

Idaho Climate-Economy Impacts Assessment

Snapshot: Climate

Idaho's Economy Depends on Idaho's Climate

Idaho's economy is linked to abundant natural resources. Idaho's forests, deserts, and mountains sustain agriculture, energy, forests, rangelands, and recreational economies—all of which are dependent on three interrelated aspects of climate—temperature, precipitation, and snowpack.



Temperature has increased.

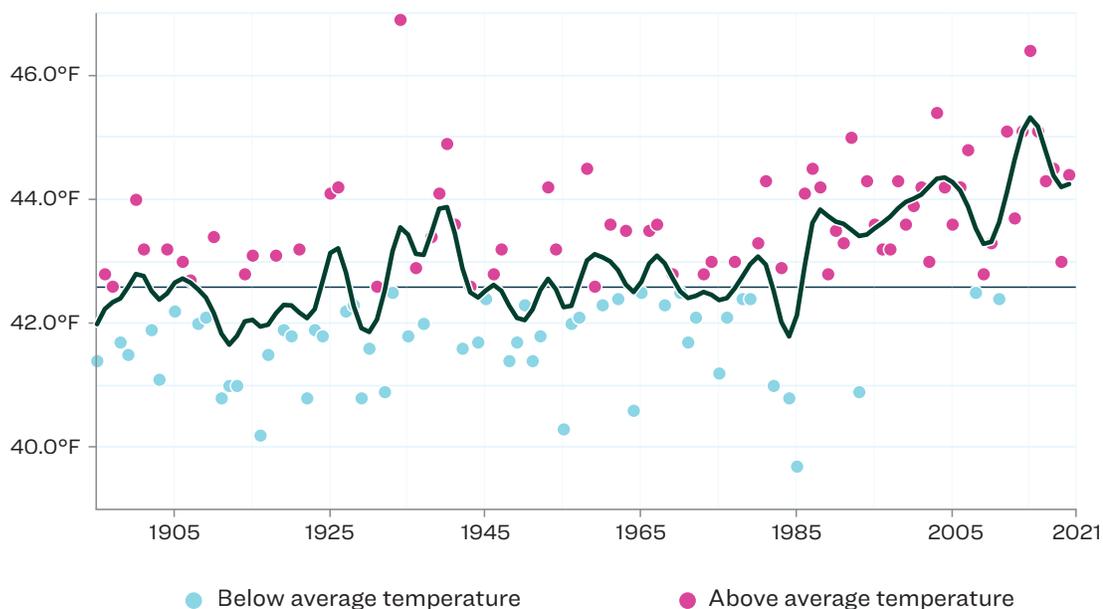


Precipitation has increased in spring and decreased in summer.



Snowpack has declined.

IDAHO'S ANNUAL MEAN STATEWIDE TEMPERATURE



Since 1885, Idaho has warmed 1.8°F. Seven of the ten warmest years during the period 1895-2020 have occurred since 1990.

Changes in Climate Impact Idaho's Economy

Changes in climate

- Warming temperatures
- Diminishing snowpack
- Increasing spring precipitation
- Increasing storm severity
- Decreasing summer streamflow
- Decreasing summer precipitation

Increasing hazards

- Floods
- Landslides
- Drought
- Heat stress
- Wildfires
- Smoke

Impacted sectors

- Agriculture
- Energy
- Human health
- Infrastructure
- Land
- Recreation & tourism

How Climate Change is Predicted

Researchers use climate models to better understand the climate and climatic events. Multiple models allow the scientific community to compare results across models, rather than to rely on results from a single model. The projections for this report draw from Coupled Model Intercomparison Project Phase 5 (CMIP5). Two emission scenarios are used for this report to project future change, RCP4.5 (moderate-warming) and RCP8.5 (high-warming). Mid-century projections are less sensitive to choice of RCP. RCP2.6 (low-warming) assumes a rapid reduction in emissions and implementation of negative carbon dioxide emission technologies. RCP2.6 projections show slightly less warming by mid-century compared to moderate-warming scenarios. RCP2.6 was not used in this report, as we are currently unlikely to meet the scenario’s requirements.

Idaho’s Future Climate

By understanding anticipated changes in Idaho’s climate, Idahoans can plan for a vibrant future, preparing for economic risks and taking advantage of economic opportunities.

Increasing

Annual mean daily temperature averaged for Idaho to warm 6°F (RCP4.5) to 11°F (RCP8.5) by 2100

Freeze-free season

Summer drought

Multi-year snow drought (38%)

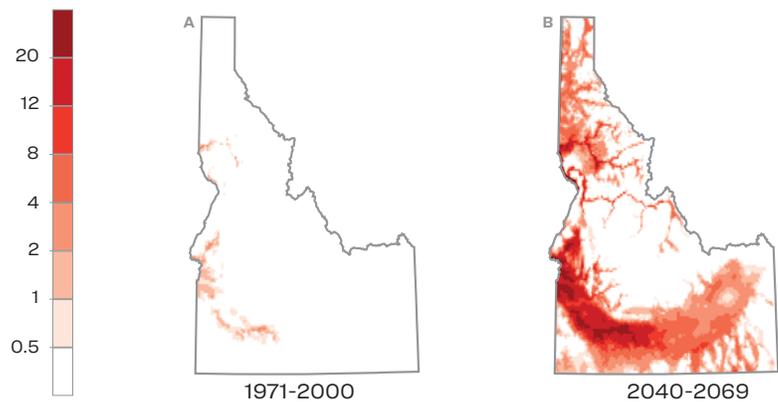
Periods of heavy winter rain (3-5x frequency)

Rain-on-snow events in higher elevations (flood risk)

Peak streamflow

Winter and spring soil moisture

100°F+ HEAT INDEX DAYS IN IDAHO



Maps of (A) late-20th century 100°F+ heat index days and (B) mid-21st century 100°F+ heat index days (RCP8.5).

Decreasing

Severe cold temperatures

Summer soil moisture

Summer precipitation (10-30%)

Summer streamflow

Percentage of Idaho’s precipitation as snow

Snowpack storage across Idaho

Economic Impacts of a Changing Climate

Examples of some economic impacts associated with a changing climate:

- Increases in wildfires, leading to smoke-related economic impacts (millions of dollars per year).
- 28% reduction in annual individual rancher income during a severe drought.
- Economic opportunities for agricultural and forestry sectors to sequester carbon and enter into carbon markets.

Interested in learning more about climate impacts and Idaho’s economy?

For further information, resources, tools, references, and additional reports, please visit www.uidaho.edu/iceia

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