

Barry Arm, Alaska, Tsunami Hazard Maybe Not So Severe

...however, wave height could still be hazardous to Whittier and other nearshore communities in Prince William Sound.

The United States Geological Survey (USGS) recently released a report documenting potential worst-case wave heights from a catastrophic failure of the landslide in Barry Arm, Prince William Sound, Alaska. Our new work shows that the largest plausible wave height is much smaller than initial estimates. However, this wave, should a landslide occur, is still potentially very dangerous. People who live, work, and recreate in Prince William Sound need to remain informed about this hazard and prepare accordingly.

What's in the report?

Waves from a potential landslide into the Barry Arm of Prince William Sound could reach heights up to 7 feet just offshore Whittier. This “worst-case scenario” is much less severe than the 30-foot-high wave assessment by an interdisciplinary team of scientists in 2020. Although maximum wave heights are smaller, this wave could travel fast enough to reach Whittier in under 20 minutes from the time of the landslide. Furthermore, risk remains extreme closer to the landslide, such as Barry Arm, Harriman Fiord, Port Wells, and College Fiord. Marine traffic in these areas could face life-threatening wave hazards with no time to evacuate should the landslide fail rapidly.

Our revised estimates are based on new modeling that more accurately describes the speed and size of landslide material as it enters the water. To do this, we used high-resolution maps that better represent the shape of both the landslide and the seafloor, which were collected by the Alaska



USGS Scientist Brian Collins is evaluating the potential of this ledge for installation of equipment designed to monitor movement of the Barry Arm landslide.

USGS scientists Brian Collins (left) and Jeff Coe (right) discuss landslide-generated tsunami hazards with Lazy Otter Charter boat captain Mike Bender.



Division of Geologic and Geophysical Survey (DGGS) and the National Oceanic and Atmospheric Administration (NOAA) in 2021. These new data helped us to refine estimates of landslide volume and submarine features that affect how the wave is created and how it moves in the immediate vicinity of the Barry Arm landslide.

What does this new information mean for residents, visitors, and others who live, work, and play in PWS?

Although maximum possible wave heights in Passage Canal are smaller than those originally estimated, the Barry Arm landslide and potential tsunami waves still represent a considerable hazard for the residents of Whittier and for marine traffic in Prince William Sound. At this time, residents should continue to follow guidance from officials related to emergency planning, evacuation, and marine safety. In addition, we encourage residents to:

- Participate in community meetings about the Barry Arm landslide and tsunami risk.
- Prepare a “go-bag” and keep it somewhere it will be easy to grab.
- Review the ways you can receive Tsunami and Weather Alert messages.
- Practice your evacuation route with your household, and rehearse your communication plan.
- Boaters should be familiar with guidelines posted on the DGGS website listed below.

The National Tsunami Warning Center has information on tsunami preparedness on their website (listed below).

What is going to happen next now that we have new information?

The USGS and its partner agencies, including DGGS, the National Tsunami Warning Center, and the Alaska Earthquake Center, will be working in and around Barry Arm to improve our understanding of the landslide and how it may fail, producing large waves. The interagency team is also working together to create an early warning system to alert authorities and the public should a land-

slide and tsunami occur or increases in landslide activity are observed. During summer, residents may see helicopters and boats as scientists install and maintain monitoring equipment and survey the terrain. Check the DGGS web site listed below, where updates and pictures will be provided for the purpose of reducing risk in nearby communities and for recreationalists, marine traffic, and infrastructure. We will also provide new information and scientific findings related to hazard and risk to the communities of Prince William Sound through public meetings, reports, social media posts, and briefings to local officials.

Where can I get more information?

Residents are encouraged to seek more information from the Alaska Division of Geological and Geophysical Survey, the most up-to-date source of information on the Barry Arm landslide, including links to partner agencies:

- **Alaska Division of Geological and Geophysical Survey**
dggs.alaska.gov/hazards/barry-arm-landslide.html

For the full report recently released, a report documenting potential worst-case wave height:

- **Preliminary Assessment of the Wave Generating Potential from Landslides at Barry Arm, Prince William Sound, Alaska**
doi.org/10.3133/ofr20211071

For information on how you and your family can prepare for this situation and other emergencies, please visit:

- **Alaska Department of Homeland Security and Emergency Management**
www.ready.alaska.gov
- **National Tsunami Warning Center**
www.tsunami.gov
- **Alaska Earthquake Center**
www.earthquake.alaska.edu



USGS Scientists Brian Collins (left) and Jeff Coe (right) perform measurements characterizing the quality of rock on an outcrop on the east side of Barry Arm, Prince William Sound, Alaska.