Core principles of the California Current Acidification Network: Linking chemistry, physics, and ecological effects.

McLaughlin\(^1\), K., S.B. Weisberg\(^1\), A.G. Dickson\(^2\), G.E. Hofmann\(^3\), J.A. Newton\(^4\), D. Aseltine-Neilson\(^5\), A. Barton\(^6\), S. Cudd\(^6\), R.A. Feely\(^7\), I.W. Jefferds\(^8\), E.B. Jewett\(^9\), T. King\(^10\), C.J. Langdon\(^11\), S. McAfee\(^12\), D. Pleschner-Steele\(^13\), and B. Steele\(^14\).

\(^1\)Southern California Coastal Water Research Project Authority, Costa Mesa, CA, USA.
\(^2\)Scripps Institution of Oceanography, University of California, San Diego, La Jolla, CA, USA.
\(^3\)University of California, Santa Barbara, Santa Barbara, CA, USA.
\(^4\)Northwest Association of Networked Ocean Observing Systems, and University of Washington, Seattle, WA, USA.
\(^5\)California Department of Fish and Wildlife, Sacramento, CA, USA.
\(^6\)Whiskey Creek Shellfish Hatchery, Tillamook, OR, USA
\(^7\)National Oceanic and Atmospheric Administration (NOAA) Pacific Marine Environmental Laboratory, and University of Washington, Seattle, WA, USA.
\(^8\)Penn Cove Shellfish, Coupeville, WA, USA.
\(^9\)NOAA Ocean Acidification Program, Washington, DC, USA.
\(^10\)Washington Sea Grant, Shelton, WA, USA.
\(^11\)Oregon State University, Newport, OR, USA.
\(^12\)California Ocean Science Trust, Palo Alto, CA, USA
\(^13\)California Wetfish Producers Association, Buellton, CA, USA.
\(^14\)California sea urchin diver, Buellton, CA, USA.

**ABSTRACT**

Numerous monitoring efforts are underway to improve understanding of ocean acidification and its impacts on coastal environments, but there is a need to develop a coordinated approach that facilitates spatial and temporal comparisons of drivers and responses on a regional scale. Toward that goal, the California Current Acidification Network (C-CAN) held a series of workshops to develop a set of core principles for facilitating integration of ocean acidification monitoring efforts on the US West Coast. The recommended core principles include: (1) monitoring measurements should facilitate determination of aragonite saturation state (\(\Omega_{\text{arag}}\)) as the common currency of comparison, allowing a complete description of the inorganic carbon system; (2) maximum uncertainty of \(\pm 0.2\) in the calculation of \(\Omega_{\text{arag}}\) is required to adequately link changes in ocean chemistry to changes in ecosystem function; (3) inclusion of a variety of monitoring platforms and levels of effort in the network will insure collection of high-frequency temporal data at fixed locations as well as spatial mapping across locations; (4) physical and chemical oceanographic monitoring should be linked with biological monitoring; and (5) the monitoring network should share data and make it accessible to a broad audience.

**Full text:** [866_CorePrinAcidNetwork_mclaughlin.pdf](866_CorePrinAcidNetwork_mclaughlin.pdf)