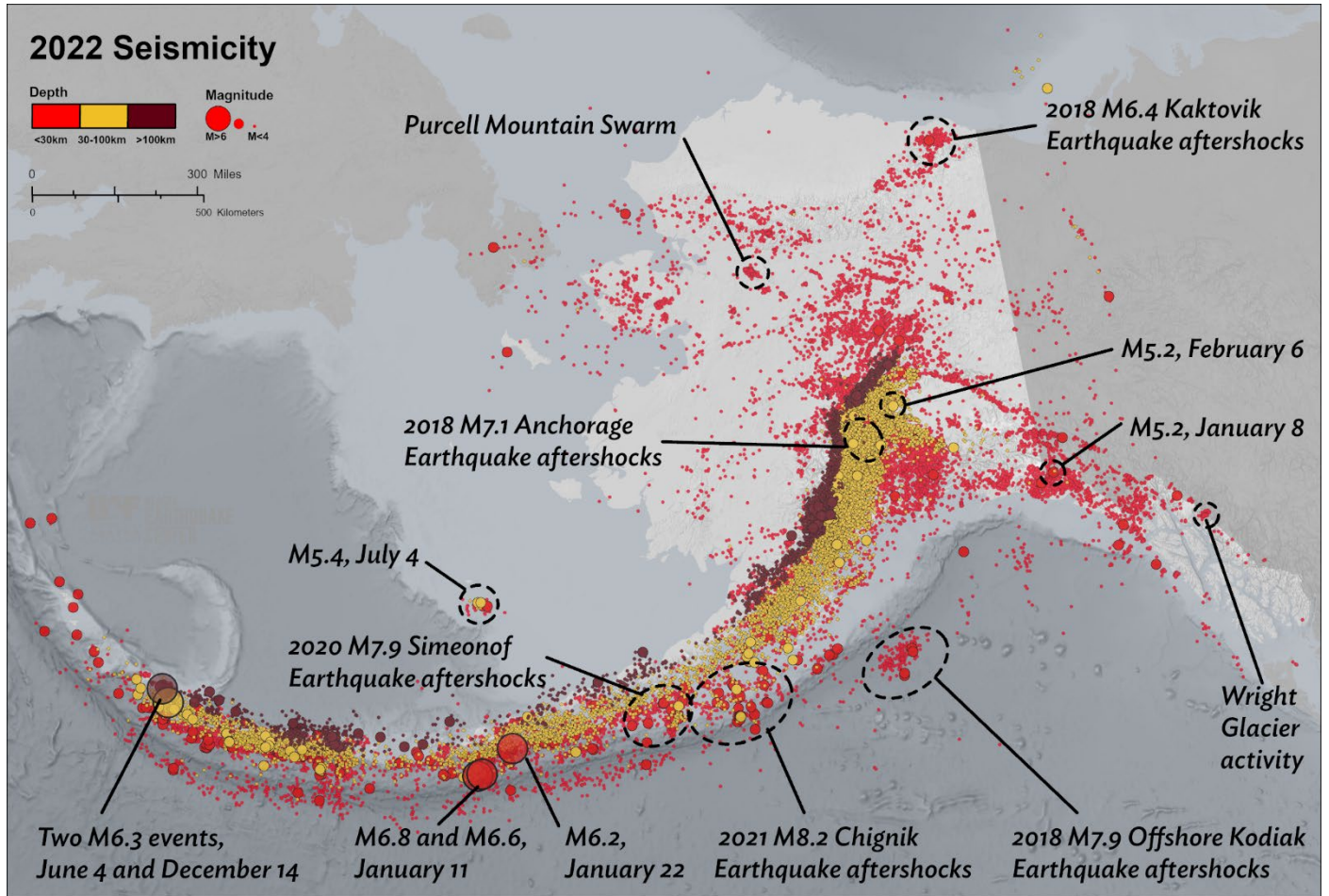


ASHSC Alaska Seismic Hazards Safety Commission



2022 ANNUAL REPORT

TO THE GOVERNOR & STATE LEGISLATURE

EXECUTIVE SUMMARY

The Alaska Seismic Hazards Safety Commission (ASHSC) continues to pursue its mission to improve seismic resilience in Alaska. The recent, devastating earthquakes in Turkey and Syria underscore the need for communities built with seismic safety in mind. The 2018 Anchorage earthquake resulted in significant geotechnical damage to structures throughout Southcentral Alaska and multiple engineering and geotechnical reports have linked this damage to the lack of building code adoption and enforcement. Earthquake hazards exist in nearly every corner of Alaska and our active geology guarantees that we will continue to experience significant earthquakes.

In 2022, despite not being able to hold in-person meetings due to the lingering COVID-19 pandemic, the ASHSC worked with private industry, university, and government specialists in pursuit of enhanced seismic resilience in Alaska. We also advocated for and participated in statewide and regional professional earthquake response trainings in preparation for the next significant event. While there were no damaging Alaska earthquakes in 2022, we continued our earthquake and geohazards education and outreach efforts to make Alaskans more resilient.

The Alaska Earthquake Center (AEC) reported 47,045 seismic events in Alaska and neighboring regions in 2022. The largest earthquake was a magnitude (M) 6.8 event that occurred on January 11 in the Fox Islands region of the Aleutian Islands. Other active areas include two M6.3 earthquakes in the Rat Islands on June 4 and December 14, both of which were followed by moderate aftershock sequences. A M5.4 earthquake was recorded in an unusual location in the Bering Sea, east of St. George Island, on July 4. The two largest earthquakes in mainland Alaska, both M5.2, occurred in the Yakutat Bay region on January 8 and in central Alaska on February 6. The AEC continues to monitor ongoing activity within the 2018 M7.1 Anchorage, 2018 M6.4 Kaktovik, 2018 M7.9 Offshore Kodiak, 2020 M7.6 Simeonof, and 2021 M8.2 Chignik aftershock sequences, the Purcell Mountains earthquake swarm, and the Wright Glacier cluster northeast of Juneau. All aftershock sequences continued to slow, producing fewer aftershocks than in previous years.

We are proud of the Commission's work and welcome the opportunity to further discuss our activities.

Barrett Salisbury, DGGS, Chair
Natalia Ruppert, UAF, Vice-Chair

Cover Photo: 2022 Alaska seismic summary map from the AEC

**ALASKA SEISMIC HAZARDS SAFETY COMMISSION
ANNUAL REPORT TO THE GOVERNOR
& STATE LEGISLATURE FOR 2022**

INTRODUCTION

This report¹ summarizes the ASHSC's business, activities, and accomplishments in 2022 as related to its statutory powers and duties (AS 44.37.067) on behalf of the Governor, Legislature, local governments, and the public and private sectors, which include:

- *Recommending goals and priorities for mitigating seismic hazards (e.g. strong ground shaking, landslide, avalanche, liquefaction, tsunami inundation, fault displacement, and subsidence);*
- *Recommending policies including needed research, mapping, and monitoring programs;*
- *Reviewing the practices for recovery and reconstruction after a major earthquake and to recommend improvements to mitigate losses from similar future events; and,*
- *Gathering, analyzing, and disseminating information of general interest on seismic hazard mitigation to reduce the state's vulnerability to earthquakes.*

Alaska has more earthquakes than any other region of the United States and is one of the most seismically active areas of the world. The next significant earthquake and potential tsunami could happen at any time and we must continue to improve our seismic resilience. The risks to public safety and infrastructure from future events can be greatly reduced through proper planning, design, construction, and continued education and outreach.

COMMISSION BUSINESS

Membership

The ASHSC membership represents a broad cross-section of Alaskan professionals which allows for a unique perspective on seismic hazards. We have representatives from the scientific sector who study modern and prehistoric earthquakes, engineers who design our infrastructure to minimize earthquake risk, and government representatives and emergency managers who mitigate against and respond to earthquake disasters.

Our federal agency representative, Laura Kelly, resigned from the ASHSC as of November 4, 2022 when she stepped down from her role with the U.S. Coast Guard. Commissioner Kelly was our longest-serving member, having been an integral part of the ASHSC since its inception in 2005.

¹ The Commission's documents (e.g., annual reports, meeting agendas and minutes, strategic and operating plans, policy recommendations and white papers, etc.) are available on our website: <https://seismic.alaska.gov>

TABLE 1: COMMISSION MEMBERSHIP

COMMISSIONER / OCCUPATION / RESIDENCE	REPRESENTATION
Barrett Salisbury Ph.D. Geologist, DGGS; Fairbanks	Alaska Department of Natural Resources
Natalia Ruppert, Ph.D. Seismologist, UAF; Fairbanks	University of Alaska
Bryan Fisher DMVA, DHS&EM; Anchorage	Alaska Department of Military & Veterans Affairs
† Laura W. Kelly, P.E. Civil Engineer, USCG; Juneau	Federal Agency
Sam Bass Assembly Member, Skagway, Alaska	Local Government
Thomas Bergey Mat-Su School Board; Wasilla	Local Government
Nick Murray AK DOT Bridge Engineer, Juneau	Public/Restricted
Dan Neuffer, P.E. Geotechnical Engineer, Palmer	Public/Restricted
Sterling Strait Structural Engineer, Alyeska Pipeline; Anchorage	Public/Restricted
Theresa Harmon Administrative Assistant 1, DGGS; Fairbanks	Alaska Department of Natural Resources

† Resigned this year

With eight of 11 seats filled, the ASHSC is actively recruiting for a local government representative from a seismically active area, an insurance industry representative, and a federal agency representative.

Meetings

The ASHSC conducted four regular business meetings in 2022, all of which were public (February 9, May 4, August 30, and November 3-4). Additionally, the Commission held an impromptu meeting (January 19) to discuss the logistics of transitioning Chair and Administrative Assistant duties at the Alaska Division of Geological & Geophysical Surveys (DGGS).

Ethics Act (AS 39.52)

The ASHSC submitted quarterly ethics reports to the Department of Law in 2022, with no written determinations, requests for determinations, or suspected potential violations.

Finances

The ASHSC's expenditures in 2022 (SFY22) totaled \$207,511 out of an annual budget of \$10,000. Again, COVID-19 restricted our ability to travel and hold in-person meetings for the first half of SFY22. Additionally, out-of-state conference travel and in-state regular meeting travel during calendar year 2022 falls under the subsequent State Fiscal Year. We do not anticipate such low expenditures again.

ACTIVITIES & ACCOMPLISHMENTS

This section summarizes our activities and accomplishments during the last year. These accomplishments include activities addressed by the full Commission along with the actions of working groups and individual commissioners working on related business.

- **Secured funding to contract a study on improving building code use in Alaska**

In partnership with the Alaska Department of Homeland Security & Emergency Management (DHS&EM), the ASHSC has secured funding to contract a study on improving building code use in Alaska. Funds are available from the Federal Emergency Management Agency (FEMA) through the National Earthquake Hazards Reduction Program (NEHRP) Individual State Earthquake Assistance (ISEA) program. The multi-year project seeks to clarify the current state of building code adoption and enforcement in Alaska, to analyze successful approaches of other seismically active states, and to provide clear recommendations for improvements in Alaska. The results from this study will improve our understanding of the current situation and provide a roadmap towards achieving the recommendations outlined in Policy Recommendation 2020-1².

In addition to the contracted study, the ASHSC is initiating a subcommittee focused on building code adoption and enforcement with members from the insurance industry, the Alaska Housing Finance Corporation, and the Alaska Department of Public Safety.

² https://seismic.alaska.gov/download/ashsc_meetings_minutes/pr_2020-1_code_adoption_and_enforcement.pdf

- **Workshop on organizing multi-state post-earthquake reconnaissance**

In June, 2022, Commissioner Salisbury attended an Earthquake Engineering Research Institute (EERI) “Learning from Earthquakes” stakeholder workshop on Organizing Post-Earthquake Reconnaissance to Optimize Impact. Attendees from over 40 organizations across seismically active western states focused on opportunity areas for reconnaissance coordination including workforce plans and protocols, data collection and management, outputs and dissemination, and changes in policy and practices. Clarifying important needs and potential next steps in *advance* of the next “big one” is key to a coordinated response.

- **Post-earthquake structural inspection training seminar**



In November, Commissioner Strait taught a seismic Safety Assessment Program seminar in Anchorage. This training prepared engineers, architects, contractors, and facility owners to conduct post-earthquake building inspections to determine if they are safe to occupy. Attendees included engineers, architects, home inspectors, and representatives from the Port of Alaska, Alaska Railroad, Municipality of Anchorage, and AK DHS&EM.

The ASHSC supported this effort by providing copies of the ATC-20 Earthquake Inspection Field Manual to the entire group of 40 participants.

- **Continued multi-agency Barry Arm landslide monitoring and outreach**

Commissioners Ruppert and Salisbury continue to participate in the multi-agency task force studying the potential for a significant tsunami to be generated by a massive subaerial landslide in the Barry Arm of Prince William Sound. Such a tsunami would be dangerous to watercraft, fisheries, and several population centers including the City of Whittier.

Multiple instruments, including an infrasound array, seismometers, cameras, weather and soil data loggers, ground-based radar, and water-level sensors have been established in an effort to develop an early warning system in the event of a mass movement.

The AK Division of Geological & Geophysical Surveys continues to maintain a website³ and listserv for regular updates and important announcements from the multi-agency team.

³ <https://dggs.alaska.gov/hazards/barry-arm-landslide.html>