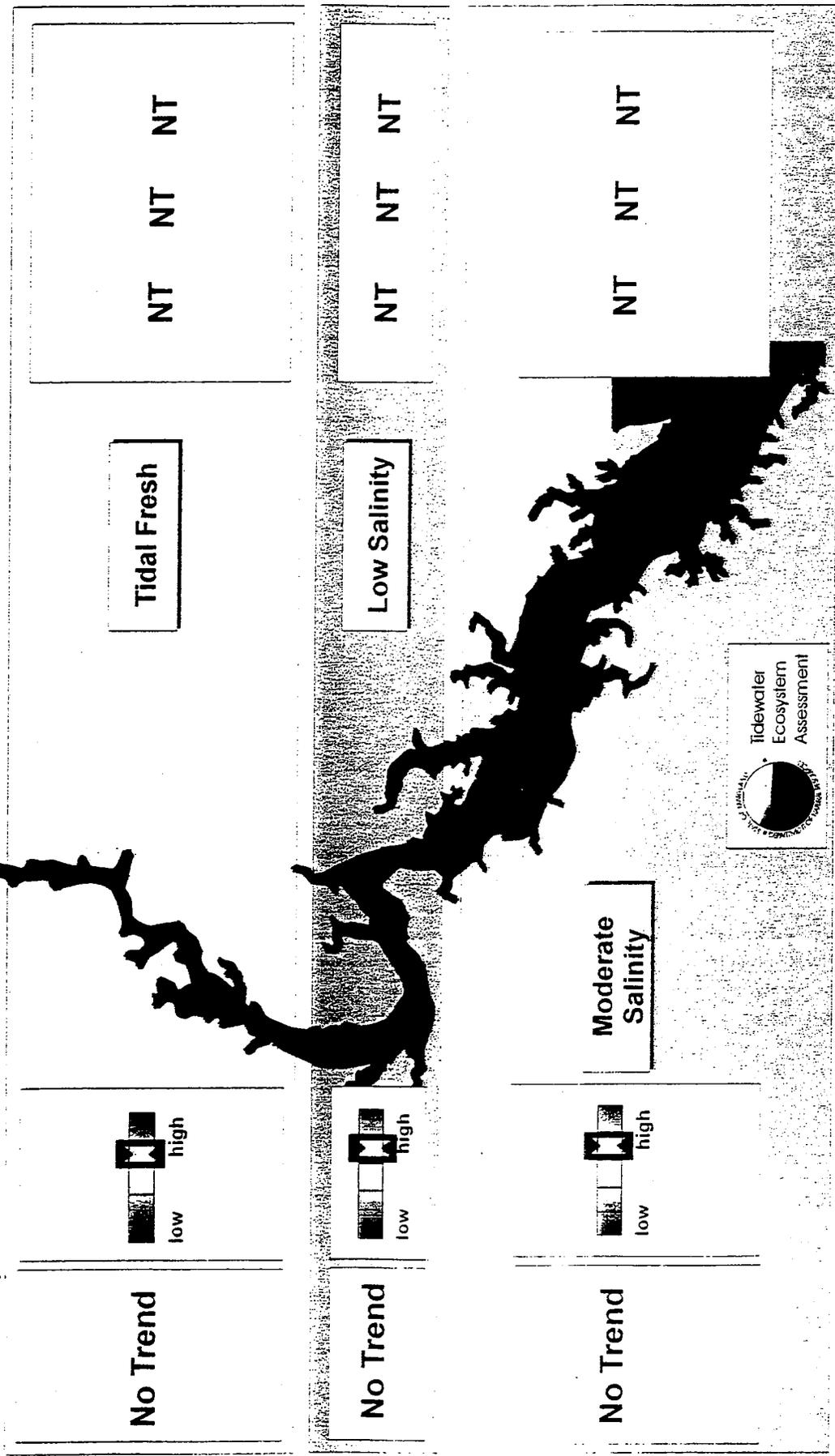


Figure 3-5. Zooplankton Status and Trends for the Potomac River, summer.

Zooplankton Density in the Potomac River

Fall

Zooplankton Density

TRENDS STATUS
(1985-1995) 1993-1995

NUTRIENT TRENDS
(1985-1994)

TN TP Chla

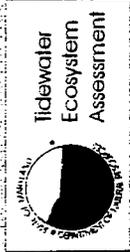
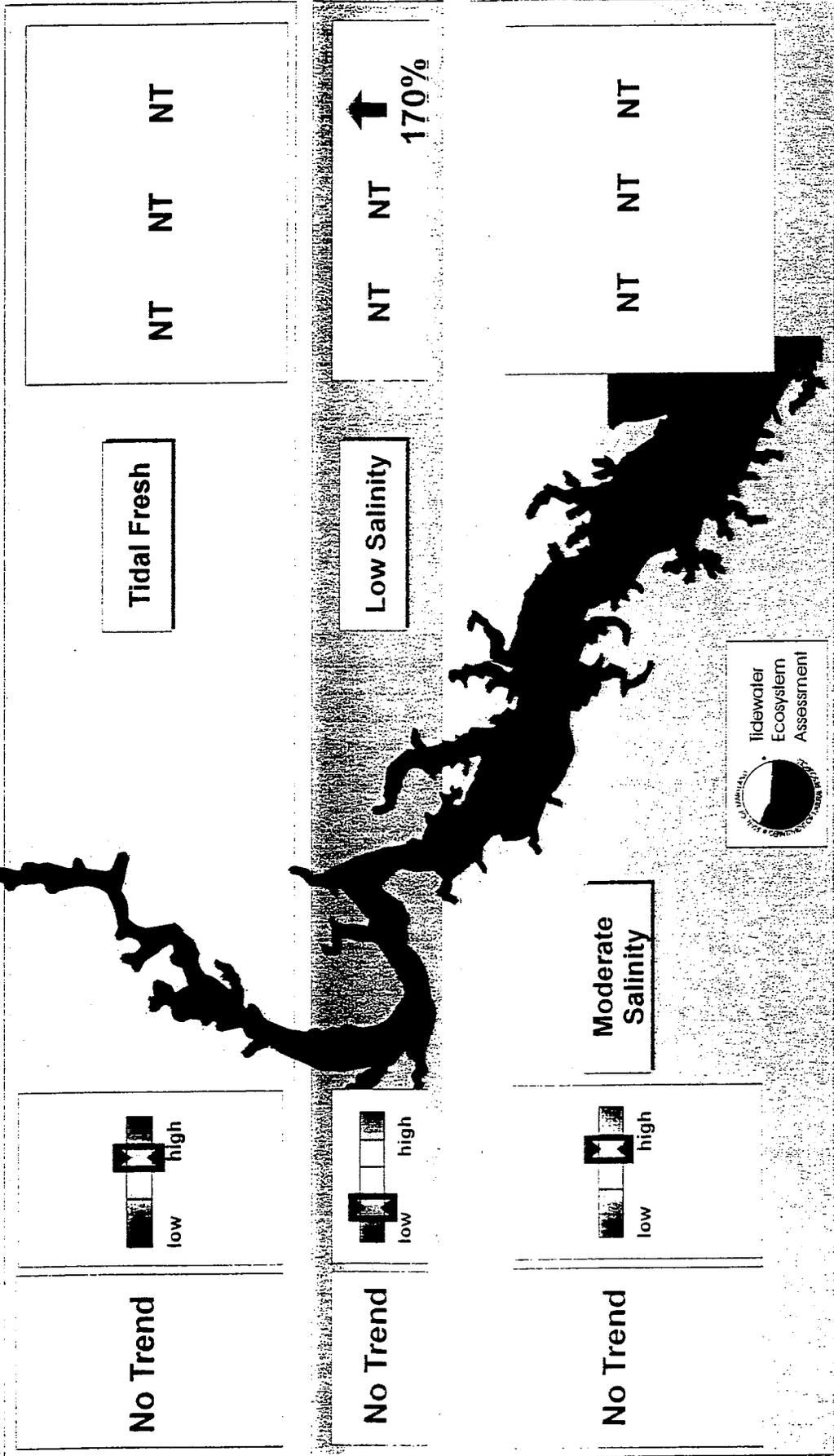


Figure 3-6. Zooplankton Status and Trends for the Potomac River, fall.