

# Researchers call for nitrogen and phosphorus reductions to combat eutrophication in aquatic systems

February 19 2009

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An international group of scientists is renewing calls for policymakers to reduce both nitrogen and phosphorus when attempting to alleviate eutrophication - or nutrient pollution problems - in fresh and coastal waters. In the February 20 edition of *Science*, the researchers argue that dual-nutrient reduction strategies are likely to be more successful due to complex interactions between nitrogen and phosphorus in fresh and coastal water ecosystems.

"If the overall goal of nutrient reduction programs is to reestablish balanced aquatic ecosystems, research tells us to focus pollution reductions efforts on both nitrogen and phosphorus," said co-author Dr. Donald Boesch of the University of Maryland Center for Environmental Science. "Efforts focusing on only one nutrient can possibly help freshwater systems, but tend to push pollution problems downstream into coastal and estuarine systems."

"Policymakers need to adopt holistic approaches when combating eutrophication," added lead author Dr. Daniel Conley of Sweden's Lund University. "Heavily polluted estuaries can demonstrate either nitrogen or phosphorous limitations depending upon the season or location, so it is important that pollution reduction measures address the true root of the problem."

Excess nutrients often lead to harmful algal blooms and oxygen-deprived

"dead zones" occurring in freshwater lakes and coastal waters. Scientists attribute these elevated nutrient levels to the production of fertilizers, increased fossil fuel emissions, and effluent from municipal and industrial wastewater treatment.

More information: "Controlling Eutrophication: Nitrogen and Phosphorus" appears in the Science Policy Forum on February 20. The article was authored by Drs. Daniel J. Conley, Hans W. Paerl, Robert W. Howarth, Donald F. Boesch, Sybil P. Seitzinger, Karl E. Havens, Christiane Lancelot, and Gene E. Likens.

Source: University of Maryland Center for Environmental Science

Citation: Researchers call for nitrogen and phosphorus reductions to combat eutrophication in aquatic systems (2009, February 19) retrieved 27 April 2024 from <https://phys.org/news/2009-02-nitrogen-phosphorus-reductions-combat-eutrophication.html>

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