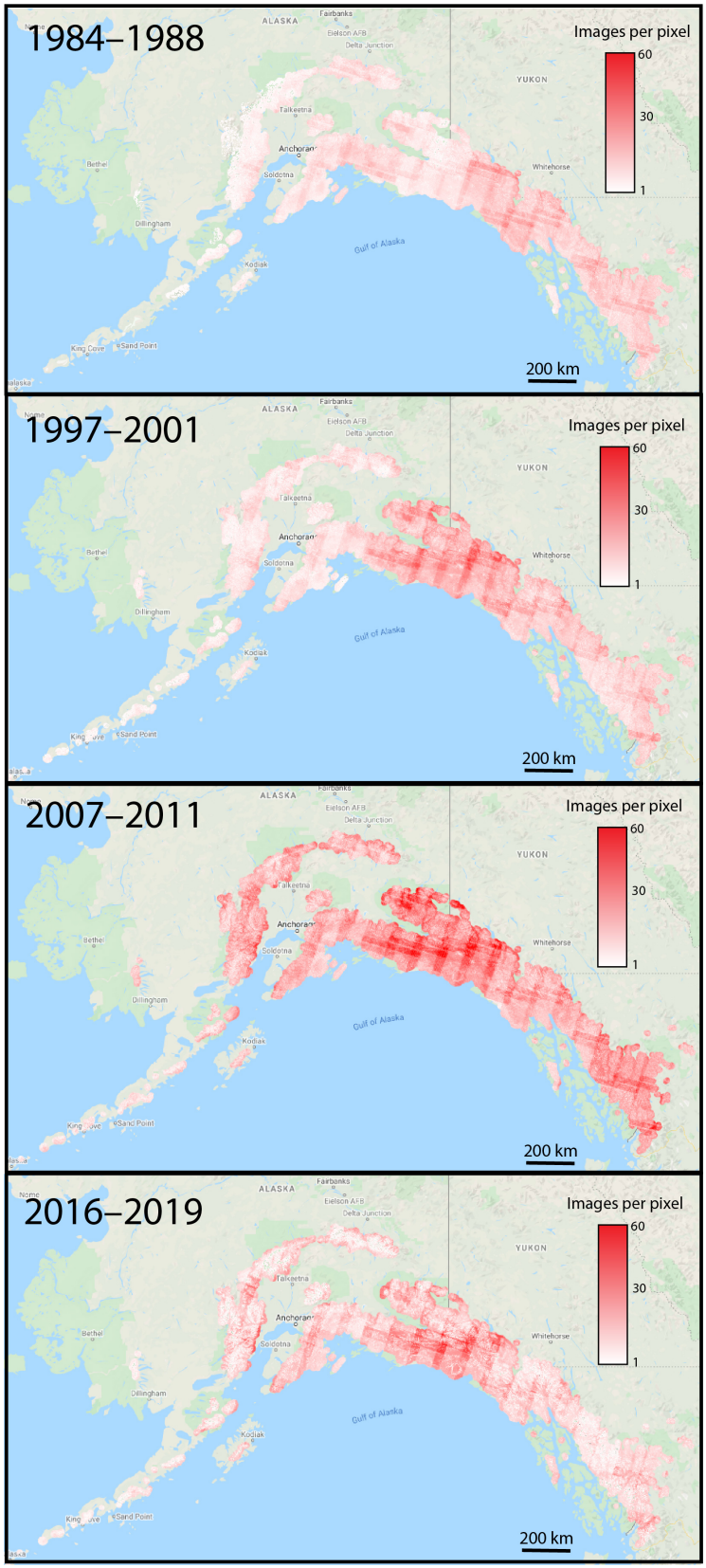


**Fig. S1.** Images per pixel per time period for each mosaic (median of each pixel value) used in analysis. Maps created in © Google Earth Engine (Gorelick et al., 2017).

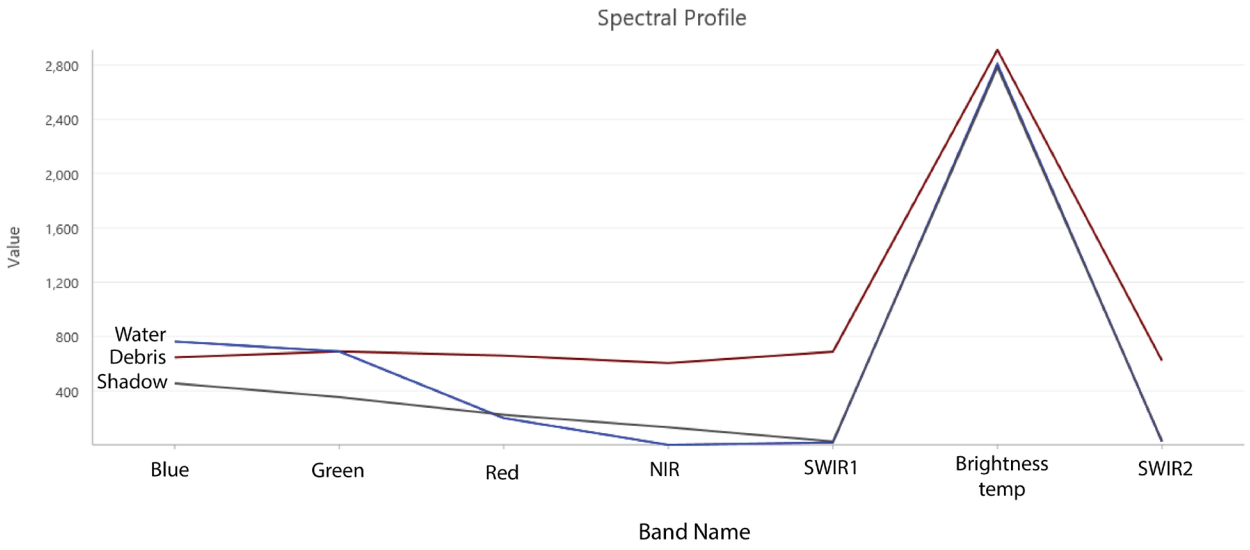


**Fig. S2**. Spectral comparison of water, mountain shadow, and a debris band.

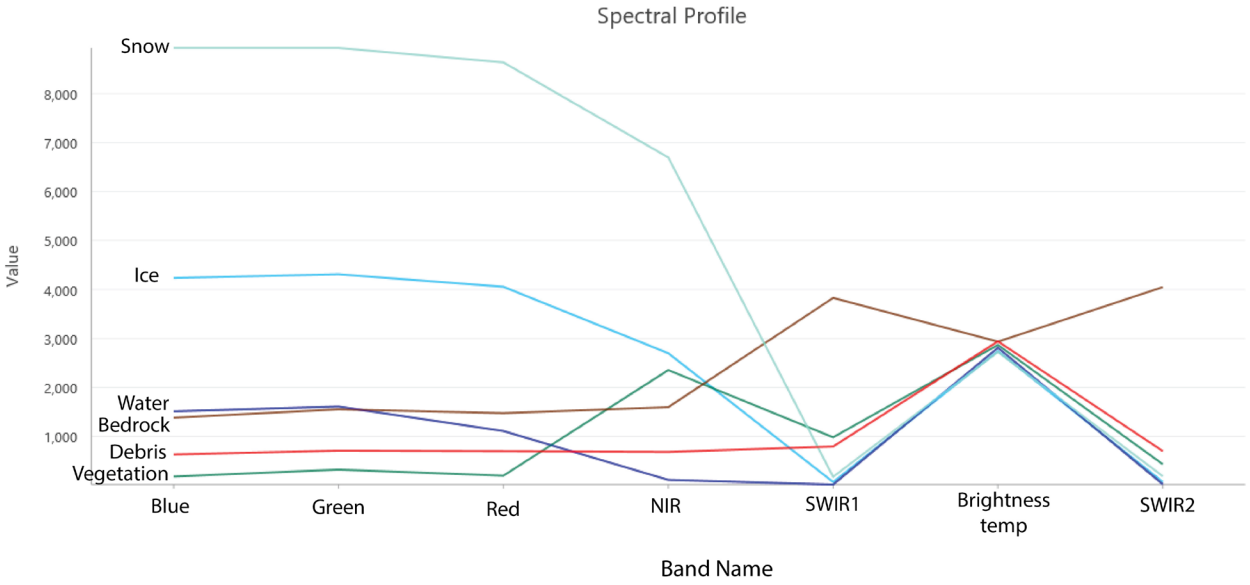


**Fig. S3.** Example spectral profiles for each landcover type (snow, ice, water, bedrock, debris, and vegetation) used in supervised classification.

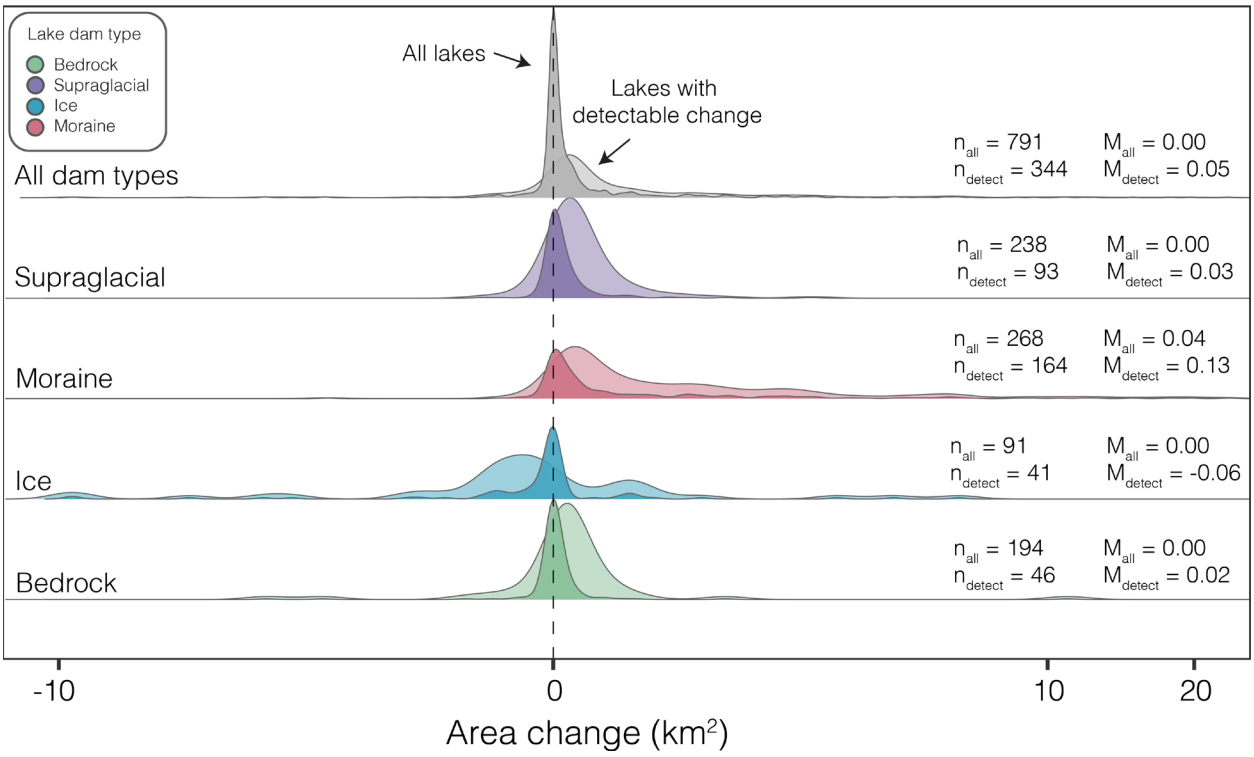


**Fig. S4**. Smoothed density distribution (normalized to 1 for each dam type) of absolute lake area change for all lakes (dark curves) and lakes with detectable change (light curves) for each dam type, with number of lakes (n) and median lake area change (M).

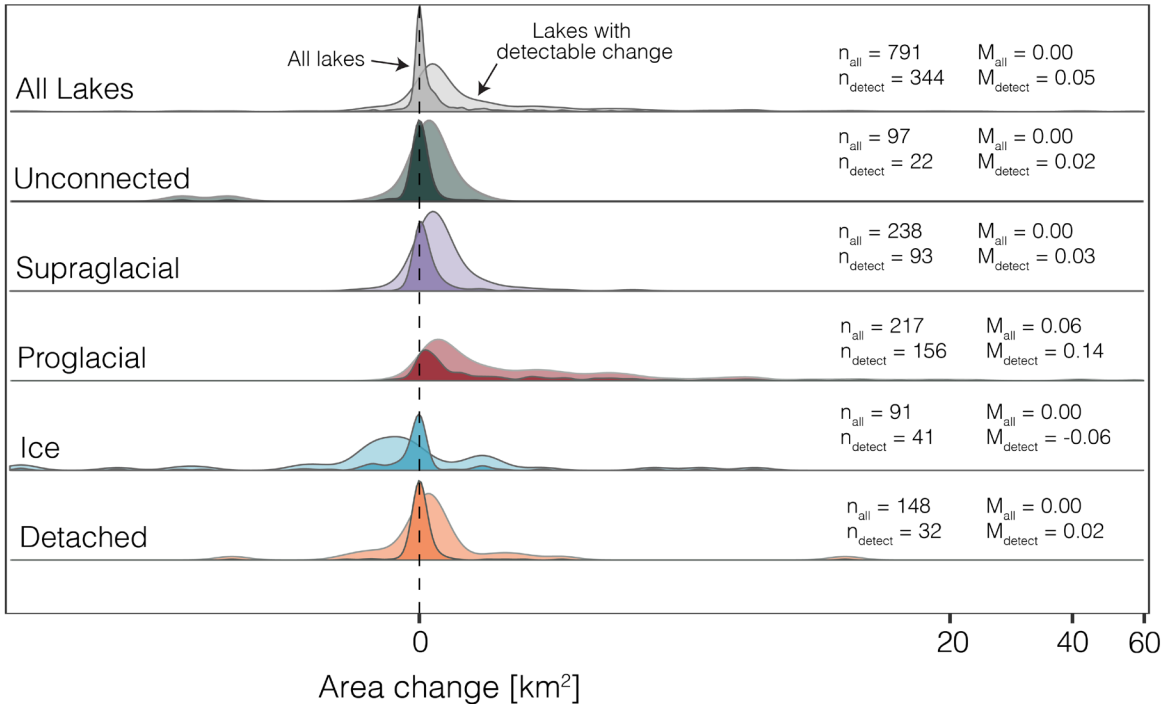


**Fig. S5.** Distribution of lake area change (km$^2$) for all lakes (dark curves) and lakes with detectable change (light curves) for each topological position, with number of lakes (n) and median lake area change (M).

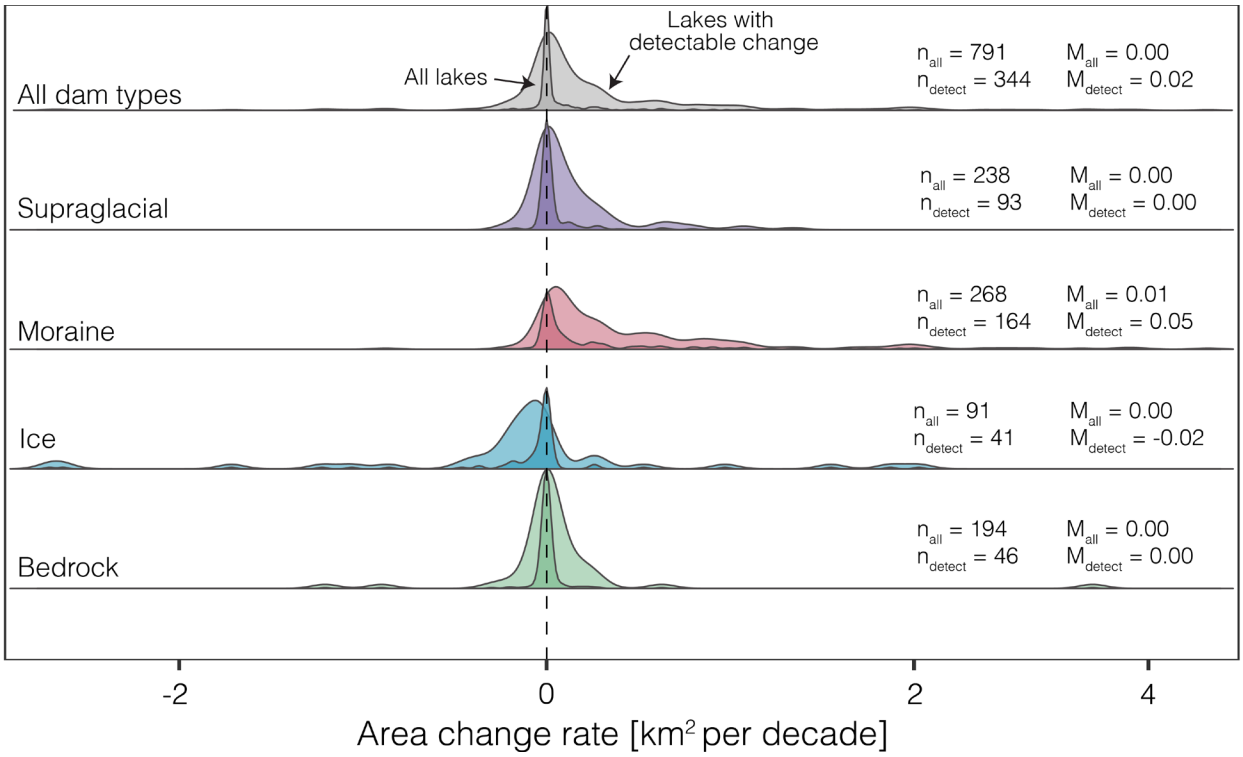


**Fig. S6:** Distribution of lake area change rate ($km^2$ per decade) for all lakes (dark curves) and lakes with detectable change (light curves) for each dam type, with number of lakes (n) and median lake area change (M).

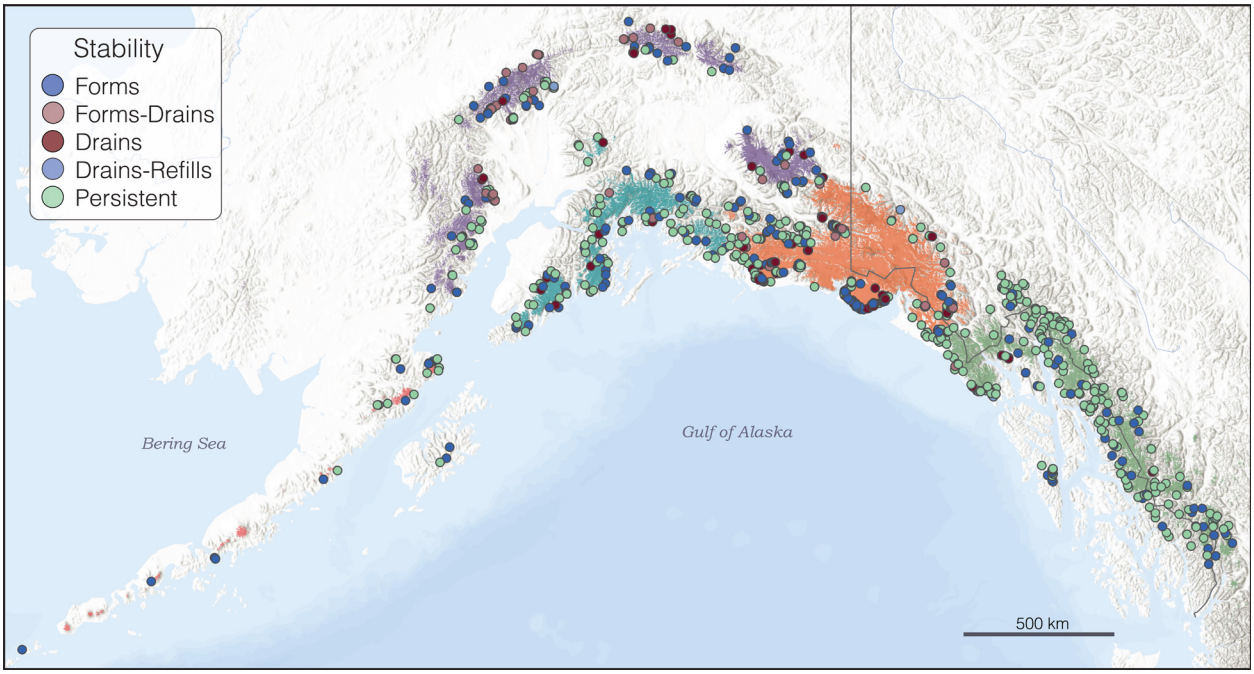


**Fig. S7.** Lake stability distribution across Alaska. Each dot represents an individual lake. Colored areas refer to the RGI subregions (see Fig. 1) (basemap provided by ESRI, 2021).