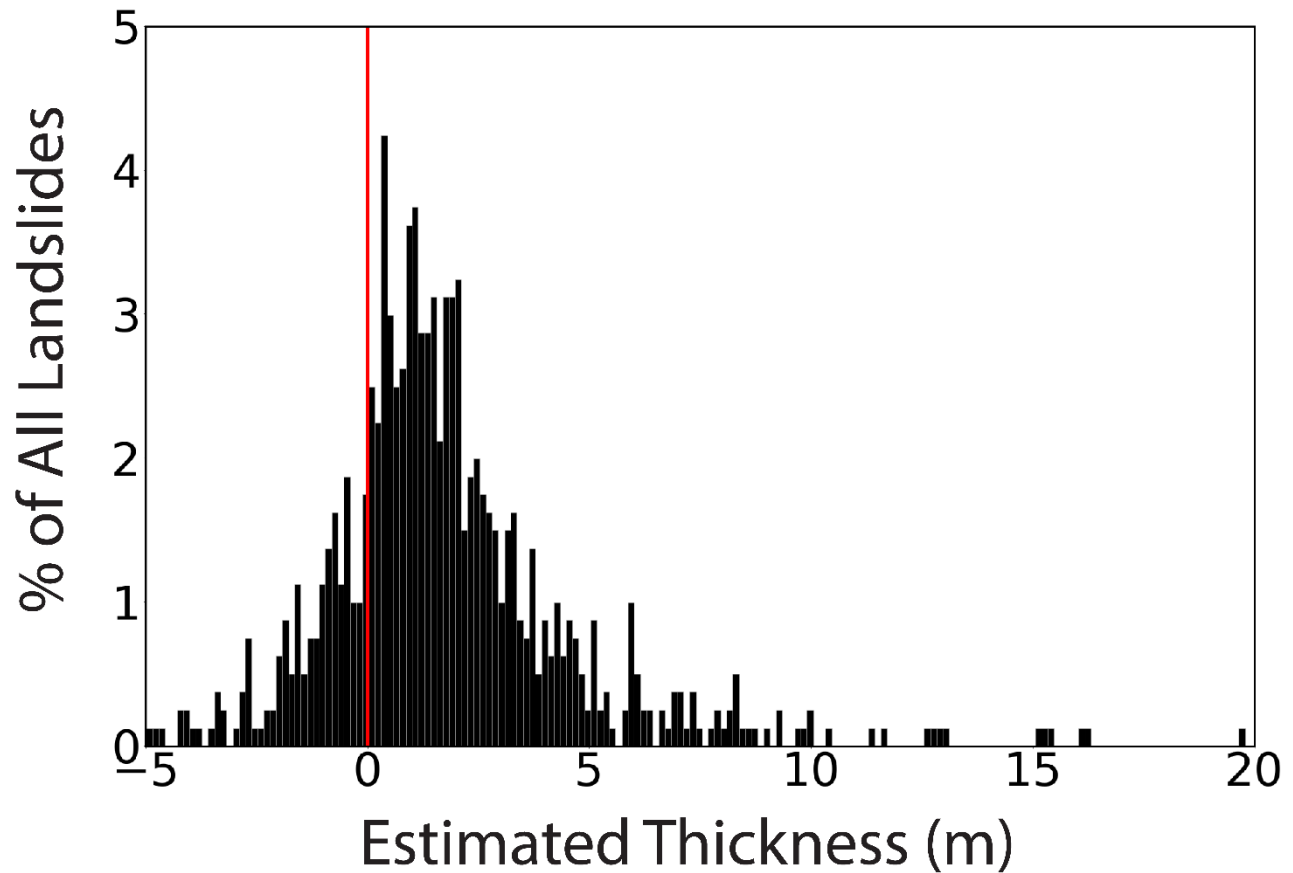
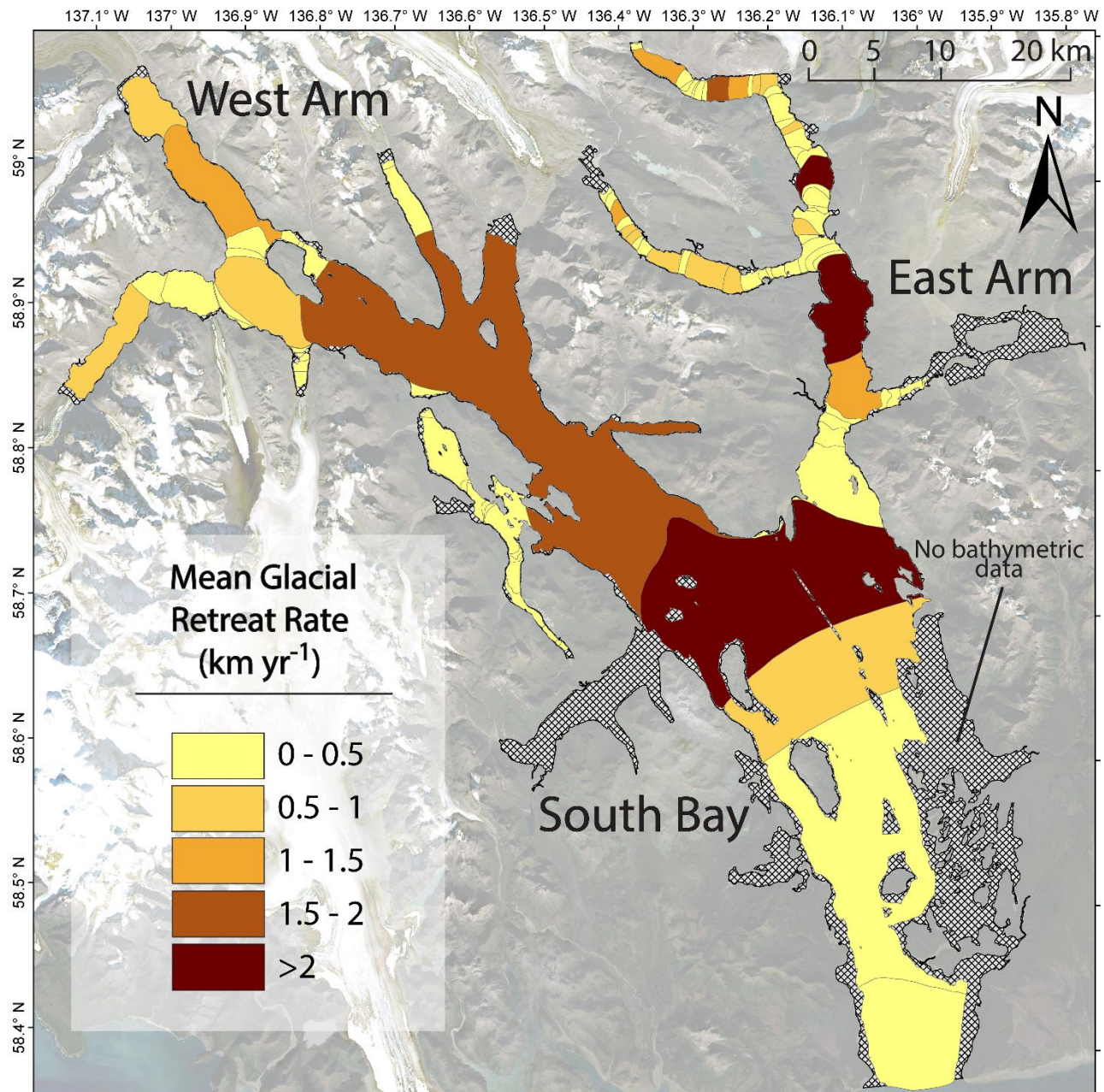


Supplementary Material

1 Supplementary Figures



Supplementary Figure 1. Estimated thickness or depth to failure plane for all submarine landslide source areas in Glacier Bay, Alaska, calculated by dividing estimated volume by source area size. Volume was estimated by differencing the bathymetric surface within the source area footprint from a best-fit second-order polynomial surface for each three-dimensional scarp representation. Uncertainty in the method and a dominance of shallow landslides result in physically unfounded negative volumes and thicknesses, which are plotted to the left of the red line. These data indicate most landslides in Glacier Bay are shallow (<2 m thick).



Supplementary Figure 2. Map of mean glacial retreat rates between locations of mapped glacial extents for Glacier Bay since the end of the Little Ice Age (about 1750). Mapping resolution increased substantially after about 1920 as evidenced by narrower mean retreat rate bands in the East Arm. See Figure 1 for timing of glacial extents. Faster retreat rates generally correlate with high sediment yields, deep bathymetry, and relatively high submarine landslide concentrations and susceptibility (Figure 11).