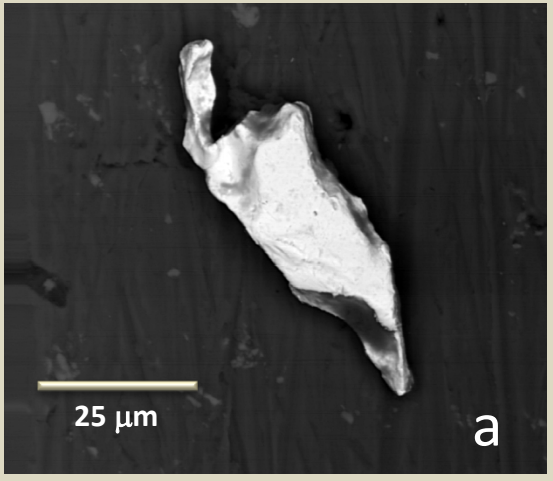
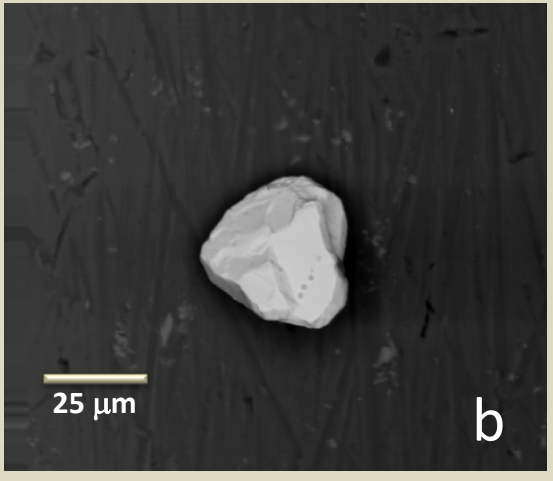
Backscatter SEM Images of Gold Grains from Glacial Sediment

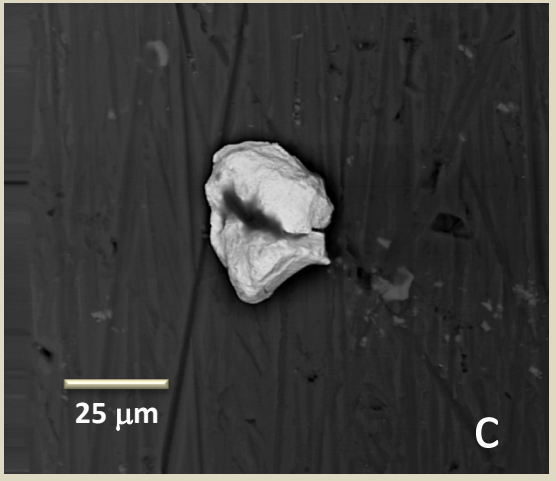
MnDNR Sample CATS-406, Cook Project Area, Northern St. Louis County

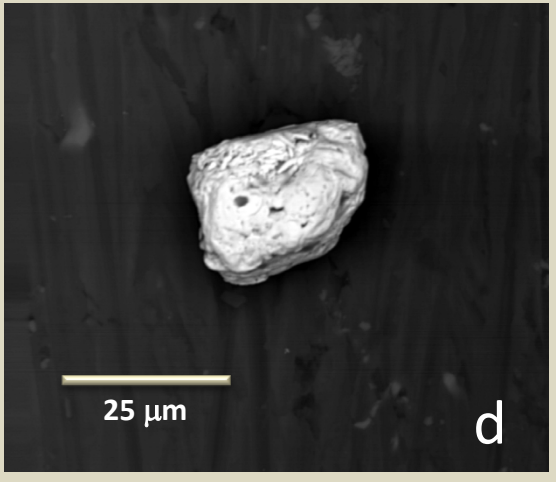
"Pristine"



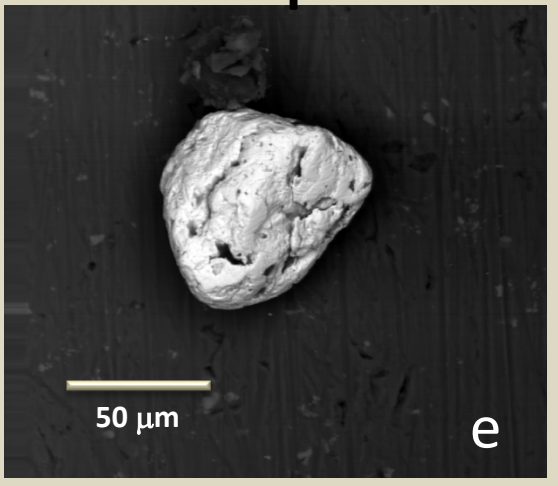


"Modified"





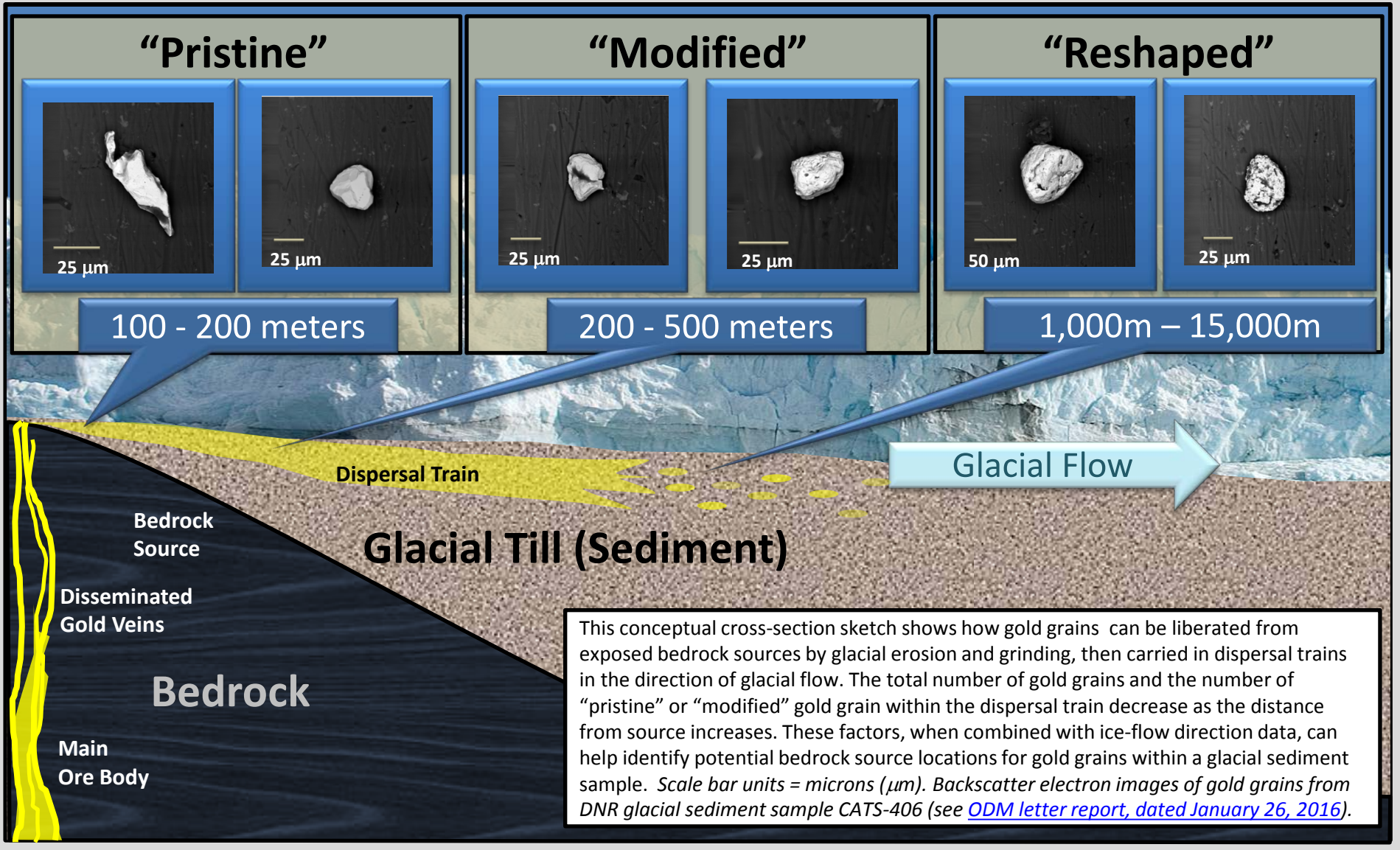
"Reshaped"



High-resolution images of individual gold grains recovered from a single glacial sediment sample (CATS-406) collected in Northern St. Louis County, Minnesota. These backscatter electron images (adjusted for brightness and contrast) were obtained by Overburden Drilling Management (ODM) using a scanning electron microscope (SEM). Scale bar unit = microns (µm)

a) Pristine leaf
b) Pristine crystal
c) Modified back-folded leaf
d) Modified blocky grain
e) Fully reshaped gold grain

Conceptual cross-section of a dispersal train of gold grains, liberated from mineralized bedrock and transported by glacial flow



This conceptual cross-section sketch shows how gold grains can be liberated from exposed bedrock sources by glacial erosion and grinding, then carried in dispersal trains in the direction of glacial flow. The total number of gold grains and the number of "pristine" or "modified" gold grain within the dispersal train decrease as the distance from source increases. These factors, when combined with ice-flow direction data, can help identify potential bedrock source locations for gold grains within a glacial sediment sample. *Scale bar units = microns (µm). Backscatter electron images of gold grains from DNR glacial sediment sample CATS-406 (see ODM letter report, dated January 26, 2016).*