

# 2020 Southeast Landslides



December 1-3, 2020

## Overview

Beginning on December 1st, 2020, Southeast Alaska experienced landslides and flooding caused by record-breaking precipitation. Haines, Juneau, and Skagway all broke daily and 48 hour precipitation records, with 10.26 inches of precipitation recorded at the Haines airport over just two days. The precipitation was compounded by the melting of excessive November snowfall which increased runoff. Combined runoff and precipitation saturated soil, creating multiple landslides. The estimated property damage was \$20.3 million and transportation damage was \$34 million (2020 dollars). One 600-foot wide landslide in Haines on Beach Road killed two residents. Seven communities declared disasters including Haines, Juneau, Skagway, Gustavus, Hoonah, Tenakee Springs, and Hyder.

Landslides  
in Haines  
wreaked  
destruction



Photo by US  
Coast Guard  
(top) and  
Alaska State  
Troopers  
(bottom)

## Disaster Declared

**Dec. 3, 2020** Governor Dunleavy issued a disaster declaration

**Feb. 17, 2021** President Biden approved federal disaster declaration

**FEMA** approved **\$1.4 million** in public assistance (2020 dollars)

**The State of Alaska** approved funding for individual assistance including property damage

## Weather Woes

The record-breaking precipitation was caused by an unusually strong atmospheric river: a long, narrow band of moisture stretching from the subtropics to higher latitudes. The heavy rain destabilized soils, triggering landslides and driving some rivers to record flood levels. Impacts were exacerbated by mild air that melted large amounts of snowpack (from the second snowiest November in 20 years in Haines), increasing the amount of runoff and further contributing to unstable soils, landslides, and localized flooding.

# Community Specific Impacts

## Regional differences

The record-breaking precipitation caused a variety of impacts in Southeast Alaska, including **landslides, flooding, and washed out roads**. The **Haines area** was highly impacted from a **fatal landslide** in a residential area.

**Haines area:** Fatal landslide on Beach Road on Dec. 2 led to six missing people: four were found alive and two died; every major road had a significant damage or a landslide which led to the evacuation of 50 families; two homes destroyed, seven homes suffered major damage, and 16 homes suffered minor damage; 40 homes on Lutak Road were without power and running water and isolated from downtown (some for three or more days); Haines Borough switched from hydropower to a diesel/fuel generator, but washed out roads isolated downtown from the dock where fuel and other supply shipments were incoming; schools, the clinic, and the airport were closed

## Gustavus:

Record high water and flooding of Salmon River; no landslides or fatalities

## Pelican:

Power and phone outages from fallen trees

Skagway

Elfin Cove

**Hoonah:** Debris and water covered roads; minimal damage reported

**Tenakee Springs:** Two bridges washed out; some residences cut off from town; many fallen trees

**Hyder:** Avalanches and debris flows blocked road and isolated community; power outages

**Ketchikan:** Near-record water levels and flooding at Ketchikan Dam; short-term evacuations

**Petersburg:** Record high water levels and flooding at Falls Creek

**Juneau:** One house damaged from a landslide, landslide damaged water supply line and reduced hatchery's salmon returns, Glacier Highway closed due to mudslide; record high water levels at Jordan Creek, record flooding; washed out roads filled with mud and debris; precautionary evacuation from at least one house; fallen trees caused an injury and multiple power outages

## Storm total precipitation

Community	Precipitation
Pelican	17.53 inches *
Haines Airport	10.52 inches*
Skagway	9.92 inches*
Elfin Cove	9.18 inches
Hoonah	7.87 inches*
Gustavus	7.35 inches
Juneau Airport	6.65 inches*

\*denotes all-time daily record rainfall. Data Source: NOAA NWS

Explore other extreme events at [uaf-accap.org/projects/extreme-events-library](http://uaf-accap.org/projects/extreme-events-library)

Sources: Alaska Division of Homeland Security & Emergency Management, Alaska Department of Transportation, Alaska Pacific River Forecast Center, Darrow et al. 2020: Geomorphology and Initiation mechanisms of the 2020 Haines, Alaska landslide, Juneau Empire, KCAW, KTOO, NOAA Storm Data Reports, NOAA NWS

The University of Alaska is an equal opportunity/equal access employer and educational institution. The university is committed to a policy of nondiscrimination against individuals on the basis of any legally protected status.