

Developing the Aquatic Acidification Index (AAI) for a combined oxides of sulfur and nitrogen secondary air quality standard.

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From 2006 through 2011 the U.S. Environmental Protection Agency explored development of a new multiple pollutant secondary National Ambient Air Quality Standard (NAAQS) that combined two criteria pollutant groups – oxides of nitrogen and sulfur. This effort proceeded through EPA’s integrated science assessment (ISA), risk and exposure assessment (REA) and culminated in a policy assessment (PA) which included development of an aquatic acidification index (AAI). The AAI reflects the potential that atmospheric concentrations of oxides of S and N have in sustaining a target acid neutralizing capacity (ANC) across a representative suite of water bodies in a given area. Steady state critical load modeling is used to link deposition of N and S and ANC, and air quality modeling through the Community Multiscale Air Quality (CMAQ) platform is used to translate target deposition rates to allowable ambient air concentrations. This presentation walks through the derivation of the AAI equation and explains how the concept would be applied using results from the PA in a standard setting context compatible with other NAAQS.