Arctic Landscape Conservation Cooperative

Informing Responsible Resource Development

Reducing Risk - Permafrost Mapping

Permafrost is found across the Arctic. Thawing permafrost under warmer conditions will cause subsidence, surface water redistribution, changes to groundwater and vegetation and habitat use changes. Knowing the depth and ice content of permafrost is critical for both understanding how Arctic ecosystems will be affected by climate change and also how infrastructure will be damaged. This Arctic LCC-supported research produced a detailed map of permafrost characteristics to inform regional planning as well as climate and development impact assessments. More

As permafrost thaws, the ground under a home in Shishmaref, Alaska collapses from erosion.

Forecasting Changes to Wildlife, Habitat, and Infrastructure

Construction of ice roads in crucial for Alaskan North Slope operators to gain access for exploration in an economic and environmentally sound manner.
Photo: DOE

Smart investments depend on understanding what's ahead. The Arctic LCC initiated the Terrestrial Environmental Observation Network (TEON) to meet the need for a sustainable environmental observing network for northern Alaska. TEON is designed to follow water from the northernmost mountains to the sea. By monitoring snowmelt, streamflow and temperatures and using these data forecast changes in river flow and permafrost stability, we support management of fish and wildlife and inform infrastructure management and design in northern Alaska. More

Allowing Exploration, Avoiding Den Disturbance

The Arctic LCC partnership, including the Alaska Department of Fish and Game and industry, developed a desktop application that helps biologists map polar bear denning habitat on the Arctic coast. The app quickly identifies areas likely to have polar bear dens to help guide winter exploration and development activities. More

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