

Abstract

Archaeology allows us to see our human past and who we are as a people. This is a global narrative that spans the entirety of human existence. Many archaeological sites are delicate and are often unknowingly destroyed by human development. Because of this, pristine and protected islands offer a complete wealth of archaeological information. Stewardship programs and regulations set in place for protecting these cultural resources have been set into place on federally owned lands. San Nicolas Island and San Clemente Island, two of the Channel Islands owned by the United States Navy, are among the most well-documented and protected locations for archaeological sites in the United States. However, many of these sites are currently at risk from inundation and erosion. Global sea level rise not only potentially inundate the coastal zones but also accelerate geological erosion processes.

To help the U.S. Navy understand and protect against the threats from these natural processes, this study aims to identify the at-risk archaeological sites on San Clemente Island and San Nicolas Island. A spatial-explicit Coastal Vulnerability Index (CVI) was developed from the ranked vulnerability score of environmental variables, including slope, inundation, generalized rock type, and vegetation, using a Geographic Information Systems (GIS). Based on the CVI, a Cultural Resource Vulnerability Index (CRVI) was developed to rank the coastal vulnerability of the archaeological sites on the two islands

The results of the CRVI showed that 3.6% of the archaeological sites on San Nicolas Island and 19.2% of the archaeological sites on San Clemente Island fall within the Highly Vulnerable to Very Highly Vulnerable categories. The CRVI informs the land managers in the U.S. Navy an earlier response time to save these at-risk sites that may be completely destroyed in the next 100 years. With the result from the CRVI, further actions can be taken to mitigate and/or