

Spatial analyses of aragonite saturation between potential oyster reef building sites in the Basin Preserve, Phippsburg, Maine

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The shellfish industry in the Gulf of Maine (GoM) region has produced both economic benefits through the creation of jobs and marketable shellfish and environmental benefits. A new, collaborative research effort between Bowdoin College, Colby College, The University of Maine and The Basin Oyster Project aims to address questions raised by community members, oyster farmers, and conservation groups in Phippsburg, Maine about the viability of building and sustaining oyster reefs in the Basin Preserve, a local preserve in coastal Maine. Oysters build their shells from minerals contained in seawater and because the shells of calcifying organisms are sensitive to ocean acidity, the amount of shell building minerals in the water can be an important factor in determining the success of an oyster reef. Aragonite saturation state (Ω) of seawater is an indicator of the shell building mineral, CaCO_3 , and whether it will dissolve or precipitate at a given location. $\Omega > 1.5$ is considered optimal for calcifying organism shell growth. As seawater absorbs atmospheric carbon dioxide, it lowers Ω .

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