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**Title:** Acidification in the U.S. Southeast: Causes, Potential Consequences and the Role of the Southeast Ocean and Coastal Acidification Network

**Author:** Hall, Emily R.

**Author:** Wickes, Leslie

**Author:** Burnett, Louis E.

**Author:** Scott, Geoffrey I.

**Author:** Hernandez, Debra

**Author:** Yates, Kimberly K.

**Author:** Barbero, Leticia

**Author:** Reimer, Janet J.

**Author:** Baalousha, Mohammed

**Author:** Mintz, Jennifer

**Author:** Cai, Wei-June

**Author:** Craig, J. Kevin

**Author:** DeVoe, M. Richard

**Author:** Fisher, William S.

**Author:** Hathaway, Terri K.

**Author:** Jewett, Elizabeth B.

**Author:** Johnson, Zackary

**Author:** Keener, Paula

**Author:** Mordecai, Rua S.

**Author:** Noakes, Scott

**Author:** Phillips, Charlie

**Author:** Sandifer, Paul A.

**Author:** Schnetzer, Astrid

**Author:** Styron, Jay

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**Abstract:**

Coastal acidification in southeastern U.S. estuaries and coastal waters is influenced by biological activity, run-off from the land, and increasing carbon dioxide in the atmosphere. Acidification can negatively impact coastal resources such as shellfish, finfish, and coral reefs, and the communities that rely on them. Organismal responses for species located in the U.S. Southeast document large negative impacts of acidification, especially in larval stages. For example, the toxicity of pesticides increases under acidified conditions and the combination of acidification and low oxygen has profoundly negative influences on genes regulating oxygen consumption. In corals, the rate of calcification decreases with acidification and processes such as wound recovery, reproduction, and recruitment are negatively impacted. Minimizing the changes in global ocean chemistry will ultimately depend on the reduction of carbon dioxide emissions, but adaptation to these changes and mitigation of the local stressors that exacerbate global acidification can be addressed locally. The evolution of our knowledge of acidification, from basic understanding of the problem to the emergence of applied research and monitoring, has been facilitated by the development of regional Coastal Acidification Networks (CANs) across the United States. This synthesis is a product of the Southeast Coastal and Ocean Acidification Network (SOCAN). SOCAN was established to better understand acidification in the coastal waters of the U.S. Southeast and to foster communication among scientists, resource managers, businesses, and governments in the region. Here we review acidification issues in the U.S. Southeast, including the regional mechanisms of acidification and their potential impacts on biological resources and coastal communities. We recommend research and monitoring priorities and discuss the role SOCAN has in advancing acidification research and mitigation of and adaptation to these changes