Coastal Landslide Hazards

Portland East Quadrangle, Maine

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Introduction

Landslides on steep coastal cliffs and bluffs pose a significant hazard to coastal communities. They can cause destruction of waterfront properties, highways, and railroads, and can obstruct navigation. The hazard is exacerbated by storms and coastal erosion, which can trigger or intensify landslides. The objective of this project was to produce a coastal landslide susceptibility map for the Portland East Quadrangle, Maine.

Methods of Mapping Landslide Hazards

Landslide Map: The landslide hazard map of Portland East Quadrangle, Maine, was developed using ArcGIS 9.1 with the ArcGIS 9.1 Spatial Analyst extension. The map is based on a landslide susceptibility model that incorporates a variety of factors, including topography, geology, soil type, land use, and historical records of landslides. The map was produced using a combination of qualitative and quantitative methods, including geostatistical analysis and expert judgment.

Location of Study Area

The study area includes the Portland East Quadrangle, Maine, which encompasses the eastern portion of the city of Portland and the northern portion of the town of Cape Elizabeth. The area is characterized by steep coastal cliffs and bluffs, as well as a variety of land use and geologic conditions.

Conclusion

The landslide hazard map provides a valuable tool for assessing the potential for landslides in the Portland East Quadrangle, Maine. The map can be used by planners and engineers to identify areas at risk and to develop strategies for mitigating the hazard. The map can also be used by coastal communities to develop evacuation plans and to prioritize the rehabilitation of waterfront properties.