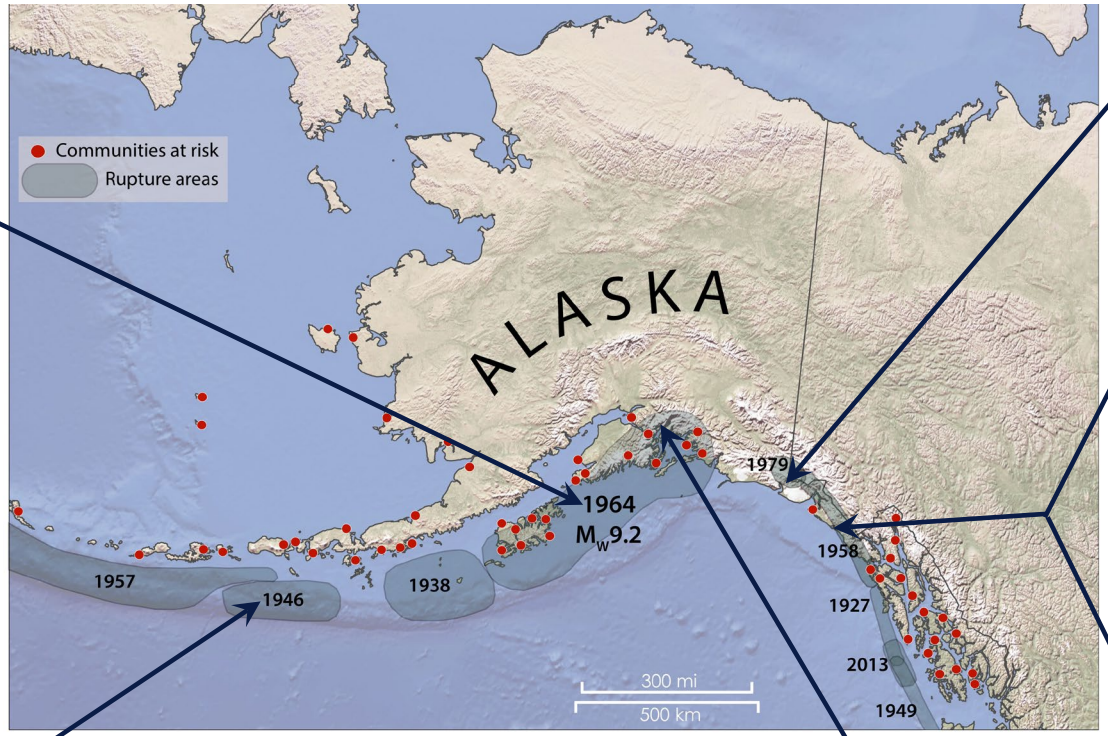
Seismically active plate boundary + Glacial fjords = Near-field tsunami hazard

1964 Great Alaska Earthquake

92% of fatalities were due to tsunamis

76% of them were due to local **landslide tsunamis**



2015, Taan Fjord
193 m runup
4th largest

1958, Lituya Bay
524 m runup
WORLD RECORD

1936, Lituya Bay
149 m runup
5th largest

1946 Earthquake
Tsunami killed 159 in Hilo, HI and 5 in Unimak Island, AK

Barry Arm slide
when???

History of the product line: 1998 - 2021

1998 — *High-resolution maps and reports* — **2018** *Update*

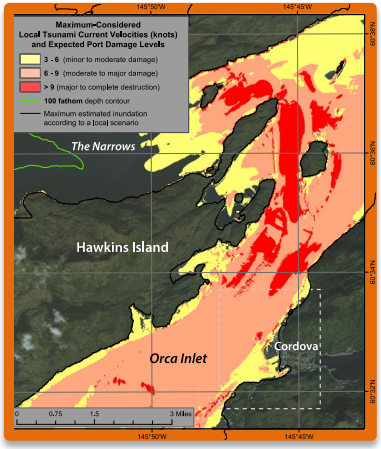
2014 *Regional maps*

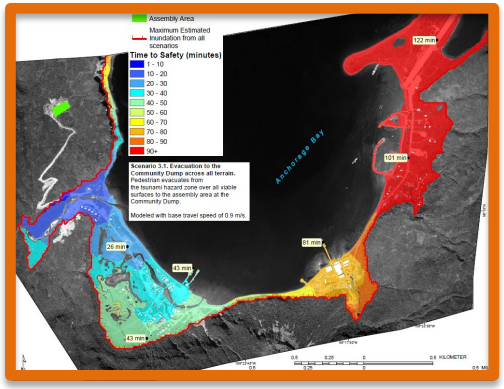
2016 *Maritime*

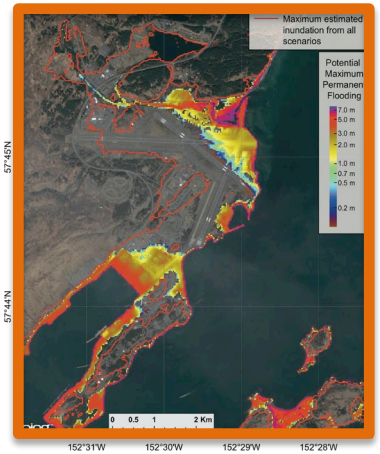
Pedestrian

Subsidence

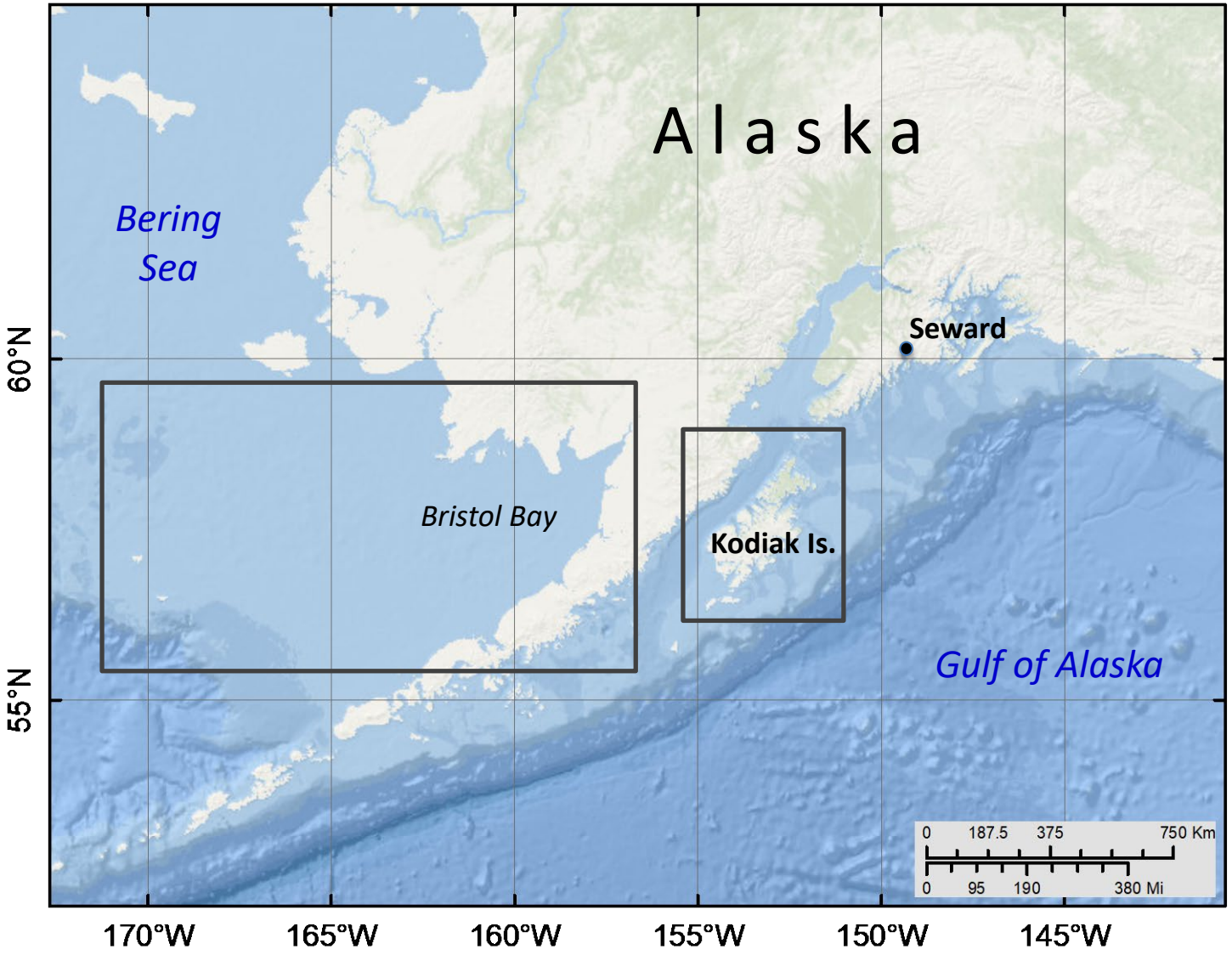
2020 *Brochures*



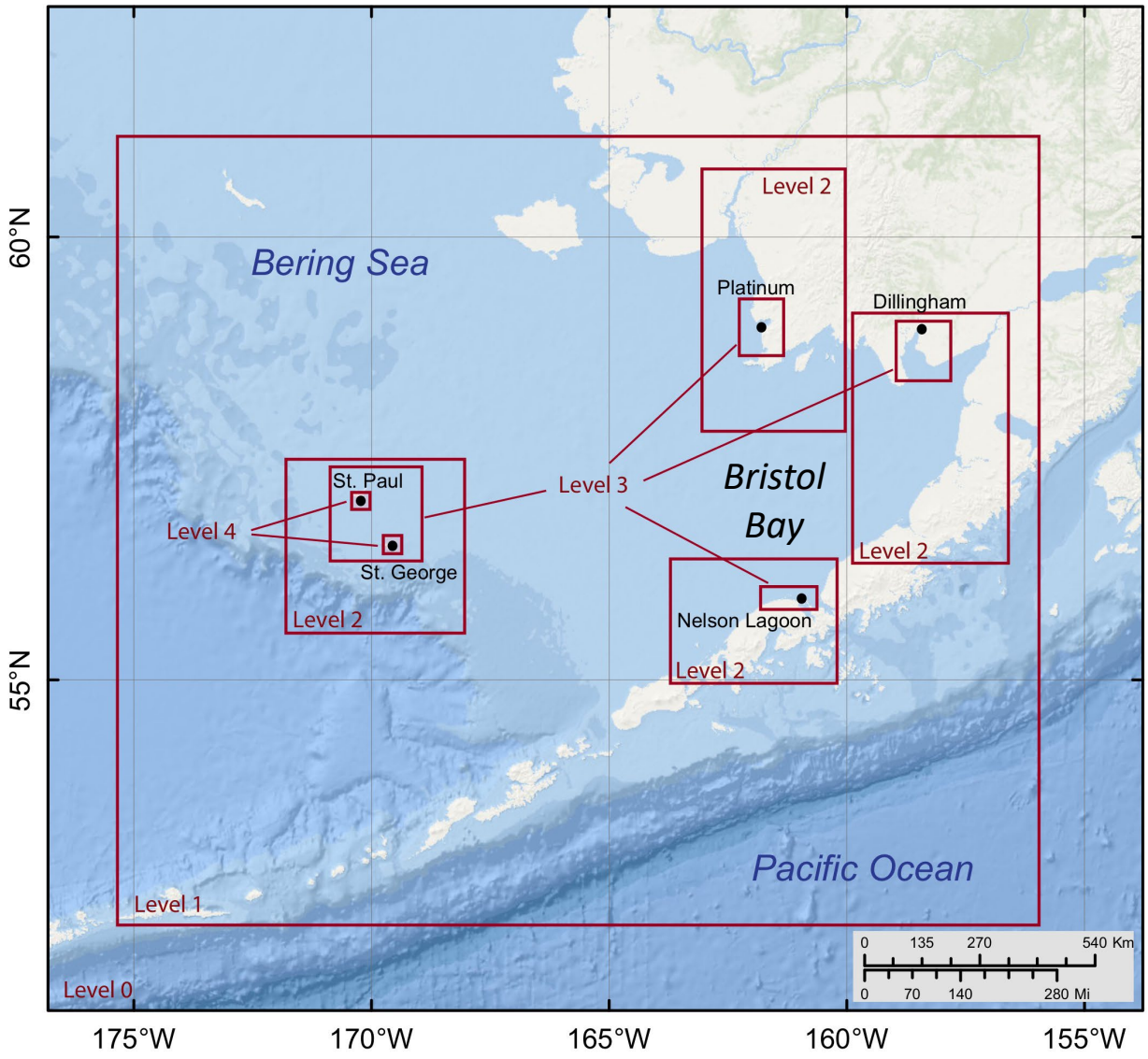




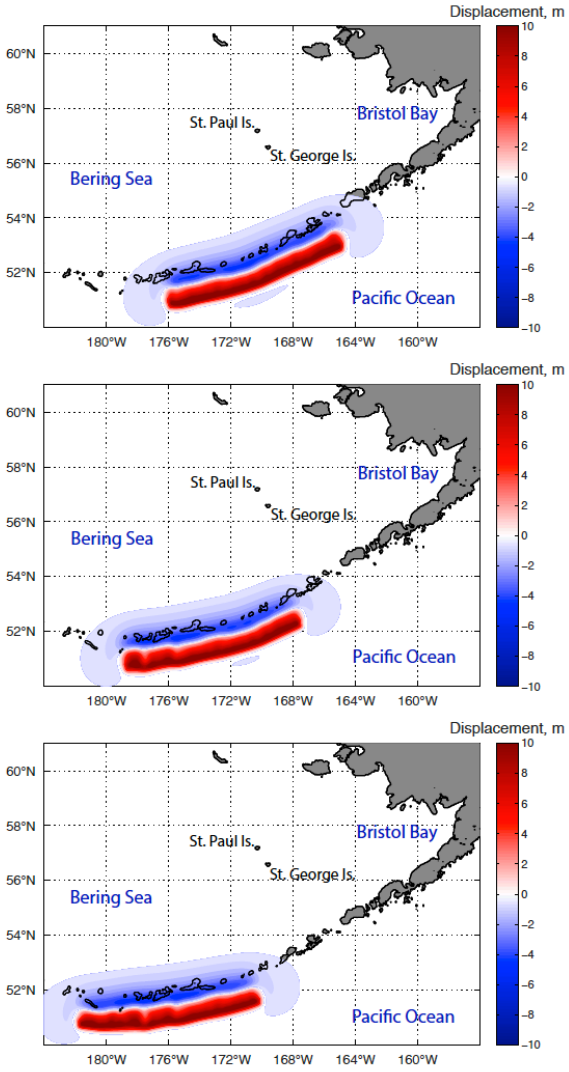
FY 2019-2020 project areas

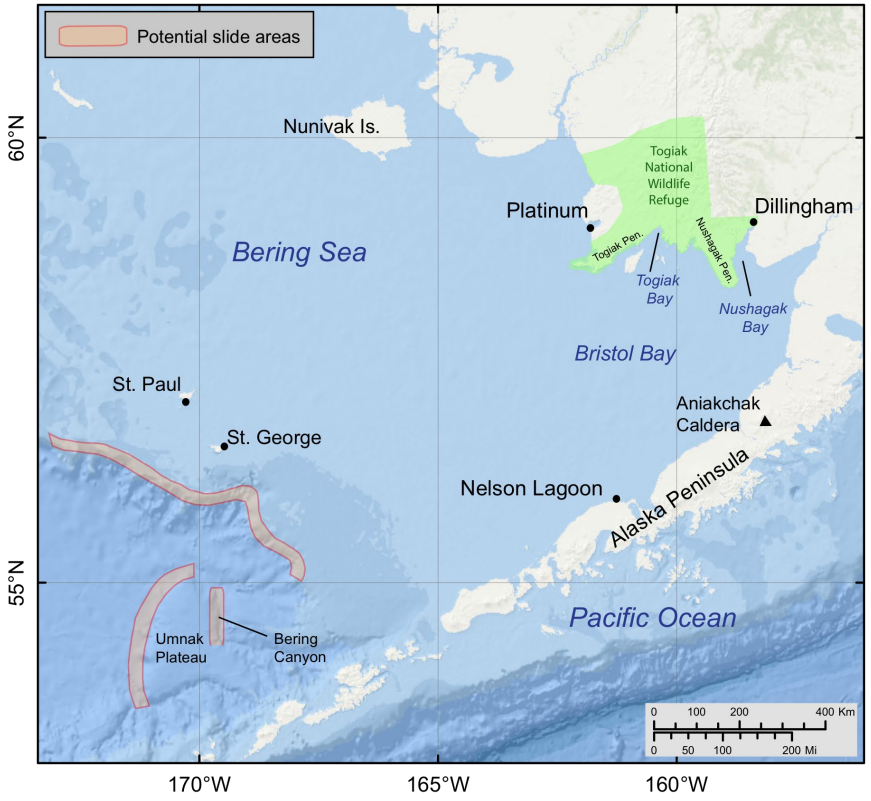


Regional tsunami hazard assessment: Bristol Bay



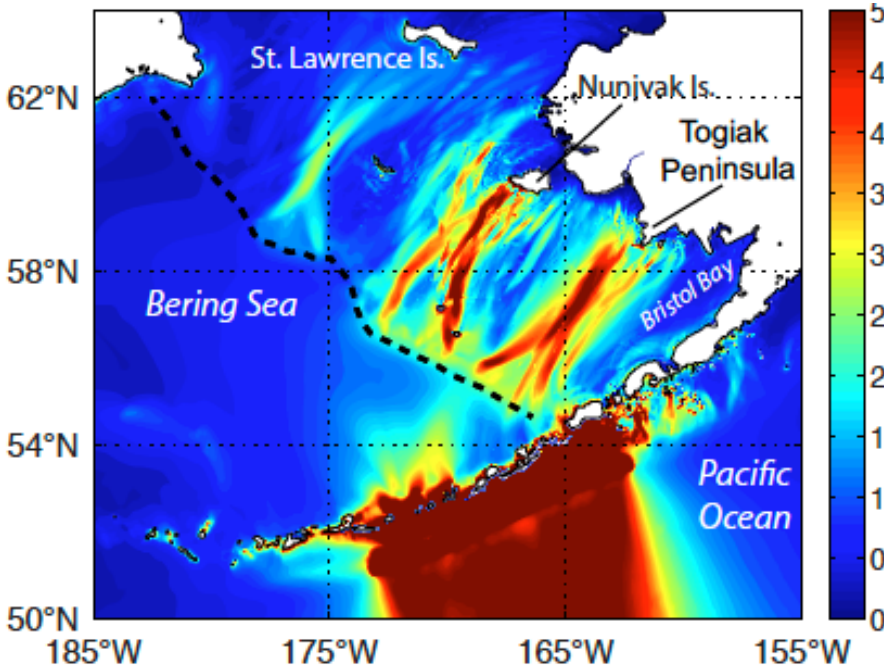
Tectonic and landslide tsunami sources



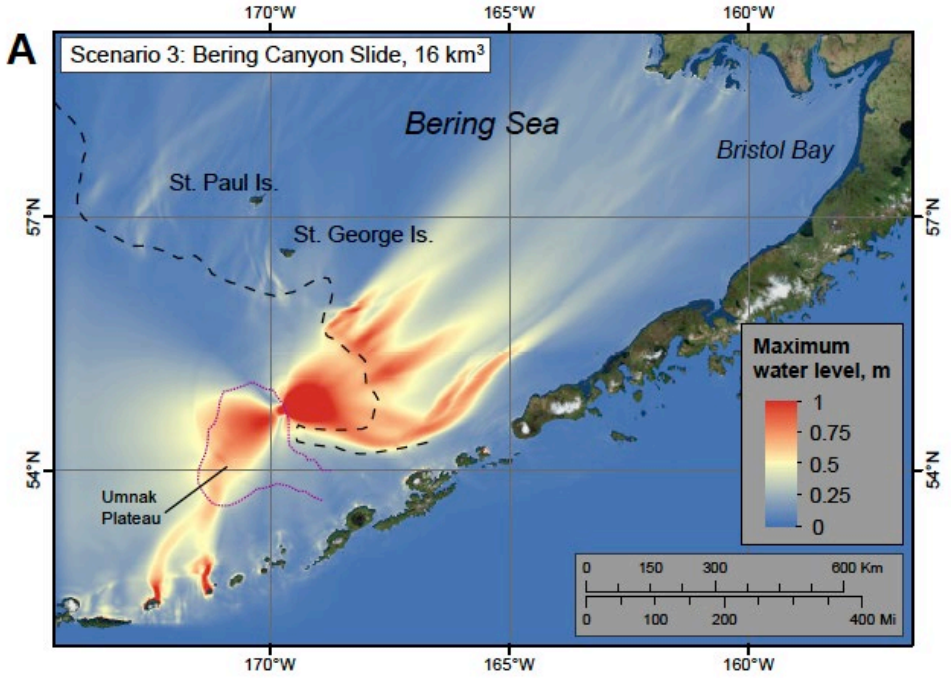


Maximum tsunami energy

Tectonic tsunamis



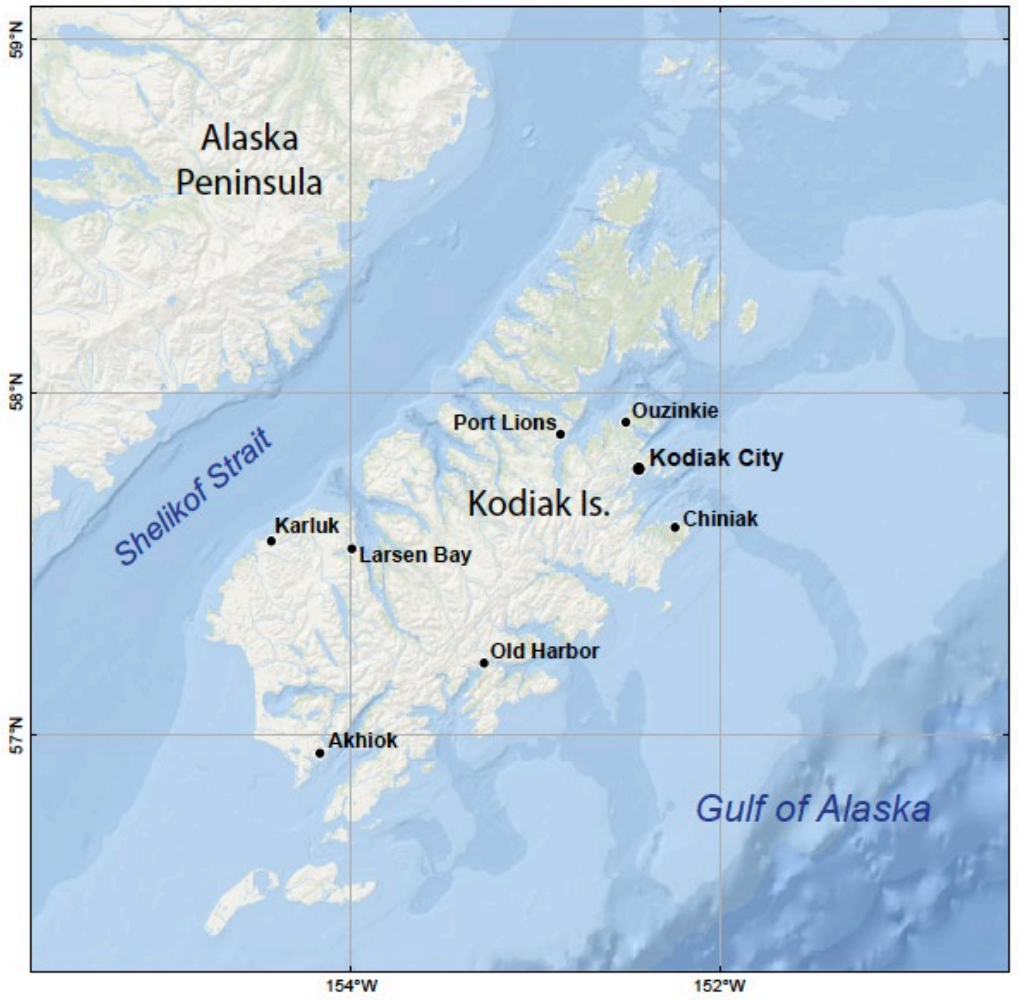
Landslide tsunamis



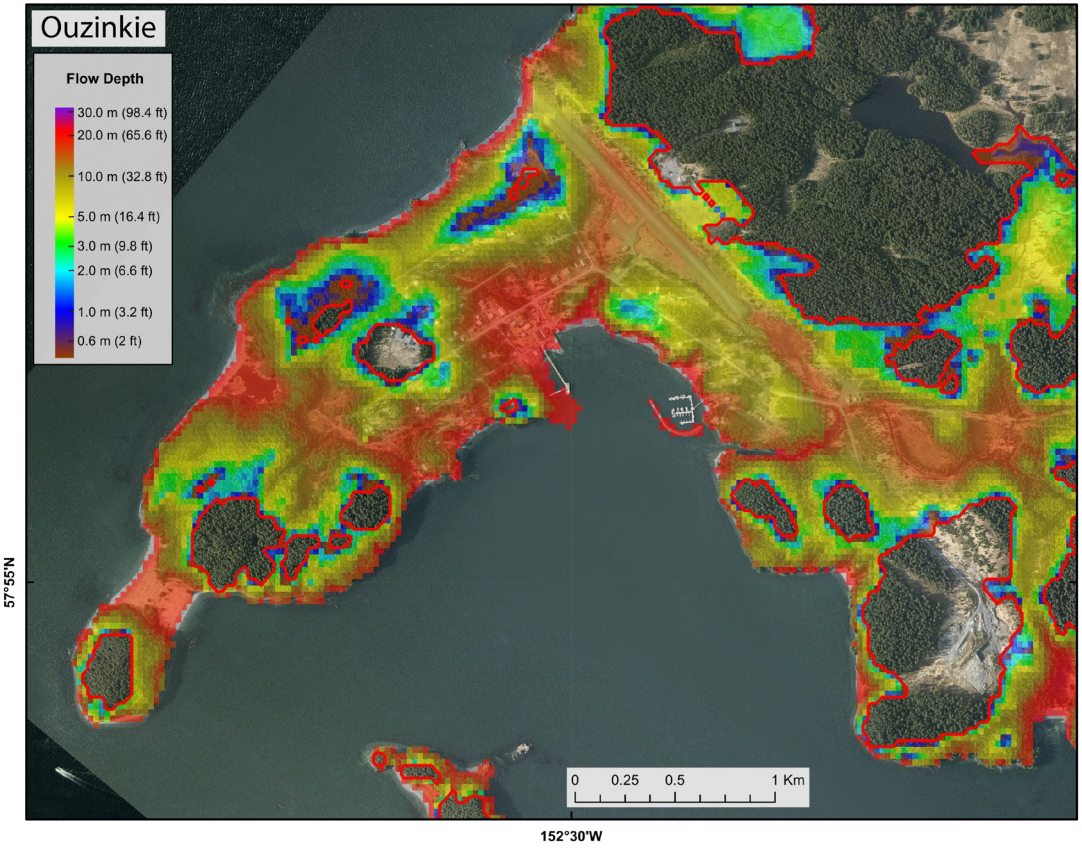
Tsunami hazard is higher than expected

High-resolution modeling: Kodiak villages

- Regional tsunami hazard assessment was completed in 2018
- In FY2019-2020 project period, we performed high-resolution modeling and mapping for 7 Kodiak communities.



From regional assessment to high-resolution maps



Regional tsunami hazard assessment

High-resolution tsunami inundation map

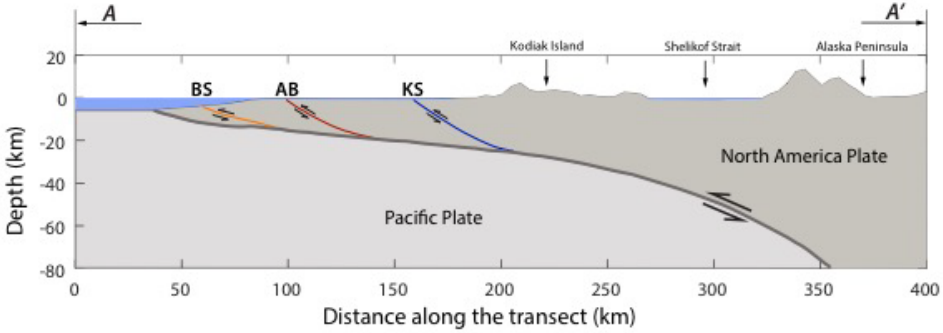
Visiting Kodiak communities

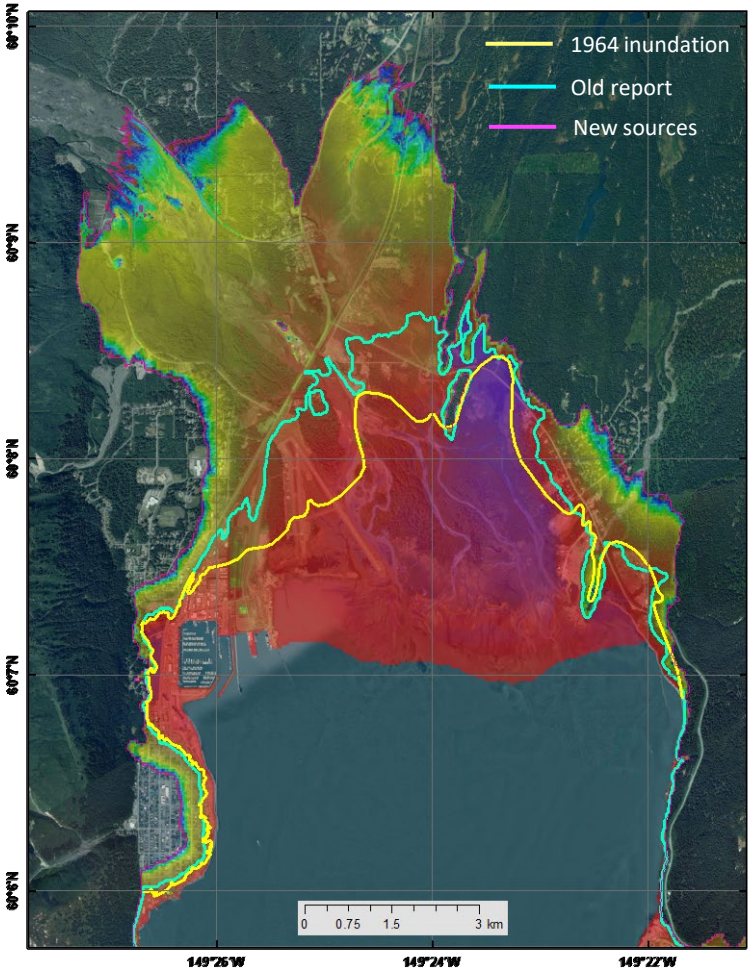
New tsunami shelter in Chiniak

New tsunami shelter in Ouzinkie

Updating tsunami hazard map of Seward

- The previous report was published before the 2011 Tohoku tsunami.
- We made a new set of potential tsunami sources that include large amount of slip in the shallow part of the megathrust, similar to that in the Tohoku earthquake.
- We also consider splay faults that have been mapped offshore Kenai Peninsula.
- The new inundation zone is more consistent with the Seward map in the ASCE Tsunami Hazard Tool.





Publication of reports

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IC 91

Salisbury, J.B., Suleimani, E.N., Nicolsky, D.J., and West, M.E., 2021, Tsunami hazards: frequently asked questions: Alaska Division of Geological & Geophysical Surveys Information Circular 91, 2 p. https://doi.org/10.14509/30581

RI 2020-2A

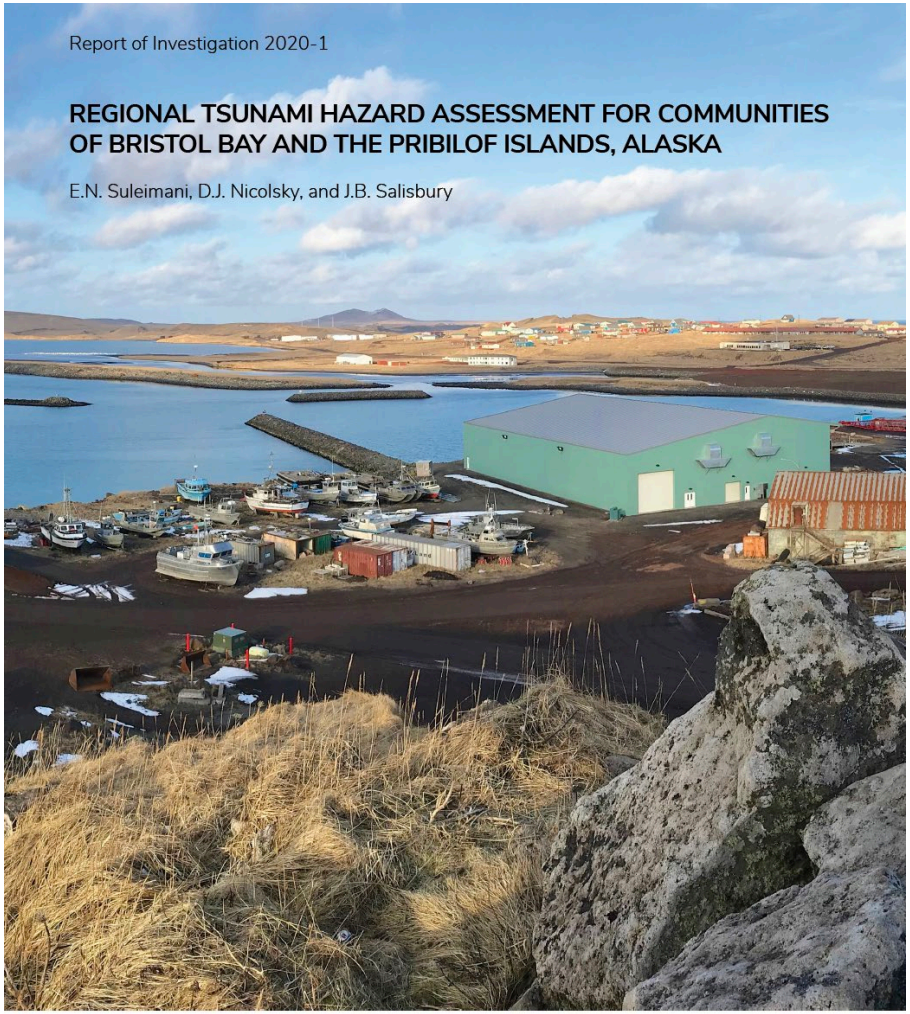
Suleimani, E.N., Nicolsky, D.J., Salisbury, J.B., and West, M.E., 2020, Addendum A: Regional tsunami hazard assessment for Hydaburg, Alaska, in Suleimani, E.N., Nicolsky, D.J., Salisbury, J.B., and West, M.E., Regional tsunami hazard assessment for the communities of Kasaan, Klawock, Metlakatla, Pelican, Point Baker, and Port Protection in southeast Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigation 2020-2A, 3 p., 1 sheet. https://doi.org/10.14509/30438

RI 2020-1

Suleimani, E.N., Nicolsky, D.J., and Salisbury, J.B., 2020, Regional tsunami hazard assessment for communities of Bristol Bay and the Pribilof Islands, Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigation 2020-1, 32 p., 6 sheets. https://doi.org/10.14509/30422

RI 2020-2

Suleimani, E.N., Nicolsky, D.J., Salisbury, J.B., and West, M.E., 2020, Regional tsunami hazard assessment for the communities of Kasaan, Klawock, Metlakatla, Pelican, Point Baker, and Port Protection in southeast Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigation 2020-2, 3 p., 6 sheets. https://doi.org/10.14509/30423



Tsunami hazard maps in your phone