

Amphibious eXtreme Terrain Vehicle for Ice Rescue



Science and Technology

CHALLENGE: ICE RESCUE OPERATIONS AROUND THE GREAT LAKES

In the Great Lakes Region, the United States Coast Guard (USCG) conducts rescue operations in below-freezing conditions, requiring specialized equipment and rescue craft to reach victims trapped on ice or in freezing water. Response to calls for rescue during the winter months typically require USCG rescue teams to deploy in specialized airboats modified to operate on the frozen lakes and waterways in District 9 (Great Lakes Region). However, the current rescue vehicle solution available to responders, the Special Purpose Craft Airboat – Ice Rescue Transport (SPC-air/IRT), is an older solution that is costly to buy and maintain, resulting in too few being deployed to Coast Guard stations.

Ice rescue operations are a frequent occurrence during the winter months in District 9. In the winter of 2021-2022, for example, the USCG took on 33 ice rescue cases, saving 95 lives. However, given the limited availability of SPC-air/IRTs, rescue teams may be required to find alternative means of reaching people in distress, resulting in delays and impacting their ability to save lives.

A NEW APPROACH: AMPHIBIOUS EXTREME TERRAIN VEHICLE

The USCG is dedicated to its maritime response mission and protecting lives on U.S. waterways. To improve its ability to meet this mission, the USCG and the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) are partnering to develop a new ice rescue prototype. The Amphibious eXtreme Terrain Vehicle (XTV) is intended to supplement the Coast Guard's current rescue capabilities in District 9.

Once completed, the final vehicle will augment the capabilities of the current rescue airboat and provide the three-person USCG rescue team with all the tools and capabilities needed to operate autonomously or in conjunction with other USCG, state, local, or tribal assets. The XTV should be durable; capable of operating in extreme cold, on land, on ice, and in water; and be able to easily transition between each type of terrain. The vehicle



will accommodate up to three rescuers and three passengers and support all rescue and lifesaving equipment currently stowed on the SPC-air/IRT.

The government will consider minor refinements to the requirements based on the designs submitted by industry.

IMPACT TO ICE RESCUE OPERATIONS

The Amphibious XTV will allow the Coast Guard to efficiently and effectively respond to life-saving missions that take place on land, regardless of snow and ice, and in the water without the need for a separate transport system with separate teams. Amphibious XTV is a solution to augment boat capabilities for ice rescue units where a wide spectrum of maritime climates and environmental situations exist. Because the XTV is being designed as a lower-cost solution, it can lead to wider availability among stations conducting ice rescue operations.

KEY STAKEHOLDERS

- DHS S&T
- U.S. Coast Guard
- Triton Technologies
- State, local, territorial, tribal, and private partners

