Final Report
Saluda-Reedy Watershed Consortium

Project code: WQ-05

Project name: Determination of Limiting Nutrient(s) in Lake Greenwood

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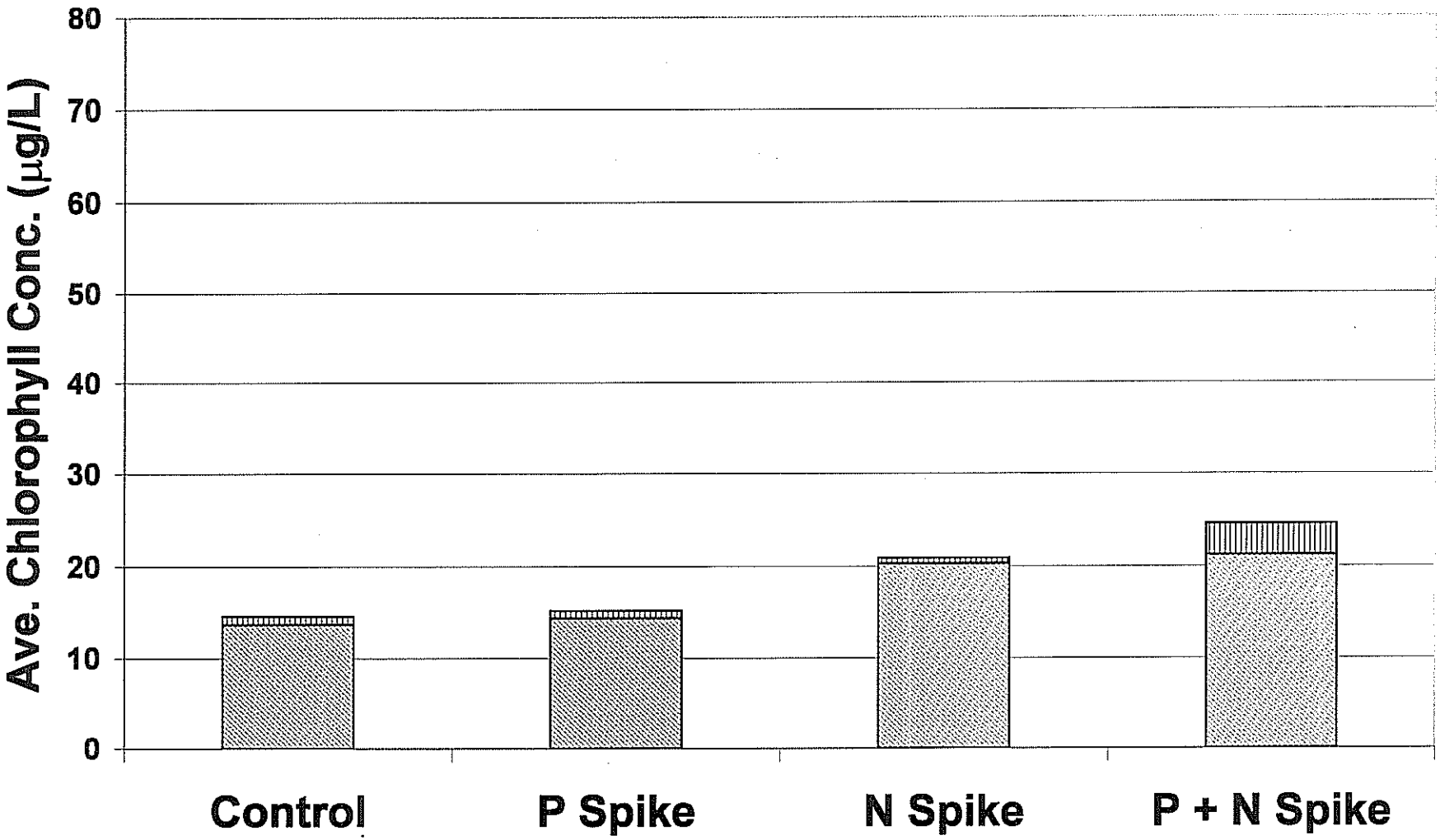
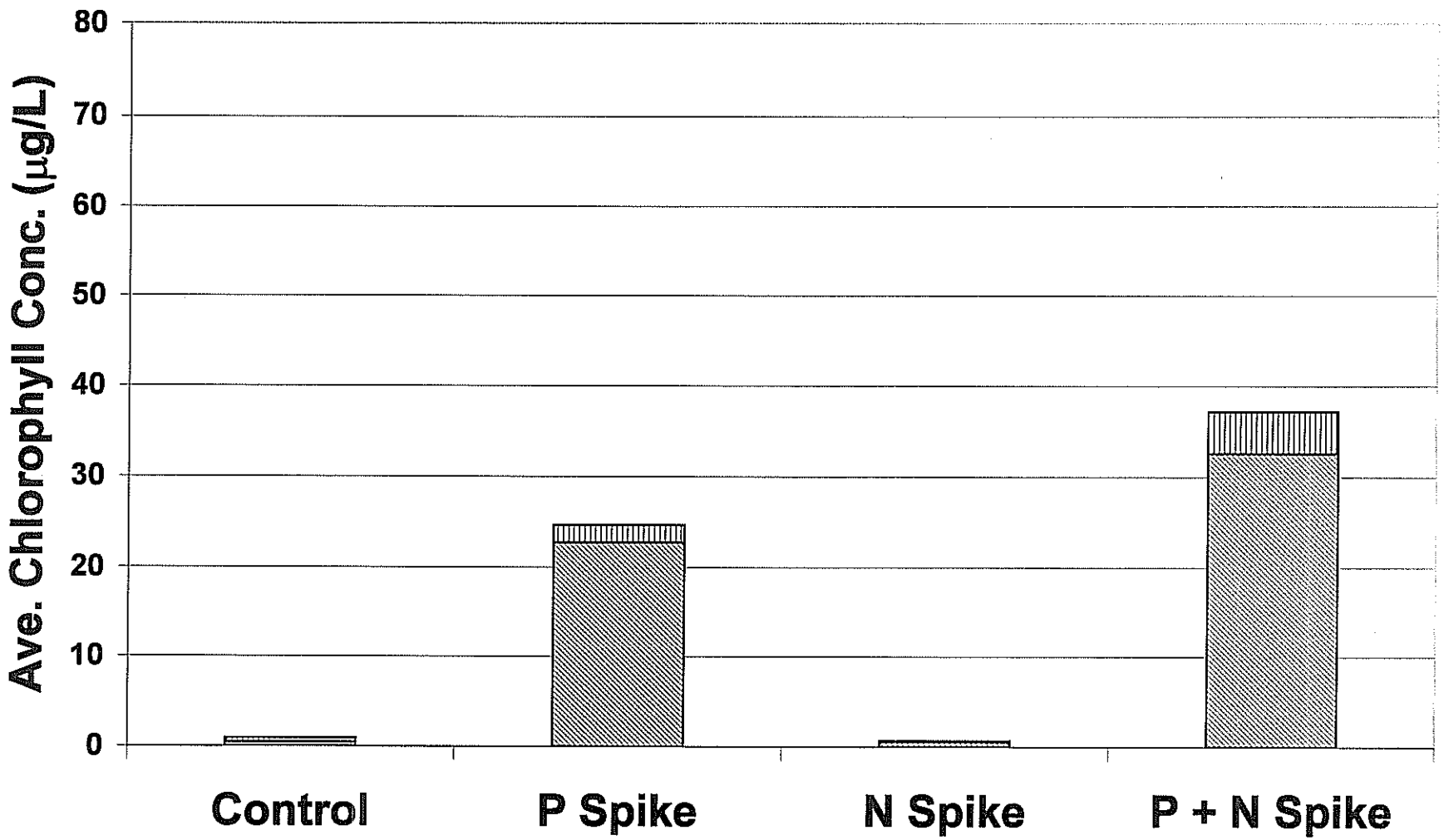
Project duration: June 2003 to December 2004

Description: The objective of the project was to identify the limiting nutrient(s) by Algal Biostimulation Assay at three locations in Lake Greenwood. The three locations sampled were: 1) Below Dam at Highway 34 Bridge (34° 10.1' N, 84° 54.2' W), 2) Saluda River Arm at Highway 39 bridge (34° 18.5' N, 82° 6.7' W), and 3) Reedy River arm at Highway 29 bridge (34° 19.6' N, 82° 5.0' W). Samples were collected monthly during the length of the project. The specifics of the sample handling can be found in the *Standard Methods for the Examination of Waste and Wastewater*, 20th Edition, 1998.

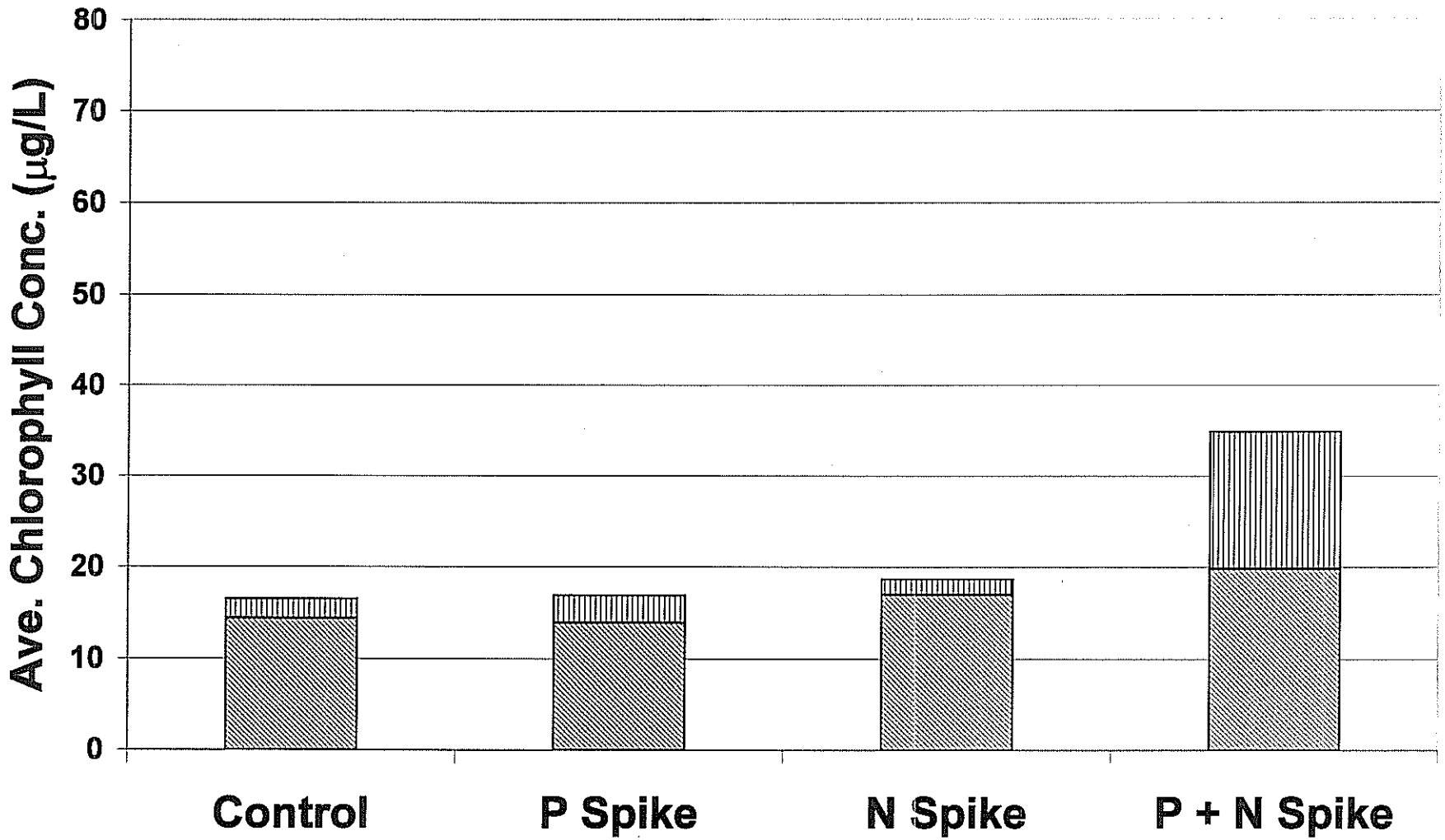
Results: Data and graphs summarizing the results for the entire nineteen-month period of this project are found in the attached Excel file. A total of 12 samples were analyzed at each location (Below Dam: D; Saluda River Arm: S; and Reedy River Arm: R) every month (3 controls: 1, 2, 3; 3 spiked with phosphorous: P1, P2, P3; 3 spiked with nitrogen: N1, N2, N3; and 3 spiked with phosphorous and nitrogen: PN1, PN2, PN3). Sheet 1 in the Excel file reports the measured chlorophyll levels in the samples during the seven-day incubation. Three bar graphs were constructed each month to indicate the average chlorophyll level in the samples at the end of the seven-day incubation and are also included in the Excel file. The top portion on each bar indicates the data range for the triplicate run. In all cases the average chlorophyll level in samples spiked with phosphorous and nitrogen was always greater than those spiked with only one nutrient. This indicates that both phosphorous and nitrogen are simultaneously limiting or co-limiting nutrients in Lake Greenwood. Sheet 2 in the Excel file summarizes the co-limiting results.

Reedy River Arm 7-Day Incubation October 2004

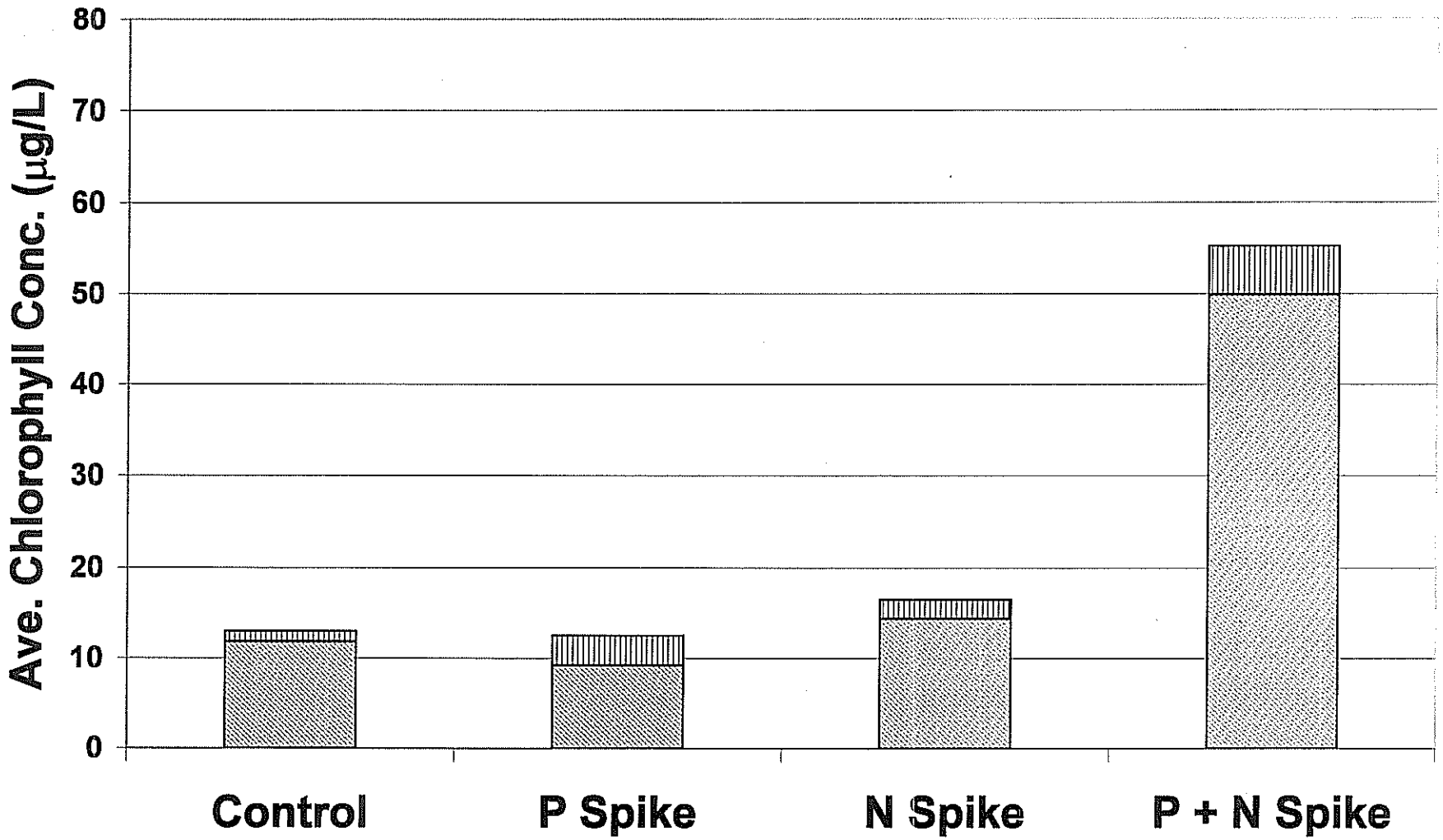



Below Dam 7-Day Incubation November 2004
Ave. Chlorophyll Conc. (µg/L)
80
70
60
50
40
30
20
10
0
Control
P Spike
N Spike
P + N Spike

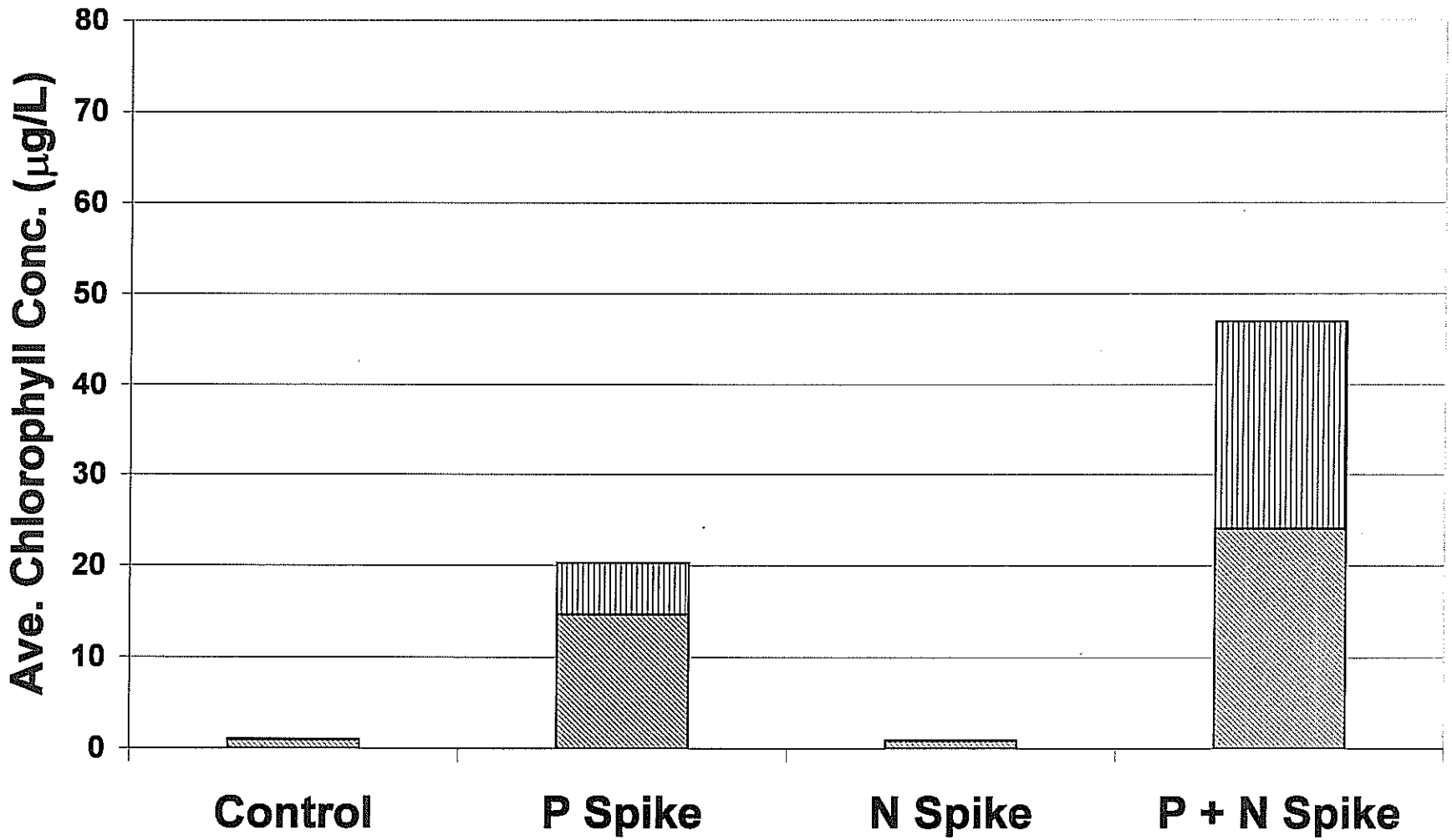
Saluda River Arm 7-Day Incubation November 2004



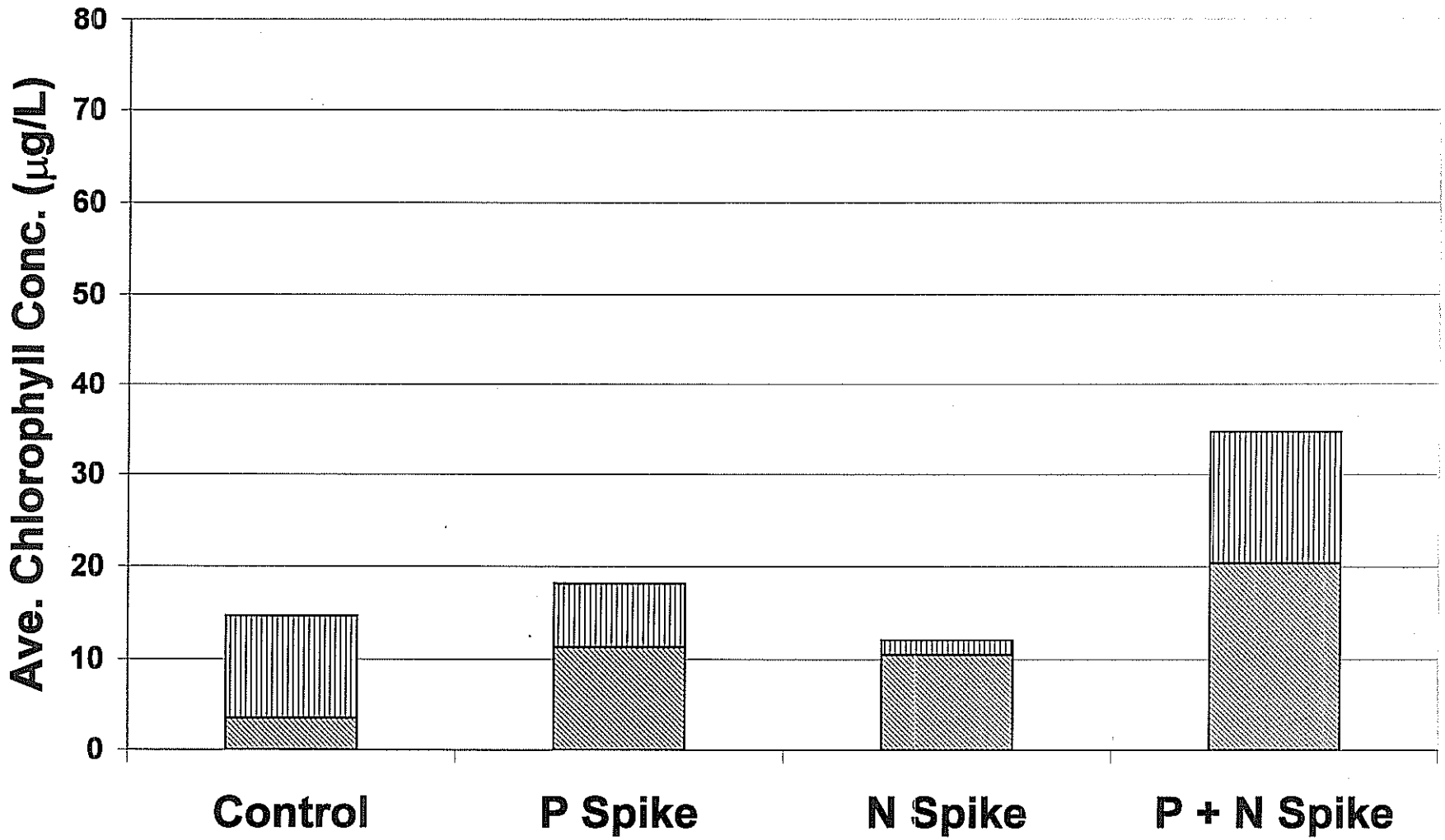
Reedy River Arm 7-Day Incubation November 2004



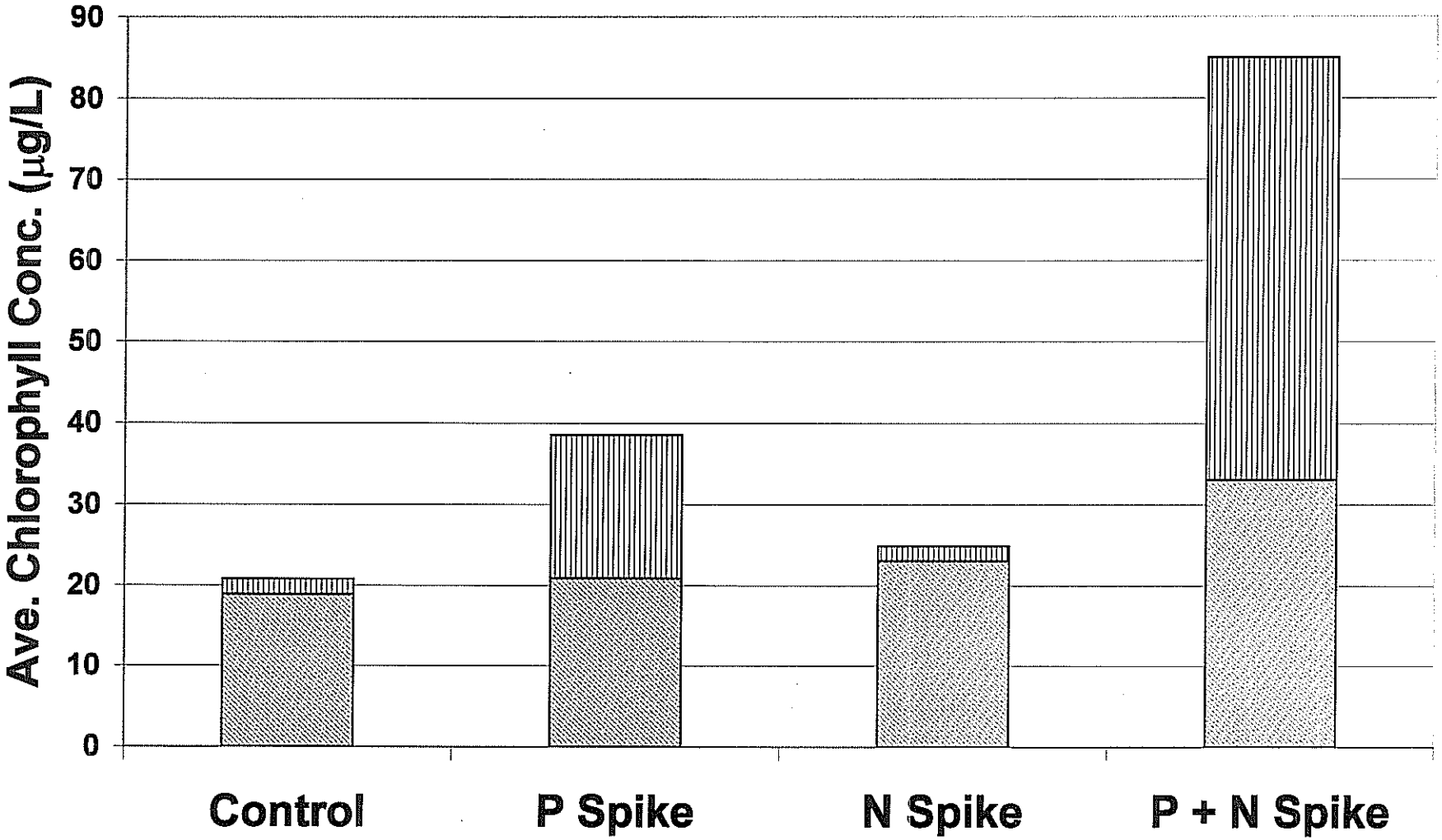
Below Dam 7-Day Incubation December 2004



Saluda River Arm 7-Day Incubation December 2004



Reedy River Arm 7-Day Incubation December 2004



	Jun03	Jul03	Aug03	Sep03	Oct03	Nov03	Dec03	Jan04	Feb04	Mar04	Apr04	May04	Jun04	Jul04	Aug04	Sep04	Oct04	Nov04	Dec04
Below Dam	CP	CP	CN	CP	CP	*	CP	CP	CP	CP	CP	*	CP	*	CP	CP	CP	CP	CP
Saluda River Arm	CN	CP	CN	CN	CN	*	CN	CP	CP	CN	CN	CP	CN	*	CP	CP	CN	CN	CP
Reedy River Arm	CP	CN	CN	CN	CN	*	CN	CP	CP	CN	CN	CP	CN	CP	CN	CN	CN	CN	CP

CP = co-limiting, phosphorous major limitation

CN = co-limiting, nitrogen major limitation

P = phosphorous limiting

N = nitrogen limiting

* = nutrient limitation not reliably determined due to contamination problem or error in sample preparation