



Sedimentological evidence of an increase in *Pseudo-nitzschia* (Bacillariophyceae) abundance in response to coastal eutrophication

Parsons, Michael L., Quay Dortch, R. Eugene Turner

Limnol. Oceanogr., 47(2), 2002, 551-558 | DOI: 10.4319/lo.2002.47.2.0551

ABSTRACT: *Pseudo-nitzschia* H. Peragallo, a marine planktonic diatom genus containing some species capable of producing the neurotoxin domoic acid, is often documented in extremely high concentrations in the northern Gulf of Mexico in the plume of the Mississippi River, especially when river flow and nutrient inputs are high. Limited historical data suggest that *Pseudo-nitzschia* abundance has increased in the northern Gulf of Mexico since the 1950s. Five sediment cores were collected and analyzed to test whether *Pseudo-nitzschia* increases coincided with increasing nutrient concentrations in the Mississippi River, thereby suggesting a cause-effect relationship. *Pseudo-nitzschia* abundance increased in all five cores, correlating significantly with increasing nitrate fluxes and decreasing silicate to nitrate ratios. A diatom dissolution index, based partly on scanning electron microscopic analysis of the fine structure of *Pseudo-nitzschia* and other lightly silicified diatom valves preserved in the sediment, indicates that the increase in *Pseudo-nitzschia* abundance appears to reflect a response to eutrophication rather than diagenesis. This study provides evidence for a possible link between coastal eutrophication and harmful algal blooms.

Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open Access after three years.