



EROSION CONTROL
A Modern Solution

Governor's Climate Change Sub-Cabinet

3rd Meeting

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Viable Erosion Control Solutions for Alaskan Rivers and Oceans

Abstract

Two solutions have arisen for long-term performance of erosion control structures. These include rock armor or riprap commonly preferred by the Corps of Engineers and the Open Cell™ bulkhead, a newer solution used widely in the private sector. In fact, over seven miles of these successful structures are in place with solid performance spanning 25 years. (See photos.)

Erosion control solutions at Kivalina, for example, suggest that rock armor will cost three times the Open Cell solution.

As a matter of definition, rock riprap is used for river erosion control and rock armor is used to resist ice and wave forces. The difference is usually rock size and gradation.

Open Cell bulkheads are extremely strong, resist ice and wave forces and can handle scour down to pile tips. This latter unique characteristic is what sets the Open Cell apart and explains the long-term success.

Open Cell solutions for three locations have been submitted for a number of years (see photos and plans), but all have been rejected by entities not known and for reasons not well understood.

If economics and function are important factors, the Open Cell may be a solution to important rural erosion situations.



Nome Open Cells have resisted large wave and ice loads.



Nome Harbor features both rock armor and Open Cells™.



Rock armor has been successfully used to resist ice and wave forces.



Rock riprap has been used successfully to resist river erosion.



Open Cells™ used for erosion control along Cook Inlet.



Open Cells™ used along with armor for erosion control along Cook Inlet.



Open Cell™ erosion control along Cook Inlet.



Open Cell™ bridge abutments used for erosion control on North Slope.



Port MacKenzie showing rock armor and an Open Cell™ bulkhead.



Port MacKenzie



**Unalakleet Open Cell™ dock with failing gabions shown to left.
Proposed use of Open Cells in place of gabions was not accepted.**