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**Customer:** U.S. Department of Transportation, Maritime Administration

## Project Definition and Objective

*Port of Anchorage Intermodal Expansion Project, Geotechnical Overwater Drilling and Analysis*

The objective of this project was to perform a geotechnical investigation to examine whether the Port of Anchorage can remain stable and operational after a large, seismic event. This project was part of the Port of Anchorage Intermodal Expansion Project, for which ICRC provides program management. This \$375 million effort includes the creation of 135 acres of new land through tidal fill activities and the construction of more than 8,800 feet of new waterfront wharf.

Because the Port of Anchorage serves 90 percent of the population of Alaska, it is critical that this lifeline remains operational – even after a severe seismic event. However, several unique conditions make the Port expansion a technically challenging project, including having:

- The second highest tidal fluctuation in the world at almost 41 feet
- Currents estimated up to 4 knots, which preclude many of the standard construction methods
- Ice floes up to 6 feet thick and 2,000 feet in diameter, which can inflict severe damage
- A location on the Bootlegger Cove Clay Formation, portions of which liquefied during the 1964 Good Friday Earthquake

## Tasks

The tasks performed by ICRC for this project included:

- Constructing a stable drilling platform, called a Jack-Up Rig, which was disassembled in Nova Scotia, shipped by railroad across Canada, and reassembled in Anchorage.
- Capturing subsurface information through the use of state-of-the-art methods and equipment.
- Analyzing the data and making a determination about the Port's global and internal stability.

## Impact

ICRC delivered the following results:

- Determined that the particular clay formation found under the Port will be stable in the event of a severe seismic event, based on the information gathered and subsequent analysis.
- Concluded that there are portions of the Port expansion that have weak zones. These zones are currently being evaluated to determine how to strengthen the areas.
- Utilized an Open-Cell-Sheet-Pile instead of a traditional pile-supported dock for better internal stability in large seismic events, as shown by analysis to date.
- Currently refining and optimizing the design of the new Port expansion through state-of-the-art computer modeling.

## Other ICRC Services:

Advanced Vehicle Technologies  
Information Sciences  
Aerospace Services

For more information or to discuss potential contracting opportunities, contact ICRC's Corporate Headquarters:

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The Jack-Up Rig at high tide